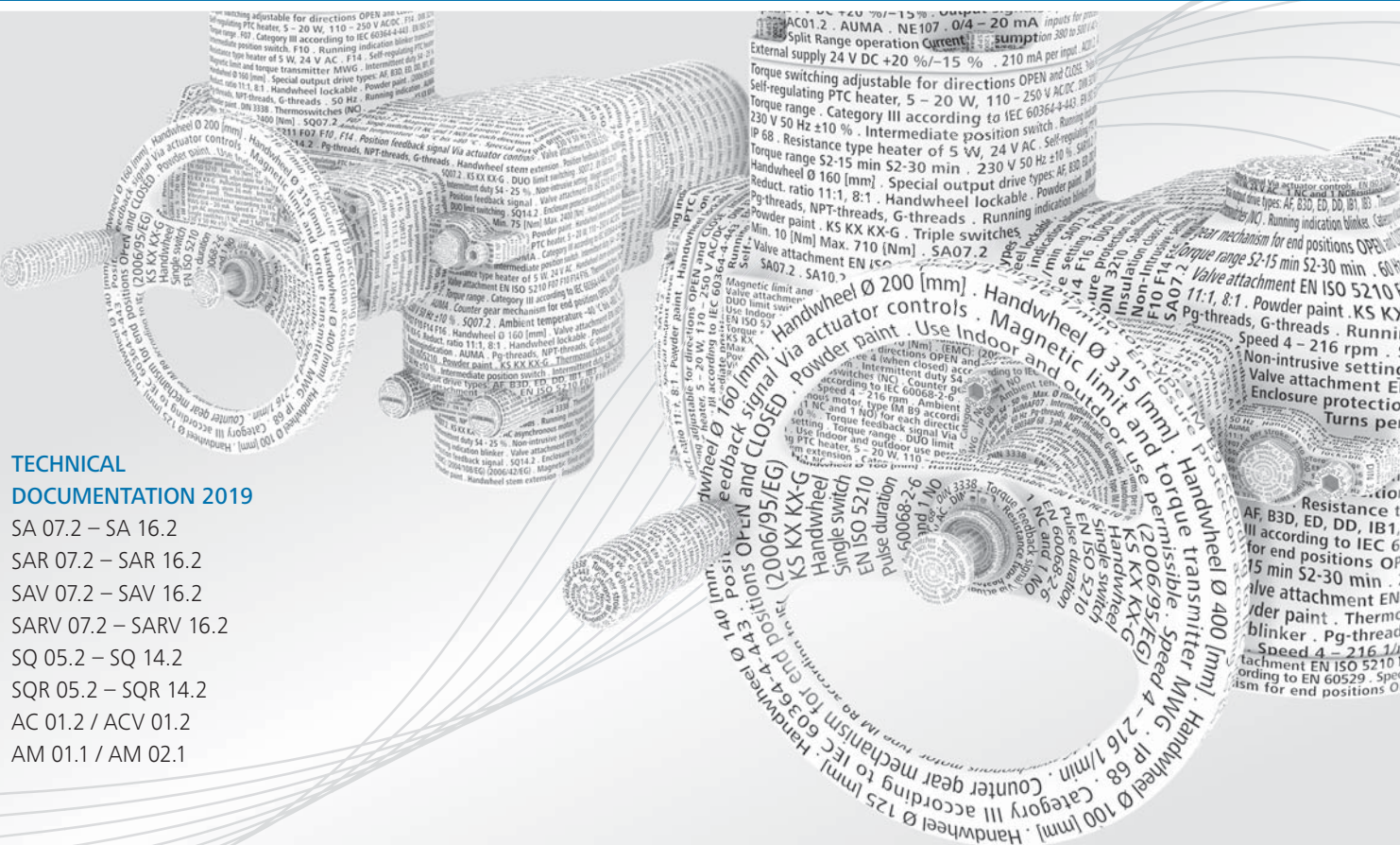




ELECTRIC ACTUATORS

for industrial valve automation



TECHNICAL

DOCUMENTATION 2019

SA 07.2 – SA 16.2

SAR 07.2 – SAR 16.2

SAV 07.2 – SAV 16.2

SARV 07.2 – SARV 16.2

SQ 05.2 – SQ 14.2

SQR 05.2 – SQR 14.2

AC 01.2 / ACV 01.2

AM 01.1 / AM 02.1



Manual
Technical documentation
1st edition 2019

We reserve the right to alter data according to improvements made.

Please refer to our website: www.auma.com to access
the individual documents included in this folder.

Previous documents become invalid with the issue of this document.

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1 Technical data Actuators

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Type	Output speed rpm		Torque range ¹⁾			No. of starts Max. [1/h]	Valve attachment ²⁾			Handwheel		Weight ³⁾ approx. [kg]
	50 Hz	60 Hz	Min. [Nm]	S2-15 min Max. [Nm]	S2-30 min Max. [Nm]		Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduct. ratio	
SA 07.2	4	4.8	10	30	20	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	19
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	20
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	
SA 07.6	4	4.8	20	60	40	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	20
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	21
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	
SA 10.2	4	4.8	40	120	90	60	F10	G0	40	200	11 : 1	22
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	25
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	
SA 14.2	4	4.8	100	250	180	60	F14	G1/2	58	315	11 : 1	44
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	48
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	
SA 14.6	4	4.8	200	500	360	60	F14	G1/2	58	400	11 : 1	46
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	53
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	
SA 16.2	4	4.8	400	1,000	710	60	F16	G3	77	500	11 : 1	67
	5.6	6.7									8 : 1	
	8	9.6									11 : 1	
	11	13									8 : 1	
	16	19									11 : 1	
	22	26									8 : 1	79
	32	38									11 : 1	
	45	54									8 : 1	
	63	75									11 : 1	83
	90	108									8 : 1	
	125	150									5.5 : 1	
	180	216									4 : 1	

1) – 4) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SA 07.2 – SA 16.2, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on tables on page 1

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
3) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 3-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
4) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Standard:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2										
	Option:	Short-time duty S2 - 30 min, classes A and B according to EN 15714-2										
	For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.											
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6											
Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
Permissible variation of mains frequency: ±5 %												
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	Standard:	Thermoswitches (NC)										
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.										
Self-locking	Self-locking: Output speeds up to 90 rpm (50 Hz) or 108 rpm (60 Hz) NOT self-locking: Output speeds from 125 rpm (50 Hz) or 150 rpm (60 Hz) Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.											
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC										
	Power depending on the size 12.5 – 25 W											
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation											
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm										
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)											
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection										
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)										

Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R1AA-101-000 (basic version)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated
		Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options:	24 – 48 V AC/DC or 380 – 400 V AC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinker transmitter
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–40 °C to +80 °C
		–60 °C to +60 °C
		0 °C to +120 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	

Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for multi-turn actuators in version AUMA NORM and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2 Electrical data SA 07.2 – SA 16.2 with 3-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Technical data Multi-turn actuators for open-close duty with 3-phase AC motors for continuous underwater use

Type	Output speed rpm		Torque range ¹⁾			Number of starts Max. [1/h]	Valve attachment ²⁾		Handwheel (Option)		Weight ³⁾ approx. [kg]
	50 Hz	60 Hz	Min. [Nm]	S2-15 min Max. [Nm]	S2-30 min Max. [Nm]		Standard EN ISO 5210	Option DIN 3210	Ø [mm]	Reduct. ratio	
SA 07.2-UW	4	4.8	10	30	20	60	F07 F10	– G0	160	11 : 1	25
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	
	32	38								11 : 1	26
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	
	125	150								5.5 : 1	
	180	216		25						4 : 1	
SA 07.6-UW	4	4.8	20	60	40	60	F07 F10	– G0	160	11 : 1	25
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	
	32	38								11 : 1	27
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	
	125	150								5.5 : 1	
	180	216		50	30					4 : 1	
SA 10.2-UW	4	4.8	40	120	90	60	F10	G0	200	11 : 1	31
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	33
	32	38								11 : 1	
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	
	125	150								5.5 : 1	
	180	216		100	70					4 : 1	
SA 14.2-UW	4	4.8	100	250	180	60	F14	G1/2	315	11 : 1	54
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	58
	32	38								11 : 1	
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	
	125	150								5.5 : 1	
	180	216		200	140					4 : 1	
SA 14.6-UW	4	4.8	200	500	360	60	F14	G1/2	400	11 : 1	56
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	62
	32	38								11 : 1	
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	
	125	150								5.5 : 1	
	180	216		400	290					4 : 1	

1) – 3) Refer to notes on page 2.

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Technical data Multi-turn actuators for open-close duty with 3-phase AC motors for continuous underwater use

SA 16.2-UW	4	4.8	400	1 000	710	60	F16	G3	500	11 : 1	77
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	88
	32	38								11 : 1	
	45	54								8 : 1	
	63	75								11 : 1	
	90	108								8 : 1	93
	125	150								5.5 : 1	
	180	216								4 : 1	

General information

Multi-turn actuators for continuous underwater use require AC actuator controls. Actuator controls are mounted on a wall bracket and are not immersed. A special cable set for connection between actuator and actuator controls is required.

Notes on tables on page 1

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Valve attachment	Indicated flange sizes apply for output drive types B1. Refer to separate dimension sheets for further output drive types.
3) Weight	Indicated weight includes multi-turn actuator with 3-phase AC motor, electrical connection with cable glands and output drive type B1.

Features and functions

Type of duty	Standard:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2										
	Option:	Short-time duty S2 - 30 min, classes A and B according to EN 15714-2										
	For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.											
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6											
Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
	Permissible variation of mains frequency: ±5 %											
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	Standard:	Thermoswitches (NC)										
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.										
Self-locking	Self-locking: Output speeds up to 90 rpm (50 Hz) or 108 rpm (60 Hz) NOT self-locking: Output speeds from 125 rpm (50 Hz) or 150 rpm (60 Hz) Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.											
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC										
	Power depending on the size 12.5 – 25 W											

Technical data Multi-turn actuators for open-close duty with 3-phase AC motors for continuous underwater use

Manual operation (option)	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	The AUMA plug/socket connector is part of the cable set with wall bracket which must be ordered separately and which is customised for connection. Terminal compartment additionally sealed against interior (double sealed)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	B3, B4, D according to EN ISO 5210; B2 on request B, D, E according to DIN 3210
	Special valve attachments: B3D, DD	

Electronic control unit

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Running indication	Blinker transmitter via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	For continuous underwater use as well as indoor and outdoor use.	
Enclosure protection according to EN 60529	Standard:	Increased enclosure protection IP68-C15. The maximum head of water is 15 m.
	Option:	Increased enclosure protection IP68-C60. The maximum head of water is 60 m. In combination with handwheel permissible head of water of more than 15 m on request
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	–30 °C to +70 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz	
	Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Not valid in combination with gearboxes.	
Corrosion protection	KX-G	Suitable for use in freshwater (Im1), seawater (Im2) and on seafloor (Im3), aluminium-free version (outer parts)
Coating	Two-layer powder coating with additional wet painting	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	
Sound pressure level	< 72 dB (A)	

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for continuous underwater use Dimensions SA 07.2 – SA 16.2 with 3-phase AC motor for continuous underwater use Electrical data SA 07.2 – SA 16.2 with 3-phase AC motors Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Type	Output speed rpm		Torque range ¹⁾		Number of starts ²⁾	Valve attachment ³⁾			Handwheel		Weight ⁴⁾					
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Max. [1/h]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduct. ratio	approx. [kg]					
SA 07.2	4	4.8	10	30	60	F07 F10	– G0	26 34 ⁵⁾	160	11 : 1	25					
	5.6	6.7								8 : 1						
	8	9.6								11 : 1						
	11	13								8 : 1						
	16	19								11 : 1						
	22	26								8 : 1						
	32	38								11 : 1						
	45	54								8 : 1						
	63	75								11 : 1						
	90	108		8 : 1	28											
	125	150		5.5 : 1												
	180	216		4 : 1												
SA 07.6	4	4.8	20	60	60	F07 F10	– G0	26 34 ⁵⁾	160	11 : 1	25					
	5.6	6.7								8 : 1						
	8	9.6								11 : 1						
	11	13								8 : 1						
	16	19								11 : 1						
	22	26								8 : 1						
	32	38								11 : 1	28					
	45	54								8 : 1						
	63	75								11 : 1						
	90	108		8 : 1	37											
	125	150		5.5 : 1												
	180	216		4 : 1												
SA 10.2	4	4.8	40	120	60	F10	G0	40	200	11 : 1	28					
	5.6	6.7								8 : 1						
	8	9.6								11 : 1						
	11	13								8 : 1	31					
	16	19								11 : 1						
	22	26								8 : 1						
	32	38			11 : 1					40						
	45	54			8 : 1											
	63	75			11 : 1											
	90	108		8 : 1	43											
	125	150		5.5 : 1												
	180	216		4 : 1												
SA 14.2	4	4.8	100	250	60	F14	G1/2	58	315	11 : 1	59					
	5.6	6.7								8 : 1						
	8	9.6								11 : 1						
	11	13								8 : 1						
	16	19								11 : 1		61				
	22	26								8 : 1						
	32	38			11 : 1											
45	54	8 : 1			63											
SA 14.6	4	4.8								200	500	60	F14	G1/2	58	400
	5.6	6.7		8 : 1												
	8	9.6		400	30						11 : 1	63				
	11	13									8 : 1					
	16	19	11 : 1													
22	26	8 : 1														

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SA 07.2 – SA 14.6, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Number of starts	For actuators equipped 1-phase AC motors with integral permanent split capacitors (motor type VE/AE), an off-time (reversing prevention time) of 2.5 sec. is required prior to starting in opposite direction.
3) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
4) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
5) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions														
Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2													
	For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.													
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6													
	1-phase AC motor with integral starting capacitor and solid state switch (CSIR), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6													
	Motor type depending on actuator type/output speed. Refer also to Electrical data SA 07.2 – SA 16.2 with 1-phase AC motors.													
Mains voltage, mains frequency	Standard voltages:													
	1-phase AC current Voltages/frequencies <table><tr><td>Volt</td><td>110 – 120</td><td>110 – 120</td><td>220 – 240</td><td>220 – 240</td></tr><tr><td>Hz</td><td>50</td><td>60</td><td>50</td><td>60</td></tr></table>				Volt	110 – 120	110 – 120	220 – 240	220 – 240	Hz	50	60	50	60
	Volt	110 – 120	110 – 120	220 – 240	220 – 240									
	Hz	50	60	50	60									
	Further voltages on request													
Permissible variation of mains voltage: ±10 %														
Permissible variation of mains frequency: ±5 %														
Overvoltage category	Category III according to IEC 60364-4-443													
Insulation class	F, tropicalized													
Motor protection	Thermoswitches (NC)													
Self-locking	Self-locking: Output speeds up to 90 rpm (50 Hz) or 108 rpm (60 Hz) NOT self-locking: Output speeds from 125 rpm (50 Hz) or 150 rpm (60 Hz) Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.													
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC												
	Power depending on the size 12.5 – 25 W													
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation													
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm												
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)													
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection												
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)												
Threads for cable entries	Standard:	Metric threads												
	Options:	Pg-threads, NPT-threads, G-threads												
Terminal plan	TPA01R1AA-101-000 (1-phase AC motor with permanent split capacitor)													
	TPA02R1AA-101-000 (Einphasen Wechselstrommotor mit Anlaufkondensator und Anlauf-Schaltgerät 110 – 120 V AC) TPA03R1AA-101-000 (1-phase AC motor with starting capacitor and solid state switch 220 – 240 V AC) Depending on motor type/output speed. Refer also to Electrical data SA 07.2 – SA 16.2 with 1-phase AC motors.													
Valve attachment	Standard:	B1 according to EN ISO 5210												
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338												
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem													

Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)		
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)	
Position feedback signal	Via actuator controls	
Torque feedback signal	Via actuator controls	
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED	
Running indication	Blinking signal via actuator controls	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Service conditions			
Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request		
Ambient temperature	Standard:	−30 °C to +70 °C	
	Options:	−40 °C to +80 °C	
		−60 °C to +60 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motors of types AE..., VE..., AC..., VC... For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements:		
	• Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Multi-turn actuators for open-close duty with 1-phase AC motors

Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	
Sound pressure level	< 72 dB (A)	

Further information		
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)	
	Low Voltage Directive: (2014/35/EU)	
	Machinery Directive: (2006/42/EC)	
Reference documents	Brochure Electric actuators for industrial valve automation	
	Dimensions SA 07.2 – SA 14.6/SAR 07.2 – SAR 14.6 with 1-phase AC motors	
	Electrical data SA 07.2 – SA 14.6 with 1-phase AC motors	
	Technical data for switches	
	Technical data Electronic position transmitter/potentiometer	
	Technical data Sizing of reduction gearings	
	Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2	

Type	Output speed rpm		Torque range ¹⁾		Number of starts	Valve attachment ²⁾			Handwheel		Weight ³⁾
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]		Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduct. ratio	
SA 07.2	4	4.8	10	30	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	21
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	
SA 07.6	4	4.8	20	60	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	21
	5.6	6.7								8 : 1	
	8	9.6								11 : 1	
	11	13								8 : 1	
	16	19								11 : 1	
	22	26								8 : 1	

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SA 07.2 – SA 07.6, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
3) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
4) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2				
	For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.				
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6				
Mains voltage, mains frequency	Standard voltages:				
	1-phase AC current				
	Voltages/frequencies				
	Volt	110 – 120	110 – 120	220 – 240	220 – 240
	Hz	50	60	50	60
	Further voltages on request				
	Permissible variation of mains voltage: ±10 %				
	Permissible variation of mains frequency: ±5 %				
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	F, tropicalized				
Motor protection	Thermoswitches (NC)				
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.				
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC			
	Power depending on the size 12.5 – 25 W				
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation				
	Options:	Handwheel lockable			
		Handwheel stem extension			
		Power tool for emergency operation with square 30 mm or 50 mm			
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)				

Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp-type connection Gold-plated control plug (sockets and pins)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C, D according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)		
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)	
Position feedback signal	Via actuator controls	
Torque feedback signal	Via actuator controls	
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED	
Running indication	Blinking signal via actuator controls	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Service conditions		
Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–40 °C to +80 °C
		–60 °C to +60 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	

Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motors type VB 63	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)		
	Low Voltage Directive: (2014/35/EU)		
	Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 07.6/SAR 07.2 – SAR 07.6 with 1-phase AC motors VB 63 Electrical data SA 07.2 – SA 07.6 with DC motors of type range VB 63 Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

Type	Output speed rpm	Torque range ¹⁾		Number of starts	Valve attachment ²⁾			Handwheel		Weight ³⁾
		Min. [Nm]	Max. [Nm]	Max. [1/h]	Standard EN ISO 5210	Option DIN 3210	Max. Ø steig. Spindel [mm]	Ø [mm]	Reduct. ratio	approx. [kg]
SA 07.2	4	10	30	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	29
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	32
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		25						4 : 1	
SA 07.6	4	20	60	60	F07 F10	– G0	26 34 ⁴⁾	160	11 : 1	30
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	44
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		50						4 : 1	
SA 10.2	4	40	120	60	F10	G0	40	200	11 : 1	33
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	36
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	56
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		100						4 : 1	
SA 14.2	4	100	250	60	F14	G1/2	58	315	11 : 1	68
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	100
	32								11 : 1	
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		200						4 : 1	
SA 14.6	4	200	500	60	F14	G1/2	58	400	11 : 1	76
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	122
	22								8 : 1	
	32								11 : 1	
	45								8 : 1	
SA 16.2	4	400	1 000	60	F16	G3	77	500	11 : 1	123
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	

1) – 4) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Multi-turn actuators for open-close duty with DC motors

General information
AUMA NORM multi-turn actuators require electric controls. For sizes SA 07.2 – SA 16.2 with DC motors, AUMA offer AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on tables on page 1	
1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
3) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase DC motor, electrical connection in standard version, output drive type B1 and handwheel.
4) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions						
Type of duty	Standard:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2				
	For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.					
Motors	1-phase DC shunt motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6					
	1-phase DC compound motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6					
	Motor type depending on actuator type/output speed. Refer to Electrical data SA 07.2 – SA 16.2 with DC motors					
Mains voltage	Standard voltages:					
	DC current - Voltages					
	Volt	24	48	60	110	125
Permissible variation of mains voltage: ±10 %						
Overvoltage category	Category III according to IEC 60364-4-443					
Insulation class	F, tropicalized					
Motor protection	Without					
Self-locking	Self-locking: Output speeds up to 90 rpm (50 Hz) or 108 rpm (60 Hz)					
	NOT self-locking: Output speeds from 125 rpm (50 Hz) or 150 rpm (60 Hz)					
	Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.					
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation					
	Options:	Handwheel lockable				
		Handwheel stem extension				
Indication for manual operation (option)	Power tool for emergency operation with square 30 mm or 50 mm					
	Indication whether manual operation is active/not active via single switch (1 change-over contact)					
Electrical connection	Controls:	AUMA plug/socket connector with screw-type connection				
	Motor:	AUMA plug/socket connector with screw-type connection or motor terminal board				
	Options:	Power connection via terminals or crimp type connection				
Gold-plated control plug (sockets and plugs)						

Technical data Multi-turn actuators for open-close duty with DC motors

Threads for cable entries	Cable entries for AUMA plug/socket connector with screw-type connection:						
	Standard:	Metric threads					
	Options:	Pg-threads, NPT-threads, G-threads					
	Cable entries for motor connection via separate motor terminal board:						
	Standard:	Metric threads					
	Motor size	24 V	48 V	60 V	110 V	125 V	220 V
	FN00063-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN00063-2	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN00071-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN00071-2	2 x M25 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN00080-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN00080-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN00090-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN00090-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FL00100-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FL00100-2	–	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	
FL00112-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	
Terminal plan	TPA11R0AA-101-000 (DC shunt motor, motor connection on AUMA plug/socket connector)						
	TPA12R0AA-101-000 (DC shunt motor, motor connection on separate terminal box)						
	TPA13R0AA-101-000 (DC compound motor, motor connection on separate terminal box)						
	TPA14R0AA-101-000 (DC compound motor, motor connection on AUMA plug/socket connector)						
	Depending on motor type/output speed. Refer to Electrical data SA 07.2 – SA 16.2 with DC motors						
Valve attachment	Standard:	B1 according to EN ISO 5210					
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338					
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem						

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated
		Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions			
Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request		
Ambient temperature	Standard:	−30 °C to +70 °C	
	Options:	−40 °C to +80 °C Lower temperatures on request	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA DC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Electrical data SA 07.2 – SA 16.2 with DC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Type	Abtriebsdrehzahl ¹⁾	Torque range ²⁾		Number of starts	Valve attachment ³⁾			Handwheel		Weight ⁴⁾		
	rpm	Min. [Nm]	S2-15 min Max. [Nm]	Max. [1/h]	Standard EN ISO 5210	Option DIN 3210	Max. Ø steig. Spindel [mm]	Ø [mm]	Reduct. ratio	approx. [kg]		
SA 07.2	4 – 5.5	10	30	60	F07	–	26	160	11 : 1	20		
	6 – 7.5								8 : 1			
	7.5 – 11								11 : 1			
	10 – 15.5								8 : 1			
	12.5 – 17								11 : 1			
	17 – 23.5								8 : 1			
SA 07.6	3.5 – 5.5	20	60	60	F07	–	26	160	11 : 1	20		
	5 – 7.5								8 : 1			
	6 – 8								11 : 1			
	8 – 11								8 : 1			
	12 – 17		40		–	G0	34 ⁵⁾		11 : 1			
	16 – 23.5								8 : 1			

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SA 07.2 – SA 07.6 with DC motors, AUMA offer AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Output speed	The higher the torque, the lower the output speed
2) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
3) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
4) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase DC motor, electrical connection in standard version, output drive type B1 and handwheel.
5) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2 For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.	
Motors	1-phase DC shunt motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltage	24 V DC current Permissible variation of mains voltage: ±10 %	
Overvoltage category	Category III according to IEC 60364-4-443	
Insulation class	F, tropicalized	
Motor protection	Thermoswitches (NC)	
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.	
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation Options: Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm	
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	Standard	AUMA plug/socket connector with screw-type connection
	Options:	Power connection via terminals or crimp type connection Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA37R1AA-001-000	

Technical data Multi-turn actuators for open-close duty with DC motors of type range VK

Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact material	Standard:	Silver (Ag)
	Options:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)		
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)	
Position feedback signal	Via actuator controls	
Torque feedback signal	Via actuator controls	
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED	
Running indication	Blinking signal via actuator controls	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Service conditions		
Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Option:	–40 °C to +80 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	

AUMA NORM

Technical data Multi-turn actuators for open-close duty with DC motors of type range VK

Enclosure protection according to EN 60529	Standard:	IP68 with AUMA DC motor	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)		
	Low Voltage Directive: (2014/35/EU)		
	Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators for industrial valve automation Electrical data SA 07.2 – SA 07.6 with DC motors of type range VK Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

SA 07.2 – SA 16.2

Technical Data Torques at different running times

Short-time duty S2 - 15 min

Type	Output speed	Max. adjustable torque	Motor Power	Torques ¹⁾ at 100 % U _N for running time			
	[rpm]			2 min [Nm]	5 min [Nm]	10 min [Nm]	15 min [Nm]
SA 07.2	4	30	0.02	30	30	30	30
	5.6			30	30	30	30
	8		0.04	30	30	30	30
	11			30	30	30	30
	16		0.06	30	30	30	30
	22			30	30	30	30
	32		0.10	30	30	30	30
	45			30	30	30	30
	63		0.20	30	30	30	25
	90			30	30	30	25
	125	25	0.30	30	30	25	20
	180			25	25	20	18
SA 07.6	4	60	0.03	60	60	60	60
	5.6			60	60	60	60
	8		0.06	60	60	60	60
	11			60	60	60	55
	16		0.12	60	60	60	55
	22			60	60	60	50
	32		0.20	60	60	50	35
	45			60	60	45	30
	63		0.40	60	50	45	40
	90			60	50	40	35
	125	50	0.50	60	50	35	30
	180			50	45	30	25
SA 10.2	4	120	0.06	120	120	120	120
	5.6			120	120	120	120
	8		0.12	120	120	120	120
	11			120	120	120	110
	16		0.25	120	120	120	95
	22			120	120	95	75
	32		0.40	120	120	120	100
	45			120	120	110	85
	63		0.70	120	120	95	80
	90			120	110	80	70
	125	100	1.00	120	115	80	60
	180			100	85	60	50
SA 14.2	4	250	0.12	250	250	250	250
	5.6			250	250	250	250
	8		0.25	250	250	250	250
	11			250	250	250	250
	16		0.45	250	250	250	240
	22			250	250	250	220
	32		0.75	250	250	250	210
	45			250	250	220	190
	63		1.40	250	250	200	170
	90			250	250	190	150
	125	200	1.80	250	200	140	110
	180			200	150	110	90
SA 14.6	4	500	0.20	500	500	500	500
	5.6			500	500	500	500
	8		0.40	500	500	500	450
	11			500	500	500	400
	16		0.80	500	500	400	300
	22			500	500	380	280
	32		1.60	500	500	340	260
	45			500	500	340	260
	63		3.00	500	380	230	170
	90			500	380	230	170
	125	400	3.30	500	330	200	160
	180			400	300	180	140
SA 16.2	4	1,000	0.40	1,000	1,000	1,000	1,000
	5.6			1,000	1,000	1,000	1,000
	8		0.80	1,000	1,000	800	600
	11			1,000	1,000	800	600
	16		1.50	1,000	1,000	600	450
	22			1,000	1,000	600	450
	32		3.00	1,000	800	500	400
	45			1,000	800	500	400
	63		5.00	1,000	600	350	300
	90			1,000	600	350	300
	125	800	6.00	800	550	350	250
	180			700	450	300	200

1) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical Data Torques at different running times
Short-time duty S2 - 15 min

General information	
For detailed technical data refer to Technical data Multi-turn actuators SA 07.2 – SA 16.2 for open-close duty with 3-phase AC motors.	

Notes on table on page 1	
1) Torque	Available torque at constant load for the indicated running time at an ambient temperature of +20°C.

Features and functions	
Type of duty	Short-time duty S2 For operation with constant load during a defined running time, the duration of the load is reduced so that the thermal equilibrium is not reached. This is observed for all values specified. Once the running time according to table has been reached applying the max. available torques, allow for sufficient time at actuator standstill to ensure that the device cools down to ambient temperature.

Service conditions	
Ambient temperature	The specified torques at constant load for the indicated running times are valid for an ambient temperature of 20 °C. For higher ambient temperatures, the running times of the torques mentioned in the table decrease accordingly.

Technical Data Torques at different running times

Short-time duty S2 - 30 min

Type	Output speed	Max. adjustable torque	Motor Power	Torques ¹⁾ at 100 % U _N for running time		
	[rpm]			10 min [Nm]	20 min [Nm]	30 min [Nm]
SA 07.2	4	20	0.01	20	20	20
	5.6			20	20	20
	8		0.03	20	20	20
	11			20	20	20
	16		0.04	20	20	20
	22			20	20	20
	32		0.07	20	20	18
	45			20	20	15
	63		0.14	20	20	15
	90			20	15	15
SA 07.6	125	15	0.21	20	15	13
	180			15	13	10
	4	40	0.02	40	40	40
	5.6			40	40	40
	8		0.04	40	40	40
	11			40	40	38
	16		0.08	40	40	35
	22			40	40	30
	32		0.14	40	35	25
	45			40	30	20
	63	30	0.28	40	35	30
	90			40	30	25
SA 10.2	125	30	0.35	35	25	20
	180			30	20	15
	4	90	0.04	90	90	90
	5.6			90	90	90
	8		0.08	90	90	90
	11			90	90	85
	16		0.17	90	90	75
	22			90	70	60
	32		0.28	90	90	70
	45			90	75	55
	63	70	0.50	90	70	50
	90			80	55	40
SA 14.2	125	70	0.70	70	50	35
	180			55	35	25
	4	180	0.08	180	180	180
	5.6			180	180	180
	8		0.18	180	180	180
	11			180	180	180
	16		0.30	180	180	180
	22			180	180	180
	32		0.50	180	170	140
	45			180	150	120
	63	140	1.00	180	140	100
	90			180	120	90
SA 14.6	125	140	1.30	130	100	70
	180			110	80	60
	4	360	0.14	360	360	360
	5.6			360	360	360
	8		0.30	360	360	300
	11			360	320	280
	16		0.60	360	300	240
	22			360	260	200
	32		1.00	340	220	180
	45			340	220	180
	63	290	2.00	230	150	110
	90			230	150	100
SA 16.2	125	290	2.30	200	130	90
	180			180	120	80
	4	710	0.30	710	710	710
	5.6			710	710	710
	8		0.60	710	500	400
	11			710	500	400
	16		1.00	600	400	300
	22			600	400	300
	32		2.00	500	350	250
	45			500	350	250
	63	570	3.50	350	250	180
	90			350	250	180
	125	570	4.00	350	200	150
	180			300	180	120

1) Refer to notes on page 2.

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Technical Data Torques at different running times
Short-time duty S2 - 30 min

General information	
For detailed technical data refer to Technical data Multi-turn actuators SA 07.2 – SA 16.2 for open-close duty with 3-phase AC motors.	

Notes on table on page 1	
1) Torque	Available torque at constant load for the indicated running time at an ambient temperature of +20°C.

Features and functions	
Type of duty	Short-time duty S2 For operation with constant load during a defined running time, the duration of the load is reduced so that the thermal equilibrium is not reached. This is observed for all values specified. Once the running time according to table has been reached applying the max. available torques, allow for sufficient time at actuator standstill to ensure that the device cools down to ambient temperature.

Service conditions	
Ambient temperature	The specified torques at constant load for the indicated running times are valid for an ambient temperature of 20 °C. For higher ambient temperatures, the running times of the torques mentioned in the table decrease accordingly.

Type	Output speed rpm		Torque range ¹⁾			Modulating torque ²⁾		Number of starts	Pulse duration ³⁾	Pulse dur. on reversal ⁴⁾	Valve attachment ⁵⁾			Handwheel		Weight ⁶⁾
	50 Hz	60 Hz	Min. [Nm]	S4-25% S5-25% Max. [Nm]	S4-50% Max. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]				Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210	Option DIN 3210	
SAR 07.2	4	4.8	15	30	20	15	10	1,500	50	260	F07 F10	– G0	26 34 ⁷⁾	160	11 : 1	19
	5.6	6.7								200					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19								100					11 : 1	
	22	26								90					8 : 1	
	32	38								75					11 : 1	
	45	54								70					8 : 1	
	63	75						65		11 : 1					20	
	90	108						60		8 : 1						
SAR 07.6	4	4.8	30	60	40	30	20	1,500	50	260	F07 F10	– G0	26 34 ⁷⁾	160	11 : 1	20
	5.6	6.7								200					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19								100					11 : 1	
	22	26								90					8 : 1	
	32	38				75	11 : 1	21								
	45	54				70	8 : 1									
	63	75				65	11 : 1									
	90	108				60	8 : 1									
SAR 10.2	4	4.8	60	120	90	60	45	1,500	50	260	F10	G0	40	200	11 : 1	22
	5.6	6.7								200					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19								100					11 : 1	
	22	26				90	8 : 1	25								
	32	38				75	11 : 1									
	45	54				70	8 : 1									
	63	75				65	11 : 1									
	90	108				60	8 : 1									
SAR 14.2	4	4.8	120	250	180	120	90		1,200	70	280	F14	G1/2	58	315	11 : 1
	5.6	6.7						220			8 : 1					
	8	9.6						175			11 : 1					
	11	13						150			8 : 1					
	16	19						900			120					11 : 1
	22	26				110	8 : 1									
	32	38				100	11 : 1									
	45	54				90	8 : 1									
	63	75				400		85	11 : 1							
	90	108						80	8 : 1							
SAR 14.6	4	4.8	250	500	360	200	180	1,200	70	280	F14	G1/2	58	400	11 : 1	46
	5.6	6.7								220					8 : 1	
	8	9.6								175					11 : 1	
	11	13								150					8 : 1	
	16	19						900		120					11 : 1	53
	22	26				110	8 : 1									
	32	38				100	11 : 1									
	45	54				90	8 : 1									
	63	75				400		85		11 : 1						
	90	108						80		8 : 1						
SAR 16.2	4	4.8	500	1,000	710	400	280	900	100	300	F16	G3	77	500	11 : 1	67
	5.6	6.7								250					8 : 1	
	8	9.6								200					11 : 1	
	11	13								175					8 : 1	
	16	19				600		150		11 : 1					79	
	22	26						140		8 : 1						
	32	38						130		11 : 1						
	45	54						120		8 : 1						
	63	75				200		115		11 : 1						83
	90	108						110		8 : 1						

1) – 7) Refer to notes on page 2.

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General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 07.2 – SAR 16.2, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on tables on page 1

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
6) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 3-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
7) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2										
	Option:	Intermittent duty S4 - 50 %, class C according to EN 15714-2 Intermittent duty S5 - 25 % (insulation class H required), class C according to EN 15714-2										
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.											
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6											
Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
Permissible variation of mains frequency: ±5 %												
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	Standard:	Thermoswitches (NC)										
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.										
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.											
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC										
	Power depending on the size 12.5 – 25 W											
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation											
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm										
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)											

Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R1AA-001-000 (basic version)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options:	24 – 48 V AC/DC or 380 – 400 V AC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)

Non-intrusive setting (option)	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request

Ambient temperature	Standard:	–30 °C to +70 °C	
	Option:	–40 °C to +70 °C –60 °C to +60 °C Temperatures exceeding +70 °C on request	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for multi-turn actuators in version AUMA NORM and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Noise level	< 72 dB (A)		

Others

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2 Electrical data SAR 07.2 – SAR 16.2 with 3-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

SAR 07.2-UW – SAR 16.2-UW

Technical data Multi-turn actuators for modulating duty with 3-phase AC motors for continuous underwater use

Type	Output speed rpm		Torque range ¹⁾			Modulating torque ²⁾		Number of starts	Pulse duration ³⁾	Pulse duration on reversal ⁴⁾	Valve attachment ⁵⁾		Handwheel (Option)		Weight ⁶⁾				
	50 Hz	60 Hz	Min. [Nm]	S4-25% S5-25% Max. [Nm]	S4-50% Max. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]				Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210		Option DIN 3210	Ø [mm]	Reduct. ratio	approx. [kg]
SAR 07.2-UW	4	4.8	15	30	20	15	10	1,500	50	260	F07 F10	– G0	160	11 : 1	25				
	5.6	6.7								200				8 : 1					
	8	9.6								155				11 : 1					
	11	13								130				8 : 1					
	16	19								100				11 : 1					
	22	26								90				8 : 1					
	32	38								75				11 : 1					
	45	54								70				8 : 1					
	63	75						65		11 : 1				26					
	90	108						60		8 : 1									
SAR 07.6-UW	4	4.8	30	60	40	30	20	1,500	50	260	F07 F10	– G0	160	11 : 1	25				
	5.6	6.7								200				8 : 1					
	8	9.6								155				11 : 1					
	11	13								130				8 : 1					
	16	19								100				11 : 1					
	22	26								90				8 : 1					
	32	38								75				11 : 1					
	45	54								70				8 : 1					
	63	75				65	11 : 1	27											
	90	108				60	8 : 1												
SAR 10.2-UW	4	4.8	60	120	90	60	45	1,500	50	260	F10	G0	200	11 : 1	31				
	5.6	6.7								200				8 : 1					
	8	9.6								155				11 : 1					
	11	13								130				8 : 1					
	16	19								100				11 : 1					
	22	26								90				8 : 1					
	32	38								75				11 : 1					
	45	54								70				8 : 1					
	63	75				65	11 : 1	33											
	90	108				60	8 : 1												
SAR 14.2-UW	4	4.8	120	250	180	120	90	1,200	70	280	F14	G1/2	315	11 : 1	54				
	5.6	6.7								220				8 : 1					
	8	9.6								175				11 : 1					
	11	13								150				8 : 1					
	16	19				900	120	110		100				90	85	11 : 1	58		
	22	26																110	8 : 1
	32	38																100	11 : 1
	45	54																90	8 : 1
	63	75				100	70	400		85				11 : 1					
	90	108								80				8 : 1					
SAR 14.6-UW	4	4.8	250	500	360	200	180	1,200	70	280	F14	G1/2	400	11 : 1	56				
	5.6	6.7								220				8 : 1					
	8	9.6								175				11 : 1					
	11	13								150				8 : 1					
	16	19				900	120	110		100				90	85	11 : 1	62		
	22	26																110	8 : 1
	32	38																100	11 : 1
	45	54																90	8 : 1
	63	75				150	105	400		85				11 : 1					
	90	108								80				8 : 1					
SAR 16.2-UW	4	4.8	500	1 000	710	400	280	900	100	300	F16	G3	500	11 : 1	77				
	5.6	6.7								250				8 : 1					
	8	9.6								200				11 : 1					
	11	13								175				8 : 1					
	16	19				350	250	600		150				140	130	11 : 1	88		
	22	26																140	8 : 1
	32	38						300		120				115	11 : 1	93			
	45	54															120	8 : 1	
	63	75				250	175	200		115				11 : 1	93				
	90	108														110	8 : 1		

1) – 6) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

General information

Multi-turn actuators for continuous underwater use require AC actuator controls. Actuator controls are mounted on a wall bracket and are not immersed. Für die elektrische Verbindung zwischen Antrieb und Steuerung wird ein spezieller Leitungssatz mit Wandhalter benötigt.

Notes on tables on page 1	
1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Valve attachment	Indicated flange sizes apply for output drive types B1. Refer to separate dimension sheets for further output drive types.
6) Weight	Indicated weight includes multi-turn actuator with 3-phase AC motor, electrical connection with cable glands and output drive type B1.

Features and functions												
Type of duty	Standard:		Intermittent duty S4 - 25 %, class C according to EN 15714-2									
	Option:		Intermittent duty S4 - 50 %, class C according to EN 15714-2									
			Intermittent duty S5 - 25 % (insulation class H required), class C according to EN 15714-2									
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.											
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6											
Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current											
	Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current											
	Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
	Permissible variation of mains frequency: ±5 %											
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:		F, tropicalized									
	Option:		H, tropicalized									
Motor protection	Standard:		Thermoswitches (NC)									
	Option:		PTC thermistors (according to DIN 44082)									
			PTC thermistors additionally require a suitable tripping device in the actuator controls.									
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.											
Motor heater (option)	Voltages:		110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC									
			Power depending on the size 12.5 – 25 W									
Manual operation (option)	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation											
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)											

Technical data Multi-turn actuators for modulating duty with 3-phase AC motors for continuous underwater use

Electrical connection	The AUMA plug/socket connector is part of the cable set with wall bracket which must be ordered separately and which is customised for connection. Terminal compartment additionally sealed against interior (double sealed)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	B3, B4, D according to EN ISO 5210; B2 on request B, D, E according to DIN 3210
	Special valve attachments: B3D, DD	

Electronic control unit

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Running indication	Blinker transmitter via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	For continuous underwater use as well as indoor and outdoor use.	
Enclosure protection according to EN 60529	Standard:	Increased enclosure protection IP68-C15. The maximum head of water is 15 m.
	Option:	Increased enclosure protection IP68-C60. The maximum head of water is 60 m. In combination with handwheel permissible head of water of more than 15 m on request
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	–30 °C to +70 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz	
	Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Not valid in combination with gearboxes.	
Corrosion protection	KX-G	Suitable for use in freshwater (Im1), seawater (Im2) and on seafloor (Im3), aluminium-free version (outer parts)
Coating	Two-layer powder coating with additional wet painting	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	
Sound pressure level	< 72 dB (A)	

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for continuous underwater use Dimensions SAR 07.2 – SAR 16.2 with 3-phase AC motor for continuous underwater use Electrical data SAR 07.2 – SAR 16.2 with 3-phase AC motors Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Type	Output speed rpm		Torque range ¹⁾		Modulating torque ²⁾	Number of starts ³⁾	Pulse duration ⁴⁾	Pulse dur. on reversal ⁵⁾	Valve attachment ⁶⁾			Handwheel		Weight ⁷⁾
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Max. [Nm]	Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduct. ratio	approx. [kg]
SAR 07.2	4	4.8	15	30	15	600	50	275	F07 F10	– G0	26 34 ⁸⁾	160	11 : 1	25
	5.6	6.7						220					8 : 1	
	8	9.6						155					11 : 1	
	11	13						130					8 : 1	
	16	19						90					11 : 1	28
	22	26						80					8 : 1	
	32	38						75					11 : 1	
	45	54						70					8 : 1	
SAR 07.6	4	4.8	30	60	30	600	50	260	F07 F10	– G0	26 34 ⁸⁾	160	11 : 1	25
	5.6	6.7						200					8 : 1	
	8	9.6						155					11 : 1	
	11	13						130					8 : 1	
	16	19						100					11 : 1	28
	22	26						90					8 : 1	
	32	38						75					11 : 1	
	45	54						70					8 : 1	
SAR 10.2	4	4.8	60	120	60	600	50	260	F10	G0	40	200	11 : 1	28
	5.6	6.7						200					8 : 1	
	8	9.6						155					11 : 1	31
	11	13						130					8 : 1	
	16	19						100					11 : 1	
	22	26						90					8 : 1	
SAR 14.2	4	4.8	120	250	120	600	70	280	F14	G1/2	58	315	11 : 1	59
	5.6	6.7						220					8 : 1	
	8	9.6						175					11 : 1	
	11	13						150					8 : 1	
SAR 14.6	4	4.8	250	500	250	600	70	280	F14	G1/2	58	400	11 : 1	63
	5.6	6.7						220					8 : 1	

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 07.2 – SAR 14.6, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Number of starts	An off-time (reversing prevention time) of 2.5 sec. is required prior to starting in opposite direction.
4) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
6) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
7) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
8) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Intermittent duty S4 - 25 %, class C according to EN 15714-2 For nominal voltage and +40 °C ambient temperature and at modulating torque load.
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

Mains voltage, mains frequency	Standard voltages:				
	1-phase AC current				
	Voltages/frequencies				
	Volt	110 – 120	110 – 120	220 – 240	220 – 240
	Hz	50	60	50	60
	Further voltages on request Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %				
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	F, tropicalized				
Motor protection	Thermoswitches (NC)				
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.				
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC			
	Power depending on the size 12.5 – 25 W				
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation				
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm			
	Indication whether manual operation is active/not active via single switch (1 change-over contact)				
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection			
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)			
Threads for cable entries	Standard:	Metric threads			
	Options:	Pg-threads, NPT-threads, G-threads			
Terminal plan	TPA01R1AA-001-000 (Grundausführung)				
Valve attachment	Standard:	B1 according to EN ISO 5210			
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338			
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem				

Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED	
	Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	Blinker transmitter	

Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request		
Ambient temperature	Standard:	–30 °C to +70 °C	
	Options:	–40 °C to +70 °C –60 °C to +60 °C Temperatures exceeding +70 °C on request	
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motors of types AE..., VE... For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Technical data Multi-turn actuators for modulating duty with 1-phase AC motors

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 14.6/SAR 07.2 – SAR 14.6 with 1-phase AC motors Electrical data SAR 07.2 – SAR 14.6 with 1-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Technical data Multi-turn actuators for modulating duty with 1-phase AC motors of type range VB 63

Type	Output speed rpm		Torque range ¹⁾		Modulating torque ²⁾	Number of starts ³⁾	Pulse duration ³⁾	Pulse duration on reversal ⁴⁾	Valve attachment ⁵⁾			Handwheel		Weight ⁶⁾
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Max. [Nm]	Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduct. ratio	approx. [kg]
SAR 07.2	4	4.8	15	30	15	600	50	275	F07	– G0	26 34 ⁷⁾	160	11 : 1	21
	5.6	6.7						220					8 : 1	
	8	9.6						155					11 : 1	
	11	13						130					8 : 1	
	16	19						90					11 : 1	
	22	26						80					8 : 1	
SAR 07.6	4	4.8	30	60	30	600	50	260	F07	– G0	26 34 ⁷⁾	160	11 : 1	21
	5.6	6.7						200					8 : 1	
	8	9.6						155					11 : 1	
	11	13						130					8 : 1	
	16	19						100					11 : 1	
	22	26						90					8 : 1	

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 07.2 – SAR 07.6, AUMA offers AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
6) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
7) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions

Type of duty	Intermittent duty S4 - 25 %, class C according to EN 15714-2				
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.				
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6				
Mains voltage, mains frequency	Standard voltages:				
	1-phase AC current				
	Voltages/frequencies				
	Volt	110 – 120	110 – 120	220 – 240	220 – 240
	Hz	50	60	50	60
	Further voltages on request				
	Permissible variation of mains voltage: ±10 %				
	Permissible variation of mains frequency: ±5 %				
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	F, tropicalized				
Motor protection	Thermoswitches (NC)				
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.				
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC			
	Power depending on the size 12.5 – 25 W				

Technical data Multi-turn actuators for modulating duty with 1-phase AC motors of type range VB 63

Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp-type connection Gold-plated control plug (sockets and pins)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C, D according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit		
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level
	> 2,000 m above sea level on request

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Multi-turn actuators for modulating duty with 1-phase AC motors of type range VB 63

Ambient temperature	Standard:	–30 °C to +70 °C	
	Options:	–40 °C to +70 °C –60 °C to +60 °C Temperatures exceeding +70 °C on request	
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motors type VB 63	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements:		
	• Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)		
	Low Voltage Directive: (2014/35/EU)		
	Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 07.2 – SA 07.6/SAR 07.2 – SAR 07.6 with 1-phase AC motors VB 63 Electrical data SAR 07.2 – SAR 14.6 with DC motors of type range VB 63 Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

Type	Output speed rpm	Torque range ¹⁾		Modulating torque ²⁾	Number of starts ³⁾	Pulse duration ⁴⁾	Pulse duration on reversal ⁵⁾	Valve attachment ⁶⁾			Handwheel		Weight ⁷⁾	
		Min. [Nm]	Max. [Nm]					Max. [Nm]	Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210		Option DIN 3210
SAR 07.2	4	15	30	15	600	50	275	F07 F10	– G0	26 34 ⁸⁾	160	11 : 1	29	
	5.6						220					8 : 1		
	8						155					11 : 1		
	11						130					8 : 1		
	16				200		90					11 : 1	32	
	22						80					8 : 1		
	32						75					11 : 1		
	45						70					8 : 1		
SAR 07.6	4	30	60	30	600	50	275	F07 F10	– G0	26 34 ⁸⁾	160	11 : 1	30	
	5.6						220					8 : 1		
	8						155					11 : 1		
	11						130					8 : 1		
	16				200		90					11 : 1	44	
	22						80					8 : 1		
	32						75					11 : 1		
	45						70					8 : 1		
SAR 10.2	4	60	120	60	600	50	275	F10	G0	40	200	11 : 1	33	
	5.6						220					8 : 1		
	8				300		155					11 : 1	36	
	11						100					130		8 : 1
	16				90							11 : 1		
	22				80							8 : 1		
	32				200		75					11 : 1	56	
	45						70					8 : 1		
SAR 14.2	4	120	250	120	600	70	275	F14	G1/2	58	315	11 : 1	68	
	5.6						220					8 : 1		
	8				200		155					11 : 1		100
	11						50					130		
	16				90							11 : 1		
	22				80							8 : 1		
	32				200		75					11 : 1		
	45						70					8 : 1		
SAR 14.6	4	250	500	200	600	70	275	F14	G1/2	58	400	11 : 1	76	
	5.6				200		220					8 : 1		
	8						155					11 : 1		
	11						130					8 : 1		
	16			175	100		90					11 : 1	122	
	22						80					8 : 1		
	32						75					11 : 1		
	45						70					8 : 1		
SAR 16.2	4	500	1 000	400	300	100	275	F16	G3	77	500	11 : 1	123	
	5.6				200		220					8 : 1		
	8			155			11 : 1							
	11			130			8 : 1							
	16			350	100		90					11 : 1		
	22						80					8 : 1		

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 07.2 – SAR 16.2 with DC motors, AUMA offer AC actuator controls. These can also easily be mounted to the actuator at a later date.

1) – 8) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Notes on tables on page 1	
1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Number of starts	For actuators equipped with AC .2 integral controls and contactors of power class A2 or A4, max. 300 starts/h
4) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
6) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
7) Weight	Indicated weight includes AUMA NORM multi-turn actuator with 1-phase DC motor, electrical connection in standard version, output drive type B1 and handwheel.
8) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

Features and functions							
Type of duty	Standard:	Intermittent duty S4 - 25%, class C according to EN 15714-2					
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.						
Motors	1-phase DC shunt motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6						
	1-phase DC compound motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6						
	Motor type depending on actuator type/output speed. Refer to Electrical data SAR 07.2 – SAR 16.2 with DC motors						
Mains voltage	Standard voltage:						
	DC current - Voltages						
	Volt	24	48	60	110	125	220
	Permissible variation of mains voltage: ±10 %						
Overvoltage category	Category III according to IEC 60364-4-443						
Insulation class	F, tropicalized						
Motor protection	Without						
Self-locking	Yes, multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive.						
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation						
	Options:	Handwheel lockable					
		Handwheel stem extension					
		Power tool for emergency operation with square 30 mm or 50 mm					
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)						
Electrical connection	Controls:	AUMA plug/socket connector with screw-type connection					
	Motor:	AUMA plug/socket connector with screw-type connection or motor terminal board					
	Options:	Power connection via terminals or crimp type connection					
Gold-plated control plug (sockets and plugs)							

Technical data Multi-turn actuators for modulating duty with DC motors

Threads for cable entries	Cable entries for AUMA plug/socket connector with screw-type connection:						
	Standard:	Metric threads					
	Options:	Pg-threads, NPT-threads, G-threads					
	Cable entries for motor connection via separate motor terminal board:						
	Standard:	Metric threads					
	Motor size	24 V	48 V	60 V	110 V	125 V	220 V
	FN0R063-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN0R063-2	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN0R071-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN0R071-2	2 x M25 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
	FN0R080-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN0R080-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN0R090-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FN0R090-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
	FL0R100-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FL0R100-2	–	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	
FL0R112-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	
Terminal plan	TPA11R0AA-001-000 (DC shunt motor, motor connection on AUMA plug/socket connector)						
	TPA12R0AA-001-000 (DC shunt motor, motor connection on separate terminal box)						
	TPA13R0AA-001-000 (DC compound motor, motor connection on separate terminal box)						
	TPA14R0AA-001-000 (DC compound motor, motor connection on AUMA plug/socket connector)						
	Depending on motor type/output speed. Refer to Electrical data SAR 07.2 – SAR 16.2 with DC motors						
Valve attachment	Standard:	B1 according to EN ISO 5210					
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338					
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem						

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated
		Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Option:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions			
Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request		
Ambient temperature	Standard:	-30 °C to +70 °C	
	Options:	-40 °C to +70 °C	
		Lower temperatures and temperatures exceeding +70 °C on request	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA DC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements:		
	• Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Noise level	< 72 dB (A)		

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Electrical data SAR 07.2 – SAR 16.2 with DC motors Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2

Technical data Torques at different voltages

Short-time duty S2 - 15 min, intermittent duty S4 - 25 %

Type	Output speed		Motor			Tripping torque adjustable		Torque at stall torque ¹⁾ of the motor (without considering inertia)							
								at nominal voltage, overvoltage and undervoltage (... % U _N)							
	50 Hz [rpm]	60 Hz [rpm]	Power [kW]	Speed at 50 Hz [rpm]	Size	Min. [Nm]	Max. [Nm]	100 %	105 %	110 %	95 %	90 %	85 %	80 %	75 %
SA 07.2	4	4.8	0.02	1,400	63	10	30	96	105	116	86	77	69	61	54
	5.6	6.7						84	93	102	76	68	61	54	47
	8	9.6	0.04	1,400	63			61	67	74	55	49	44	39	34
	11	13						53	59	64	48	43	38	34	30
	16	19	0.06	2,800	63			71	78	85	64	57	51	45	40
	22	26						61	67	74	55	49	44	39	34
	32	38	0.10	1,400	63			55	61	67	50	45	40	35	31
	45	54						48	53	58	43	39	35	31	27
	63	75	0.20	2,800	63			67	73	81	60	54	48	43	37
	90	108						57	63	69	51	46	41	36	32
	125	150	0.30	2,800	63			25	46	50	55	41	37	33	29
	180	216					36		40	44	33	29	26	23	20
SA 07.6	4	4.8	0.03	1,400	63	20	60	139	154	168	126	113	101	89	78
	5.6	6.7						120	133	145	109	97	87	77	68
	8	9.6	0.06	1,400	63			120	132	145	108	97	87	77	68
	11	13						106	117	128	96	86	77	68	60
	16	19	0.12	2,800	63			128	141	155	116	104	93	82	72
	22	26						112	123	135	101	91	81	72	63
	32	38	0.20	1,400	63			135	149	163	122	109	98	86	76
	45	54						115	127	139	104	93	83	74	65
	63	75	0.40	2,800	63			136	150	164	122	110	98	87	76
	90	108						114	125	137	103	92	82	73	64
	125	150	0.50	2,800	63			50	92	101	111	83	74	66	59
	180	216					73		80	88	66	59	53	47	41
SA 10.2	4	4.8	0.06	1,400	71	40	120	318	350	385	287	257	230	203	179
	5.6	6.7						245	270	296	221	198	177	157	138
	8	9.6	0.12	1,400	71			253	279	307	229	205	183	162	143
	11	13						195	215	235	176	158	141	125	109
	16	19	0.25	2,800	71			234	258	283	211	190	169	150	132
	22	26						179	198	217	162	145	129	115	101
	32	38	0.40	1,400	71			275	303	332	248	222	198	176	154
	45	54						212	234	257	191	172	153	136	119
	63	75	0.70	2,800	71			303	334	367	274	246	219	194	171
	90	108						233	257	282	210	189	168	149	131
	125	150	1.00	2,800	71			100	194	214	235	176	158	141	124
	180	216					146		161	176	131	118	105	93	82
SA 14.2	4	4.8	0.12	1,400	90	100	250	459	506	555	414	372	332	294	258
	5.6	6.7						415	458	502	375	336	300	266	234
	8	9.6	0.25	1,400	90			434	478	525	391	351	313	278	244
	11	13						385	425	466	348	312	278	247	217
	16	19	0.45	2,800	90			421	464	510	380	341	304	270	237
	22	26						369	407	446	333	299	267	236	208
	32	38	0.75	1,400	90			475	524	575	429	385	343	304	267
	45	54						412	454	498	372	334	298	264	232
	63	75	1.40	2,800	90			550	606	665	496	445	397	352	309
	90	108						472	520	571	426	382	341	302	265
	125	150	1.80	2,800	90			200	357	393	432	322	289	258	228
	180	216					287		317	348	259	233	208	184	162
SA 14.6	4	4.8	0.20	1,400	90	200	500	949	1,047	1,149	857	769	686	608	534
	5.6	6.7						840	926	1,016	758	680	607	537	472
	8	9.6	0.40	1,400	90			842	929	1,019	760	682	609	539	474
	11	13						755	832	914	681	612	546	483	425
	16	19	0.80	2,800	90			936	1,032	1,133	845	758	676	599	527
	22	26						824	908	997	743	667	595	527	463
	32	38	1.60	1,400	90			1,125	1,240	1,361	1,015	911	812	720	633
	45	54						959	1,058	1,161	866	777	693	614	540
	63	75	3.00	2,800	90			1,170	1,290	1,416	1,056	948	845	749	658
	90	108						1,007	1,110	1,218	908	815	727	644	566
	125	150	3.30	2,800	90			400	765	843	926	690	620	553	490
	180	216					611		673	739	551	495	441	391	343
SA 16.2	4	4.8	0.40	1,400	112	400	1,000	1,951	2,151	2,360	1,761	1,580	1,409	1,248	1,097
	5.6	6.7						1,809	1,995	2,189	1,633	1,465	1,307	1,158	1,018
	8	9.6	0.80	1,400	112			2,065	2,276	2,498	1,863	1,672	1,492	1,321	1,161
	11	13						1,882	2,075	2,278	1,699	1,525	1,360	1,205	1,059
	16	19	1.50	2,800	112			2,214	2,441	2,679	1,998	1,793	1,600	1,417	1,245
	22	26						1,940	2,139	2,348	1,751	1,572	1,402	1,242	1,091
	32	38	3.00	1,400	112			1,688	1,860	2,042	1,523	1,367	1,219	1,080	949
	45	54						1,460	1,610	1,767	1,318	1,183	1,055	935	821
	63	75	5.00	2,800	112			1,789	1,972	2,164	1,614	1,449	1,292	1,145	1,006
	90	108						1,535	1,692	1,857	1,385	1,243	1,109	982	863
	125	150	6.00	2,800	112			800	1,148	1,265	1,388	1,036	929	829	734
	180	216					928		1,023	1,123	838	752	671	594	522

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Torques at different voltages
Short-time duty S2 - 15 min, intermittent duty S4 - 25 %

Notes on table on page 1	
1) Stall torque	Stall torque indications are calculated nominal values. In practical applications, they might differ due to gear and motor tolerances.

Technical data Torques at different voltages

Short-time duty S2 - 30 min, intermittent duty S4 - 50 %

Type	Output speed		Motor			Tripping torque adjustable		Torque at stall torque ¹⁾ of the motor (without considering inertia)							
								at nominal voltage, overvoltage and undervoltage (... % U _N)							
	50 Hz [rpm]	60 Hz [rpm]	Power [kW]	Speed at 50 Hz [rpm]	Size	Min. [Nm]	Max. [Nm]	100 %	105 %	110 %	95 %	90 %	85 %	80 %	75 %
SA 07.2	4	4.8	0.01	1,400	63	10	20	96	105	116	86	77	69	61	54
	5.6	6.7						84	93	102	76	68	61	54	47
	8	9.6	0.03	1,400	63			50	55	61	45	41	36	32	28
	11	13						44	49	53	40	36	32	28	25
	16	19	0.04	2,800	63			58	64	71	53	47	42	37	33
	22	26						50	56	61	45	41	36	32	28
	32	38	0.07	1,400	63			46	50	55	41	37	33	29	26
	45	54						40	44	48	36	32	29	25	22
	63	75	0.14	2,800	63			55	61	67	50	45	40	35	31
	90	108						47	52	57	42	38	34	30	26
	125	150	0.21	2,800	63			38	42	46	34	31	27	24	21
	180	216						30	33	36	27	24	22	19	17
SA 07.6	4	4.8	0.02	1,400	63	20	40	115	127	139	104	93	83	74	65
	5.6	6.7						99	110	120	90	80	72	64	56
	8	9.6	0.04	1,400	63			99	109	120	90	80	72	64	56
	11	13						88	97	106	79	71	63	56	49
	16	19	0.08	2,800	63			106	117	128	96	86	77	68	60
	22	26						92	102	112	83	75	67	59	52
	32	38	0.14	1,400	63			112	123	135	101	90	81	71	63
	45	54						95	105	115	86	77	69	61	54
	63	75	0.28	2,800	63			112	124	136	101	91	81	72	63
	90	108						94	104	114	85	76	68	60	53
	125	150	0.35	2,800	63		30	76	84	92	69	62	55	49	43
	180	216						60	66	73	54	49	44	39	34
SA 10.2	4	4.8	0.04	1,400	71	40	90	263	290	318	237	213	190	168	148
	5.6	6.7						202	223	245	183	164	146	129	114
	8	9.6	0.08	1,400	71			209	231	253	189	170	151	134	118
	11	13						161	177	195	145	130	116	103	90
	16	19	0.17	2,800	71			193	213	234	175	157	140	124	109
	22	26						148	163	179	134	120	107	95	83
	32	38	0.28	1,400	71			209	231	253	189	170	151	134	118
	45	54						162	178	196	146	131	117	104	91
	63	75	0.50	2,800	71			231	255	280	209	187	167	148	130
	90	108						178	196	215	160	144	128	114	100
	125	150	0.70	2,800	71		70	148	164	180	134	120	107	95	83
	180	216						111	122	134	100	122	134	100	90
SA 14.2	4	4.8	0.08	1,400	90	100	180	379	418	459	342	307	274	243	213
	5.6	6.7						343	378	415	310	278	248	220	193
	8	9.6	0.18	1,400	90			358	395	434	323	290	259	229	202
	11	13						319	351	385	287	258	230	204	179
	16	19	0.30	2,800	90			356	393	431	322	289	257	228	200
	22	26						312	344	378	282	253	226	200	176
	32	38	0.50	1,400	90			393	433	475	354	318	284	251	221
	45	54						340	375	412	307	276	246	218	191
	63	75	1.00	2,800	90			454	501	550	410	368	328	291	256
	90	108						390	430	472	352	316	282	250	219
	125	150	1.30	2,800	90		140	295	325	357	266	239	213	189	166
	180	216						238	262	287	214	192	172	152	134
SA 14.6	4	4.8	0.14	1,400	90	200	360	785	865	949	708	636	567	502	441
	5.6	6.7						694	765	840	626	562	501	444	390
	8	9.6	0.30	1,400	90			696	768	842	628	564	503	446	392
	11	13						624	688	755	563	505	451	399	351
	16	19	0.60	2,800	90			774	853	936	698	627	559	495	435
	22	26						681	751	824	614	551	492	436	383
	32	38	1.00	1,400	90			929	1,025	1,125	839	753	671	595	523
	45	54						793	874	959	716	642	573	507	446
	63	75	2.00	2,800	90			967	1,066	1,170	873	783	699	619	544
	90	108						832	917	1,007	751	674	601	532	468
	125	150	2.30	2,800	90		290	632	697	765	571	512	457	405	356
	180	216						505	556	611	455	409	365	323	284
SA 16.2	4	4.8	0.30	1,400	112	400	710	1,612	1,777	1,951	1,455	1,306	1,165	1,032	907
	5.6	6.7						1,495	1,648	1,809	1,349	1,211	1,080	957	841
	8	9.6	0.60	1,400	112			1,706	1,881	2,065	1,540	1,382	1,233	1,092	960
	11	13						1,556	1,715	1,882	1,404	1,260	1,124	996	875
	16	19	1.00	2,800	112			1,830	2,017	2,214	1,651	1,482	1,322	1,171	1,029
	22	26						1,604	1,768	1,940	1,447	1,299	1,159	1,026	902
	32	38	2.00	1,400	112			1,395	1,538	1,688	1,259	1,130	1,008	893	784
	45	54						1,207	1,331	1,460	1,089	978	872	772	679
	63	75	3.50	2,800	112			1,478	1,630	1,789	1,334	1,197	1,068	946	832
	90	108						1,268	1,398	1,535	1,145	1,027	916	812	713
	125	150	4.00	2,800	112		570	948	1,046	1,148	856	768	685	607	533
	180	216						767	846	928	692	621	554	491	431

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Notes on table on page 1	
1) Stall torque	Stall torque indications are calculated nominal values. In practical applications, they might differ due to gear and motor tolerances.

AUMA NORM

Technical data Manual force at handwheel at multi-turn actuators

Standard										
Type	Output speed	Torque			Input torque at handwheel ²⁾	Permissible input torque at handwheel	Hand-wheel standard Ø	Standard required manual force ³⁾	Hand-wheel option Ø	Option required manual force ³⁾
	50 Hz	Max. [Nm]	Reduct. ratio	Factor ¹⁾	approx. [Nm]	Max. [Nm]	[mm]	approx. [N]	[mm]	approx. [N]
SA 07.2	4; 8; 16; 32; 63	30	11 : 1	4.5	7	40	160	83	200	67
	5.6; 11; 22; 45; 90		8 : 1	3.2	9			117		94
	125	25	5.6 : 1	3.4	9			111		89
	180		4 : 1	2.4	10			130		104
SA 07.6	4; 8; 16; 32; 63	60	11 : 1	4.5	13	40	160	167	200	133
	5.6; 11; 22; 45; 90		8 : 1	3.2	19			234		188
	125	50	5.6 : 1	3.4	18			222		178
	180		4 : 1	2.4	21			260		208
SA 10.2	4; 8; 16; 32; 63	120	11 : 1	4.4	27	80	200	273	250	218
	5.6; 11; 22; 45; 90		8 : 1	3.2	38			375		300
	125	100	5.6 : 1	3.3	36			364		291
	180		4 : 1	2.4	42			417		333
SA 14.2	4; 8; 16; 32; 63	250	11 : 1	4.5	56	300	315	353	400	278
	5.6; 11; 22; 45; 90		8 : 1	3.3	76			481		379
	125	200	5.6 : 1	3.4	74			470		370
	180		4 : 1	2.5	81			513		404
SA 14.6	4; 8; 16; 32; 63	500	11 : 1	4.5	111	300	400	556	500	444
	5.6; 11; 22; 45; 90		8 : 1	3.3	152			758		606
	125	400	5.6 : 1	3.4	148			741		593
	180		4 : 1	2.5	162			808		646
SA 16.2	4; 8; 16; 32; 63	1,000	11 : 1	4.5	222	600	500	889	630	705
	5.6; 11; 22; 45; 90		8 : 1	3.3	303			1,212		962
	125	800	5.6 : 1	3.4	237			948		752
	180		4 : 1	2.5	323			1,293		1,026

Option for reduction of manual force ⁴⁾										
Type	Output speed	Torque			Input torque at handwheel ²⁾	Permissible input torque at handwheel	Hand-wheel standard Ø	Standard required manual force ³⁾	Hand-wheel option Ø	Option required manual force ³⁾
	50 Hz	Max. [Nm]	Reduct. ratio	Factor ¹⁾	approx. [Nm]	Max. [Nm]	[mm]	approx. [N]	[mm]	approx. [N]
SA 07.2	4; 8; 16; 32; 63	30	45 : 1	18	2	10	160	21	200	17
	5.6; 11; 22; 45; 90		32 : 1	13	2			29		23
	125	25	22.5 : 1	14	2			28		22
	180		16 : 1	10	3			33		26
SA 07.6	4; 8; 16; 32; 63	60	45 : 1	18	3	10	160	42	200	33
	5.6; 11; 22; 45; 90		32 : 1	13	5			59		47
	125	50	22.5 : 1	14	4			56		44
	180		16 : 1	10	5			65		52
SA 10.2	4; 8; 16; 32; 63	120	45 : 1	18	7	20	200	68	250	55
	5.6; 11; 22; 45; 90		32 : 1	13	9			94		75
	125	100	22 : 1	13	9			91		73
	180		16 : 1	10	10			104		83
SA 14.2	4; 8; 16; 32; 63	250	45 : 1	18	14	75	315	88	400	69
	5.6; 11; 22; 45; 90		32 : 1	13	19			120		95
	125	200	22.5 : 1	14	19			118		93
	180		16 : 1	10	20			128		101
SA 14.6	4; 8; 16; 32; 63	500	45 : 1	18	28	75	400	139	500	111
	5.6; 11; 22; 45; 90		32 : 1	13	38			189		152
	125	400	22.5 : 1	14	37			185		148
	180		16 : 1	10	40			202		162
SA 16.2	4; 8; 16; 32; 63	1,000	45 : 1	18	56	150	500	222	630	176
	5.6; 11; 22; 45; 90		32 : 1	13	76			303		241
	125	800	22.5 : 1	14	59			237		188
	180		16 : 1	10	81			323		257

Notes on tables

1) Factor	Ratio of output torque to handwheel input torque, $f = T_{\text{output}} / T_{\text{manual}}$
2) Handwheel input torque	For maximum output torque
3) Required manual force	Required manual force at handwheel (rim pull) at max. output torque. The actually required manual force depends on the required output torque and the operating conditions.
4) Order code	Handwheel options characteristic: 000-000-000-1

Technical data Variable speed multi-turn actuators for open-close duty

Type of duty S2 - 15 min									
Type	Output speed rpm	Torque range ¹⁾		Run torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz					220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz		
SAV 07.2	6 – 60	10	30	11	60	■	■	■	■
	12 – 120		25	10		■	■	■	■
	24 – 240					■	■	■	■
SAV 07.6	6 – 60	20	60	21	60	■	■	■	■
	12 – 120		50	18		■	■	■	■
	24 – 240					■	■	■	■
SAV 10.2	6 – 60	40	120	42	60	●	■	■	■
	12 – 120		100	35		–	■	■	■
	24 – 240					–	■	■	■
SAV 14.2	6 – 60	100	250	88	60	–	■	■	■
	12 – 120		200	70		–	●	●	■
	24 – 240					–	–	▲	■
SAV 14.6	6 – 60	200	500	175	60	–	–	▲	■
	12 – 120		400	140		–	–	–	●
	24 – 240					–	–	–	●
SAV 16.2	6 – 60	400	1,000	350	60	–	–	–	●

Type of duty S2 - 30 min									
Type	Output speed rpm	Torque range ¹⁾		Run torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SAV 07.2	6 – 60	10	20	8	60	■	■	■	■
	12 – 120			■		■	■	■	
	24 – 240			■		■	■	■	
SAV 07.6	6 – 60	20	40	15	60	●	■	■	■
	12 – 120		30	13		●	■	■	■
	24 – 240					●	■	■	■
SAV 10.2	6 – 60	40	90	30	60	▲	■	■	■
	12 – 120		70	25		–	■	■	■
	24 – 240					–	■	■	■
SAV 14.2	6 – 60	100	180	63	60	–	■	■	■
	12 – 120		140	49		–	●	●	■
	24 – 240					–	–	▲	■
SAV 14.6	6 – 60	200	360	123	60	–	–	▲	■
	12 – 120		290	102		–	–	–	●
	24 – 240					–	–	–	●
SAV 16.2	6 – 60	400	710	249	60	–	–	–	●

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2)	Max. torque to approx. 50 % of maximum output speed.
3) Run torque	Permissible average torque for 15 min or 30 min running time and at maximum output speed.
■	Without restriction to +70 °C ambient temperature
●	For ambient temperatures exceeding +40 °C, restrictions may occur for max. permissible run torque, mode of operation and running time. Detailed information on request
▲	Special sizing on request

Technical data Variable speed multi-turn actuators for open-close duty

Valve attachments and weight							
Type	Output speed rpm	Valve attachment ¹⁾			Handwheel		Weight ²⁾
		Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduction ratio	approx. [kg]
SAV 07.2	6 – 60	F07	–	26	160	8 : 1	20
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SAV 07.6	6 – 60	F07	–	26	160	8 : 1	21
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SAV 10.2	6 – 60	F10	G0	40	200	8 : 1	25
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SAV 14.2	6 – 60	F14	G1/2	58	315	8 : 1	48
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SAV 14.6	6 – 60	F14	G1/2	58	400	8 : 1	53
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SAV 16.2	6 – 60	F16	G3	77	500	8 : 1	79

Notes on tables on page 2

1) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
2) Weight	Indicated weight includes SAV multi-turn actuator with 3-phase AC motor, electrical connection in standard version, output drive type B1 and handwheel.
3) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

General information

Variable speed multi-turn actuators of the SAV type range require ACV actuator controls.

Features and functions

Type of duty	Standard:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2
	Option:	Short-time duty S2 - 30 min, classes A and B according to EN 15714-2
For 100 % nominal voltage and +40 °C ambient temperature and at run torque load at maximum output speed		
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltages, mains frequency	For available mains voltages and mains frequency, refer to table on page 1. Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	
Overvoltage category	Category III according to IEC 60364-4-443	
Insulation class	Standard:	F, tropicalized
	Option:	H, tropicalized
Motor protection	Standard:	Thermoswitches (NC)
	Option:	PTC thermistors (according to DIN 44082)
Self-locking	Self-locking: Speed ranges 6 – 60 rpm and 12 – 120 rpm	
	NOT self-locking: Speed range variant 24 – 240 rpm Applications of NON self-locking speed variants with pulling loads (like protective weirs, fish-belly flap gates and sluice gates, etc.) available on request.	
	Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.	
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC
	Power depending on the size 12.5 – 25 W	
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm

Technical data Variable speed multi-turn actuators for open-close duty

Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R100-011-000 (Grundausführung)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Electronic control unit (option)

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	Standard:	-30 °C to +70 °C
	Options:	-40 °C to +70 °C
		-60 °C to +60 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	

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Technical data Variable speed multi-turn actuators for open-close duty

Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Pollution degree according to IEC 60664-1			
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Sonstiges

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Variable speed multi-turn actuators for special closed-loop and open-loop control in industrial valve automation Dimensions SAV 07.2 – SAV 16.2/SARV 07.2 – SARV 16.2 with ACV 01.2 Electrical data SAV 07.2 – SAV 16.2 Technical Data ACV 01.2 actuator controls Technical data for switches Technical data Electronic position transmitter/potentiometer Technical data Sizing of reduction gearings Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

Technical data Variable speed multi-turn actuators for open-close duty and continuous under-water use

Type of duty S2 - 15 min									
Type	Output speed rpm	Torque range ¹⁾		Run torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SAV 07.2-UW	6 – 60	10	30	11	60	■	■	■	■
	12 – 120		25	10		■	■	■	■
	24 – 240					■	■	■	■
SAV 07.6-UW	6 – 60	20	60	21	60	■	■	■	■
	12 – 120		50	18		■	■	■	■
	24 – 240					■	■	■	■
SAV 10.2-UW	6 – 60	40	120	42	60	●	■	■	■
	12 – 120		100	35		–	■	■	■
	24 – 240					–	■	■	■
SAV 14.2-UW	6 – 60	100	250	88	60	–	■	■	■
	12 – 120		200	70		–	●	●	■
	24 – 240					–	–	▲	■
SAV 14.6-UW	6 – 60	200	500	175	60	–	–	▲	■
	12 – 120		400	140		–	–	–	●
	24 – 240					–	–	–	●
SAV 16.2-UW	6 – 60	400	1 000	350	60	–	–	–	●

Type of duty S2 - 30 min									
Type	Output speed rpm	Torque range ¹⁾		Run torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SAV 07.2-UW	6 – 60	10	20	8	60	■	■	■	■
	12 – 120			■		■	■	■	
	24 – 240			■		■	■	■	
SAV 07.6-UW	6 – 60	20	40	15	60	●	■	■	■
	12 – 120		■	■		■	■		
	24 – 240		■	■		■	■		
SAV 10.2-UW	6 – 60	40	90	30	60	▲	■	■	■
	12 – 120		–	■		■	■		
	24 – 240		–	■		■	■		
SAV 14.2-UW	6 – 60	100	180	63	60	–	■	■	■
	12 – 120		–	●		●	■		
	24 – 240		–	–		▲	■		
SAV 14.6-UW	6 – 60	200	360	123	60	–	–	▲	■
	12 – 120		–	–		–	●		
	24 – 240		–	–		–	●		
SAV 16.2-UW	6 – 60	400	710	249	60	–	–	–	●

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2)	Max. torque to approx. 50 % of maximum output speed.
3) Run torque	Permissible average torque for 15 min or 30 min running time and at maximum output speed.
■	Without restriction to +70 °C ambient temperature
●	For ambient temperatures exceeding +40 °C, restrictions may occur for max. permissible run torque, mode of operation and running time. Detailed information on request
▲	Special sizing on request

Technical data Variable speed multi-turn actuators for open-close duty and continuous underwater use

Valve attachments and weight						
Type	Output speed rpm	Valve attachment ¹⁾		Handwheel (Option)		Weight ²⁾
		Standard EN ISO 5210	Option DIN 3210	Ø [mm]	Reduction ratio	approx. [kg]
SAV 07.2-UW	6 – 60	F07	–	160	8 : 1	26
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SAV 07.6-UW	6 – 60	F07	–	160	8 : 1	27
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SAV 10.2-UW	6 – 60	F10	G0	200	8 : 1	33
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SAV 14.2-UW	6 – 60	F14	G1/2	315	8 : 1	58
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SAV 14.6-UW	6 – 60	F14	G1/2	400	8 : 1	62
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SAV 16.2-UW	6 – 60	F16	G3	500	8 : 1	88

Notes on tables on page 2	
1) Valve attachment	Indicated flange sizes apply for output drive type B1. Refer to separate dimension sheets for further output drive types.
2) Weight	Indicated weight includes multi-turn actuator SAV-UW with 3-phase AC motor, electrical connection with cable gland and output drive type B1.

General information
Variable speed multi-turn actuators for continuous underwater use require AC actuator controls. Actuator controls are mounted on a wall bracket and are not immersed. A special cable set for connection between actuator and actuator controls is required.

Features and functions		
Type of duty	Standard:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2
	Option:	Short-time duty S2 - 30 min, classes A and B according to EN 15714-2
	For 100 % nominal voltage and +40 °C ambient temperature and at run torque load at maximum output speed	
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltages, mains frequency	For available mains voltages and mains frequency, refer to table on page 1. Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	
Overvoltage category	Category III according to IEC 60364-4-443	
Insulation class	Standard:	F, tropicalized
	Option:	H, tropicalized
Motor protection	Standard:	Thermoswitches (NC)
	Option:	PTC thermistors (according to DIN 44082)
Self-locking	Self-locking: Speed ranges 6 – 60 rpm and 12 – 120 rpm	
	NOT self-locking: Speed range variant 24 – 240 rpm Applications of NON self-locking speed variants with pulling loads (like protective weirs, fish-belly flap gates and sluice gates, etc.) available on request.	
	Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.	
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC
	Power depending on the size 12.5 – 25 W	
Manual operation (option)	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	

Technical data Variable speed multi-turn actuators for open-close duty and continuous underwater use

Electrical connection	The AUMA plug/socket connector is part of the cable set with wall bracket which must be ordered separately and which is customised for connection. Terminal compartment additionally sealed against interior (double sealed)	
Terminal plan	TPA00R100-011-000 (basic version)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	B3, B4, D according to EN ISO 5210; B2 on request B, D, E according to DIN 3210
	Special valve attachments: B3D, DD	

Electronic control unit

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	For continuous underwater use as well as indoor and outdoor use.	
Enclosure protection according to EN 60529	Standard:	Increased enclosure protection IP68-C15. The maximum head of water is 15 m.
	Options:	Increased enclosure protection IP68-C60. The maximum head of water is 60 m. In combination with handwheel permissible head of water of more than 15 m on request
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	-30 °C to +70 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Not valid in combination with gearboxes.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Corrosion protection	KX-G	Suitable for use in freshwater (Im1), seawater (Im2) and on seafloor (Im3), aluminium-free version (outer parts)
Coating	Two-layer powder coating with additional wet painting	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	
Sound pressure level	< 72 dB (A)	

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)	
Reference documents	Brochure Electric actuators for continuous underwater use Dimensions SA 07.2-UW – SA 16.2-UW/SAR 07.2-UW – SAR 16.2-UW, SAV 07.2-UW – SAV 16.2-UW/SARV 07.2-UW – SARV 16.2-UW for continuous underwater use Electrical data SAV 07.2 – SAV 16.2 Technical Data ACV 01.2 actuator controls Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/ SAREx 07.2 – SAEx/SAREx 16.2	

Technical data Variable speed multi-turn actuators for modulating duty

Type of duty S4 - 25 %									
Type	Output speed rpm	Torque range ¹⁾		Modulating torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SARV 07.2	6 – 60	15	30	15	1,500	■	■	■	■
	12 – 120					■	■	■	■
	24 – 240		25		1,200	■	■	■	■
SARV 07.6	6 – 60	30	60	30	1,500	■	■	■	■
	12 – 120			20		■	■	■	■
	24 – 240		50		1,200	■	■	■	■
SARV 10.2	6 – 60	60	120	60	1,500	●	■	■	■
	12 – 120			50		–	■	■	■
	24 – 240		100		1,200	–	■	■	■
SARV 14.2	6 – 60	120	250	120	1,200	–	■	■	■
	12 – 120			100		–	●	●	■
	24 – 240		200		600	–	–	▲	■
SARV 14.6	6 – 60	250	500	175	1,200	–	–	▲	■
	12 – 120			150		–	–	–	●
	24 – 240		400		600	–	–	–	●
SARV 16.2	6 – 60	500	1,000	350	900	–	–	–	●

Type of duty S4 - 50 %									
Type	Output speed rpm	Torque range ¹⁾		Modulating torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]	Max. [Nm]	Max. [1/h]	1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SARV 07.2	6 – 60	15	20	10	1,500	■	■	■	■
	12 – 120					■	■	■	■
SARV 07.6	6 – 60	30	40	20	1,500	●	■	■	■
	12 – 120			15		●	■	■	■
SARV 10.2	6 – 60	60	90	45	1,500	▲	■	■	■
	12 – 120			35		–	■	■	■
SARV 14.2	6 – 60	120	180	90	1,200	–	■	■	■
	12 – 120			70		–	●	●	■
SARV 14.6	6 – 60	250	360	125	1,200	–	–	▲	■
	12 – 120			105		–	–	–	●
SARV 16.2	6 – 60	500	710	250	900	–	–	–	●

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2)	Max. torque to approx. 50 % of maximum output speed.
3) Modulating torque	Maximum torque for modulating duty
■	Without restriction to +70 °C ambient temperature
●	For ambient temperatures exceeding +40 °C, restrictions may occur for max. permissible modulating torque, on time and the number of starts. Detailed information on request
▲	Special sizing on request

Technical data Variable speed multi-turn actuators for modulating duty

Valve attachments and weight							
Type	Output speed rpm	Valve attachment ¹⁾			Handwheel		Weight ²⁾
		Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduction ratio	approx. [kg]
SARV 07.2	6 – 60	F07	–	26	160	8 : 1	20
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SARV 07.6	6 – 60	F07	–	26	160	8 : 1	21
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SARV 10.2	6 – 60	F10	G0	40	200	8 : 1	25
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SARV 14.2	6 – 60	F14	G1/2	58	315	8 : 1	48
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SARV 14.6	6 – 60	F14	G1/2	58	400	8 : 1	53
	12 – 120					8 : 1	
	24 – 240					4 : 1	
SARV 16.2	6 – 60	F16	G3	77	500	8 : 1	79

Notes on tables on page 2

1) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
2) Weight	Angegebenes Gewicht beinhaltet Drehantrieb SARV mit Drehstrommotor, Elektroanschluss in Standardausführung, Abtrieb B1 und Handrad.
3) Rising valve stem	Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm

General information

Variable speed multi-turn actuators of the SARV type range require ACV actuator controls.

Features and functions

Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2
	Option:	Intermittent duty S4 - 50 %, class C according to EN 15714-2
	For 100 % nominal voltage and +40 °C ambient temperature and at modulating torque load.	
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltages, mains frequency	For available mains voltages and mains frequency, refer to table on page 1. Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	
Overvoltage category	Category III according to IEC 60364-4-443	
Insulation class	Standard:	F, tropicalized
	Option:	H, tropicalized
Motor protection	Standard:	Thermoswitches (NC)
	Option:	PTC thermistors (according to DIN 44082)
Self-locking	Self-locking: Speed ranges 6 – 60 rpm and 12 – 120 rpm	
	NOT self-locking: Speed range variant 24 – 240 rpm Applications of NON self-locking speed variants with pulling loads (like protective weirs, fish-belly flap gates and sluice gates, etc.) available on request.	
	Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.	
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC
	Power depending on the size 12.5 – 25 W	

Technical data Variable speed multi-turn actuators for modulating duty

Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Terminal plan	TPA00R100-0I1-000 (Grundausführung)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4, C according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachments: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem	

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)	
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact material	Standard:	Silver (Ag)
	Options:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (electronic position transmitter)	
Mechanical position indicator (option)	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC	

Electronic control unit (option)

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator (option)	Continuous self-adjusting indication with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level
	> 2,000 m above sea level on request

Technical data Variable speed multi-turn actuators for modulating duty

Ambient temperature	Standard:	-30 °C to +70 °C	
	Options:	-40 °C to +70 °C -60 °C to +60 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements:		
	• Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		
Sound pressure level	< 72 dB (A)		

Further information			
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)		
	Low Voltage Directive: (2014/35/EU)		
	Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Variable speed multi-turn actuators for special closed-loop and open-loop control in industrial valve automation		
	Dimensions SAV 07.2 – SAV 16.2/SARV 07.2 – SARV 16.2 with ACV 01.2		
	Electrical data SARV 07.2 – SARV 16.2		
	Technical Data ACV 01.2 actuator controls		
	Technical data for switches		
	Technical data Electronic position transmitter/potentiometer		
	Technical data Sizing of reduction gearings		
	Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/SAREx 07.2 – SAEx/SAREx 16.2		

**Technical data Variable speed multi-turn actuators for modulating duty
for continuous underwater use**

Type of duty S4 - 25 %									
Type	Output speed rpm	Torque range ¹⁾		Modulating torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]			1-phase AC		3-phase AC	
						110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SARV 07.2-UW	6 – 60	15	30	15	1 500	■	■	■	■
	12 – 120		25		1,200	■	■	■	■
	24 – 240					■	■	■	■
SARV 07.6-UW	6 – 60	30	60	30	1 500	■	■	■	■
	12 – 120		20	1,200	■	■	■	■	
	24 – 240				50	■	■	■	■
SARV 10.2-UW	6 – 60	60	120	60	1 500	●	■	■	■
	12 – 120		50	1,200	–	■	■	■	
	24 – 240				100	–	■	■	■
SARV 14.2-UW	6 – 60	120	250	120	1,200	–	■	■	■
	12 – 120		100	600	–	●	●	■	
	24 – 240				200	–	–	▲	■
SARV 14.6-UW	6 – 60	250	500	175	1,200	–	–	▲	■
	12 – 120		150	600	–	–	–	●	
	24 – 240				400	–	–	–	●
SARV 16.2-UW	6 – 60	500	1 000	350	900	–	–	–	●

Type of duty S4 - 50 %									
Type	Output speed rpm	Torque range ¹⁾		Modulating torque ³⁾	Number of starts	Available mains voltage/mains frequency			
		Min. [Nm]	Max. ²⁾ [Nm]			1-phase AC		3-phase AC	
				Max. [Nm]	Max. [1/h]	110 V – 120 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	220 V – 240 V/ 50 – 60 Hz	380 V – 480 V/ 50 – 60 Hz
SARV 07.2-UW	6 – 60	15	20	10	1 500	■	■	■	■
	12 – 120					■	■	■	■
SARV 07.6-UW	6 – 60	30	40	20	1 500	●	■	■	■
	12 – 120			15		●	■	■	■
SARV 10.2-UW	6 – 60	60	90	45	1 500	▲	■	■	■
	12 – 120			35		–	■	■	■
SARV 14.2-UW	6 – 60	120	180	90	1,200	–	■	■	■
	12 – 120			70		–	●	●	■
SARV 14.6-UW	6 – 60	250	360	125	1,200	–	–	▲	■
	12 – 120			105		–	–	–	●
SARV 16.2-UW	6 – 60	500	710	250	900	–	–	–	●

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2)	Max. torque to approx. 50 % of maximum output speed.
3) Modulating torque	Maximum permissible torque for modulating duty
■	Without restriction to +70 °C ambient temperature
●	For ambient temperatures exceeding +40 °C, restrictions may occur for max. permissible modulating torque, on time and the number of starts. Detailed information on request
▲	Special sizing on request

Technical data Variable speed multi-turn actuators for modulating duty for continuous underwater use

Valve attachments and weight						
Type	Output speed rpm	Valve attachment ¹⁾		Handwheel (Option)		Weight ²⁾
		Standard EN ISO 5210	Option DIN 3210	Ø [mm]	Reduction ratio	approx. [kg]
SARV 07.2-UW	6 – 60	F07	–	160	8 : 1	26
	12 – 120	F10	G0		8 : 1	
	24 – 240				4 : 1	
SARV 07.6-UW	6 – 60	F07	–	160	8 : 1	27
	12 – 120	F10	G0		8 : 1	
	24 – 240				4 : 1	
SARV 10.2-UW	6 – 60	F10	G0	200	8 : 1	33
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SARV 14.2-UW	6 – 60	F14	G1/2	315	8 : 1	58
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SARV 14.6-UW	6 – 60	F14	G1/2	400	8 : 1	62
	12 – 120				8 : 1	
	24 – 240				4 : 1	
SARV 16.2-UW	6 – 60	F16	G3	500	8 : 1	88

Notes on tables on page 2	
1) Valve attachment	Indicated flange sizes apply for output drive type B1. Refer to separate dimension sheets for further output drive types.
2) Weight	Indicated weight includes multi-turn actuator SAV-UW with 3-phase AC motor, electrical connection with cable gland and output drive type B1.

General information	
Variable speed multi-turn actuators for continuous underwater use require AC actuator controls. Actuator controls are mounted on a wall bracket and are not immersed. A special cable set for connection between actuator and actuator controls is required.	

Features and functions		
Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2
	Option:	Intermittent duty S4 - 50 %, class C according to EN 15714-2
	For 100 % nominal voltage and +40 °C ambient temperature and at modulating torque load.	
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltages, mains frequency	For available mains voltages and mains frequency, refer to table on page 1. Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	
Overvoltage category	Category III according to IEC 60364-4-443	
Insulation class	Standard:	F, tropicalized
	Option:	H, tropicalized
Motor protection	Standard:	Thermoswitches (NC)
	Option:	PTC thermistors (according to DIN 44082)
Self-locking	Self-locking: Speed ranges 6 – 60 rpm and 12 – 120 rpm NOT self-locking: Speed range variant 24 – 240 rpm Applications of NON self-locking speed variants with pulling loads (like protective weirs, fish-belly flap gates and sluice gates, etc.) available on request. Multi-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.	
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 – 480 V AC
	Power depending on the size 12.5 – 25 W	
Manual operation (option)	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)	

Technical data Variable speed multi-turn actuators for modulating duty for continuous underwater use

Electrical connection	The AUMA plug/socket connector is part of the cable set with wall bracket which must be ordered separately and which is customised for connection. Terminal compartment additionally sealed against interior (double sealed)	
Terminal plan	TPA00R100-011-000 (basic version)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	B3, B4, D according to EN ISO 5210; B2 on request B, D, E according to DIN 3210
	Special valve attachments: B3D, DD	

Electronic control unit

Non-Intrusive setting	MWG magnetic limit and torque transmitter Turns per stroke: 1 to 500 (standard) or 10 to 5,000 (option)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	For continuous underwater use as well as indoor and outdoor use.	
Enclosure protection according to EN 60529	Standard:	Increased enclosure protection IP68-C15. The maximum head of water is 15 m.
	Options:	Increased enclosure protection IP68-C60. The maximum head of water is 60 m. In combination with handwheel permissible head of water of more than 15 m on request
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	-30 °C to +70 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Not valid in combination with gearboxes.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Corrosion protection	KX-G	Suitable for use in freshwater (Im1), seawater (Im2) and on seafloor (Im3), aluminium-free version (outer parts)
Coating	Two-layer powder coating with additional wet painting	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA multi-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	
Sound pressure level	< 72 dB (A)	

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)	
Reference documents	Brochure Electric actuators for continuous underwater use Dimensions SA 07.2-UW – SA 16.2-UW/SAR 07.2-UW – SAR 16.2-UW, SAV 07.2-UW – SAV 16.2-UW/SARV 07.2-UW – SARV 16.2-UW for continuous underwater use Electrical data SARV 07.2 – SARV 16.2 Technical Data ACV 01.2 actuator controls Technical data Manual force at handwheel at multi-turn actuators SA/SAR 07.2 – SA/SAR 16.2, SAEx/ SAREx 07.2 – SAEx/SAREx 16.2	

Type	Operating time for 90° in seconds		Torque range ¹⁾		Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	Two-flat max. [mm]	Ø mm	Turns for 90°	approx. [kg]
SQ 05.2	4	3	50	150	F05/F07	F10	25.4	22	22	160	11	21 ²⁾ 27 ³⁾
	5.6	4.5									16	
	8	6									11	
	11	9									16	
	16	12									11	
	22	17									16	
	32	25									11	
	63	50									11	
SQ 07.2	4	3	100	300	F05/F07	F10	25.4	22	22	160	11	21 ²⁾ 27 ³⁾
	5.6	4.5									16	
	8	6									11	
	11	9									16	
	16	12									11	
	22	17									16	
	32	25									11	
	63	50									11	
SQ 10.2	8	6	200	450	F10	F12	38	30	27	200	11	26 ²⁾ 31 ³⁾
	11	9		600							15	
	16	12									11	
	22	17									15	
	32	25									11	
	45	35									15	
	63	50									11	
SQ 12.2	11	9	400	900	F12	F14	50	36	41	200	30	35 ²⁾ 43 ³⁾
	16	12		1,200							22	
	22	17									30	
	32	25									22	
	45	35									30	
	63	50									22	
	90	75									30	
	125	108									22	
SQ 14.2	24	20	800	1,800	F14	F16	60	46	46	200	70	44 ²⁾ 55 ³⁾
	36	30		2,400							51	
	48	40									70	
	72	60									51	
	100	85									70	

General information

Part-turn actuators AUMA NORM require external controls.

For sizes SQ 05.2 – SQ 14.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Weight	Indicated weight includes part-turn actuator AUMA NORM with 3-phase AC motor, standard electrical connection, unbored coupling and handwheel
3) Weight with base and lever	Indicated weight includes part-turn actuator AUMA NORM with 3-phase AC motor, standard electrical connection, and handwheel, including base and lever

Features and functions

Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2
	For nominal voltage, +40 °C ambient temperature and at load with 35 % of the max. torque
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

Technical data Part-turn actuators for open-close duty with 3-phase AC motors

Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
Permissible variation of mains frequency: ±5 %												
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	Standard:	Thermoswitches (NC)										
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.										
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 - 480 V AC										
	Power:	12.5 W										
Swing angle	Standard:	Adjustable between 75° and < 105°										
	Optionen:	15° to < 45°, 45° bis < 75°, 105° to < 135°, 135° to < 165°, 165° to < 195°, 195° to < 225°										
Self-locking	Yes (Part-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.)											
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation											
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm										
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact) For further information refer to separate data sheet Technical data for switches.											
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection										
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)										
Threads for cable entries	Standard:	Metric threads										
	Options:	Pg-threads, NPT-threads, G-threads										
Terminal plan	TPA 00R1AA-101-000 (Basic version)											
Splined coupling for connection to the valve shaft	Standard:	Coupling without bore										
	Options:	Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211										
Valve attachment	Dimensions according to EN ISO 5211 without spigot											

With base and lever (option)

Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet
Fixing	Base with four holes for fastening screws

Electromechanical control unit	
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)
	Standard: Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options: Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE
	Standard: Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option: Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard: Silver (Ag)
	Option: Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20mA (electronic position transmitter)
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinker transmitter
Heater in switch compartment	Standard: Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options: 24 – 48 V AC/DC or 380 – 400 V AC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with the AM or AC actuator controls.

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level
	> 2,000 m above sea level on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –40 °C to +70 °C
	–60 °C to +60 °C
	0 °C to +120 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68 with AUMA 3-phase AC motor
	Option: Terminal compartment additionally sealed against interior of actuator (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid part-turn actuators in version AUMA NORM (with AUMA plug/socket connector, without actuator controls).

Technical data Part-turn actuators for open-close duty with 3-phase AC motors

Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA part-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Part-turn actuators SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2 Electrical data Part-turn actuators SQ 05.2 – SQ 14.2 with 3-phase AC motors Technical data Electronic position transmitter/potentiometer Technical data for switches Technical data Sizing of reduction gearings

Type	Operating time for 90° in seconds		Torque range ¹⁾		Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	Two-flat max. [mm]	Ø mm	Turns for 90°	approx. [kg]
SQ 05.2	4	3	50	150	F05/F07	F10	25.4	22	22	160	11	23 ²⁾ 29 ³⁾
	5.6	4.5									16	
	8	6									11	
	11	9									16	
	16	12									11	
	22	17									16	
	32	25									11	
	63	50									11	
SQ 07.2	4	3	100	300	F05/F07	F10	25.4	22	22	160	11	23 ²⁾ 29 ³⁾
	5.6	4.5									16	
	8	6									11	
	11	9									16	
	16	12									11	
	22	17									16	
	32	25									11	
	63	50									11	
SQ 10.2	8	6	200	450	F10	F12	38	30	27	200	11	28 ²⁾ 32 ³⁾
	11	9		15								
	16	12		11								
	22	17		15								
	32	25		11								
	45	35		15								
	63	50		11								
SQ 12.2	11	9	400	900	F12	F14	50	36	41	200	30	37 ²⁾ 45 ³⁾
	16	12		22								
	22	17		30								
	32	25		22								
	45	35		30								
	63	50		22								
	90	75		30								
	125	108		22								
SQ 14.2	24	20	800	1,800	F14	F16	60	46	46	200	70	46 ²⁾ 57 ³⁾
	36	30		51								
	48	40		70								
	72	60		51								
	100	85		70								

General information

Part-turn actuators AUMA NORM require external controls.

For sizes SQ 05.2 – SQ 14.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Weight	Indicated weight includes part-turn actuator AUMA NORM with 1-phase AC motor, electrical connection in standard version, unbored coupling and handwheel
3) Weight with base and lever	Indicated weight includes AUMA NORM part-turn actuator with 1-phase AC motor, electrical connection in standard version, and handwheel, including base and lever

Features and functions

Type of duty	Short-time duty S2 - 10 min, classes A and B according to EN 15714-2 For nominal voltage, +40 °C ambient temperature and at load with 35 % of the max. torque
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

Technical data Part-turn actuators for open-close duty with 1-phase AC motors

Mains voltage, mains frequency	Standard voltages:				
	1-phase AC current				
	Voltages/frequencies				
	Volt	110 – 120	110 – 120	220 – 240	220 – 240
	Hz	50	60	50	60
	Further voltages on request				
Permissible variation of mains voltage: ±10 %					
Permissible variation of mains frequency: ±5 %					
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	Standard:	F, tropicalized			
	Option:	H, tropicalized			
Motor protection	Standard:	Thermoswitches (NC)			
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.			
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC			
	Power:	12.5 W			
Swing angle	Standard:	Adjustable between 75° and < 105°			
	Options:	15° to < 45°, 45° bis < 75°, 105° to < 135°, 135° to < 165°, 165° to < 195°, 195° to < 225°			
Self-locking	Yes (Part-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.)				
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation				
	Options:	Handwheel lockable			
		Handwheel stem extension			
Indication for manual operation (option)	Power tool for emergency operation with square 30 mm or 50 mm				
	Indication whether manual operation is active/not active via single switch (1 change-over contact) For further information refer to separate data sheet Technical data for switches.				
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection			
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)			
Threads for cable entries	Standard:	Metric threads			
	Options:	Pg-threads, NPT-threads, G-threads			
Terminal plan	TPA01R1AA-101-000, 1-phase AC motor with permanent split capacitor				
Splined coupling for connection to the valve shaft	Standard:	Coupling without bore			
	Options:	Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211			
Valve attachment	Dimensions according to EN ISO 5211 without spigot				

With base and lever (option)

Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet
Fixing	Base with four holes for fastening screws

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED			
	Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)			
	Standard:	Single switch (1 NC and 1 NO) for each end position, not galvanically isolated		
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation		

Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20mA (electronic position transmitter)	
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with the AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)

Non-Intrusive setting	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request		
Ambient temperature	Standard:	–30 °C to +70 °C	
	Options:	–40 °C to +70 °C –60 °C to +60 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range		
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motor	
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for part-turn actuators in version AUMA NORM and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA part-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)
	Low Voltage Directive: (2014/35/EU)
	Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation
	Electrical data Part-turn actuators SQ 05.2 – SQ 14.2 with 1-phase AC motor
	Technical data Electronic position transmitter/potentiometer
	Technical data for switches
	Technical data Sizing of reduction gearings

Technical data Part-turn actuators for open-close duty with DC motors							SG 05.1 – SG 12.1 AUMA NORM					
Type	Operating time for 90° in seconds	Torque range ¹⁾		Running torque ²⁾ for type of duty	Valve attachment		Valve shaft			Handwheel		approx. kg ³⁾
		min. Nm	max. Nm		max. Nm	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. mm	Square max. mm	Two-flat max. mm	Ø mm	
SG 05.1	5 – 10 8 – 15	100	150	75	F05	F07	25.4	22	22	160	58	19
SG 07.1	10 – 15 15 – 25	120	300	150	F07	F10	25.4	22	22	160	58	19
SG 10.1	20 – 25 30 – 45	250	600	300	F10	F12	38	30	27	160	107	25
SG 12.1	30 – 45 45 – 65	500	1.200 840	600 420	F12	F14	50	36	41	160	110	29

General information

Part-turn actuators AUMA NORM require external controls. AUMA offers actuator controls AUMA MATIC or AUMATIC. These can also easily be mounted to the actuator at a later date.

Features and functions

Type of duty ⁴⁾	Short-time duty S2 - 15 min				
Motors	DC shunt motor, type IM B14 according to IEC 60034				
Mains voltage	Standard voltages: DC voltages <table><tr><td>Volt</td><td>24</td><td>110</td><td>220</td></tr></table> Permissible variation of the mains voltage: ±10 %	Volt	24	110	220
Volt	24	110	220		
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	Standard: F, tropicalized				
Motor protection	Standard: Thermoswitches				
Self-locking	Yes				
Swing angle	Standard: 80° to 110° adjustable between min. and max. values Options: 30° – 40°, 40° – 55°, 55° – 80°, 110° – 160°, 160° – 230° or 230° – 320°				
Limit switching	Counter gear mechanism for end positions CLOSED and OPEN Standard: Single switches (1 NC and 1 NO) for each end position, switches not galvanically isolated Options: Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated Triple switches (3 NC and 3 NO) for each end position, switches galvanically isolated Intermediate position switch (DUO limit switching), adjustable for any position				
Torque switching	Torque switching adjustable for directions OPEN and CLOSE Standard: Single switch (1 NC and 1 NO) for each direction, switches not galvanically isolated Options: Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated				
Non-intrusive setting (option)	Magnetic limit and torque transmitter MWG (only possible in combination with AUMATIC actuator controls)				
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20 mA (RWG)				
Torque feedback signal, analogue (option)	Only in combination with magnetic limit and torque transmitter MWG and controls AUMATIC AC				
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED				
Running indication	Blinker transmitter				
Heater in switch compartment	Standard: Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC Options: 24 – 48 V AC/DC or 380 – 400 V AC A resistance type heater (5 W, 24 V DC) is installed within the actuator in combination with the actuator controls AUMA MATIC or AUMATIC.				
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation. Option: Handwheel lockable				
Electrical connection	AUMA plug/socket connector with screw-type connection				

1) Tripping torque adjustable for both directions

2) Permissible average torque for a travel of 90°

3) Weight for part-turn actuator AUMA NORM with DC motor, standard electrical connection, unbored coupling and handwheel

4) Based on 20 °C ambient temperature and at an average load with running torque

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

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SG 05.1 – SG 12.1 AUMA NORM		Technical data Part-turn actuators for open-close duty with DC motors	
Threads for cable entries	Standard: Metric threads Options: Pg-threads, NPT-threads, G-threads		
Terminal plan	TPA17R1AA-101-000 (basic version)		
Splined coupling for connection to the valve shaft	Standard: Coupling without bore Options: Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211		
Valve attachment	Dimensions according to EN ISO 5211		
Service conditions			
Use	Indoor and outdoor use permissible		
Mounting position	Any position		
Installation altitude	Standard: ≤ 2,000 m above sea level Option: > 2,000 m above sea level, please contact AUMA		
Ambient temperature	–40 °C to +70 °C		
Enclosure protection according to EN 60529	Standard: IP 67 Options: IP 68 IP 67-DS (Double Sealed) IP 68-DS (Double Sealed) (Double Sealed: Terminal compartment additionally sealed against interior)		
Pollution degree	Pollution degree 4		
Corrosion protection	Options: KS Suitable for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. in waste water treatment plants, chemical industry) KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration KG Same as KX, however aluminium-free version (outer parts)		
Finish coating	Powder coating		
Standard colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Other colours are possible on request.		
Lifetime	Operating cycles (OPEN-CLOSE-OPEN) for 90° SG 05.1 – SG 07.1: 20,000 SG 10.1: 15,000 SG 12.1: 10,000		
Further information			
EU Directives	Electromagnetic Compatibility (EMC): (2004/108/EC) Low Voltage Directive: (2006/95/EC) Machinery Directive: (2006/42/EC)		
Reference documents	Product description “Electric part-turn actuators SG” Dimension sheets SG Electrical data SG Technical data for switches Technical data Electronic position transmitter/potentiometer		
</			

Type	Operating time for 90° in seconds		Torque range ¹⁾			Modulating torque ²⁾		Number of starts	Pulse duration ³⁾	Pulse duration on reversal ⁴⁾	Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]	S4-25% Max. [Nm]	S4-50% Max. [Nm]				Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	
SQR 05.2	8	6	75	150	110	75	55	1,500	50	160	F05/F07	F10	25,4	22	22	160	11	21 ⁵⁾ 27 ⁶⁾
	11	9								200							16	
	16	12								265							11	
	22	17			350		16											
	32	25			480		11											
	63	50			800		11											
SQR 07.2	8	6	150	300	220	150	110	1,500	50	160	F05/F07	F10	25,4	22	22	160	11	21 ⁵⁾ 27 ⁶⁾
	11	9								200							16	
	16	12								265							11	
	22	17			350		16											
	32	25			480		11											
	63	50			800		11											
SQR 10.2	11	9	300	600	420	300	210	1,500	50	200	F10	F12	38	30	27	200	15	26 ⁵⁾ 31 ⁶⁾
	16	12								265							11	
	22	17								350							15	
	32	25			480		11											
	45	35			650		15											
	63	50			900		11											
SQR 12.2	16	12	600	1,200	840	600	420	1,500	50	180	F12	F14	50	36	41	200	22	35 ⁵⁾ 43 ⁶⁾
	22	17								230							30	
	32	25								320							22	
	45	35			430		30											
	63	50			580		22											
	90	75			800		30											
SQR 14.2	125	108	1 200	2,400	1,680	1,200	840	1,500	50	1 000	F14	F16	60	46	46	200	22	44 ⁵⁾ 55 ⁶⁾
	36	30								250							51	
	48	40								315							70	
	72	60								450							51	
	100	85								600							70	

General information

Part-turn actuators AUMA NORM require external controls.

For sizes SQR 05.2 – SQR 14.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Weight	Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor, electrical connection in standard version, unbored coupling and handwheel
6) Weight with base and lever	Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor, electrical connection in standard version, and handwheel, including base and lever

Features and functions

Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN 15714-2
	Option:	Intermittent duty S4 - 50 %, class C according to EN 15714-2
	For nominal voltage, +40 °C ambient temperature and at modulating torque load.	
Motors	3-phase AC asynchronous motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	

Mains voltage, mains frequency	Standard voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages:											
	3-phase AC current Voltages/frequencies											
	Volt	220	440	525	575	600	660	690				
	Hz	50	50	50	60	60	50	50				
	Further voltages on request											
	Permissible variation of mains voltage: ±10 %											
Permissible variation of mains frequency: ±5 %												
Overvoltage category	Category III according to IEC 60364-4-443											
Insulation class	Standard:	F, tropicalized										
	Option:	H, tropicalized										
Motor protection	Standard:	Thermoswitches (NC)										
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.										
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC or 380 - 480 V AC										
	Power:	12.5 W										
Swing angle	Standard:	Adjustable between 75° and < 105°										
	Options:	15° to < 45°, 45° bis < 75°, 105° to < 135°, 135° to < 165°, 165° to < 195°, 195° to < 225°										
Self-locking	Yes (Part-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.)											
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation											
	Options:	Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm										
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact)											
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection										
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)										
Threads for cable entries	Standard:	Metric threads										
	Options:	Pg-threads, NPT-threads, G-threads										
Terminal plan	TPA 00R1AA-001-000 (basic version)											
Splined coupling for connection to the valve shaft	Standard:	Coupling without bore										
	Options:	Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211										
Valve attachment	Dimensions according to EN ISO 5211 without spigot											

With base and lever (option)

Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet
Fixing	Base with four holes for fastening screws

Electromechanical control unit	
Limit switching	Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option)
	Standard: Single switch (1 NC and 1 NO) for each end position, not galvanically isolated
	Options: Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation
Torque switching	Torque switching adjustable for directions OPEN and CLOSE
	Standard: Single switch (1 NC and 1 NO) for each direction, not galvanically isolated
	Option: Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated
Switch contact materials	Standard: Silver (Ag)
	Option: Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20mA (electronic position transmitter)
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication (option)	Blinker transmitter
Heater in switch compartment	Standard: Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options: 24 – 48 V AC/DC or 380 – 400 V AC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with the AM or AC actuator controls.

Electronic control unit (option, only in combination with AC actuator controls)	
Non-Intrusive setting	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level
	> 2,000 m above sea level on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –40 °C to +70 °C
	–60 °C to +60 °C
Enclosure protection according to EN 60529	Standard: IP68 with AUMA 3-phase AC motor
	Option: Terminal compartment additionally sealed against interior of actuator (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for part-turn actuators in version AUMA NORM and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.

Technical data Part-turn actuators for modulating duty with 3-phase AC motors

Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G	Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA part-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Part-turn actuators SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2 Electrical data Part-turn actuators SQR 05.2 – SQR 14.2 with 3-phase AC motors Technical data Electronic position transmitter/potentiometer Technical data for switches Technical data Sizing of reduction gearings

AUMA NORM

Technical data Part-turn actuators for modulating duty with 1-phase AC motors

Type	Operating time for 90° in seconds		Torque range ¹⁾		Modulating torque ²⁾	Number of starts	Pulse duration ³⁾	Pulse duration on reversal ⁴⁾	Valve attachment		Valve shaft			Handwheel		Weight
	50 Hz	60 Hz	Min. [Nm]	Max. [Nm]	Max. [Nm]	Max. [1/h]	[ms]	[ms]	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	Two-flat max. [mm]	Ø [mm]	Turns for 90°	approx. [kg]
SQR 05.2	8	6	75	150	75	1,500	50	160	F05/F07	F10	25.4	22	22	160	11	23 ⁵⁾ 29 ⁶⁾
	11	9						200							16	
	16	12						265							11	
	22	17						350							16	
	32	25						480							11	
	63	50						800							11	
SQR 07.2	8	6	150	300	150	1,500	50	160	F05/F07	F10	25.4	22	22	160	11	23 ⁵⁾ 29 ⁶⁾
	11	9						200							16	
	16	12						265							11	
	22	17						350							16	
	32	25						480							11	
	63	50						800							11	
SQR 10.2	11	9	300	600	300	1,500	50	200	F10	F12	38	30	27	200	15	28 ⁵⁾ 32 ⁶⁾
	16	12						265							11	
	22	17						350							15	
	32	25						480							11	
	45	35						650							15	
	63	50						900							11	
SQR 12.2	16	12	600	900	450	1,500	50	180	F12	F14	50	36	41	200	22	37 ⁵⁾ 45 ⁶⁾
	22	17		1,200	600			230							30	
	32	25						320							22	
	45	35						430							30	
	63	50						580							22	
	90	75						800							30	
125	108	1,000						22								
SQR 14.2	36	30	1,200	1,800	900	1,500	50	250	F14	F16	60	46	46	200	51	46 ⁵⁾ 57 ⁶⁾
	48	40		2,400	1,200			315							70	
	72	60						450							51	
	100	85						600							70	

General information

Part-turn actuators AUMA NORM require external controls.

For sizes SQR 05.2 – SQR 14.2, AUMA offer AM or AC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table

1) Torque range	The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Modulating torque	Maximum permissible torque for modulating duty
3) Pulse duration	For identical direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
4) Pulse duration on reversal	For reversal of direction of rotation: time during which the motor must be electrically supplied until there is a movement at the output drive.
5) Weight	Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor, electrical connection in standard version, unbored coupling and handwheel
6) Weight with base and lever	Indicated weight includes AUMA NORM part-turn actuator with 3-phase AC motor, electrical connection in standard version, and handwheel, including base and lever

Features and functions

Type of duty	Intermittent duty S4 - 20 %, class C according to EN 15714-2 For nominal voltage, +40 °C ambient temperature and at modulating torque load.
Motors	1-phase AC motor with integral permanent split capacitor (PSC), type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6

Technical data Part-turn actuators for modulating duty with 1-phase AC motors

Mains voltage, mains frequency	Standard voltages:				
	1-phase AC current				
	Voltages/frequencies				
	Volt	110 – 120	110 – 120	220 – 240	220 – 240
	Hz	50	60	50	60
	Further voltages on request				
	Permissible variation of mains voltage: ±10 %				
	Permissible variation of mains frequency: ±5 %				
Overvoltage category	Category III according to IEC 60364-4-443				
Insulation class	Standard:	F, tropicalized			
	Option:	H, tropicalized			
Motor protection	Standard:	Thermoswitches (NC)			
	Option:	PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the actuator controls.			
Motor heater (option)	Voltages:	110 – 120 V AC, 220 – 240 V AC			
	Power:	12.5 W			
Swing angle	Standard:	Adjustable between 75° and < 105°			
	Options:	15° to < 45°, 45° bis < 75°, 105° to < 135°, 135° to < 165°, 165° to < 195°, 195° to < 225°			
Self-locking	Yes (Part-turn actuators are self-locking if the valve position cannot be changed from standstill while torque acts upon the output drive.)				
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation				
	Options:	Handwheel lockable			
		Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm			
Indication for manual operation (option)	Indication whether manual operation is active/not active via single switch (1 change-over contact) For further information refer to separate data sheet Technical data for switches.				
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection			
	Options:	Terminals or crimp connection Gold-plated control plug (sockets and plugs)			
Threads for cable entries	Standard:	Metric threads			
	Options:	Pg-threads, NPT-threads, G-threads			
Terminal plan	TPA01R1AA-001-000 (Basic version)				
Splined coupling for connection to the valve shaft	Standard:	Coupling without bore			
	Options:	Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211			
Valve attachment	Dimensions according to EN ISO 5211 without spigot				

With base and lever (option)

Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet
Fixing	Base with four holes for fastening screws

Electromechanical control unit

Limit switching	Counter gear mechanism for end positions OPEN and CLOSED		
	Standard:	Single switch (1 NC and 1 NO) silver contact (Ag) for each end position, not galvanically isolated	
	Options:	Tandem switch (2 NC and 2 NO) for each end position, switch galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switch galvanically isolated Intermediate position switches (DUO limit switching), adjustable for each direction of operation Gold plated contacts (Au), recommended for low voltage actuator controls	

Torque switching	Torque switching adjustable for directions OPEN and CLOSE	
	Standard:	Single switch (1 NC and 1 NO) silver contact (Ag) for each direction, not galvanically isolated
	Options:	Tandem switch (2 NC and 2 NO) for each direction, switch galvanically isolated Gold plated contacts (Au), recommended for low voltage actuator controls
Switch contact materials	Standard:	Silver (Ag)
	Option:	Gold (Au), recommended for low voltage actuator controls
Position feedback signal, analogue (options)	Potentiometer or 0/4 – 20mA (electronic position transmitter)	
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication (option)	Blinker transmitter	
Heater in switch compartment	Standard:	Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC
	Options:	24 – 48 V DC/DC
	A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with the AM or AC actuator controls.	

Electronic control unit (option, only in combination with AC actuator controls)

Non-Intrusive setting	Magnetic limit and torque transmitter (MWG)
Position feedback signal	Via actuator controls
Torque feedback signal	Via actuator controls
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED
Running indication	Blinking signal via actuator controls
Heater in switch compartment	Resistance type heater with 5 W, 24 V AC

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level	
	> 2,000 m above sea level on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–40 °C to +70 °C
		–60 °C to +60 °C
Enclosure protection according to EN 60529	Standard:	IP68 with AUMA 1-phase AC motor
	Option:	Terminal compartment additionally sealed against interior of actuator (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	2 g, 10 to 200 Hz (AUMA NORM), 1 g, 10 to 200 Hz (for actuators with AM or AC integral controls) Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for part-turn actuators in version AUMA NORM and in version with integral actuator controls, each with AUMA plug/socket connector. Not valid in combination with gearboxes.	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Corrosion protection	Standard:	KS Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Options:	KX Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
		KX-G Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination	

Technical data Part-turn actuators for modulating duty with 1-phase AC motors

Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Lifetime	AUMA part-turn actuators meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.	

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)
	Low Voltage Directive: (2014/35/EU)
	Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation
	Electrical data Part-turn actuators SQR 05.2 – SQR 14.2 with 1-phase AC motor
	Technical data Electronic position transmitter/potentiometer
	Technical data for switches
	Technical data Sizing of reduction gearings

SQ/SQR 05.2 – SQ/SQR 14.2, SQEx/SQREx 05.2 – SQEx/SQREx 14.2

Technical data Torques at different voltages for 3-phase AC motors

Short-time duty S2 - 15 min, intermittent duty S4 - 25 %

Type	Operating time for 90° in seconds		Motor			Tripping torque adjustable		Torque at stall torque of the motor (without considering inertia) at nominal voltage, overvoltage and undervoltage (... % U _N)									
	50 Hz	60 Hz	Power [kW]	Speed at 50 Hz [rpm]	Size	Min. [Nm]	Max. [Nm]	100 %	105 %	110 %	95 %	90 %	85 %	80 %	75 %		
SQ 05.2	4 ²⁾	3 ²⁾	0.06	2,800	63	50	150	302	333	365	272	244	218	193	170		
	5.6 ²⁾	4.5 ²⁾						349	385	423	315	283	252	224	196		
	8	6	0.04	1,400	63			264	291	319	238	213	190	169	148		
	11	9						301	332	364	272	244	218	193	169		
	16	12	0.02	1,400	63			417	460	505	377	338	302	267	235		
	22	17						473	522	573	427	383	342	303	266		
	32	25	0.01	1,400	63			507	559	613	457	411	366	324	285		
	63	50						507	559	613	457	411	366	324	285		
SQ 07.2	4 ²⁾	3 ²⁾	0.12	2,800	63	100	300	554	611	670	500	449	400	354	311		
	5.6 ²⁾	4.5 ²⁾						635	700	769	573	515	459	407	357		
	8	6	0.06	1,400	63			525	578	635	473	425	379	336	295		
	11	9						594	655	719	536	481	429	380	334		
	16	12	0.03	1,400	63			595	656	720	537	482	430	381	335		
	22	17						689	760	834	622	558	498	441	388		
	32	25	0.01	1,400	63			568	626	687	512	460	410	363	319		
	63	50						568	626	687	512	460	410	363	319		
SQ 10.2	8 ²⁾	6 ²⁾	0.10	1,400	63	200	450	650	717	787	587	527	470	416	366		
	11	9						847	934	1,025	764	686	612	542	476		
	16	12	0.06	1,400	63		600	1,115	1,229	1,349	1,006	903	805	713	627		
	22	17						1,448	1,596	1,752	1,307	1,173	1,046	927	814		
	32	25	0.04	1,400	63			882	972	1,067	796	714	637	564	496		
	45	35						1,171	1,291	1,417	1,057	948	846	749	659		
	63	50	0.02	1,400	63			1,249	1,378	1,512	1,128	1,012	903	800	703		
	11 ²⁾	9 ²⁾						1,788	1,971	2,163	1,613	1,448	1,292	1,144	1,006		
SQ 12.2	16	12	0.10	1,400	63	400	900	1,300	1,433	1,573	1,173	1,053	939	832	731		
	22	17						1,694	1,867	2,049	1,528	1,372	1,224	1,084	953		
	32	25	0.06	1,400	63		1,200	2,230	2,458	2,698	2,012	1,806	1,611	1,427	1,254		
	45	35						2,895	3,192	3,503	2,613	2,345	2,092	1,853	1,629		
	63	50	0.04	1,400	63			1,764	1,945	2,134	1,592	1,429	1,274	1,129	992		
	24 ²⁾	20 ²⁾						3,701	4,080	4,478	3,340	2,997	2,674	2,368	2,082		
	SQ 14.2	36	30	0.10	1,400		63	800	1,800	2,691	2,967	3,256	2,429	2,180	1,944	1,722	1,514
		48	40							3,506	3,865	4,242	3,164	2,840	2,533	2,244	1,972
72		60	0.06	1,400	63	2,400	4,615		5,088	5,585	4,165	3,738	3,335	2,954	2,596		
100		85					5,994		6,608	7,252	5,409	4,855	4,330	3,836	3,371		

Notes on table on page 1

1) Stall torque	Stall torque indications are calculated nominal values. In practical applications, they might differ due to gear and motor tolerances.
2) Short operating times	These operating times are not available for intermittent duty S4 – 25%.

AUMA NORM

Technical data Manual force at handwheel at part-turn actuators

Standard										
Type	Operating time for 90° in seconds	Torque			Input torque at handwheel ³⁾	Permissible input torque at handwheel	Hand-wheel standard Ø	Standard required manual force ⁴⁾	Hand-wheel option Ø	Option required manual force ⁴⁾
	50 Hz	Max. [Nm]	Reduction ratio ¹⁾	Factor ²⁾	approx. [Nm]	Max. [Nm]	[mm]	approx. [N]	[mm]	approx. [N]
SQ 05.2	4; 8; 16; 32; 63	150	44 : 1	16	9	40	160	117	200	94
	5,6; 11; 22		62 : 1	23	7			83		67
SQ 07.2	4; 8; 16; 32; 63	300	44 : 1	16	19	40	160	234	200	188
	5,6; 11; 22		62 : 1	23	13			167		133
SQ 10.2	8	450	44 : 1	16	28	80	200	282	250	225
	11; 22; 45	600	61 : 1	22	27			273		218
SQ 12.2	16; 32; 63		44 : 1	16	37	80	200	375	250	300
	11	900	121 : 1	44	21			205		164
	16		88 : 1	32	28			282		225
	22; 45; 90	1,200	121 : 1	44	27			273		218
SQ 14.2	32; 63; 125		88 : 1	32	37			375		300
	24	1,800	278 : 1	91	20	80	200	205	250	164
	36		202 : 1	66	27			282		225
	48; 100	2,400	278 : 1	91	26			273		218
	72		202 : 1	66	36			375		300

Option for reduction of manual force ⁵⁾										
Type	Operating time for 90° in seconds	Torque			Input torque at handwheel ³⁾	Permissible input torque at handwheel	Hand-wheel standard Ø	Standard required manual force ⁴⁾	Hand-wheel option Ø	Option required manual force ⁴⁾
	50 Hz	Max. [Nm]	Reduction ratio ¹⁾	Factor ²⁾	approx. [Nm]	Max. [Nm]	[mm]	approx. [N]	[mm]	approx. [N]
SQ 05.2	4; 8; 16; 32; 63	150	167 : 1	64	2	10	160	29	200	23
	5,6; 11; 22		248 : 1	90	2			21		17
SQ 07.2	4; 8; 16; 32; 63	300	167 : 1	64	5	10	160	59	200	47
	5,6; 11; 22		248 : 1	90	3			42		33
SQ 10.2	8	450	167 : 1	64	7	20	200	71	250	57
	11; 22; 45	600	248 : 1	90	7			68		55
SQ 12.2	16; 32; 63		167 : 1	64	9	20	200	94	250	75
	11	900	495 : 1	180	5			51		42
	16		352 : 1	128	7			71		57
	22; 45; 90	1,200	495 : 1	180	7			68		55
SQ 14.2	32; 63; 125		352 : 1	128	9			94		75
	24	1,800	1,139 : 1	373	5	20	200	51	250	42
	36		810 : 1	266	7			71		57
	48; 100	2,400	1,139 : 1	373	6			64		50
	72		810 : 1	266	9			94		75

Notes on tables

1) Reduction ratio	From handwheel to actuator output drive
2) Factor	Ratio of handwheel input torque to output torque (including efficiency)
3) Handwheel input torque	For maximum output torque
4) Required manual force	Required manual force at handwheel (rim pull) at max. output torque. The actually required manual force depends on the required output torque and the operating conditions.
5) Order code	Handwheel option characteristics: 000-000-000-1

Technical data Fail safe unit

Type	Fail safe operation in s/90° ¹⁾	Torque	Suitable part-turn actuator		Valve attachment		Valve shaft			Weight
	Configurable in the factory	[Nm]	Type	Possible operating times s/90°	Standard EN ISO 5211	Option EN ISO 5211	Cylindrical max. [mm]	Square max. [mm]	Two-flat max. [mm]	approx. [kg]
FQM 05.1	9 to 34	150	SQ 05.2	5.6 to 32	F07	F10	25.4	22	22	50
FQM 07.1	8 to 26	300	SQ 07.2	5.6 to 32	F07	F10	25.4	22	22	55
FQM 10.1	15 to 54	600	SQ 10.2	11 to 63	F10	F12	38	30	27	125
FQM 12.1	13 to 39	1,200	SQ 12.2	22 to 63	F12	F14	50	26	41	130

Notes on table

- 1) Fail safe operation in s/90° The operating time increases with the torque requirement

Features and functions

Type of duty	Standard:	FQM	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2																								
	Option:	FQMR	Intermittent duty S4 - 25%, class C according to EN 15714-2																								
Mains voltage, mains frequency	Standard voltage: <table><tr><td colspan="3">3-phase AC current</td></tr><tr><td colspan="3">Voltages/frequencies</td></tr><tr><td>Volt</td><td>380 – 690</td><td>380 – 690</td></tr><tr><td>Hz</td><td>50</td><td>60</td></tr></table> Special voltages: <table><tr><td colspan="3">1-phase AC current</td></tr><tr><td colspan="3">Voltages/frequencies</td></tr><tr><td>Volt</td><td>100 – 240</td><td>100 – 240</td></tr><tr><td>Hz</td><td>50</td><td>60</td></tr></table> Further voltages on request Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %			3-phase AC current			Voltages/frequencies			Volt	380 – 690	380 – 690	Hz	50	60	1-phase AC current			Voltages/frequencies			Volt	100 – 240	100 – 240	Hz	50	60
3-phase AC current																											
Voltages/frequencies																											
Volt	380 – 690	380 – 690																									
Hz	50	60																									
1-phase AC current																											
Voltages/frequencies																											
Volt	100 – 240	100 – 240																									
Hz	50	60																									
ESD input	24 V DC, current consumption: approx. 1 A Permissible voltage fluctuation: +20 %/–15 %																										
Status signals	2 potential-free change-over contacts for OPEN and CLOSE, max. 250 V AC, 1 A (resistive load) Relay contact for fail safe function ready signal: max. 0.1 A at 30 V DC; 0.3 A at 125 V AC																										
Overvoltage category	Category III according to IEC 60364-4-443																										
Swing angle	Adjustable between 80 ° and 100 °																										
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection																									
	Option:	Terminals or crimp connection																									
Threads for cable entries	Standard:	Metric threads																									
	Options:	Pg-threads, NPT-threads, G-threads																									
Terminal plan	Terminal plan according to order number enclosed with delivery																										
Splined coupling for connection to the valve shaft	Standard:	Coupling without bore																									
	Options:	Machined coupling with bore and keyway, square bore or bore with two-flats according to EN ISO 5211																									
Valve attachment	Dimensions according to EN ISO 5211 without spigot																										

Service conditions

Use	Indoor and outdoor use permissible
Mounting position	Any position (for horizontal mounting position, additional support is required)
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request
Ambient temperature	–30 °C to +70 °C For actual version, refer to actuator name plate.

Technical data Fail safe unit

Enclosure protection according to EN 60529	IP68		
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours		
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)		
Corrosion protection	Standard:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Vibration resistance according to EN 60068-2-6	0.5 g, 10 to 200 Hz		
	Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this.		
Coating	Double layer powder coating Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA fail safe units meet or even exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Further information			
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)		
	Low Voltage Directive: (2014/35/EU)		
	Machinery Directive: (2006/42/EC)		
Reference documents	Brochure Electric actuators with fail safe unit Dimensions FQM 05.1 – FQM 12.1		

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Technical data Actuator controls

General information

Actuator controls AM 01.1/AM 02.1 for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR .2 type range.

Features and functions

Power supply	Standard voltages AC:																																																															
	3-phase AC																																																															
	Voltages/frequencies																																																															
	Volt	220	230	380	380	400	400	415	440	460	480	500																																																				
	Hz	60	50	50	60	50	60	50	60	60	60	50																																																				
	1-phase AC																																																															
	Voltages/frequencies																																																															
	Volt	110 – 120			110 – 120			220 – 240			220 – 240																																																					
	Hz	50			60			50			60																																																					
Special voltages:																																																																
<table><tr><td colspan="9">3-phase AC</td><td colspan="4">1-phase AC</td></tr><tr><td colspan="9">Voltages/frequencies</td><td colspan="4">Voltages/frequencies</td></tr><tr><td>Volt</td><td>220</td><td>240</td><td>525</td><td>575</td><td>575</td><td>600</td><td>660</td><td>690</td><td>Volt</td><td colspan="3">208</td></tr><tr><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>60</td><td>60</td><td>50</td><td>50</td><td>Hz</td><td colspan="3">60</td></tr></table>													3-phase AC									1-phase AC				Voltages/frequencies									Voltages/frequencies				Volt	220	240	525	575	575	600	660	690	Volt	208			Hz	50	50	50	50	60	60	50	50	Hz	60		
3-phase AC									1-phase AC																																																							
Voltages/frequencies									Voltages/frequencies																																																							
Volt	220	240	525	575	575	600	660	690	Volt	208																																																						
Hz	50	50	50	50	60	60	50	50	Hz	60																																																						
Permissible variation of the mains voltage: ±10 %																																																																
Permissible variation of the mains frequency: ±5 %																																																																
Permissible variation of mains voltage: > ±10 %																																																																
External supply of the electronics (option)	24 V DC +20 % / –15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.																																																															
Current consumption	Current consumption of controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 100 to 120 V AC = max. 575 mA 208 to 240 V AC = max. 275 mA 380 to 690 V AC = max. 160 mA Current consumption for mains voltage variation: > ±10 % on request																																																															
Overvoltage category	Category III according to IEC 60364-4-443																																																															
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																																															
Switchgear	Standard: Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2 Options: Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2 with additional contacts, 1 NC + 1 NO each Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3 Reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend using thyristor units. For the assignment of AUMA power classes, refer to the Electric data pertaining to the actuator.																																																															
Control inputs (control)	3 digital inputs: OPEN, STOP, CLOSE (via opto-isolator with one common), respect minimum pulse duration for modulating actuators																																																															
Control voltage/current consumption for control inputs	Standard: 24 V DC, current consumption: approx. 10 mA per input																																																															
	Option: 115 V AC, current consumption: approx. 15 mA per input																																																															

Technical data Actuator controls

Features and functions		
Status signals (output signals)	Standard:	5 output contacts: 4 NO contacts with one common, max. 250 V AC, 0.5 A (resistive load) - Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, selector switch LOCAL 1 potential-free change-over contact, max. 250 V AC, 0.5 A (resistive load) for collective fault signal - Default configuration: Torque fault, phase failure, motor protection tripped
	Options:	5 output contacts with integrated running indication (blinking) for directions OPEN and CLOSE in combination with blinker transmitter 4 NO contacts with one common, max. 250 V AC, 0.5 A (resistive load) - Default configuration: End position and running indication CLOSED, end position OPEN, selector switch REMOTE, selector switch LOCAL 1 potential-free change-over contact, max. 250 V AC, 0.5 A (resistive load) for collective fault signal - Default configuration: Torque fault, phase failure, motor protection tripped
Voltage output	Standard:	Auxiliary voltage 24 V DC $\pm 5\%$, max. 50 mA for supply of control inputs, galvanically isolated from internal voltage supply
	Option:	115 V AC $\pm 10\%$, max. 30 mA for supply of the control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Local controls	Standard:	- Selector switch LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE 3 indication lights: End position CLOSED (yellow), collective fault signal (red), end position OPEN (green)
	Options:	- Protection cover, lockable - Special colours for the 3 indication lights
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Overload protection against excessive torques over the whole travel - Excessive torque (torque fault) can be excluded from collective fault signal. - Phase failure monitoring with automatic phase correction - Push-to-run operation or self-retaining in REMOTE - Push-to-run operation or self-retaining in LOCAL - Blinker signal from actuator (option) for running indication via indication lights of local controls can be activated/deactivated.
	Options:	Positioner for Split Range operation (requires position transmitter in actuator)
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Additional thermal overload relay in the controls in combination with thermoswitches within the actuator - PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	- Terminals or crimp connection - Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	MSP1110KC3--F18E1 TPA00R1AA-0E1-000	

Further options for version with electronic position transmitter in actuator

Position feedback signal (option)	Analogue output E2 = 0/4 – 20 mA (load max. 500 Ω)
Wiring diagram (basic version)	MSP111700---A28E1 TPA00R1AA-0E1-000

Technical data Actuator controls

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2 000 m above sea level > 2,000 m above sea level, please contact AUMA
Ambient temperature	Standard: –30 °C to +70 °C Options: –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC.
Enclosure protection according to EN 60529	Standard: IP68 Option: DS Terminal compartment additionally sealed against interior (double sealed) According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	1 g, from 10 to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Options: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. KX-G: Same as KX, however aluminium-free version (outer parts)
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Available colours on request

Accessories	
Wall bracket	For AM mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and AM max. 100 m. Not suitable for version with potentiometer in the actuator. Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter.

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with integral controls AUMA MATIC Dimensions Part-turn actuators with integral controls AUMA MATIC

Technical data Actuator controls

General information

Actuator controls AC 01.2 for controlling multi-turn actuators of the SA/SAR type range and part-turn actuators of the SQ/SQR .2 type range.

Features and functions

Power supply	Standard voltages AC:																																															
	3-phase AC Voltages/frequencies																																															
	Volt	220	230	380	380	400	400	415	440	460	480	500																																				
	Hz	60	50	50	60	50	60	50	60	60	60	50																																				
	1-phase AC Voltages/frequencies																																															
	Volt	110 – 120		110 – 120		220 – 240		220 – 240																																								
	Hz	50		60		50		60																																								
	Special voltages: Voltage >500 V AC are only permissible with external control box.																																															
	<table><tr><th colspan="9">3-phase AC Voltages/frequencies</th><th colspan="3">1-phase AC Voltages/frequencies</th></tr><tr><td>Volt</td><td>220</td><td>240</td><td>525</td><td>575</td><td>575</td><td>600</td><td>660</td><td>690</td><td>Volt</td><td colspan="2">208</td></tr><tr><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>60</td><td>60</td><td>50</td><td>50</td><td>Hz</td><td colspan="2">60</td></tr></table>												3-phase AC Voltages/frequencies									1-phase AC Voltages/frequencies			Volt	220	240	525	575	575	600	660	690	Volt	208		Hz	50	50	50	50	60	60	50	50	Hz	60	
	3-phase AC Voltages/frequencies									1-phase AC Voltages/frequencies																																						
Volt	220	240	525	575	575	600	660	690	Volt	208																																						
Hz	50	50	50	50	60	60	50	50	Hz	60																																						
Permissible variation of mains voltage: ±10 % Permissible variation of mains voltage: ±30 % (option) Permissible variation of mains frequency: ±5 % Special voltages DC: (on request)																																																
<table><tr><th colspan="7">DC current Voltages</th></tr><tr><td>Volt</td><td>24</td><td>48</td><td>60</td><td>110</td><td>125</td><td>220</td></tr></table>												DC current Voltages							Volt	24	48	60	110	125	220																							
DC current Voltages																																																
Volt	24	48	60	110	125	220																																										
Permissible voltage deviation: (on request)																																																
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.																																															
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 100 to 120 V AC = max. 740 mA 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA For permissible variation of mains voltage of ±30 %: 100 to 120 V AC = max. 1,200 mA 208 to 240 V AC = max. 750 mA 380 to 500 V AC = max. 400 mA 515 to 690 V AC = max. 400 mA																																															
Overvoltage category	Category III according to IEC 60364-4-443																																															
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																															
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2																																														
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3																																														
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator																																															

Technical data Actuator controls

Features and functions		
Control inputs	6 digital inputs: OPEN, STOP, CLOSE, EMERGENCY (via opto-isolator, thereof OPEN, STOP, CLOSE with one common and EMERGENCY without common, respect minimum pulse duration for modulating actuators).	
Control voltage/current consumption for control inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
All input signals must be supplied with the same potential.		
Status signals (output signals)	Standard:	6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)
	Options:	6 programmable output contacts: 5 change-over contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 12 programmable output contacts: 10 potential-free NO contacts, 5 with one common each, max. 250 V AC, 1 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load) 10 programmable output contacts: 10 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), 12 programmable output contacts: 8 mains failure proof potential-free NO contacts, max. 250 V AC, 1 A (resistive load), 2 potential-free NO contacts, max. 250 V AC, 1 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load) 12 programmable output contacts: 8 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 4 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All output signals must be supplied with the same potential.
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Analogue output (option)	2 analogue outputs: With position transmitter option: Output of travel and torque as continuous values between 0/4 and 20 mA	
Analogue input (option)	2 analogue inputs: With positioner/process controller option: Input of actual position value/actual process value as continuous values between 0/4 and 20 mA	

Technical data Actuator controls

Features and functions		
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set
	Options:	- Positioner - Position setpoint via analogue input 0/4 – 20 mA - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Split range operation - MODE input for selecting between OPEN-CLOSE and setpoint control - PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value - Multiport valve: Up to 16 positions, signals (pulse or edge) - Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set - Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Digital input: Low active - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Enabling local controls via digital input Enable LOCAL. Thus, actuator operation can be enabled or disabled via push buttons on the local controls. - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via two digital inputs - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch positions. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time

Technical data Actuator controls

Features and functions		
Monitoring functions	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)	
Diagnostic functions	- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCA-0A1-1C1-A000 TPA00R1AA-0A1-000	

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls	
Torque feedback signal	Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω).
Wiring diagram (basic version)	TPCA-0A1-1C1-A000 TPA00R100-0I1-000

Service conditions		
Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–60 °C to +60 °C, extreme low temperature version
		Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: - Depth of water: Maximum 8 m head of water - Duration of continuous immersion in water: Maximum 96 hours - Up to 10 operations during continuous immersion - Modulating duty is not possible during continuous immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	

Technical data Actuator controls

Service conditions		
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Accessories		
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)	
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2	
Further information		
Weight	Approx. 7 kg (with AUMA plug/socket connector)	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)	
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls	

General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR type range with Profibus DP interface.

Features and functions

Power supply	Standard voltages AC:																																																
	<table><tr><th colspan="12">3-phase AC</th></tr><tr><th colspan="12">Voltages/frequencies</th></tr><tr><td>Volt</td><td>220</td><td>230</td><td>380</td><td>380</td><td>400</td><td>400</td><td>415</td><td>440</td><td>460</td><td>480</td><td>500</td></tr><tr><td>Hz</td><td>60</td><td>50</td><td>50</td><td>60</td><td>50</td><td>60</td><td>50</td><td>60</td><td>60</td><td>60</td><td>50</td></tr></table>	3-phase AC												Voltages/frequencies												Volt	220	230	380	380	400	400	415	440	460	480	500	Hz	60	50	50	60	50	60	50	60	60	60	50
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Permissible variation of mains voltage: ±10 % Permissible variation of mains voltage: ±30 % (option) Permissible variation of mains frequency: ±5 % Special voltages DC: (on request)																																																	
<table><tr><th colspan="7">DC current</th></tr><tr><th colspan="7">Voltages</th></tr><tr><td>Volt</td><td>24</td><td>48</td><td>60</td><td>110</td><td>125</td><td>220</td></tr></table>	DC current							Voltages							Volt	24	48	60	110	125	220																												
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Permissible voltage deviation: (on request)																																																	
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.																																																
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 100 to 120 V AC = max. 740 mA 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA For permissible variation of mains voltage of ±30 %: 100 to 120 V AC = max. 1,200 mA 208 to 240 V AC = max. 750 mA 380 to 500 V AC = max. 400 mA 515 to 690 V AC = max. 400 mA																																																
Overvoltage category	Category III according to IEC 60364-4-443																																																
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																																

Features and functions		
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator	
Control and feedback signals	Via Profibus DP interface	
Fieldbus interface with additional input signals (option)	2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
All input signals must be supplied with the same potential.		
Status signals	Via Profibus DP interface	
Fieldbus interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	

Features and functions		
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Profibus DP-V1 (option)	Access to parameters, the electronic name plate and the operating and diagnostic data with acyclic write/read services	
Profibus DP-V2 (option)	Redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom) Synchronisation of time between actuator controls and Profibus master with subsequent time stamp of the most important events such as malfunctions, end position and torque signals from actuator controls	
Redundancy (option)	Requires Profibus DP-V2 (option) Redundant line topology with universal redundancy behaviour according to AUMA redundancy I or II Redundant line topology and redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom)	
FO cable connection (option)	- Connector types: ST or SC connector - FO cables - Multi-mode: 62,5(50)/125 µm, range approx. 2.5 km (max. 2.0 dB/km) - Single-mode: 9/125 µm, range approx. 15 km (max. 0.4 dB/km) - Topologies: Line, star and redundant loop (with single-channel Profibus DP interface) - Baud rate: up to 1.5 Mbit/s - Optical budget: - Multi-mode: 13 dB - Single-mode: 17 dB - Wave length: 1,310 nm - FO coupler by EKS required at DCS, reference addresses: AUMA or www.eks-engel.com	
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	

Features and functions		
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set - Positioner - Position setpoint via Profibus DP interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via fieldbus interface Profibus DP interface
	Options:	- PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value - Multipoint valve: Up to 16 positions, signals (pulse or edge) - Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set - Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via fieldbus interface - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Release of local controls via fieldbus interface. Thus, actuator operation can be enabled or disabled via push buttons on local controls. - Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via fieldbus interface - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring functions		- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor

Features and functions		
Overvoltage protection (option)	Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCAA000-1A1-A000 TPA00R1AA-0A1-000	

Further options for Non-intrusive version with MWG in the actuator		
Setting of limit and torque switching via local controls		
Torque feedback signal	Via Profibus DP interface	
	Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.	
Wiring diagram (basic version)	TPCAA000-1A1-A000 TPA00R100-0I1-000	

Settings/programming the Profibus DP interface	
Baud rate setting	Automatic baud rate recognition
Setting the fieldbus address	The Profibus DP address is set via the actuator controls display.
Configurable process representation via GSD file	For optimum adaptation to the process control system, the process representation input (feedback) can be freely configured.

General Profibus DP interface data			
Communication protocol	Profibus DP according to IEC 61158 and IEC 61784		
Network topology	Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. Coupling and uncoupling of devices during operation without affecting other devices is possible.		
Transmission medium	Twisted, screened copper cable according to IEC 61158		
Profibus DP interface	EIA-485 (RS-485)		
Transmission rate/cable length	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (total network cable length):
	9.6 – 93.75	1,200 m	approx. 10 km
	187.5	1,000 m	approx. 10 km
	500	400 m	approx. 4 km
	1 500	200 m	approx. 2 km
Device types	DP master class 1, e.g. central controllers such as PLC, PC, ... DP master class 2, e.g. programming/configuration tools DP slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors		
Number of devices	32 devices without repeater, with repeater expandable to 126		
Fieldbus access	Token-passing between masters and polling for slaves. Mono-master or multi-master systems are possible.		
Supported Profibus DP functions	Cyclic data exchange, sync mode, freeze mode, fail safe mode		
Profibus DP ident no.	0x0C4F:	Standard applications with Profibus DP-V0 and DP-V1	
	0x0CBD:	Applications with Profibus DP-V2	

Technical data Actuator controls

Commands and signals of the Profibus DP interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable local controls, Interlock OPEN/CLOSE
Process representation input (feedback signals)	• End positions OPEN, CLOSED • Actual position value • Actual torque value, requires MWG in actuator • Selector switch in position LOCAL/REMOTE • Running indication (directional) • Torque switches OPEN, CLOSED • Limit switches OPEN, CLOSED • Manual operation by handwheel or via local controls • Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	• Motor protection tripped • Torque switch tripped in mid-travel • Failure of analogue customer inputs • One phase missing
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68
	Option: Terminal compartment additionally sealed against interior of actuator controls (double sealed) According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request

Technical data Actuator controls

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2
Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls

General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR type range with Profinet interface.

Features and functions

Power supply	Standard voltages AC:																																																															
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Permissible variation of mains voltage: ±10 % Permissible variation of mains voltage: ±30 % (option) Permissible variation of mains frequency: ±5 %																																																																
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.																																																															
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: • 100 to 120 V AC = max. 740 mA • 208 to 240 V AC = max. 400 mA • 380 to 500 V AC = max. 250 mA • 515 to 690 V AC = max. 200 mA																																																															
Overvoltage category	Category III according to IEC 60364-4-443																																																															
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																																															
Switchgear	Thyristor unit for mains voltage up to 500 V AC for AUMA power classes B1, B2 and B3 For the assignment of AUMA power classes, please refer to electrical data on actuator																																																															
Control and feedback signals	Via Profinet interface																																																															

Features and functions		
Profinet interface with additional input signals (option)	2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
	All input signals must be supplied with the same potential.	
Status signals	Via Profinet interface	
Profinet interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)

Features and functions		
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	• Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED • Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) • Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds • Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable • Running indication blinking: can be set • Positioner - Position setpoint via Profinet interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via Profinet interface
	Options:	• PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value • Multiport valve: Up to 16 positions, signals (pulse or edge) • Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set • Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard:	• EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via Profinet interface - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	• Release of local controls via Profinet interface. Thus, actuator operation can be enabled or disabled via push buttons on local controls. • Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via Profinet interface • PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time

Features and functions		
Monitoring functions	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)	
Diagnostic functions	- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCAN000K1A2-A000 TPA00R1AA-0A1-000	

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls	
Torque feedback signal	Via Profinet interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Wiring diagram (basic version)	TPCAN000K1A2-A000 TPA00R100-0I1-000

Settings/programming the Profinet interface

The Profinet interface is set (assignment of device name as well as assignment of the IP address) using the Profinet engineering tools of the DCS.

General data of the Profinet interface	
Communication protocol	Profinet according to IEC 61158 and IEC 61784
Network topology	Star topology, point-to-point wiring Due to the switch function integrated within the AC 01.2, both line topology and redundant ring topology (MRP) are available.
Connection	Ethernet IEEE 802.3 2-pair cabling in compliance with IEC 61784-5-3 Auto Polarity Exchange, Auto Negotiation and Auto Crossover are supported.
Profinet connection	2 x RJ-45 Connection via connector for field assembly, one RJ-45 connector for Cat.5 (K009.706) is included in the scope of supply of the electrical connection.
Transmission rate	100 Mbits/s (100BASE-TX), full duplex
Cable length	Max. 100 m
Device classes	I/O controller (usually the PLC/DCS) I/O devices (field devices) I/O supervisor (programming device, PC or HMI for diagnostics/commissioning)
Fieldbus access	Provider - consumer model

General data of the Profinet interface	
Supported Profinet specification	Version V2.32
Supported Profinet functions	Cyclic Profinet communication (RT) Acyclic Profinet communication (Read/Write Record)
Supported Profinet alarms	Status Alarm Update Alarm Port Data Change Notification Alarm Sync Data Change Notification Alarm
Supported network diagnostic and management protocols	ACD (Address Conflict Detection) ARP (Address Resolution Protocol) DCP (Discovery and Basic Configuration Protocol) SNMP (Simple Network Management Protocol) LLDP (Link Layer Discovery Protocol) in accordance with IEEE 802.1AB These functions allow assignment of the Profinet device name, a graphic representation of the plant topology, port-granular diagnostics as well as neighbourhood detection as the basis for quick commissioning and easy device replacement.
Profinet redundancy	Use of MRP (Media Redundancy Protocol) in compliance with IEC 62439 (switch function integrated within AC 01.2)
Vendor ID	319
Ident Code	1
Profinet device type	AUMA-Actuator-AC01-2
Identification & Maintenance properties	I&M0 Profile ID: 62976
	I&M0 Profile Specification Type: 4
	I&M0 Version: 257
	I&M0 Supported: 30
Profinet Ident Nr.	0x013F; 0x0001
DAP (Device Access Point)	0x80010000
Conformance class	CC-B (Conformance Class B) for the Profinet application of the AC actuator controls CC-C (Conformance Class C) for the integral switch function
Netload Class	III
Device diagnostics via Ethernet	Via TCP/IP and integral web server possible
Device integration	Via GSD (ml) file (available for download at www.auma.com)

Commands and signals of the Profinet interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable local controls, Interlock OPEN/CLOSE, PVST
Process representation input (feedback signals)	End positions OPEN, CLOSED Actual position value Actual torque value, requires MWG in actuator Selector switch in position LOCAL/REMOTE Running indication (directional) Torque switches OPEN, CLOSED Limit switches OPEN, CLOSED Manual operation by handwheel or via local controls Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	Motor protection tripped Torque switch tripped in mid-travel One phase missing Failure of analogue customer inputs
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68
	Option: Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls

General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR type range with Modbus RTU interface.

Features and functions

Power supply	Standard voltages AC:																																																
	<table><tr><th colspan="12">3-phase AC</th></tr><tr><th colspan="12">Voltages/frequencies</th></tr><tr><td>Volt</td><td>220</td><td>230</td><td>380</td><td>380</td><td>400</td><td>400</td><td>415</td><td>440</td><td>460</td><td>480</td><td>500</td></tr><tr><td>Hz</td><td>60</td><td>50</td><td>50</td><td>60</td><td>50</td><td>60</td><td>50</td><td>60</td><td>60</td><td>60</td><td>50</td></tr></table>	3-phase AC												Voltages/frequencies												Volt	220	230	380	380	400	400	415	440	460	480	500	Hz	60	50	50	60	50	60	50	60	60	60	50
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	<table><tr><th colspan="4">1-phase AC</th></tr><tr><th colspan="4">Voltages/frequencies</th></tr><tr><td>Volt</td><td>110 – 120</td><td>110 – 120</td><td>220 – 240</td><td>220 – 240</td></tr><tr><td>Hz</td><td>50</td><td>60</td><td>50</td><td>60</td></tr></table>	1-phase AC				Voltages/frequencies				Volt	110 – 120	110 – 120	220 – 240	220 – 240	Hz	50	60	50	60																														
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Special voltages: Voltage >500 V AC are only permissible with external control box.																																																	
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Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 100 to 120 V AC = max. 740 mA 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA For permissible variation of mains voltage of ±30 %: 100 to 120 V AC = max. 1,200 mA 208 to 240 V AC = max. 750 mA 380 to 500 V AC = max. 400 mA 515 to 690 V AC = max. 400 mA																																																
Overvoltage category	Category III according to IEC 60364-4-443																																																
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																																

Features and functions		
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator	
Control and feedback signals	Via Modbus RTU interface	
Fieldbus interface with additional input signals (option)	2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
All input signals must be supplied with the same potential.		
Status signals	Via Modbus RTU interface	
Fieldbus interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	

Features and functions		
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Redundancy (option)	Redundant line topology with universal redundancy behaviour according to AUMA redundancy I or II Redundant loop topology in combination with SIMA Master Station • Max. number of actuators with actuator controls per redundant loop: 247 units • Max. possible cable length between the actuators equipped with actuator controls without external repeater: 1,200 m • Max. possible total length per redundant ring: approx. 290 km • Automatic commissioning of the redundant ring by means of the SIMA Master Station	
FO cable connection (option)	• Connector types: ST or SC connector • FO cables - Multi-mode: 62,5(50)/125 µm, range approx. 2.5 km (max. 2.0 dB/km) - Single-mode: 9/125 µm, range approx. 15 km (max. 0.4 dB/km) • Topologies: Line, star and redundant ring (with single-channel Modbus RTU interface) • Baud rate: up to 115.2 kbit/s • Optical budget: - Multi-mode: 13 dB - Single-mode: 17 dB • Wave length: 1,310 nm • FO coupler by EKS required at DCS, reference addresses: AUMA or www.eks-engel.com	
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	

Features and functions		
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set - Positioner - Position setpoint via Modbus RTU interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via fieldbus interface
	Options:	- PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value - Multipoint valve: Up to 16 positions, signals (pulse or edge) - Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set - Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via fieldbus interface - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Release of local controls via fieldbus interface. Thus, actuator operation can be enabled or disabled via push buttons on local controls. - Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via fieldbus interface - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring functions		- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor

Features and functions

Overvoltage protection (option)	Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCAC000-1A1-A000 TPA00R1AA-0A1-000	

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls

Torque feedback signal	Via Modbus RTU interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.	
Wiring diagram (basic version)	TPCAC000-1A1-A000 TPA00R100-0I1-000	

Settings/programming the Modbus RTU interface

Setting the fieldbus address	Baud rate, parity and Modbus address are set via the display of actuator controls

General data of the Modbus RTU interface

Communication protocol	Modbus RTU according to IEC 61158 and IEC 61784		
Network topology	- Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. - Coupling and uncoupling of devices during operation without affecting other devices is possible.		
Transmission medium	Twisted, screened copper cable according to IEC 61158		
Fieldbus interface	EIA-485 (RS-485)		
Transmission rate/cable length	Redundant line topology:		
	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (total network cable length)
	9.6 – 115.2	1,200 m	approx. 10 km
	Redundant ring topology:		
	Baud rate (kbit/s)	Max. cable length between actuators (without repeater)	Max. possible cable length of redundant loop
	9.6 – 115.2	1,200 m	approx. 290 km
Device types	Modbus slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors		

General data of the Modbus RTU interface	
Number of devices	32 devices in each segment without repeater, with repeaters expandable to 247
Fieldbus access	Polling between master and slaves (query response)
Supported Modbus functions (services)	01 Read Coil Status 02 Read Input Status 03 Read Holding Registers 04 Read Input Registers 05 Force Single Coil 15 (0FHex) Force Multiple Coils 06 Preset Single Register 16 (10Hex) Preset Multiple Registers 17 (11Hex) Report Slave ID 08 Diagnostics: • 00 00 Loopback • 00 10 (0AHex) Clear Counters and Diagnostic Register • 00 11 (0BHex) Return Bus Message Count • 00 12 (0CHex) Return Bus Communication Error Count • 00 13 (0DHex) Return Bus Exception Error Count • 00 14 (0EHex) Return Slave Message Count • 00 15 (0FHex) Return Slave No Response Count • 00 16 (10Hex) Return Slave NAK Count • 00 17 (11Hex) Return Slave Busy Count • 00 18 (12Hex) Return Character Overrun Count

Commands and signals of the Modbus RTU interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable LOCAL, Interlock OPEN/CLOSE
Process representation input (feedback signals)	• End position OPEN, CLOSED • Actual position value • Actual torque value, requires MWG in actuator • Selector switch in position LOCAL/REMOTE • Running indication (directional) • Torque switch OPEN, CLOSED • Limit switch OPEN, CLOSED • Manual operation by handwheel or via local controls • Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	• Motor protection tripped • Torque switch tripped in mid-travel • One phase missing • Loss of the analogue customer inputs
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C Options: –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range

Service conditions		
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls

General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR type range with Modbus TCP/IP interface.

Features and functions

Power supply	Standard voltages AC:																																																
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Hz	50	60	50	60																																													
Special voltages: Voltage >500 V AC are only permissible with external control box.																																																	
<table><tr><td colspan="9">3-phase AC</td><td colspan="2">1-phase AC</td></tr><tr><td colspan="9">Voltages/frequencies</td><td colspan="2">Voltages/frequencies</td></tr><tr><td>Volt</td><td>220</td><td>240</td><td>525</td><td>575</td><td>575</td><td>600</td><td>660</td><td>690</td><td>Volt</td><td>208</td></tr><tr><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>60</td><td>60</td><td>50</td><td>50</td><td>Hz</td><td>60</td></tr></table>	3-phase AC									1-phase AC		Voltages/frequencies									Voltages/frequencies		Volt	220	240	525	575	575	600	660	690	Volt	208	Hz	50	50	50	50	60	60	50	50	Hz	60					
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Hz	50	50	50	50	60	60	50	50	Hz	60																																							
Permissible variation of mains voltage: ±10 % Permissible variation of mains voltage: ±30 % (option) Permissible variation of mains frequency: ±5 % Special voltages DC: (on request)																																																	
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Permissible voltage deviation: (on request)																																																	
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.																																																
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 100 to 120 V AC = max. 740 mA 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA For permissible variation of mains voltage of ±30 %: 100 to 120 V AC = max. 1,200 mA 208 to 240 V AC = max. 750 mA 380 to 500 V AC = max. 400 mA 515 to 690 V AC = max. 400 mA																																																
Overvoltage category	Category III according to IEC 60364-4-443																																																
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																																

Features and functions		
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator	
Control and feedback signals	Via Modbus TCP/IP interface	
Modbus TCP/IP interface with additional input signals (option)	2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
All input signals must be supplied with the same potential.		
Status signals	Via Modbus TCP/IP interface	
Modbus TCP/IP interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	

Features and functions		
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set - Positioner - Position setpoint via Modbus TCP/IP interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via fieldbus interface
	Options:	- PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value - Multiport valve: Up to 16 positions, signals (pulse or edge) - Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set - Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via fieldbus interface - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Release of local controls via fieldbus interface. Thus, actuator operation can be enabled or disabled via push buttons on local controls. - Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via fieldbus interface - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time

Features and functions		
Monitoring functions	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)	
Diagnostic functions	- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCAC000-1A1-A5E0 TPA00R1AA-0A1-000	

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls	
Torque feedback signal	Via Modbus TCP/IP interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Wiring diagram (basic version)	TPCAC000-1A1-A5E0 TPA00R100-0I1-000

Settings/programming the Modbus TCP/IP interface

Setting the fieldbus address	Baud rate, parity and Modbus address are set via the display of actuator controls		
Setting the Modbus gateway	Settings are made via web server		
	Default settings of the IP interface:		
	IP Address Selection		
	Address Type	Static IP	
	Static IP Address	192.168.255.1	
	Subnet Mask	255.255.0.0	
	Default Gateway	192.168.0.1	

General Modbus TCP/IP data	
Communication protocol	Modbus TCP/IP according to IEC 61158 and IEC 61784
Network topology	Star topology/ point-to-point topology
Transmission medium	IEC IEEE 802.3, cable recommendation: Cat. 6 _A
Transmission rate/cable length	- Baud rate of 10/100 Mbits/s - Maximum cable length: 100 m
Supported Modbus functions (services)	01 Read Coil Status 02 Read Input Status 03 Read Holding Registers 04 Read Input Registers 05 Force Single Coil 15 (0FHex) Force Multiple Coils 06 Preset Single Register 16 (10Hex) Preset Multiple Registers 17 (11Hex) Report Slave ID 08 Diagnostics: 00 00 Loopback 00 10 (0AHex) Clear Counters and Diagnostic Register 00 11 (0BHex) Return Bus Message Count 00 12 (0CHex) Return Bus Communication Error Count 00 13 (0DHex) Return Bus Exception Error Count 00 14 (0EHex) Return Slave Message Count 00 15 (0FHex) Return Slave No Response Count 00 16 (10Hex) Return Slave NAK Count 00 17 (11Hex) Return Slave Busy Count 00 18 (12Hex) Return Character Overrun Count

Commands and signals of the Modbus TCP/IP interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable LOCAL, Interlock OPEN/CLOSE
Process representation input (feedback signals)	- End positions OPEN, CLOSED - Actual position value - Actual torque value, requires magnetic limit and torque transmitter (MWG) in actuator - Selector switch in position LOCAL/REMOTE - Running indication (directional) - Torque switches OPEN, CLOSED - Limit switches OPEN, CLOSED - Manual operation by handwheel or via local controls - Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	- Motor protection tripped - Torque switch tripped in mid-travel - One phase missing - Failure of analogue customer inputs
Behaviour on loss of communication	The behaviour of the actuator is programmable: - Stop in current position - Travel to end position OPEN or CLOSED - Travel to any intermediate position - Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: -25 °C to +70 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range

Service conditions		
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	Resistance against vibration can be given on request	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Accessories		
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)	
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2	
Further information		
Weight	Approx. 7 kg (with AUMA plug/socket connector)	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)	
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls	

General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SQ/SQR type range with Foundation Fieldbus interface.

Features and functions

Power supply	Standard voltages AC:																																																
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Features and functions		
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator	
Control and feedback signals	Via Foundation Fieldbus H1 interface	
Fieldbus interface with additional input signals (option)	2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (fieldbus interface or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
All input signals must be supplied with the same potential.		
Status signals	Via Foundation Fieldbus H1 interface	
Fieldbus interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	

Features and functions		
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Redundancy (option)	Redundant FF H1 interface in accordance with AUMA redundancy I	
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	• Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED • Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) • Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds • Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable • Running indication blinking: can be set • Positioner - Position setpoint via Foundation Fieldbus interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via fieldbus interface
	Options:	• PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value • Multiport valve: Up to 16 positions, signals (pulse or edge) • Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set • Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory

Features and functions		
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via fieldbus interface - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Release of local controls via fieldbus interface. Thus, actuator operation can be enabled or disabled via push buttons on local controls. - Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via fieldbus interface - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring functions		- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor
Overvoltage protection (option)		Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)		TPCAF000-1A1-A000 TPA00R1AA-0A1-000

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls		
Torque feedback signal		Via Foundation Fieldbus interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Wiring diagram (basic version)		TPCAF000-1A1-A000 TPA00R100-0I1-000

Settings/programming the Foundation Fieldbus interface

Setting the fieldbus address	The address is set via Foundation Fieldbus using the provided system management services and a configuration software for Foundation Fieldbus (e.g. NI-FBUS).
Configurable feedback signals	The feedback signals of the "Analog Input" (AI) and "Discrete Input" (DI) function blocks may be configured according to the requirements using channels and the appropriate transducer blocks. Configuration is made via Foundation Fieldbus while using the device description and a configuration software for Foundation Fieldbus (e.g. NI-FBUS).
Programming of AUMATIC user functions	AUMATIC user functions (e.g. stepping mode, intermediate positions, ...) may either be programmed via AUMATIC display or via Foundation Fieldbus using AUMATIC device description and a configuration software for Foundation Fieldbus (e.g. NI-FBUS).

General data of the Foundation Fieldbus interface

Communication protocol	Foundation Fieldbus H1 (31.25 kbit/s) in accordance with IEC 61158 and IEC 61784-1
Physical Layer	Separate supply, standard data transmission
Network topology	Line, star and tree structures (trunks combined with spurs) are supported. Internal drop line length of AC 01.2 is 0.27 m.
Transmission medium	Two-wire copper cable with data transmission and voltage supply on the same wire pair in accordance with - ISA S50.02-1992 ISA Physical Layer Standard or - IEC 61158-2:2000 (ed. 2.0), fieldbus standard for use in industrial control systems, part 2: Physical Layer specification and service definition Recommendation: Use cable type A (screened and twisted)
Current consumption	approx. 13 mA at +24 V DC
Transmission rate	31.25 kbit/s
Cable length	Max. 1,900 m (only when using the recommended A type cable); with repeaters (4 units max.) expandable up to a max. of 9.5 km
Number of devices	- Max. 32 devices per segment; altogether max. 240 devices can be addressed. - Typical number of devices: approx. 6 – 15 devices per segment
Communication services	- Publisher/subscriber communication for the transmission of process data - Client/server communication for programming and configuration - Report Distribution for transmission of alarm signals
Supported Foundation Fieldbus functions	AC 01.2 is a Link Master device. Link Master devices can take over the Link Active Scheduler (LAS) function for co-ordination of bus communication.
Permissive connection	AC 01.2/ACExC 01.2 offer an automatic polarity detection and polarity correction of the Foundation Fieldbus cable.

Function blocks of Foundation Fieldbus interface

Function blocks of the output signals	• 8 Discrete Output (DO) function blocks for discrete output signals, e.g.: - OPEN, STOP, CLOSE - RESET - EMERGENCY - Interlock OPEN/CLOSE - Enable Local - Intermediate positions - Digital customer outputs • 2 Analog Output (AO) function blocks for analogue output signals, e.g.: - Setpoint position - Analogue customer outputs
Function blocks for input signals	• 10 Discrete Input (DI) function blocks for discrete feedback signals, e.g.: - End positions OPEN/CLOSED - Selector switch in position LOCAL/REMOTE - Running indication (directional) - Torque switch OPEN, CLOSED - Limit switch OPEN, CLOSED - Manual operation by handwheel or via local controls - Intermediate positions - Digital customer inputs • 4 Analog Input (AI) function blocks for analogue output signals, e.g.: - Actual position - Torque - Analogue 0 – 20 mA customer inputs
Further function blocks	• 1 Signal Characterizer function block (SC) for conversion of analogue signals • 1 Input Selector (IS) function block for the selection of analogue input signals • 1 Process controller (PID) block as function block for modulating applications • Resource Block (RB) for definition of characteristic Foundation Fieldbus device data • 4 Transducer blocks (AOTB, DOTB, AITB, DITB) as connection blocks of discrete and analogue input and output signals • 1 Transducer Block (PTB) as connection block for control • 1 Transducer Block (AUMACTB) for configuration and programming • 1 Transducer Block (AUMADTB) for monitoring and diagnostics

Special features of the AUMATIC Foundation Fieldbus interface

Manufacturer ID	0x0A01FF
Device type	0x0001
Device revision	0x01 or 0x02
Device ID	0A01FF0001-(serial number of AC 01.2-x)-(serial number FF module)
Baud rate	31.25 kbit/s
Polarity	No polarity (automatic polarity detection and correction)
Segment information	
Standard	FF H1
Link master (LAS) function	Yes
Current consumption	13 mA
FF supply current	< 20 mA
Device voltage min/max	9 – 32 V DC
FISCO ic characteristics	FF capacity: < 5 nF, FF inductivity: < 10 µH, Minimum input current: I _i = 380 mA, Minimum input voltage: U _i = 17.5 V, Minimum input power: P _i = 5.32 W
Jitter tolerance range	< ±8 µs
Min. transmission level (V _{p-t-p})	> 0.75 V
Available server VCRs	23

Special features of the AUMATIC Foundation Fieldbus interface

Available source VCRs	23
Available publisher VCRs	23
Available subscriber VCRs	23
DD revision	0x01
CFF revision	020101
ITK revision	6.1.2

Available channels

Analog Output (AO) function blocks	0, 1, 3, 20, 21
Discrete Output (DO) function blocks	0, 2, 4 – 19
Analog Input (AI) function blocks	0, 67, 68, 69, 70
Discrete Input (DI) function blocks	0, 22 – 66, 71

Number of function blocks with their respective execution times [ms]

8 Discrete Output (DO) function blocks	30 ms
2 Analog Output (AO) function blocks	30 ms
10 Discrete Input (DI) function blocks	20 ms
4 Analog Input (AI) function blocks	30 ms
1 Signal Characterizer (SC) function block	40 ms
1 Input Selector (IS) function block	30 ms
1 Proportional/Integral/Differential (PID) function block	40 ms

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2
Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls

Allgemeine Informationen

Stellantriebs-Steuerung AC 01.2 zur Steuerung von Drehantrieben der Baureihe SA/SAR .2 und Schwenkantriebe der Baureihe SQ/SQR .2 mit HART Schnittstelle

Features and functions

Power supply	Standard voltages AC:																																																
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Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator	
Control and feedback signals	Via HART interface Device category: Actuator Analogue 4 – 20 mA setpoint with digital HART communication Device category: Current Output Analogue 4 – 20 mA position feedback signal with digital HART communication	
HART interface with additional input signals (option)	Device category: "Actuator": - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, (via opto-isolator thereof OPEN, STOP, CLOSE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (HART or additional input signals) Device category: "Current Output": - Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - OPEN, STOP, CLOSE, EMERGENCY control inputs - I/O interface: Selection of control type (HART or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint)	
Control voltage and current consumption of optional, digital additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input
	All input signals must be supplied with the same potential.	
Status signals	Via HART interface	
HART interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. In combination with device category: "Actuator": - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)	

Features and functions		
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply (Not possible in combination with PTC tripping device)
Analogue output (option)	2 analogue outputs: With position transmitter option: Output of travel and torque as continuous values between 0/4 and 20 mA	
Analogue input (option)	2 analogue inputs: With positioner/process controller option: Input of actual position value/actual process value as continuous values between 0/4 and 20 mA	
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	• Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED • Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) • Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds • Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable • Running indication blinking: can be set • Positioner - Position setpoint via HART interface - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control possible via HART interface
	Options:	• PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value • Multiport valve: Up to 16 positions, signals (pulse or edge) • Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set • Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory

Features and functions		
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Digital input: Low active (option) - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Local STOP - The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via HART interface - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring functions		- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Options:	- Thermal overload relay in controls combined with thermoswitches within actuator - PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Option:	Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)		Device category: "Actuator" TPCA000-1A1-A000 TPA00R1AA-0A1-000 Device category: „Current Output“: TPCA000-1A1-A000 TPA00R1AA-0A1-000

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls

Torque feedback signal	Via HART interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Wiring diagram (basic version)	Device category: "Actuator" TPCA000-1A1-A000 TPA00R100-0I1-000 Device category: "Current Output": TPCA000-1A1-A000 TPA00R100-0I1-000

Einstellungen/Programmierung der HART Schnittstelle

Setting the HART address	Die Einstellung der HART Adresse erfolgt über das HART Kommando 6 bzw. alternativ über das Display der AC 01.2 (Defaultwert: 0)

Allgemeine Daten der HART Schnittstelle

Network topology	Point-to-point wiring
Communication signal	HART, baud rate 1.2 kbit/s Device class: "Actuator" • FSK (Frequency Shift Key) modulated to 4 – 20 mA setpoint signal • Eingangsimpedanz: 250 Ω. Die Impedanzen anderer angeschlossener HART Geräte (parallel oder seriell) müssen innerhalb der HART Spezifikation liegen. • Point-to-point wiring • Signal range: 4 – 20 mA • Working range: 2 – 22 mA • Minimum operation voltage: 7 V (at 22 mA) • Integrated reverse polarity protection Gerätekategorie: „Current Output“: • FSK (Frequency Shift Key) auf 4 – 20 mA Stellungsrückmeldung aufmoduliert • Eingangsimpedanz: 40 kΩ. Die Impedanzen anderer angeschlossener HART Geräte (parallel oder seriell) müssen innerhalb der HART Spezifikation liegen. • Punkt-zu-Punkt oder Multidrop Verdrahtung • Stromausgang aktiv, kurzschlussfest. Keine weitere externe Spannungsversorgung erlaubt
HART cable specification	Refer to HART specification
Power supply	Interne Spannungsversorgung der HART Schnittstelle durch die Stellantriebs-Steuerung (erfordert außer der HART Versorgungsspannung keine weitere Versorgung)
Device identification	Manufacturer name: AUMA Manufacturer ID: 0x607C HART protocol revision: 7.4 Number of device variables: 12 Model name: AUMATIC AC 01.2/ACExC 01.2 Device type code: 0xE1FD
Supported HART commands	• Universal Commands • Common Practice Commands: - Command 33 (Read Device Variables) - Command 40 (Enter/Exit Fixed Current Mode) - Command 42 (Perform Device Reset) - Command 45 (Trim Loop Current Zero) - Command 46 (Trim Loop Current Gain) - Command 50 (Read Dynamic Variable Assignments) - Command 79 (Write Device Variable) - Command 95 (Read Device Communication Statistics) • Device Specific Commands: - Command 128 (Write Operation Command) - Command 131 (Read Software Version) - Command 132 (Reset to Factory Default) - Command 133 (Reset Operational Data) - Command 134 (Reset HART Configuration) - Command 160 (Read Parameter) - Command 161 (Write Parameter) - Command 162 (Read Process Data)

Befehle und Meldungen der HART Schnittstelle	
Output data	Device class: "Actuator" Supported control types: • Loop Current Mode activated: Analogue 4 – 20 mA control signal for position setpoint • Loop Current Mode deactivated: Digital HART commands for position setpoint (0 – 100.0 %) or for discrete operation in directions OPEN and CLOSE Geräteklasse: „Current Output“: • Loop Current Mode activated: Analogue 4 – 20 mA Ausgangssignal zur Stellungsrückmeldung (Punkt-zu-Punkt Verdrahtung) Digitale HART Kommandos für Stellungssollwert (0 – 100,0 %) bzw. für diskrete Fahrbefehle in Fahrtrichtung AUF und ZU • Loop Current Mode deaktiviert: Analoges Ausgangssignal zur Stellungsrückmeldung auf 4 mA fixiert (Multidrop Verdrahtung) Digital HART commands for position setpoint (0 – 100.0 %) or for discrete operation in directions OPEN and CLOSE
Feedback signals	End positions OPEN, CLOSED Position setpoint Actual torque value, requires magnetic limit and torque transmitter (MWG) in actuator Selector switch in position LOCAL/REMOTE Running indication (directional) Torque switches OPEN, CLOSED Limit switches OPEN, CLOSED Manual operation by handwheel or via local controls Analogue (2) and digital (4) customer inputs Device Status Informationen • Field Device Status • Device Specific Status • Extended Device Status Information • Standardized Status • Analog Channel Saturated • Analog Channel Fixed
Fehlermeldungen	Motor protection tripped Torque switch tripped in mid-travel One phase missing Failure of analogue customer inputs

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68
	Option: Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)

Technical data Actuator controls

Service conditions	
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request
Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SA/SAR 07.2 – SA/SAR 16.2
Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls

Technical data Actuator controls in SIL version

General information

AC 01.2 actuator controls in SIL version for controlling multi-turn actuators of the SA/SAR type range and part-turn actuators of the SQ/SQR .2 type range.

Information on SIL features of AC 01.2-SIL actuator controls

Features and functions

SIL control	Via digital inputs Safe ESD a,b and/or Safe STOP OPEN/CLOSE	
Control voltage/current consumption for inputs of the SIL functions	24 V DC, current consumption: approx. 10 mA per input	
SIL status signal	1 potential-free change-over contact (max. 24 V DC/1 A) for SIL collective failure signal	
SIL functions - safety functions	Standard:	• Safe ESD - Digital inputs (redundant inputs) low active - Reaction can be selected: Run to end position CLOSED (Safe ESD CLOSE, CLOSE), run to end position OPEN (Safe ESD OPEN, OPEN) - Torque monitoring and forced limit seating (OPEN and CLOSE) for Safe ESD can be by-passed - Thermal protection for Safe ESD can be by-passed • Seating types can be set - Forced limit seating in end position (Actuator only stops once end positions OPEN or CLOSED are reached irrespective of the torque applied.) - Limit seating with overload protection (Once the set tripping point in end positions OPEN or CLOSED has been reached, the actuator will be switched off. If excessive torque is applied during travel, the actuator is already switched off prior to reaching the end position.) - Forced torque seating (Actuator only stops when reaching the set end position torque.)
	Options:	• Safe STOP - 2 digital inputs (OPEN and CLOSE) low active - Reaction can be selected: STOP in direction OPEN (Safe STOP OPEN) and/or STOP in direction CLOSE (Safe STOP CLOSE) • Combination of Safe ESD and Safe STOP
Local controls	Safety functions are executed irrespective of selector switch position LOCAL - OFF - REMOTE.	
SIL monitoring functions	• Actuator operation monitoring, generates SIL fault signal • Monitoring of redundant wiring Safe ESD: In case of incorrect wiring, a SIL fault signal is generated • Internal monitoring of the SIL components of the controls. In case of a fault, a SIL fault signal is generated.	
Configuration	Due to the requirements on functional safety, other restrictions with regard to configuration options of the actuator and the actuator controls not listed here do apply.	
Actuator version in combination with AC .2-SIL	• The actuator must be equipped with a blinker transmitter. • The actuator is supplied with the motor locked in disengaged position. Motor operation will only be possible once the lock is disabled.	

Further options for version with MWG in actuator

SIL limit switches	Forced limit seating in end position
Actuator version in combination with AC .2-SIL	Only actuators in clockwise closing version may be used.

Technical data Actuator controls in SIL version

Information on general features of AC 01.2-SIL actuator controls

Features and functions

Power supply	Standard voltages AC:																																		
	3-phase AC Voltages/frequencies <table><tr><td>Volt</td><td>220</td><td>230</td><td>380</td><td>380</td><td>400</td><td>400</td><td>415</td><td>440</td><td>460</td><td>480</td><td>500</td></tr><tr><td>Hz</td><td>60</td><td>50</td><td>50</td><td>60</td><td>50</td><td>60</td><td>50</td><td>60</td><td>60</td><td>50</td></tr></table>												Volt	220	230	380	380	400	400	415	440	460	480	500	Hz	60	50	50	60	50	60	50	60	60	50
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	Hz	60	50	50	60	50	60	50	60	60	50																								
	Special voltages AC:																																		
	3-phase AC Voltages/frequencies <table><tr><td>Volt</td><td>220</td><td>240</td><td>525</td><td>575</td><td>575</td><td>600</td><td>660</td><td>690</td></tr><tr><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>60</td><td>60</td><td>50</td><td>50</td></tr></table>												Volt	220	240	525	575	575	600	660	690	Hz	50	50	50	50	60	60	50	50					
	Volt	220	240	525	575	575	600	660	690																										
Hz	50	50	50	50	60	60	50	50																											
Permissible variation of mains voltage: ±10 %																																			
Permissible variation of mains frequency: ±5 %																																			
660 V and 690 V not permissible in combination with thyristors																																			
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1. The "external supply of electronics" option refers to the components of the standard actuator controls. However, the SIL components of the actuators controls are not supplied.																																		
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA																																		
Overvoltage category	Category III according to IEC 60364-4-443																																		
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																																		
Switchgear	Open-close duty:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2																																	
	Modulating duty:	Thyristor unit for mains voltage up to 600 V AC (required to meet the safety figures for modulating actuators) for AUMA power classes B1 and B2																																	
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator																																		
Control inputs	6 digital inputs: OPEN, STOP, CLOSE, EMERGENCY (via opto-isolator, thereof OPEN, STOP, CLOSE with one common and EMERGENCY without common, respect minimum pulse duration for modulating actuators).																																		
Status signals (output signals)	Standard:	6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, SIL function active, SIL fault, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) Analogue output signal for position feedback Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)																																	
		6 programmable output contacts: 5 change-over contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load)																																	
	All output signals must be supplied with the same potential.																																		

Technical data Actuator controls in SIL version

Information on general features of AC 01.2-SIL actuator controls		
Features and functions		
Analogue output (option)	2 analogue outputs: With position transmitter option: Output of travel and torque as continuous values between 0/4 and 20 mA	
Analogue input (option)	2 analogue inputs: With positioner/process controller option: Input of actual position value/actual process value as continuous values between 0/4 and 20 mA	
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set
	Options:	- Positioner - Position setpoint via analogue input 0/4 – 20 mA - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Split range operation - MODE input for selecting between OPEN-CLOSE and setpoint control - PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value
Monitoring functions	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal	
Diagnostic functions	- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required"	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Option:	PTC tripping device in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	- Screw-type or crimp-type connection - Gold-plated control plug (sockets and plugs)

Technical data Actuator controls in SIL version

Information on general features of AC 01.2-SIL actuator controls		
Features and functions		
Threads for cable entries	Standard:	Metric threads
	Options:	• Pg-threads, NPT-threads, G-threads • Terminals or crimp-type connection
Wiring diagram (basic version)	TPCC-0A1-1A1-A000 TPA00R1AA-1A1-AB0	
Further options for Non-intrusive version with MWG in the actuator		
Setting of limit and torque switching via local controls		
Torque feedback signal	Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω).	
Diagnostic function	• Torque characteristics - 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. Torque characteristics stored can be shown on the display.	
Wiring diagram (basic version)	TPCC-0A1-1A1-A000 TPA00R10A-1I1-AB0	
Service conditions		
Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Installation altitude	≤ 2 000 m above sea level > 2,000 m above sea level, on request	
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–60 °C to +60 °C, extreme low temperature version
		Low temperature versions with heating system only
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request
Accessories		
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)	
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	

Technical data Actuator controls in SIL version

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Functional safety of electrical/electronic/programmable electronic safety-related systems: (IEC 61508) Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls Manual Functional Safety Actuators SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2/SAEx 07.2 – SAEEx 16.2/SAREx 07.2 – SAREx 16.2, SQ 05.2 – SQ 14.2/ SQR 05.2 – SQR 14.2/ SQEx 05.2 – SQEx 14.2/ SQREx 05.2 – SQREx 14.2 with actuator controls AC 01.2/ACExC 01.2 in SIL version

General information

AC 01.2 actuator controls in SIL version for controlling multi-turn actuators of the SA/SAR type range and part-turn actuators of the SQ/SQR .2 type range with Profibus DP interface.

Information on SIL features of AC 01.2-SIL actuator controls

Features and functions

SIL control	Via digital inputs Safe ESD a,b and/or Safe STOP OPEN/CLOSE	
Control voltage/current consumption for inputs of the SIL functions	24 V DC, current consumption: approx. 10 mA per input	
SIL status signal	1 potential-free change-over contact (max. 24 V DC/1 A) for SIL collective failure signal	
SIL functions - safety functions	Standard:	• Safe ESD - Digital inputs (redundant inputs) low active - Reaction can be selected: Run to end position CLOSED (Safe ESD CLOSE, CLOSE), run to end position OPEN (Safe ESD OPEN, OPEN) - Torque monitoring and forced limit seating (OPEN and CLOSE) for Safe ESD can be by-passed - Thermal protection for Safe ESD can be by-passed • Seating types can be set - Forced limit seating in end position (Actuator only stops once end positions OPEN or CLOSED are reached irrespective of the torque applied.) - Limit seating with overload protection (Once the set tripping point in end positions OPEN or CLOSED has been reached, the actuator will be switched off. If excessive torque is applied during travel, the actuator is already switched off prior to reaching the end position.) - Forced torque seating (Actuator only stops when reaching the set end position torque.)
	Options:	• Safe STOP - 2 digital inputs (OPEN and CLOSE) low active - Reaction can be selected: STOP in direction OPEN (Safe STOP OPEN) and/or STOP in direction CLOSE (Safe STOP CLOSE) • Combination of Safe ESD and Safe STOP
Local controls	Safety functions are executed irrespective of selector switch position LOCAL - OFF - REMOTE.	
SIL monitoring functions	• Actuator operation monitoring, generates SIL fault signal • Monitoring of redundant wiring Safe ESD: In case of incorrect wiring, a SIL fault signal is generated • Internal monitoring of the SIL components of the controls. In case of a fault, a SIL fault signal is generated.	
Configuration	Due to the requirements on functional safety, other restrictions with regard to configuration options of the actuator and the actuator controls not listed here do apply.	
Actuator version in combination with AC .2-SIL	• The actuator must be equipped with a blinker transmitter. • The actuator is supplied with the motor locked in disengaged position. Motor operation will only be possible once the lock is disabled.	

Further options for version with MWG in actuator

SIL limit switches	Forced limit seating in end position
Actuator version in combination with AC .2-SIL	Only actuators in clockwise closing version may be used.

Information on general features of AC 01.2-SIL actuator controls																	
Features and functions																	
Power supply	Standard voltages AC: <table> <tr> <th colspan="2">3-phase AC</th></tr> <tr> <th colspan="2">Voltages/frequencies</th></tr> <tr> <th>Volt</th><td>220 230 380 380 400 400 415 440 460 480 500</td></tr> <tr> <th>Hz</th><td>60 50 50 60 50 60 50 60 60 60 50</td></tr> </table> Special voltages AC: <table> <tr> <th colspan="2">3-phase AC</th></tr> <tr> <th colspan="2">Voltages/frequencies</th></tr> <tr> <th>Volt</th><td>220 240 525 575 575 600 660 690</td></tr> <tr> <th>Hz</th><td>50 50 50 50 60 60 50 50</td></tr> </table> Permissible variation of mains voltage: $\pm 10\%$ Permissible variation of mains frequency: $\pm 5\%$ 660 V and 690 V not permissible in combination with thyristors	3-phase AC		Voltages/frequencies		Volt	220 230 380 380 400 400 415 440 460 480 500	Hz	60 50 50 60 50 60 50 60 60 60 50	3-phase AC		Voltages/frequencies		Volt	220 240 525 575 575 600 660 690	Hz	50 50 50 50 60 60 50 50
3-phase AC																	
Voltages/frequencies																	
Volt	220 230 380 380 400 400 415 440 460 480 500																
Hz	60 50 50 60 50 60 50 60 60 60 50																
3-phase AC																	
Voltages/frequencies																	
Volt	220 240 525 575 575 600 660 690																
Hz	50 50 50 50 60 60 50 50																
External supply of the electronics (option)	24 V DC $+20\%$–-15% Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1. The "external supply of electronics" option refers to the components of the standard actuator controls. However, the SIL components of the actuators controls are not supplied.																
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of $\pm 10\%$: 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA																
Overvoltage category	Category III according to IEC 60364-4-443																
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator																
Switchgear	Open-close duty: Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2 Modulating duty: Thyristor unit for mains voltage up to 600 V AC (required to meet the safety figures for modulating actuators) for AUMA power classes B1 and B2 The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator																
Control and feedback signals	Via Profibus DP interface																
Profibus DP-V1 (option)	Access to parameters, the electronic name plate and the operating and diagnostic data with acyclic write/read services																
Profibus DP-V2 (option)	Redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom) Synchronisation of time between actuator controls and Profibus master with subsequent time stamp of the most important events such as malfunctions, end position and torque signals from actuator controls																
Redundancy (option)	Requires Profibus DP-V2 (option) Redundant line topology with universal redundancy behaviour according to AUMA redundancy I or II Redundant line topology and redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom)																

Information on general features of AC 01.2-SIL actuator controls		
Features and functions		
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	• Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED • Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) • Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds • Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable • Running indication blinking: can be set • Positioner - Position setpoint via Profibus DP interface - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Split range operation - Change-over between OPEN-CLOSE control and setpoint control possible via Profibus DP interface
	Options:	• PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value
Monitoring functions	• Valve overload protection: adjustable, results in switching off and generates fault signal • Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication • Monitoring the heater within actuator: generates warning signal • Monitoring of permissible on-time and number of starts: adjustable, generates warning signal • Operation time monitoring: adjustable, generates warning signal • Phase failure monitoring: results in switching off and generates fault signal	
Diagnostic functions	• Electronic device ID with order and product data • Logging of operating data: A resettable counter and a lifetime counter each for: • Time-stamped event report with history for setting, operation and faults • Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required"	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Option:	PTC tripping device in combination with PTC thermistors within actuator motor
Overvoltage protection (option)	Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	• Screw-type or crimp-type connection • Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	• Pg-threads, NPT-threads, G-threads • Terminals or crimp-type connection
Wiring diagram (basic version)	TPCCA0G4-1A1-A000 TPA00R1AA-1A1-AB0	

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls

Torque feedback signal	Via Profibus DP interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Diagnostic function	- Torque characteristics 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. Torque characteristics stored can be shown on the display.
Wiring diagram (basic version)	TPCCA0G4-1A1-A000 TPA00R10A-1I1-AB0

Settings/programming the Profibus DP interface

Baud rate setting	Automatic baud rate recognition
Setting the fieldbus address	The Profibus DP address is set via the actuator controls display.
Configurable process representation via GSD file	For optimum adaptation to the process control system, the process representation input (feedback) can be freely configured.

General Profibus DP interface data

Communication protocol	Profibus DP according to IEC 61158 and IEC 61784		
Network topology	Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. Coupling and uncoupling of devices during operation without affecting other devices is possible.		
Transmission medium	Twisted, screened copper cable according to IEC 61158		
Profibus DP interface	EIA-485 (RS-485)		
Transmission rate/cable length	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (total network cable length):
	9.6 – 93.75	1,200 m	approx. 10 km
	187.5	1,000 m	approx. 10 km
	500	400 m	approx. 4 km
	1 500	200 m	approx. 2 km
Device types	DP master class 1, e.g. central controllers such as PLC, PC, ... DP master class 2, e.g. programming/configuration tools DP slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors		
Number of devices	32 devices without repeater, with repeater expandable to 126		
Fieldbus access	Token-passing between masters and polling for slaves. Mono-master or multi-master systems are possible.		
Supported Profibus DP functions	Cyclic data exchange, sync mode, freeze mode, fail safe mode		
Profibus DP ident no.	0x0C4F:	Standard applications with Profibus DP-V0 and DP-V1	
	0x0CBD:	Applications with Profibus DP-V2	

Commands and signals of the Profibus DP interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable local controls, Interlock OPEN/CLOSE
Process representation input (feedback signals)	• End positions OPEN, CLOSED • Actual position value • Actual torque value, requires MWG in actuator • Selector switch in position LOCAL/REMOTE • Running indication (directional) • Torque switches OPEN, CLOSED • Limit switches OPEN, CLOSED • Manual operation by handwheel or via local controls • Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	• Motor protection tripped • Torque switch tripped in mid-travel • One phase missing • SIL fault (option, must not be used in SIS)
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2 000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version
	Low temperature versions with heating system only
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68
	Option: Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz
	Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request

Technical data Actuator controls in SIL version

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Functional safety of electrical/electronic/programmable electronic safety-related systems: (IEC 61508) Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls Manual Functional Safety Actuators SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2/SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2, SQ 05.2 – SQ 14.2/ SQR 05.2 – SQR 14.2/ SQEx 05.2 – SQEx 14.2/ SQREx 05.2 – SQREx 14.2 with actuator controls AC 01.2/ACExC 01.2 in SIL version

General information

AC 01.2 actuator controls in SIL version for controlling multi-turn actuators of the SA/SAR type range and part-turn actuators of the SQ/SQR .2 type range with Modbus RTU interface.

Information on SIL features of AC 01.2-SIL actuator controls

Features and functions

SIL control	Via digital inputs Safe ESD a,b and/or Safe STOP OPEN/CLOSE	
Control voltage/current consumption for inputs of the SIL functions	24 V DC, current consumption: approx. 10 mA per input	
SIL status signal	1 potential-free change-over contact (max. 24 V DC/1 A) for SIL collective failure signal	
SIL functions - safety functions	Standard:	• Safe ESD - Digital inputs (redundant inputs) low active - Reaction can be selected: Run to end position CLOSED (Safe ESD CLOSE, CLOSE), run to end position OPEN (Safe ESD OPEN, OPEN) - Torque monitoring and forced limit seating (OPEN and CLOSE) for Safe ESD can be by-passed - Thermal protection for Safe ESD can be by-passed • Seating types can be set - Forced limit seating in end position (Actuator only stops once end positions OPEN or CLOSED are reached irrespective of the torque applied.) - Limit seating with overload protection (Once the set tripping point in end positions OPEN or CLOSED has been reached, the actuator will be switched off. If excessive torque is applied during travel, the actuator is already switched off prior to reaching the end position.) - Forced torque seating (Actuator only stops when reaching the set end position torque.)
	Options:	• Safe STOP - 2 digital inputs (OPEN and CLOSE) low active - Reaction can be selected: STOP in direction OPEN (Safe STOP OPEN) and/or STOP in direction CLOSE (Safe STOP CLOSE) • Combination of Safe ESD and Safe STOP
Local controls	Safety functions are executed irrespective of selector switch position LOCAL - OFF - REMOTE.	
SIL monitoring functions	• Actuator operation monitoring, generates SIL fault signal • Monitoring of redundant wiring Safe ESD: In case of incorrect wiring, a SIL fault signal is generated • Internal monitoring of the SIL components of the controls. In case of a fault, a SIL fault signal is generated.	
Configuration	Due to the requirements on functional safety, other restrictions with regard to configuration options of the actuator and the actuator controls not listed here do apply.	
Actuator version in combination with AC .2-SIL	• The actuator must be equipped with a blinker transmitter. • The actuator is supplied with the motor locked in disengaged position. Motor operation will only be possible once the lock is disabled.	

Further options for version with MWG in actuator

SIL limit switches	Forced limit seating in end position
Actuator version in combination with AC .2-SIL	Only actuators in clockwise closing version may be used.

Information on general features of AC 01.2-SIL actuator controls

Features and functions

Power supply	Standard voltages AC:											
	3-phase AC Voltages/frequencies											
	Volt	220	230	380	380	400	400	415	440	460	480	500
	Hz	60	50	50	60	50	60	50	60	60	60	50
	Special voltages AC:											
	3-phase AC Voltages/frequencies											
	Volt	220	240	525	575	575	600	660	690			
	Hz	50	50	50	50	60	60	50	50			
	Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %											
	660 V and 690 V not permissible in combination with thyristors											
External supply of the electronics (option)	24 V DC +20 %/–15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1. The "external supply of electronics" option refers to the components of the standard actuator controls. However, the SIL components of the actuators controls are not supplied.											
Current consumption	Current consumption of the actuator controls depending on mains voltage: For permissible variation of mains voltage of ±10 %: 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA											
Overvoltage category	Category III according to IEC 60364-4-443											
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data pertaining to the actuator											
Switchgear	Open-close duty:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2										
	Modulating duty:	Thyristor unit for mains voltage up to 600 V AC (required to meet the safety figures for modulating actuators) for AUMA power classes B1 and B2										
	The reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For the assignment of AUMA power classes, please refer to Electrical data on actuator											
Control and feedback signals	Via Modbus RTU interface											
Redundancy (option)	Redundant line topology with universal redundancy behaviour according to AUMA redundancy I or II Redundant loop topology in combination with SIMA Master Station - Max. number of actuators with actuator controls per redundant loop: 247 units - Max. possible cable length between the actuators equipped with actuator controls without external repeater: 1,200 m - Max. possible total length per redundant ring: approx. 290 km - Automatic commissioning of the redundant ring by means of the SIMA Master Station											

Information on general features of AC 01.2-SIL actuator controls		
Features and functions		
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	- Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Any 8 intermediate positions: can be set between 0 and 100 %, reaction and signal behaviour programmable - Running indication blinking: can be set - Positioner - Position setpoint via Modbus RTU interface - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Split range operation - Change-over between OPEN-CLOSE control and setpoint control possible via fieldbus interface
	Options:	PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value
Monitoring functions	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Phase failure monitoring: results in switching off and generates fault signal	
Diagnostic functions	- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Time-stamped event report with history for setting, operation and faults - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required"	
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Option:	PTC tripping device in combination with PTC thermistors within actuator motor
Overvoltage protection (option)	Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV	
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	- Screw-type or crimp-type connection - Gold-plated control plug (sockets and plugs)
Threads for cable entries	Standard:	Metric threads
	Options:	- Pg-threads, NPT-threads, G-threads - Terminals or crimp-type connection
Wiring diagram (basic version)	TPCCC0G4-1A1-A000 TPA00R1AA-1A1-AB0	

Technical data Actuator controls in SIL version

Further options for Non-intrusive version with MWG in the actuator

Setting of limit and torque switching via local controls

Torque feedback signal	Via Modbus RTU interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω). Option, only possible in combination with output contacts.
Diagnostic function	- Torque characteristics 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. Torque characteristics stored can be shown on the display.
Wiring diagram (basic version)	TPCCC0G4-1A1-A000 TPA00R10A-1I1-AB0

Settings/programming the Modbus RTU interface

Setting the fieldbus address	Baud rate, parity and Modbus address are set via the display of actuator controls

General data of the Modbus RTU interface

Communication protocol	Modbus RTU according to IEC 61158 and IEC 61784		
Network topology	- Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. - Coupling and uncoupling of devices during operation without affecting other devices is possible.		
Transmission medium	Twisted, screened copper cable according to IEC 61158		
Fieldbus interface	EIA-485 (RS-485)		
Transmission rate/cable length	Redundant line topology:		
	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (total network cable length)
	9.6 – 115.2	1,200 m	approx. 10 km
	Redundant ring topology:		
	Baud rate (kbit/s)	Max. cable length between actuators (without repeater)	Max. possible cable length of redundant loop
	9.6 – 115.2	1,200 m	approx. 290 km
Device types	Modbus slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors		
Number of devices	32 devices in each segment without repeater, with repeaters expandable to 247		
Fieldbus access	Polling between master and slaves (query response)		
Supported Modbus functions (services)	01 Read Coil Status 02 Read Input Status 03 Read Holding Registers 04 Read Input Registers 05 Force Single Coil 15 (0FHex) Force Multiple Coils 06 Preset Single Register 16 (10Hex) Preset Multiple Registers 17 (11Hex) Report Slave ID 08 Diagnostics: 00 00 Loopback 00 10 (0AHex) Clear Counters and Diagnostic Register 00 11 (0BHex) Return Bus Message Count 00 12 (0CHex) Return Bus Communication Error Count 00 13 (0DHex) Return Bus Exception Error Count 00 14 (0EHex) Return Slave Message Count 00 15 (0FHex) Return Slave No Response Count 00 16 (10Hex) Return Slave NAK Count 00 17 (11Hex) Return Slave Busy Count 00 18 (12Hex) Return Character Overrun Count		

Commands and signals of the Modbus RTU interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, enable LOCAL, Interlock OPEN/CLOSE
Process representation input (feedback signals)	• End position OPEN, CLOSED • Actual position value • Actual torque value, requires MWG in actuator • Selector switch in position LOCAL/REMOTE • Running indication (directional) • Torque switch OPEN, CLOSED • Limit switch OPEN, CLOSED • Manual operation by handwheel or via local controls • Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	• Motor protection tripped • Torque switch tripped in mid-travel • One phase missing • Loss of the analogue customer inputs
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2 000 m above sea level > 2,000 m above sea level, on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version
	Low temperature versions with heating system only
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard: IP68
	Option: Terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: Maximum 8 m head of water • Duration of continuous immersion in water: Maximum 96 hours
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz
	Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard: KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option: KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination
Colour	Standard: AUMA silver-grey (similar to RAL 7037)
	Option: Available colours on request

Technical data Actuator controls in SIL version

Accessories	
Wall bracket	For actuator controls mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or heavy vibration during service. Cable length between actuator and actuator controls is max. 100 m (Not suitable for version with potentiometer in the actuator). Instead of the potentiometer, the actuator has to be equipped with an electronic position transmitter. (MWG requires a separate data cable.)
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Functional safety of electrical/electronic/programmable electronic safety-related systems: (IEC 61508) Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions Multi-turn actuators with AUMATIC integral controls Dimensions Part-turn actuators with AUMATIC integral controls Manual Functional Safety Actuators SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2/SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2, SQ 05.2 – SQ 14.2/ SQR 05.2 – SQR 14.2/ SQEx 05.2 – SQEx 14.2/ SQREx 05.2 – SQREx 14.2 with actuator controls AC 01.2/ACExC 01.2 in SIL version

Technical data Actuator controls for variable speed actuators

General information

ACV 01.2 actuator controls for controlling variable speed multi-turn actuators of the SAV/SARV .2 type range.

Features and functions

Power supply	Standard voltages AC:									
	3-phase AC						1-phase AC			
	Voltages/frequencies						Voltages/frequencies			
	Volt	220 – 240		380 – 480		Volt	110 – 120		220 – 240	
	Hz	50	60	50	60	Hz	50	60	50	60
	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %									
External supply of the electronics (option)	24 V DC: +20 % / –15 % Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.									
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data SAV/SARV									
Control inputs	6 digital inputs: OPEN, STOP, CLOSE, EMERGENCY (via opto-isolator, thereof OPEN, STOP, CLOSE with one common and EMERGENCY without common, respect minimum pulse duration for modulating actuators.									
Control voltage/current consumption for control inputs	Standard	24 V DC, current consumption: approx. 10 mA per input								
	Options:	48 V DC, current consumption: approx. 7 mA per input 60 V DC, current consumption: approx. 9 mA per input 115 V DC, current consumption: approx. 15 mA per input 100 – 120 V AC, current consumption : approx. 15 mA per input								
	All input signals must be supplied with the same potential.									

Technical data Actuator controls for variable speed actuators

Features and functions		
Status signals (output signals)	Standard:	6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)
	Options:	6 programmable output contacts: 5 change-over contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 12 programmable output contacts: 10 potential-free NO contacts, 5 with one common each, max. 250 V AC, 1 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load) 10 programmable output contacts: 10 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), 12 programmable output contacts: 8 mains failure proof potential-free NO contacts, max. 250 V AC, 1 A (resistive load), 2 potential-free NO contacts, max. 250 V AC, 1 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load) 12 programmable output contacts: 8 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 4 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All output signals must be supplied with the same potential.
Voltage output	Standard:	Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option:	Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply. (Not possible in combination with PTC tripping device)
Analogue output	Standard:	2 analogue outputs: With position transmitter option: Output of travel, torque or output speed as continuous values between 0/4 and 20 mA
Analogue input	Option:	2 analogue inputs: With positioner/process controller option: Input of actual position value/actual process value as continuous values between 0/4 and 20 mA
Local controls	Standard:	- Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) - Push buttons: OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) - Graphic LC display: illuminated
	Option:	- Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)

Technical data Actuator controls for variable speed actuators

Features and functions	
ACV 01.2 heating system (option)	Temperature versions below –30 °C incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Application functions	Standard: - Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED - Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) - Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds - Operation profile with any 8 intermediate positions: Position can be set between 0 and 100 %, reaction and signal behaviour programmable, positioning accuracy < 0.2 % - Speed profile with up to 10 ranges, speed can be individually adjusted for positions OPEN and CLOSED for each range - Running indication blinking: can be set - Speed source can be selected (REMOTE, LOCAL) 4 internal nominal speeds can be programmed (and selected in LOCAL) - Nominal speed source can be selected for REMOTE (binary, analogue) - Soft start, soft stop (0.1 s – 10 s can be selected) - Synchronous link (synchronous operation of two actuators)
	Options: - Positioner: - Position setpoint via analogue inputs 0/4 – 20 mA - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Split range operation - MODE input for selecting between OPEN-CLOSE and setpoint control - Modulating duty with proportional operation (2 % – 20 %) - PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value - Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set - Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory
Safety functions	Standard: - EMERGENCY operation (programmable behaviour) - Digital input: Low active - Reaction can be selected: STOP, run to end position (OPEN, CLOSED) or intermediate position at defined speed - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options: - Enabling local controls via Enable LOCAL digital input: Thus, actuator operation can be enabled or disabled via push buttons on the local controls. - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via two digital inputs - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring function	- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)

Technical data Actuator controls for variable speed actuators

Features and functions		
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults: - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Option:	PTC tripping device (TMS module) in combination with PTC thermistors within actuator motor
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	- Terminals or crimp connection - Gold-plated control contacts (pins and sockets)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads

For version with MWG within actuator

Setting of limit and torque switching via local controls	
Torque feedback signal	Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω).
Wiring diagram (basic version)	TPCHA000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V
	TPCHA000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

Service conditions		
Use		Indoor and outdoor use permissible
Mounting position		Any position
Installation altitude		≤ 2 000 m above sea level > 2,000 m above sea level on request
Ambient temperature	Standard:	–30 °C to +70 °C
	Options:	–40 °C to +70 °C –60 °C to +60 °C, extreme low temperature version Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity		Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	DS terminal compartment additionally sealed against interior of actuator controls (double sealed)
		According to AUMA definition, enclosure protection IP68 meets the following requirements: - Depth of water: maximum 8 m head of water - Duration of continuous immersion in water: Max. 96 hours - Up to 10 operations during continuous immersion - Modulating duty is not possible during continuous immersion.
Pollution degree according to IEC 60664-1		Pollution degree 4 (when closed), pollution degree 2 (internal)
Vibration resistance according to IEC 60068-2-6		1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.

Technical data Actuator controls for variable speed actuators

Service conditions

Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request

Accessories

Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Torque measurement flange DMF	Accessory for torque measurement for SAV/SARV 07.2 – SAV/SARV 16.2	

Further information

Weight	Approx. 7 kg (with AUMA plug/socket connector)	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)	
	Low Voltage Directive: (2014/35/EU)	
	Machinery Directive: (2006/42/EC)	
Reference documents	Dimensions SAV 07.2 – SAV 16.2/SARV 07.2 – SARV 16.2 with ACV 01.2	

General information

ACV 01.2 actuator controls for controlling variable speed multi-turn actuators of the SAV/SARV .2 type range with Profibus DP interface.

Features and functions

Power supply	Standard voltages AC:									
	3-phase AC					1-phase AC				
	Voltages/frequencies					Voltages/frequencies				
	Volt	220 – 240		380 – 480		Volt	110 – 120		220 – 240	
	Hz	50	60	50	60	Hz	50	60	50	60
	Permissible variation of mains voltage: ± 10 %									
	Permissible variation of mains frequency: ± 5 %									
External supply of the electronics (option)	24 V DC: +20 % / –15 %									
	Current consumption: Basic version approx. 250 mA, with options up to 500 mA									
	External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.									
Rated power	Actuator controls are designed for nominal motor power, refer to Electrical data SAV/SARV									
Control and feedback signals	Via Profibus DP interface									
Fieldbus interface with additional input signals (option)	• 2 free analogue inputs (0/4 – 20 mA), 4 free digital inputs - Signal transmission is made via fieldbus interface • Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - Control inputs: OPEN, STOP, CLOSE, EMERGENCY - I/O interface: Selection of control type (fieldbus or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for position setpoint • Inputs OPEN, STOP, CLOSE, EMERGENCY, I/O interface, MODE (via opto-isolator thereof OPEN, STOP, CLOSE, MODE with one common and EMERGENCY, I/O interface respectively without common) - Control inputs: OPEN, STOP, CLOSE, EMERGENCY - I/O interface: Selection of control type (fieldbus or additional input signals) - MODE: Selection between open-close duty (OPEN, STOP, CLOSE) or modulating duty (0/4 – 20 mA position setpoint) - Additionally 1 analogue input (0/4 – 20 mA) for setpoint position and 1 analogue input (0/4 – 20 mA) for actual process value									
Voltage and current values of the optional additional inputs	Standard	24 V DC, current consumption: approx. 10 mA per input								
	Options:	48 V DC, current consumption: approx. 7 mA per input								
		60 V DC, current consumption: approx. 9 mA per input								
		115 V DC, current consumption: approx. 15 mA per input								
		100 – 120 V AC, current consumption : approx. 15 mA per input								
	All input signals must be supplied with the same potential.									
Status signals	Via Profibus DP interface									

Features and functions	
Fieldbus interface with additional output signals (option)	Additional, binary output signals (only available in combination with additional input signals (option)) 6 programmable output contacts: 5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) Default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped) 6 programmable output contacts: 5 potential-free change-over contacts with one common, max. 250 V AC, 1 A (resistive load) 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 6 potential-free change-over contacts without one common, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free NO contact, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load) 6 programmable output contacts: 4 mains failure proof potential-free NO contacts, max. 250 V AC, 5 A (resistive load), 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load), All binary output signals must be supplied with the same potential. - Analogue output signal for position feedback - Galvanically isolated position feedback 0/4 – 20 mA (load max. 500 Ω)
Voltage output	Standard: Auxiliary voltage 24 V DC: max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply.
	Option: Auxiliary voltage 115 V AC: max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply. (Not possible in combination with PTC tripping device)
Profibus DP-V1 (option)	Access to parameters, the electronic name plate and the operating and diagnostic data with acyclic write/read services
Profibus DP-V2 (option)	Redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom) Synchronisation of time between AC(Not possible in combination with PTC tripping device) 01.2 and Profibus master with subsequent time stamp of the most important events such as faults, end position and torque signals from the ACV 01.2
Redundancy (option)	Requires Profibus DP-V2 (option) Redundant line topology with universal redundancy behaviour according to AUMA redundancy I or II Redundant line topology and redundancy behaviour according to Profibus DP-V2 specification no. 2.212 (Primary and Backup with RedCom)
FO cable connection (option)	- Connector types: ST or SC connector - FO cables - Multi-mode: 62,5(50)/125 µm, range approx. 2.5 km (max. 2.0 dB/km) - Single-mode: 9/125 µm, range approx. 15 km (max. 0.4 dB/km) - Topologies: Line, star and redundant loop (with single-channel Profibus interface) - Baud rate: up to 1.5 Mbit/s - Optical budget: - Multi-mode: 13 dB - Single-mode: 17 dB - Wave length: 1 310 nm - FO coupler by EKS required at DCS, reference addresses: AUMA or www.eks-engel.com

Features and functions		
Local controls	Standard:	• Selector switch: LOCAL - OFF - REMOTE (lockable in all three positions) • Push buttons: OPEN, STOP, CLOSE, RESET - Local STOP The actuator can be stopped via push button STOP of local controls if the selector switch is in position REMOTE. (Not activated when leaving the factory.) • 6 indication lights: - End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) • Graphic LC display: illuminated
	Option:	• Special colours for the indication lights: - End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (violet), end position OPEN (red)
ACV 01.2 heating system (option)	Temperature versions below –30 °C incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.	
Bluetooth Communication interface	Bluetooth class II chip, version 2.1: With a range up to 10 m in industrial environments, supports the SPP Bluetooth profile (Serial Port Profile). Required accessories: • AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) • AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)	
Application functions	Standard:	• Selectable type of seating, limit or torque seating for end position OPEN and end position CLOSED • Torque by-pass: Adjustable duration (with adjustable peak torque during start-up time) • Start and end of stepping mode as well as ON and OFF times can be set individually for directions OPEN and CLOSE, 1 to 1,800 seconds • Operation profile with any 8 intermediate positions: Position can be set between 0 and 100 %, reaction and signal behaviour programmable, positioning accuracy < 0.2 % • Speed profile with up to 10 ranges, speed can be individually adjusted for positions OPEN and CLOSED for each range • Running indication blinking: can be set • Speed source can be selected (REMOTE, LOCAL) • 4 internal nominal speeds can be programmed (and selected in LOCAL) • Nominal speed source can be selected for REMOTE (binary, analogue, fieldbus) • Soft start, soft stop (0.1 s – 10 s can be selected) • Synchronous link (synchronous operation of two actuators) • Positioner: - Position setpoint via fieldbus interface - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Change-over between OPEN-CLOSE control and setpoint control via fieldbus - Modulating duty with proportional operation (2 % – 20 %)
	Options:	• PID process controller: with adaptive positioner, via 0/4 – 20 mA analogue inputs for process setpoint and actual process value • Automatic deblocking: Up to 5 operation trials, travel time in opposite direction can be set • Static and dynamic torque recording for both rotation directions with torque measurement flange as additional accessory

Technical data Actuator controls for variable speed actuators

Features and functions		
Safety functions	Standard:	- EMERGENCY operation (programmable behaviour) - Via additional input (option, low active) or via fieldbus interface - Reaction can be selected: STOP, run to end position (OPEN, CLOSED) or intermediate position at defined speed - Torque monitoring can be by-passed during EMERGENCY operation - Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).
	Options:	- Enabling local controls via Enable LOCAL digital input: Thus, actuator operation can be enabled or disabled via push buttons on the local controls. - Interlock for main/by-pass valve: Enabling the operation commands OPEN or CLOSE via two digital inputs - EMERGENCY Stop push button (latching): interrupts electrical operation, irrespective of the selector switch position. - PVST (Partial Valve Stroke Test): programmable to check the function of both actuator and actuator controls: Direction, stroke, operation time, reversing time
Monitoring function		- Valve overload protection: adjustable, results in switching off and generates fault signal - Motor temperature monitoring (thermal monitoring): results in switching off and generates fault indication - Monitoring the heater within actuator: generates warning signal - Monitoring of permissible on-time and number of starts: adjustable, generates warning signal - Operation time monitoring: adjustable, generates warning signal - Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)
Diagnostic functions		- Electronic device ID with order and product data - Logging of operating data: A resettable counter and a lifetime counter each for: - Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings - Time-stamped event report with history for setting, operation and faults: - Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" - Torque characteristics (for version with MWG in actuator): 3 torque characteristics (torque-travel characteristic) for opening and closing directions can be saved separately. - Torque characteristics stored can be shown on the display.
Motor protection evaluation	Standard:	Monitoring the motor temperature in combination with thermoswitches within actuator motor
	Option:	PTC tripping device (TMS module) in combination with PTC thermistors within actuator motor
Overvoltage protection (option)		Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	- Terminals or crimp connection - Gold-plated control contacts (pins and sockets)
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads

For version with MWG within actuator

Setting of limit and torque switching via local controls

Torque feedback signal	Via fieldbus interface Galvanically isolated analogue output 0/4 – 20 mA (load max. 500 Ω).
Wiring diagram (basic version)	TPCHA000-1AF-A000 TPA00R100-011-000, 3-ph; 380 V – 480 V TPCHA000-1AE-A000 TPA00R100-011-000, 1-ph; 220 V – 240 V

Settings/programming the Profibus DP interface

Baud rate setting	Automatic baud rate recognition
Setting the fieldbus address	The Profibus DP address is set via the actuator controls display.
Configurable process representation via GSD file	For optimum adaptation to the process control system, the process representation input (feedback) can be freely configured.

Technical data Actuator controls for variable speed actuators

General Profibus DP interface data			
Communication protocol	Profibus DP according to IEC 61158 and IEC 61784		
Network topology	Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. Coupling and uncoupling of devices during operation without affecting other devices is possible.		
Transmission medium	Twisted, screened copper cable according to IEC 61158		
Profibus DP interface	EIA-485 (RS-485)		
Transmission rate/cable length	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (total network cable length):
	9.6 – 93.75	1,200 m	approx. 10 km
	187.5	1,000 m	approx. 10 km
	500	400 m	approx. 4 km
	1 500	200 m	approx. 2 km
Device types	DP master class 1, e.g. central controllers such as PLC, PC, ... DP master class 2, e.g. programming/configuration tools DP slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors		
Number of devices	32 devices without repeater, with repeater expandable to 126		
Fieldbus access	Token-passing between masters and polling for slaves. Mono-master or multi-master systems are possible.		
Supported Profibus DP functions	Cyclic data exchange, sync mode, freeze mode, fail safe mode		
Profibus DP ident no.	0x0C4F:	Standard applications with Profibus DP-V0 and DP-V1	
	0x0CBD:	Applications with Profibus DP-V2	

Commands and signals of the Profibus DP interface	
Process representation output (command signals)	OPEN, STOP, CLOSE, speed, position setpoint, RESET, EMERGENCY operation command, enable local controls, Interlock OPEN/CLOSE
Process representation input (feedback signals)	• End positions OPEN, CLOSED • Actual position value • Actual torque value, requires MWG in actuator • Selector switch in position LOCAL/REMOTE • Running indication (directional) • Torque switches OPEN, CLOSED • Limit switches OPEN, CLOSED • Manual operation by handwheel or via local controls • Analogue (2) and digital (4) customer inputs
Process representation input (fault signals)	• Motor protection tripped • Torque switch tripped in mid-travel
Behaviour on loss of communication	The behaviour of the actuator is programmable: • Stop in current position • Travel to end position OPEN or CLOSED • Travel to any intermediate position • Execute last received operation command

Service conditions	
Use	Indoor and outdoor use permissible
Mounting position	Any position
Installation altitude	≤ 2 000 m above sea level > 2,000 m above sea level on request
Ambient temperature	Standard: –30 °C to +70 °C
	Options: –40 °C to +70 °C
	–60 °C to +60 °C, extreme low temperature version
	Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC, or internal version 400 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range

Technical data Actuator controls for variable speed actuators

Service conditions		
Enclosure protection according to EN 60529	Standard:	IP68
	Option:	DS terminal compartment additionally sealed against interior of actuator controls (double sealed)
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion • Modulating duty is not possible during continuous immersion.	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. (Not valid in combination with gearboxes)	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating Two-component iron-mica combination	
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Available colours on request

Accessories	
Programming software	AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PC) AUMA Assistant App (Commissioning and Diagnostic Tool for Android devices)
Torque measurement flange DMF	Accessory for torque measurement for SAV/SARV 07.2 – SAV/SARV 16.2

Further information	
Weight	Approx. 7 kg (with AUMA plug/socket connector)
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Dimensions SAV 07.2 – SAV 16.2/SARV 07.2 – SARV 16.2 with ACV 01.2

Technical data Control box

This data applies to:

Multi-turn actuators	SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2 with 3-phase AC motors
	SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2 with DC motors
	SA 25.1 – SA 48.1; SAR 25.1 – SAR 30.1 with 3-phase AC motors

Size	G3	G5	G7
Dimensions (w x h x d):	380 x 380 x 210 mm	500 x 500 x 210 mm	760 x 760 x 300 mm
Suitable for utilization category	SA 07.2 - 16.2, 3ph	A4	–
	SA 07.2 - 16.2, DC	A4 only in 24 V DC version	A5
	SA 25.1 - 48.1, 3ph	A4	A5
			A4 Wide range voltage, A4 with disconnect switch
			A2/A4/A5 with $R_A^{1)}$, A6
			A4/A5 Wide range voltage, A4/A5 with disconnect switch
			A6

Notes on table

1) R_A	R_A = Starting resistance

Features and functions

Mains voltage, mains frequency	Standard voltages:	
	3-phase AC current Voltages/frequencies/voltage tolerance	
	Volt	380 400 415 440 460 480 500
	Hz	50 50 50 60 60 60 50
	%	±10 ±10 ±10 ±10 ±10 ±10 ±10
	Special voltages:	
	3-phase AC current Voltages/frequencies/voltage tolerance	
	Volt	220 230 240 525 575 600 660 690
	Hz	50 50 50 50 60 60 50 50
	%	±10 ±10 ±10 ±5 ±10 ±10 ±10 ±10
	Permissible variation of mains voltage: ±10 %/±5 % (standard), ±20 % (option), wide range voltage	
	Permissible variation of mains frequency: ±5 %	
	Standard voltages:	
	DC current Voltages	
	Volt	24 48 60 110 125 220
	Permissible variation of mains voltage: ±10 %	
Motor protection	3-phase AC: (option)	Thermoswitches with automatic reset Thermal overload relay with manual reset
	DC current: (standard)	Thermal overload relay with manual reset
Special components (option)	Disconnect switch	
Threads for cable entries	M25, 2 x M40 including cable glands	
Terminal plan	SA 07.2 - 16.2, 3ph:	- TPCE00-A-B-10000 TPA91000000000000 (with thermal overload relay for actuator with rated current $I_N \leq 25$ A) - TPCE00-A-B-00000 TPA91000000000000 (with thermal overload relay for actuator with rated current $I_N \leq 25$ A) - TPCE00-B-B-10000 TPA91000000000000 (with thermal overload relay for actuator with rated current I_N within range > 25 A up to max. 30 A) - TPCE00-B-B-00000 TPA91000000000000 (with thermal overload relay and twin wiring for actuator with rated current I_N within range > 25 A up to max. 30 A)

Technical data Control box

Terminal plan	SA 07.2 - 16.2, DC:	TPCE120-1-B910000 TPA91000000000000 (24 VDC DC shunt motor with thermal overload relays) TPCE130-1-B910000 TPA91000000000000 (24 VDC compound motors with thermal overload relays) TPCE120---B910000 TPA91000000000000 (48 – 60 V DC DC shunt motor with thermal overload relays) TPCE121---B910000 TPA91000000000000 (48 – 60 V DC DC shunt motor with thermal overload relays and starting resistance) TPCE130---B910000 TPA91000000000000 (48 – 60 V DC DC shunt motor with thermal overload relay) TPCE131---B910000 TPA91000000000000 (48 – 60 V DC DC shunt motor with thermal overload relay and starting resistance) TPCE120---BA10000 TPA91000000000000 (90 – 220 V DC DC shunt motor with thermal overload relays) TPCE121---BA10000 TPA91000000000000 (90 – 220 V DC DC shunt motor with thermal overload relays and starting resistance)
	SA 25.1 - 48.1, 3ph:	TPCE00----B-10000 TPA91000000000000 (with thermal overload relay) TPCE00----B-00000 TPA91000000000000 (with thermoswitches)
Connecting cables (option)	- From control box to actuator Cable length from 2 – 28 m, state desired length in the order - From control box to actuator controls Cable length from 2 – 100 m, state desired length in the order	
Overvoltage category for 3-phase AC current	Category III according to IEC 60364-4-443	

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Suspended	
Ambient temperature	–25 °C to +60 °C	
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection according to EN 60529	IP66	
Corrosion protection, housing material, colour, finish coating	Standard:	KS, steel, colour R7035 light grey, powder coating
	Option:	Available colours on request KX, stainless steel
	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU)
Reference documents	Dimensions Control box CB 01.1

3 Technical data Miscellaneous

Output drive types

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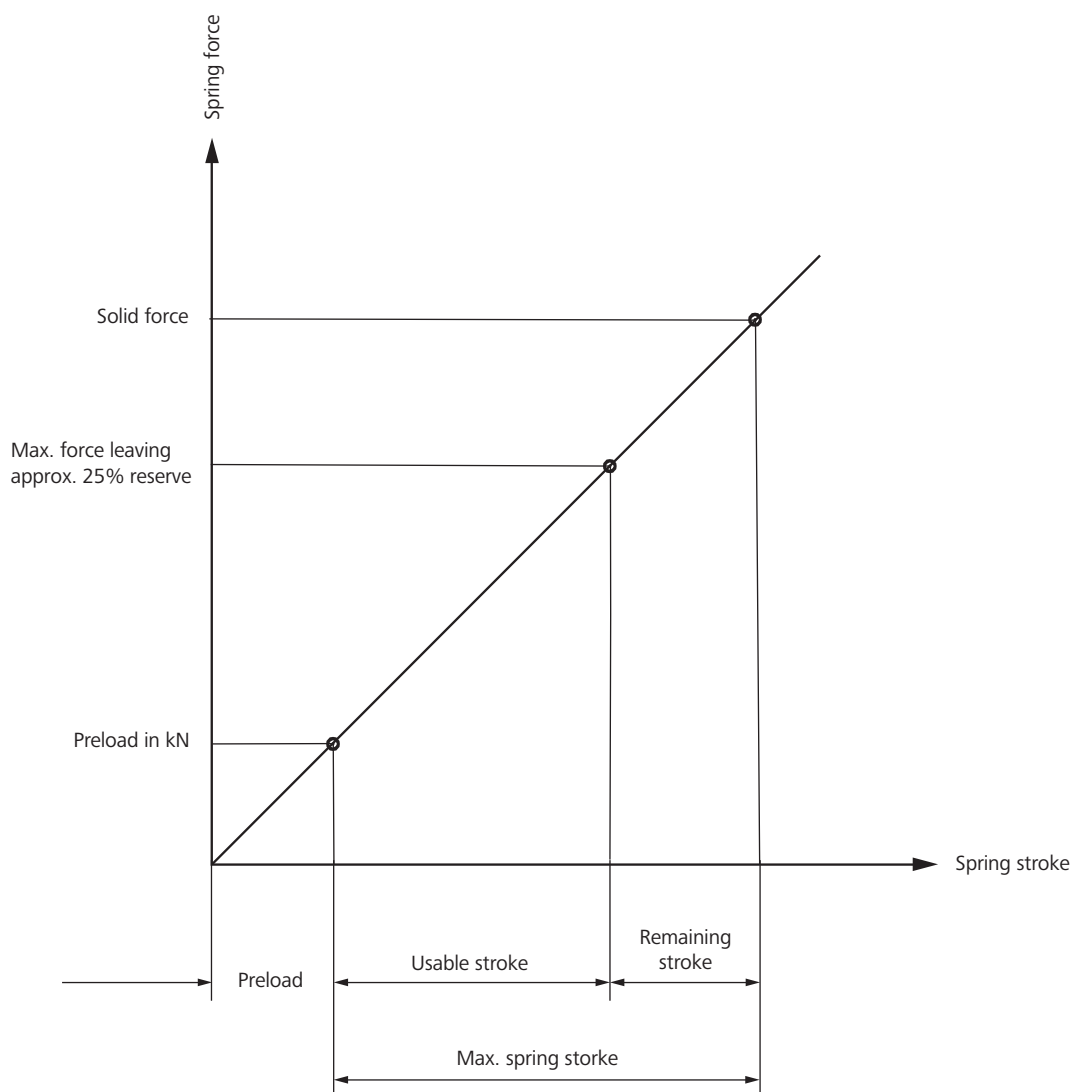
Accessories

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Stem protection tube	206
Parking frame and protection cover	208

Technical data Spring loaded stem nut

Type	Spring constant	Spring stroke	Solid force	Preload		Usable stroke	Force usable leaving sufficient reserve	Remaining stroke	Stem diameter $\varnothing$ d6
	[kN/mm]	Max. [mm]	[kN]	[mm]	[kN]	[mm]	Max. [kN]	[mm]	Max. [mm]
AF 07.2	3.1	5.9	20	0.5	1.5	4.7	16	1.2	32
AF 07.6	6.8	5.6	41	0.4	2.7	4.5	33	1.1	32
AF 10.2	10.2	6.0	65	0.4	4.3	4.7	52	1.3	32
AF 14.2	14.2	8.1	125	0.7	9.6	6.3	100	1.8	51
AF 16.2	19.2	9.6	200	0.8	14.9	7.5	160	2.1	65
AF 25.2	23.7	12.3	315	0.9	21.3	10	260	2.3	85
AF 30.2	32.7	14.0	510	1.6	52.0	11	410	3.0	102
AF 35.2	44.8	17.5	860	1.7	76.0	14	700	3.5	150
AF 40.2	43.1	21.4	1,000	1.8	76.5	17	800	4.4	175
AF 48.2	84.2	30.4	3000	2.4	438	24	2630	4.0	180
AF 60.2	84.2	30.4	3,000	2.4	438	24	2,630	4.0	180

Suitable for modulating duty to a limited extent only. Please contact AUMA.



Technical description Spring loaded stem nut

1. Function

The output drive type AF, spring-loaded stem nut, allows for limited axial stem nut offset within the output mounting flange. This helps to prevent valve damage and protects the axial bearings of the output drive against excessive load.

2. Use

The use of spring-loaded stem nuts type AF is recommended for the following applications:

- 2.1 Globe valves:
 - Operating speed ≥ 250 mm/min.
 - Output speed of the multi-turn actuator: ≥ 45.1 rpm
- 2.2 Gate valves: Operating speed ≥ 500 mm/min.
- 2.3 The mentioned limit values are based on experience. When exceeding these values, please check thoroughly whether and problems or damage may occur when operating the valve without a spring-loaded stem nut.
- 2.4 The use of a spring-loaded stem nut is also recommended if high temperature fluctuations of the medium in the pipes are to be expected for globe valves and gate valves.
- 2.5 If extended delay times occur between torque switch tripping and the ensuing motor power cut-out for actuator control, the spring-loaded stem nut can significantly reduce excess torque.

3. Version

- 3.1 Output drive type AF is available in two versions:
 - Spring-loaded version in both directions, e.g. type AF 10.2 (is acknowledged if the valve type is unknown)
 - Spring-loaded version in direction CLOSE, e.g. type AF 10.2-Z
- 3.2 The spring-loaded version for "direction CLOSE only" must be implemented, if it is to be expected that short-term peak torques are required during unseating from the end position CLOSED. These torques will drop immediately after unseating (typical for wedge gate valves).
- 3.3 In practical use, this means that the spring-loaded version in "direction CLOSE only" must be used for all conventional wedge gate valves.
The spring-loaded version for both directions can be used for back seal valves e.g. globe valves.

4. Special features

If the output drive type AF is requested for special wedge gate valves when back seal control is required, please contact AUMA.

5. Ambient temperature range

–40 °C to +80 °C

6. Documentation

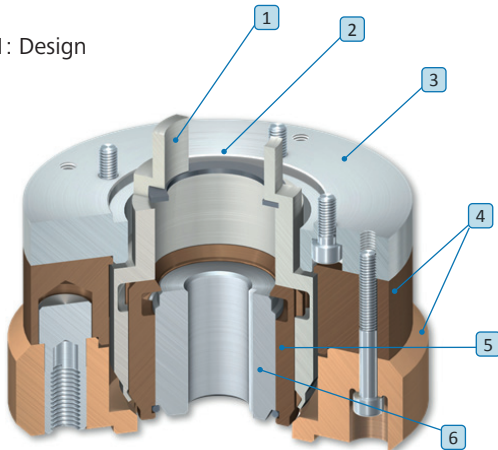
- Technical data AF 07.2 – AF 60.2
- Dimensions Output drive types AF 07.2 – AF 16.2
- Dimensions Output drive types AF 25.2 – AF 60.2

7. Safety instructions

The spring stack is subject to high pre-tension. For this reason, the spring stack may only be disassembled from the output mounting flange by authorised staff using the appropriate tools.

Technical description Output drive type IB/IE - insulated output drive

Figure 1: Design



- 1 Coupling sleeve
- 2 Circlip
- 3 Actuator mounting flange (stainless steel)
(only for mounting to actuator sizes
SA 07.1/07.2/07.5/07.6)
- 4 Top and bottom made of cloth reinforced
laminate
- 5 Output drive plug sleeve made of cloth reinforced
laminate
- 6 Output drive sleeve

1. Function

Corrosion is generated by a natural process: Oxidation of metals in combination with water and oxygen.

The insulated output drive IB/IE avoids corrosion by applying cathodic protection (CS):

Cathodic corrosion protection considerably reduces the corrosion rate on metal structures by permanently lowering the electrical potential. This results in a sufficient decrease in the ion mobility between metal and electrolyte. Consequently, the metal to be protected is made virtually resistant against corrosion.

2. Use/application

The use of an insulated output drive is recommended for the following applications:

- 2.1 For metal constructions in electro conductive environments such as soil or water.
e.g. corrosion protection for buried gas pipes.

2.2 Note:

Isolating spark gaps for lightning conditions between multi-turn actuator and pipe are not part of the AUMA delivery. A potential supplier is the company Dehn, with the product TFS (isolating spark gaps - ISG).

3. Sizes/versions/related documents

- 3.1 Insulated output drives are available in the following sizes and version:

- IB 07.2, IB 10.2, IB 14.2, IB 16.2: Bore diameter for valve shaft attachment according to DIN 3210
- IB1 07.2, IB1 10.2, IB1 14.2, IB1 16.2: Bore diameter for valve shaft attachment according to EN ISO 5210
- IB3 07.2, IB3 10.2, IB3 14.2, IB3 16.2: Bore diameter for valve shaft attachment according to EN ISO 5210
- IE 07.2, IE 10.2, IE 14.2, IE 16.2: Bore diameter for valve shaft attachment according to DIN 3210

- 3.2 Related documents:

- Dimensions Output drive types IB/IE - Insulated output drive for SA .2 multi-turn actuators (Y006.244)
- Dimensions Output drive types IB1/IB - Insulated output drive for SA .1 multi-turn actuators and GK/GST gearboxes (Y001.230)
- Dimensions Output drive types IB3/IB - Insulated output drive for SA .1 multi-turn actuators and GK/GST gearboxes (Y001.231)

4. Mounting options for SA 07.2 – SA 16.2, SA 07.1 – SA 25.1

SA-IB-valve

SA-IB-GK-valve

SA-IB-GST-valve

Note:

To adapt the SA .2 actuators to available insulated output drive with flanges F10 and F14 (year of manufacture: 2009 and earlier), an adapter is required. The adapter can be ordered from AUMA.

5. Ambient temperature

–30°C to +70 °C

–40°C to +80 °C

–60°C to +60 °C

6. Special features

Test performed according to internal specification KV 1.2.16.2

The high voltage test is performed at 5,000 V (10 seconds). Certified by test stamp.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data for switches

Limit and torque switches		
Application/description	Standard:	Single switches (1 NC and 1 NO) for each end position, not galvanically isolated
	Options:	Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated Switches with forced opening (1 NC contact)
Type designation/order code	Limit switches:	8, 8.2, 8.3, 8-S, 8.2-S
	Torque switches:	6, 6.2, 6-S, 6.2-S
Mechanical lifetime	2 x 10 ⁶ starts	
Enclosure protection according to EN 60529	IP66	
Contact element	Snap-action contact (double break)	
Operation	Via lever	
Ambient temperature ¹⁾	−60 °C to +120 °C	
Contact material: Silver		
U min.	24 V AC/DC	
U max.	250 V AC/DC	
I min.	20 mA	
I max. AC current	5 A at 250 V (resistive load) 3 A at 250 V (inductive load, cos phi = 0.6)	
I max. DC current	0.4 A at 250 V (resistive load) 0.03 A at 250 V (inductive load, L/R = 3 µs) 5 A at 30 V (resistive load) 5 A at 30 V (inductive load, L/R = 3 µs)	
Contact material: Gold		
U min.	5 V	
U max.	50 V	
I min.	4 mA	
I max.	400 mA	
Wiring diagram		
I Single switches II Tandem switches Signalling Switching off TSC 1/TSO 1 LSC 1/LSO 1 TSC 2/TSO 2 LSC 2/LSO 2 Only the same potential can be switched on the two circuits of each microswitch. If different potentials are to be switched simultaneously, this is only possible when using tandem switches (two galvanically separate microswitches in one housing). To ensure reliable signalling, the leading contacts (LSC 1/LSO 1 or TSC 1/TSO 1) must be used for this purpose and the lagging contacts (LSC/LSO or TSC/TSO) for switching off. [LSC = WSR; LSO = WOEL; TSC = DSR; TSO = DOEL]		
Colour of wires: RD - red (NC), BK - black (NO)		
Safety related assessment of limit and torque switches		
The end position signalisation of the AUMA limit and torque switches with order codes 6-S, 6.2-S, 8-S, 8.2-S were subjected to a safety-related assessment in cooperation with exida GmbH.		
The determined failure rate can be used for the assessment of a safety function to determine the usability in safety instrumented systems (SIS). Compared to the PFD values of IEC 61508, the failure rate is within the SIL 2 range.		
Upon request, the test report can be provided.		
Test according to EN 60947		
For switches with order codes 6-S, 6.2-S, 8-S, 8.2-S, a test certificate in accordance with EN 60947 is available. Upon request, the certificate can also be provided.		

1) Refer to notes on page 2.

Technical data for switches

Blinker transmitter for running indication		
Mechanical lifetime	10 ⁷ starts	
Operation	Segment washer	
Contact element	Snap action contact	
Contact material	Standard:	Silver
	Option:	Gold
Type of contact	Change-over contact	
Contact material: Silver		
U min.	10 V AC/DC	
U max.	250 V AC/DC	
I max. AC current	3 A at 250 V (resistive load) 2 A at 250 V (inductive load, cos phi ≈ 0.8)	
I max. DC current	0.25 A at 250 V (resistive load)	
Ambient temperature ¹⁾	−60 °C to +120 °C	

Handwheel activation switch		
Mechanical lifetime	10 ⁶ starts	
Operation	Lever	
Contact element	Snap action contact	
Contact material	Standard:	Silver
	Option:	Gold
Type of contact	Change-over contact	
Contact material: Silver		
U min.	12 V DC	
U max.	250 V AC	
I max. AC current	3 A at 250 V (inductive load, cos phi = 0.8)	
I max. DC current	3 A at 12 V (resistive load)	
Ambient temperature ¹⁾	-60 °C to +80 °C	

Notes on tables on pages 1 and 2	
1) Ambient temperature	Ambient temperature range depends on temperature range of the actuator (refer to name plate)

Technical data Electronic position transmitter/potentiometer

This data applies to:

Multi-turn actuators:	SA 25.1 – SA 48.1	SAR 25.1 – SAR 30.1	Part-turn actuators:	SQ 05.2 – SQ 14.2	SQR 05.2 – SQR 14.2
	SA 07.2 – SA 16.2	SAR 07.2 – SAR 16.2		SQEx 05.2 – SQEx 14.2	SQREx 05.2 – SQREx 14.2
	SAV 07.2 – SAV 16.2	SARV 07.2 – SARV 16.2			
	SAEx 07.2 – SAEx16.2	SAREx 07.2 – SAREx 16.2			
	SAVEx 07.2 – SAVEx 16.2	SARVEx 07.2 – SARVEx 16.2			

Limit switching device for manual operation: WSH

EWG 01.1

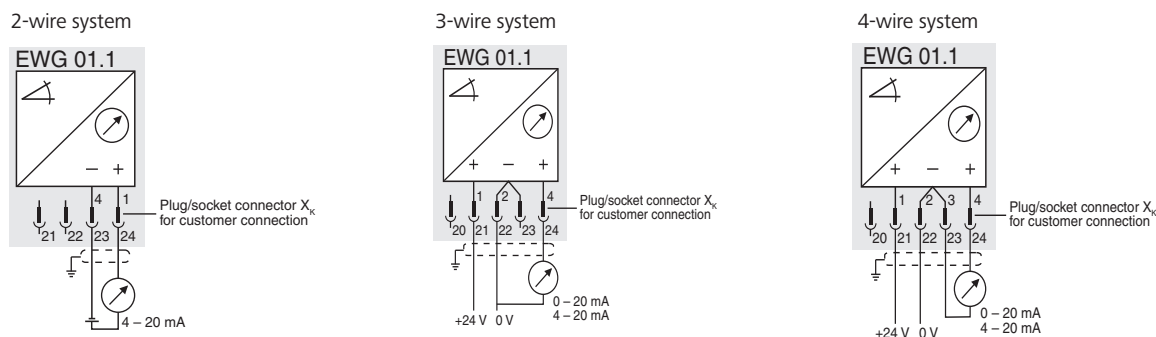
Contactless and wear-free sensing of the valve position by means of Hall sensors for signalling the valve position.

Data	3-wire and 4-wire systems	2-wire system
Output current I_A	0 – 20 mA, 4 – 20 mA	4 – 20 mA
Supply voltage $U_V^{1)}$	24 V DC (18 – 32 V)	24 V DC (18 – 32 V)
Max. current consumption	LED off = 26 mA, LED on = 27 mA	20 mA
Max. load R_B	600 Ω	$(U_V - 12 \text{ V})/20 \text{ mA}$
Impact of power supply		0,1 %
Load influence		0,1 %
Temperature impact		< 0.1 %/K
Ambient temperature		– 60 °C ²⁾ /–40 °C to +80 °C ³⁾ /+90 °C ³⁾

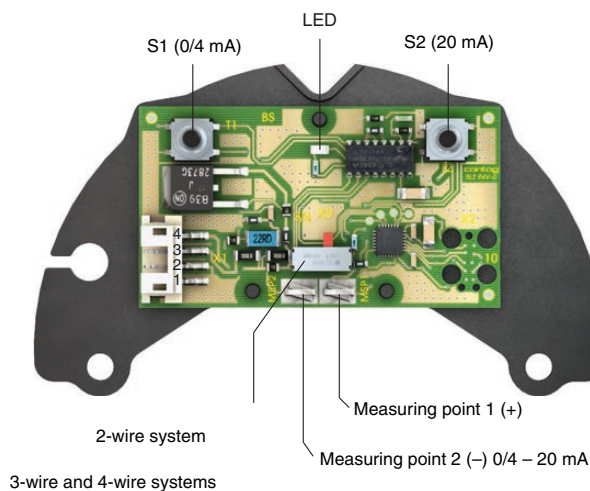
Notes on table

1) Power supply	Power supply possible via: AC, AM actuator controls or external power supply
2)	–60 °C for heater in switch compartment
3) Ambient temperature	Depending on temperature range of the actuator: Refer to name plate

Wiring



1 – 4 pin contacts on the PCB



Setting: Setting is performed via push buttons S1 (0/4 mA) and S2 (20 mA). Refer to operation instructions relating to actuator.

Inverse operation: Observe inverted assignment of push buttons S1 and S2 during setting.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Electronic position transmitter/potentiometer

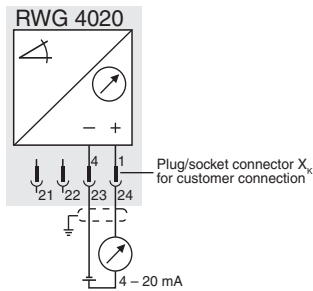
RWG 4020
On the basis of the actual potentiometer value, the RWG generates a current signal for signalling the valve position.

Data	3-wire and 4-wire systems	2-wire system
Output current I_A	0 – 20 mA, 4 – 20 mA	4 – 20 mA
Supply voltage U_V ¹⁾	24 V DC (18 – 32 V)	14 V DC + (I x R _B), max. 30 V
Max. current consumption	24 mA at 20 mA output current	20 mA
Max. load R _B	600 Ω	(U _V – 14 V)/20 mA
Impact of power supply	0.1 %/V	0.1 %/V
Load influence	0.1 %/(0 – 600 Ω)	0.1 %/100 Ω
Temperature impact	< 0.3 ‰/K	
Ambient temperature	– 60 °C ²⁾ /–40 °C to +80 °C ³⁾ /+90 °C ³⁾	
Transmitter potentiometer	5 kΩ	

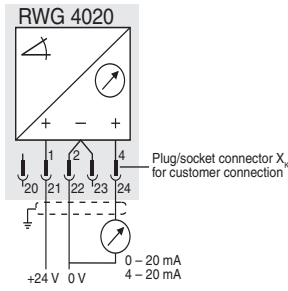
Notes on table	
1) Power supply	Power supply possible via: AC, AM actuator controls or external power supply
2)	–60 °C for heater in switch compartment
3) Ambient temperature	Depending on temperature range of the actuator: Refer to name plate

Wiring

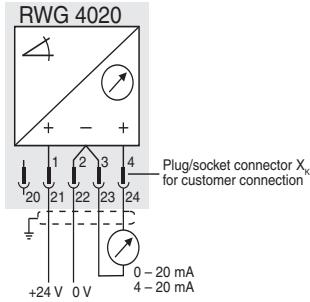
2-wire system



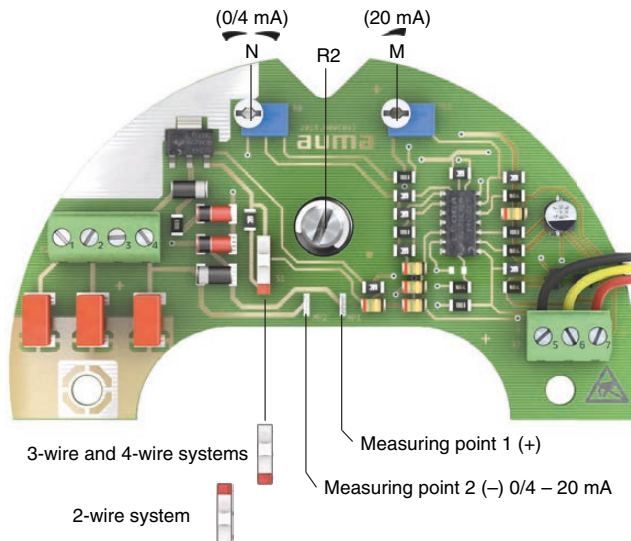
3-wire system



4-wire system



1 – 4 connecting terminals on the PCB



Setting: Refer to the operation instructions relating to actuator.

Inverse operation: For inverse operation, exchange terminals 7 (red/RD) and 5 (black/BK) on position transmitter board.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Electronic position transmitter/potentiometer

Potentiometer

Travel sensor for recording the valve position.

Data	Wire potentiometer	Film potentiometer	Wire potentiometer in tandem version	Film potentiometer in tandem version
Recommended for	OPEN-CLOSE duty	Modulating duty	OPEN-CLOSE duty	Modulating duty
Independent linearity	$\leq 1 \%$			
Resistance (standard)	0.2 k Ω	5 k Ω	02/0.2 k Ω	1 k Ω /5 k Ω
Resistance (option) ¹⁾	0.1 k Ω 0.5 k Ω 1.0 k Ω 2.0 k Ω 5.0 k Ω	1 k Ω	0.5/0.5 k Ω 1.0/1.0 k Ω 0.1/5.0 k Ω 0.2/5.0 k Ω 1.0/5.0 k Ω 5.0/5.0 k Ω	1 k Ω /1 k Ω 5 k Ω /5 k Ω
Resistance tolerance	+/- 5 %	+/- 10 %	+/- 5 %	+/- 10 %
Rated power	1.5 W	0.5 W	1.5 W	0.5 W
Max. wiper current	30 mA	0.1 mA	30 mA	0.1 mA
Lifetime	100,000 cycles	5 • 10 ⁶ cycles	100,000 cycles	5 • 10 ⁶ cycles
Synchronous operation	–	–	+/- 1.5 %	+/- 2.0 %
Ambient temperature ²⁾	– 60 to +120 °C	– 60 °C ³⁾ /–40 °C to +90 °C	– 60 to +120 °C	– 60 °C ³⁾ /–40 °C to +90 °C

Notes on table

1) Resistance (option)	Further variants on request
2) Ambient temperature	Depending on temperature range of the actuator: Refer to name plate
3)	–60 °C for heater in switch compartment

The position of the valve can be transmitted as a continuous signal by a potentiometer. The potentiometer is installed in the control unit of the actuator.

We recommend:

Using the potentiometer as voltage divider. Depending on the supply voltage, suitable series resistors are to be provided. Please observe max. rated power.

For the tandem version, two signals can be evaluated by two potentiometers, e.g., one signal for external controls or one signal for AUMA AC integral controls.

Technical data Sizing of reduction gearings

for mechanical position indication, potentiometers, EWG, RWG and IWG

This data applies to:

Multi-turn actuators:	SA 25.1 – SA 48.1; SAR 25.1 – SAR 30.1
	SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2
	SAV 07.2 – SAV 16.2; SARV 07.2 – SARV 16.2
	SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1
	SAEx 07.2 – SAEx 16.2; SAREx 07.2 – SAREx 16.2
	SAVEx 07.2 – SAVEx 16.2; SARVEx 07.2 – SARVEx 16.2
Limit switching device for manual operation:	WSH
	WSHEx

The sizing must be made to ensure that the max. possible swing angle can be utilised as far as possible with the installed position transmitter. Therefore calculations must be made with the multipliers according to the table below:

Designation	Order code	Electric rotation angle	Multiplier M
Precision wire potentiometer ¹⁾	12.1	310° +20°/-10°	1.55
Tandem version	12.2		
Precision film potentiometer ¹⁾	12.3	310° +20°/-10°	1.55
Tandem version	12.4		
Ex precision wire potentiometer ²⁾	12.1 EMC	250° +20°/-10°	1.85
Ex precision film potentiometer ²⁾	12.1 PX	310° +20°/-10°	1.55
EWG ¹⁾	2-wire	310° +20°/-10°	1.55
	3-wire		
	4-wire		
RWG (4020) ¹⁾	2-wire	310° +20°/-10°	1.55
	3-wire		
	4-wire		
RGW Ex (5020 Ex) ²⁾	21.2 Ex	310° +20°/-10°	1.55
IWG (4020) ¹⁾	2-wire	310° +20°/-10°	1.55
	3-wire		
	4-wire		

General information

For potentiometer, RWG or IWG operation, the control unit provides a transmission ratio of 1:1.29.

Determination of the optimum reduction ratio: $I_0 = \text{turns/stroke} \times M$

Either the reduction gearing with the calculated reduction ratio or the next higher reduction ratio must be used

Reduction gearing 10.1 – xx

Standard reduction ratios (I_0)				
2.0:1	13.5:1	91:1	608:1	4,096:1
2.4:1	16.0:1	108:1	729:1	4,870:1
2.8:1	19.0:1	128:1	867:1	5,833:1
3.4:1	22.5:1	152:1	1024:1	6,937:1
4.0:1	27.0:1	182:1	1,217:1	8,308:1
4.8:1	32.0:1	216:1	1,458:1	9,741:1
5.6:1	38.0:1	256:1	1,734:1	16,384:1
6.7:1	45.0:1	304:1	2,048:1	–
8.0:1	54.0:1	364:1	2,435:1	–
9.5:1	64.0:1	433:1	2,916:1	–
11:1	76.0:1	512:1	3,468:1	–

1) – 2) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Sizing of reduction gearings

for mechanical position indication, potentiometers, EWG, RWG and IWG

Adjustable reduction gearing³⁾

With the table and the positions of the gear wheels, identification of the selected reduction ratio is possible:



Reduction ratio	Position					
	A (turns/stroke)	B (turns/stroke)	C (turns/stroke)	D (turns/stroke)	D (turns/stroke)	E (turns/stroke)
1	1.00 (0.5–0.7)	1.26 (0.7–0.8)	1.55 (0.8–1.0)	2.00 (1.0–1.3)	2.50 (1.3–1.6)	3.10 (1.6–2.0)
2	4.00 (2.0–2.6)	5.00 (2.6–3.2)	6.30 (3.2–4.1)	8.00 (4.1–5.2)	10.0 (5.2–6.5)	12.6 (6.5–8.1)
3	16.0 (8.1–10.3)	20.1 (10.3–13.0)	25.3 (13.0–16.3)	31.8 (16.3–20.5)	40.0 (20.5–25.8)	50.4 (25.8–32.5)
4	64.0 (32.5–41.3)	80.5 (41.3–51.9)	101 (51.9–65.2)	127 (65.2–81.9)	160 (81.9–103.2)	201 (103–130)
5	256 (130–165)	322 (165–208)	405 (208–261)	509 (261–328)	641 (328–411)	806 (414–520)

Calculations

Covered angle

$$\text{Mech. position indicator } [\alpha_p] = \frac{\text{Turns/stroke} \times 360^\circ}{i_s}$$

$$\text{Potentiometers, RWG, IWG, EWG } [\alpha_p] = \frac{\text{Turns/stroke} \times 360^\circ \times 1.29}{i_s}$$

Covered Ohm value

$$R_E = \frac{R_N \cdot \alpha_p}{\alpha_N}$$

i_s = standard reduction ratio
 i_o = optimum reduction ratio (calculated)
 α_N = max. perm. electric angle (see above)
 α_p = covered angle at potentiometer
 α_s = covered angle at mechanical position indicator
 R_N = Nominal resistance
 R_E = actually covered resistance

Blinker transmitter⁴⁾

Output speed	50 Hz	4	5.6	8	11	16	22	32	45	63	90	125	180
rpm	60 Hz	4.8	6.7	9.6	13	19	26	38	54	75	108	150	216
Blinker transmitter pulses per revolution		4	4	2	2	2	1	1	1	1	1	1	1

Notes on tables on pages 1 and 2

1)	Not valid for SAEx 25.1 – 40.1, SAREx 25.1 – 30.1, WSHEx
2)	Valid for SAEx 25.1 – 40.1, SAREx 25.1 – 30.1, WSHEx only
3)	Only applicable for multi-turn actuators with mechanical position indication e and temperature –40 °C to +80 °C.
4)	For WSH, WSHEx, 4 pulses per handwheel rotation

SQ part-turn actuators

Technical data for sizing/setting the reduction gearings

This data applies to:

Part-turn actuators: SQ 05.2 – SQ 14.2
 SQR 05.2 – SQR 14.2
 SQEx 05.2 – SQEx 14.2
 SQREx 05.2 – SQREx 14.2

Reduction gearing

With the table and the positions of the gear wheels, identification of the selected reduction ratio is possible:

Type	Preliminary reduction ratio (from the output drive to control unit)	Swing angle	Electromechanical control unit			Electronic control unit	
			Gearing with fixed reduction ratio made of brass	Adjustable reduction gearing made of plastics 		MWG versions made of metal or plastics	
			Standard reduction ratio	Item	Reduction ratio	Step	Reduction ratio
SQ 05.2/ SQ 07.2	20.8	30° ±15°	4.8	2B	5.0	2	5.0
		60° ±15°	6.7	2D	8.0	3	10.5
		90° ±15°	9.5	2E	10	3	10.5
		120° ±15°	13.5	2F	12.6	3	10.5
		150° ±15°	16	3 A	16	4	20
		180° ±15°	19	3B	20.1	4	20
		210° ±15°	22.5	3C	25.3	4	20
SQ 10.2	26.6	30° ±15°	5.6	2C	6.3	2	5.0
		60° ±15°	9.5	2E	10	3	10.5
		90° ±15°	13.5	2F	12.6	3	10.5
		120° ±15°	16	3 A	16	4	20
		150° ±15°	19	3B	20.1	4	20
		180° ±15°	22.5	3C	25.3	4	20
		210° ±15°	27	3C	25.3	5	42
SQ 12.2	53.2	30° ±15°	11	2F	12.6	3	10.5
		60° ±15°	19	3B	20.1	4	20
		90° ±15°	27	3C	25.3	4	20
		120° ±15°	32	3D	31.8	5	42
		150° ±15°	38	3E	40	5	42
		180° ±15°	45	3F	50.4	5	42
		210° ±15°	54	4 A	64	6	80
SQ 14.2	122.5	30° ±15°	27	3C	25.3	4	20
		60° ±15°	45	3E	40	5	42
		90° ±15°	64	4 A	64	6	80
		120° ±15°	76	4B	80.5	6	80
		150° ±15°	91	4C	101	6	80
		180° ±15°	108	4D	127	7	168
		210° ±15°	152	4E	152	7	168

SQ part-turn actuators
Technical data for sizing/setting the reduction gearings



Blinker transmitter			
Type	Operating time for 90° in seconds		Blinker transmitter pulses per 90°
	50 Hz	60 Hz	
SQ 05.2	4	3	5
	5.6	4.5	5
	8	6	11
	11	9	11
	16	12	11
	22	17	21
	32	25	21
	63	50	21
SQ 07.2	4	3	5
	5.6	4.5	5
	8	6	11
	11	9	11
	16	12	11
	22	17	21
	32	25	21
	63	50	21
SQ 10.2	8	6	14
	11	9	14
	16	12	14
	22	17	14
	32	25	27
	45	35	27
	63	50	27
SQ 12.2	11	9	13
	16	12	13
	22	17	27
	32	25	27
	45	35	27
	63	50	27
	90	75	53
	125	108	53
SQ 14.2	24	20	31
	36	30	31
	48	40	31
	72	60	31
	100	85	31

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical description Types of corrosion protection

This overview accounts for atmospheric ambient conditions, but not for special chemical atmospheres, requiring absence of aluminium or nonferrous heavy metal, for example.

Corrosivity categories in accordance with ISO 12944-2 and EN 15714-2 Classification of environments	Corrosion protection	AUMA	
		Painting specification (total film thickness)	
		Powder coating	Liquid paint
C1 (very low): Heated buildings with clean atmospheres	KN	P1.001 (140 µm)	N1.001 (60 µm)
C2 (low): Unheated buildings and rural areas with low level of pollution			
C3 (medium): Production rooms with humidity and moderate pollution. Urban and industrial areas with moderate pollution	KS		N1.003 (140 µm)
C4 (high): Chemical plants and areas with moderate salinity			
C5-M (very high, marine): Coastal and offshore areas with high salinity, almost permanent condensation and high pollution			
C5-I (very high, industrial): Industrial areas with almost permanent condensation and aggressive atmosphere	KX		
Extreme (cooling tower): Areas with extremely high salinity, permanent condensation and aggressive atmosphere	KX KX-G (KX-aluminium-free)	P1.004 (280 µm)	N1.020 (300 µm)

Corrosion protection

Technical description Corrosion protection KS with powder coating in accordance with painting specification P1.001

This description applies to AUMA products with powder coating in accordance with painting specification P1.001.

Corrosion protection KS based on painting specification P1.001 is suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and structure of the painting.

1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 Name plates are made of aluminium.

2. Surface treatment

- 2.1 After machining, steel parts are covered with metallic surface protection (except SQ/GS coupling and internal GS coupling compartment)
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

3. General information

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

4. Painting system

- 4.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.

- 4.2 Housing parts are primer coated with:

Product: FREOPOX PE 1204A
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on epoxy resin.
 Colour: RAL 7035
 Film thickness: 70 µm

- 4.3 Housing parts are finish coated with:

Product: FREIOTHERM PU 4003M
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on polyurethane.
 Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
 Film thickness: 70 µm

5. Total film thickness (dry)

The average total film thickness (dry) of the powder coated housing is 140 µm.
 For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels).
 We recommend verifying the compatibility of the paints before applying a new wet painting layer.
 For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

Corrosion protection

Technical description Corrosion protection KS with powder coating in accordance with painting specification P1.002

This description applies to AUMA products with powder coating in accordance with painting specification P1.002.

Corrosion protection KS based on painting specification P1.002 is suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and structure of the painting.

1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 Name plates are made of aluminium.

2. Surface treatment

- 2.1 After machining, steel parts are covered with metallic surface protection (except SQ/GS coupling and internal GS coupling compartment)
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

3. General information

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

4. Painting system

- 4.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxilan® conversion coating.

- 4.2 Housing parts are primer coated with:

Product: FREOPOX PE 1204A
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on epoxy resin.
 Colour: RAL 7035
 Film thickness: 70 µm

- 4.3 Housing parts are finish coated with:

Product: FREIOTHERM PU 4003M
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on polyurethane.
 Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
 Film thickness: 70 µm

- 4.4 Finish painting

The finish painting is applied after device assembly and depends on the desired colour.

- 4.4.1 Housing parts are finish painted with:

Product: SikaCor EG 4
 Manufacturer: Sika Deutschland GmbH
 Structure: 2-component finish painting based on polyurethane with micaceous iron oxide
 Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order
 Film thickness: 60 µm (dry)

- 4.4.2 Housing parts are coated with finish painting for special colours:

Product: SikaCor EG 5
 Manufacturer: Sika Deutschland GmbH
 Structure: 2-component finish painting based on polyurethane
 Colour: Special colour according to work order
 Film thickness: 60 µm (dry)

5. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including finish painting is 200 µm. For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels).
Subsequent finishing with chlorine rubber paints subject to restrictions.
We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

This description applies to AUMA products with powder coating in accordance with painting specification P1.001.

KX corrosion protection based on painting specification P1.001 is suitable for use in areas with extremely high salinity, almost permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and painting system.

1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 The name plates are made of aluminium.

2. Surface treatment

- 2.1 After machining, the parts are coated with a metallic surface protection or are made of stainless steel (except for internal GS coupling compartment).
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

3. General

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

4. Painting system

- 4.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.

- 4.2 Housing parts are primer coated with:

Product:	FREOPOX PE 1204A
Manufacturer:	Emil Frei GmbH & Co. KG
Structure:	Thermally hardening powder coating based on epoxy resin
Colour:	RAL 7035
Film thickness:	70 µm

- 4.3 Housing parts are finish coated with:

Product:	FREIOTHERM PU 4003M
Manufacturer:	Emil Frei GmbH & Co. KG
Structure:	Thermally hardening powder coating based on polyurethane
Colour:	A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
Film thickness:	70 µm

5. Total film thickness (dry)

The average total film thickness (dry) of the powder coated housing is 140 µm.

For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

Technical description KX corrosion protection with powder coating in accordance with painting specification P1.002

This description applies to AUMA products with powder coating in accordance with painting specification P1.002.

Corrosion protection KX based on painting specification P1.002 is suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. Corrosion protection includes the use of suitable material for outer parts and painting system.

1. Materials

- 1.1 Outside fasteners (e.g. screws) are made of stainless steel with additional metallic surface protection.
- 1.2 The name plates are made of aluminium.

2. Surface treatment

- 2.1 After machining, the parts are coated with a metallic surface protection (except for internal GS coupling compartment) or are made of stainless steel.
- 2.2 Aluminium parts such as the handwheel are electrophoretically coated.

3. General

- 3.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 3.2 Aluminium housing parts are not blasted.

4. Painting system

- 4.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.

- 4.2 Housing parts are primer coated with:

Product: FREOPOX PE 1204A
Manufacturer: Emil Frei GmbH & Co. KG
Structure: Thermally hardening powder coating based on epoxy resin.
Colour: RAL 7035
Film thickness: 70 µm

- 4.3 Housing parts are finish coated with:

Product: FREIOTHERM PU 4003M
Manufacturer: Emil Frei GmbH & Co. KG
Structure: Thermally hardening powder coating based on polyurethane.
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
Film thickness: 70 µm

- 4.4 Finish painting

The finish painting is applied after device assembly and depends on the desired colour.

- 4.4.1 Housing parts are finish painted with:

Product: SikaCor EG 4
Manufacturer: Sika Deutschland GmbH
Structure: 2-component finish painting based on polyurethane with micaceous iron oxide
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order
Film thickness: 60 µm (dry)

- 4.4.2 Housing parts are coated with finish painting for special colours:

Product: SikaCor EG 5
Manufacturer: Sika Deutschland GmbH
Structure: 2-component finish painting based on polyurethane
Colour: Special colour according to work order
Film thickness: 60 µm (dry)

5. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including finish painting is 200 µm.

For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

6. Notes

- 6.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). We recommend verifying the compatibility of the paints before applying a new wet painting layer. For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 6.2 Mounting surface to the valve is powder coated.

Technical description Powder coating, primer coating and finish coating

1. General information

- 1.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 1.2 Aluminium housing parts are not blasted.

2. Painting system

- 2.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.

- 2.2 Housing parts are primer coated with:

Product: FREOPOX PE 1204A
Manufacturer: Emil Frei GmbH & Co. KG
Structure: Thermally hardening powder coating based on epoxy resin.
Colour: RAL 7035
Film thickness: 70 µm

- 2.3 Housing parts are finish coated with:

Product: FREIOTHERM PU 4003M
Manufacturer: Emil Frei GmbH & Co. KG
Structure: Thermally hardening powder coating based on polyurethane.
Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
Film thickness: 70 µm

3. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housing is 140 µm.

For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

4. Notes

- 4.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels).
We recommend verifying the compatibility of the paints before applying a new wet painting layer.
For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 4.2 Mounting surface to the valve is powder coated.

Technical description Powder coating, primer coating, finish coating and wet painting layer

1. General information

- 1.1 Housing parts made of GJL/GJS are blasted: Sa 2 ½ in accordance with EN ISO 12944-4.
- 1.2 Aluminium housing parts are not blasted.

2. Painting system

- 2.1 During preliminary treatment, housing parts are chemically cleaned and painted with an Oxsilan® conversion coating.

- 2.2 Housing parts are primer coated with:

Product: FREOPOX PE 1204A
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on epoxy resin.
 Colour: RAL 7035
 Film thickness: 70 µm

- 2.3 Housing parts are finish coated with:

Product: FREIOTHERM PU 4003M
 Manufacturer: Emil Frei GmbH & Co. KG
 Structure: Thermally hardening powder coating based on polyurethane.
 Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey)
 Film thickness: 70 µm

- 2.4 Finish painting

The finish painting is applied after device assembly and depends on the desired colour.

- 2.4.1 Housing parts are finish painted with:

Product: SikaCor EG 4
 Manufacturer: Sika Deutschland GmbH
 Structure: 2-component finish painting based on polyurethane with micaceous iron oxide
 Colour: A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order
 Film thickness: 60 µm (dry)

- 2.4.2 Housing parts are coated with finish painting for special colours:

Product: SikaCor EG 5
 Manufacturer: Sika Deutschland GmbH
 Structure: 2-component finish painting based on polyurethane
 Colour: Special colour according to work order
 Film thickness: 60 µm (dry)

3. Total film thickness (dry)

Average total film thickness (dry) of the powder coated housings including wet painting layer is 200 µm.

For reasons of geometry, powder coating thickness varies between 60 µm and 220 µm. Variation of film thickness has no impact on corrosion protection.

4. Notes

- 4.1 The top coat can be painted with all common 1- or 2-component coating materials (i.e. artificial resin, epoxy resin, PVC, polyurethane, polyamide and acrylic enamels). Subsequent finishing with chlorine rubber paints subject to restrictions.
 We recommend verifying the compatibility of the paints before applying a new wet painting layer.
 For this, the surfaces to be painted must be slightly ground and carefully cleaned, i. e. free of foreign substance, grease, oily dirt and dust.
- 4.2 Mounting surface to the valve is powder coated.

1. General information

- 1.1 Fireproof characteristics are achieved by the patented K-MASS™ coating by Thermal Designs Inc. In the event of a fire, the coating will expand and absorb the externally supplied thermal energy of the fire.

2. Characteristics

- Chemically inert
- Fixed passive fire protection
- Segment-moulded coating
- Test in accordance with strict standards
- Protection of electronic elements for 30 minutes at 1,100 °C/2,000 °F

3. Advantages

- Does not fan the fire
- Device remains fully operational
- Full access to any component part, without removal of fire protection
- Local operation not impaired
- Minimum space requirement
- No additional installation cost
- Good heat dissipation characteristics
- Ambient temperature –50 °C to +85.6 °C
- Permanent corrosion protection
- Always ready for use
- Meets the requirements of ANSI/API607 and UL 1709

4. In case of fire

- 4.1 Actuators, actuator controls and gearboxes remain completely operational during minimum 30 minutes at a temperature up to 1 100 °C/2 000 °F. Within this period of time, the corresponding fireproof valve can be operated.

5. Qualifications

- 5.1 K-Mass™ is hydrocarbon jet and pool fire tested by:

- Bureau Veritas
- Faverdale Technology Centre
- Sintef of Norway
- Southwest Research Institute

6. Finish painting

The finish painting depends on the desired colour.

- 6.1 The intermediate painting is applied to the housing parts:

Product:	SikaCor EG 1
Manufacturer:	Sika Deutschland GmbH
Structure:	2-component painting based on epoxy resin with micaceous iron oxide
Colour:	Green (DB 601)
Film thickness:	80 µm (dry)

- 6.2 Housing parts are finish painted with:

Product:	SikaCor EG 4
Manufacturer:	Sika Deutschland GmbH
Structure:	2-component finish painting based on polyurethane with micaceous iron oxide
Colour:	A0001, AUMA silver-grey (similar to RAL 7037 dust grey) or DB colour according to work order
Film thickness:	60 µm (dry)

6.3 Housing parts are coated with finish painting for special colours:

Product:	SikaCor EG 5
Manufacturer:	Sika Deutschland GmbH
Structure:	2-component finish painting based on polyurethane
Colour:	Special colour according to work order
Film thickness:	60 µm (dry)

6.4 Mounting face to the valve is without surface treatment, covered with a metallic surface protection or powder coated.

Technical data Grease and oil quantities

This data applies to¹⁾:

Multi-turn actuators	SA 07.1 – SA 48.1; SAR 07.1 – SAR 30.1; SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2 SA 07.2-UW – SA 16.2-UW; SAR 07.2-UW – SAR 16.2-UW SAV 07.2 – SAV 16.2; SARV 07.2 – SARV 16.2 SAExC 07.1 – SAExC 16.1; SARExC 07.1 – SARExC 16.1; SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1 SAEx 07.2 – SAEx 16.2; SAREx 07.2 – SAREx 16.2 SAVEx 07.2 – SARVEx 16.2; SARVEx 07.2 – SARVEx 16.2 SAN 07.1 – SAN 25.1; SARN 07.1 – 25.1; SAN 07.2 – SAN 16.2; SARN 07.2 – SARN 16.2 SAI 07.2 – SAI 16.2; SARI 07.2 – SARI 16.2
Part-turn actuators	SQ 05.2 – SQ 14.2; SQR 05.2 – SQR 14.2; SQEx 05.2 – SQEx 14.2; SQREx 05.2 – SQREx 14.2 SG 05 – SG 12; SG 05.1 – SG 12.1; SGR 05.1 – SGR 12.1; SGExC 05.1 – SGExC 12.1 SG 04.2 – SG 10.2; SG 03.3 – SG 05.3 SGM 04.1 – SGM 10.1; SGMR 04.1 – SGMR 10.1; SGC 04.1 – SGC 10.1; SGCR 04.1 – SGCR 10.1
Globe valve actuators	SV 05.1 – SV 07.1; SVM 05.1 – SVM 07.5; SVMR 05.1 – SVMR 07.5; SVC 05.1 – SVC 07.5; SVCR 05.1 – SVCR 07.5
Worm gearboxes	GS 50.3 – GS 250.3; GS 315 – GS 500; GS 630.3
Primary reduction gearing	GZ 16 – GZ 40; GZ 630.3
Coaxial planetary gearing	GP 10.1 – GP 30.1
Spur gearboxes	GST 10.1 – GST 40.1
Bevel gearboxes	GK 10.2 – GK 40.2
Linear thrust units	LE 12.1 – LE 200.1
Multi-turn gearboxes	GHT 320.3 – GHT 1200.3

Multi-turn actuators

SA		07.1/07.5		10.0/10.1	14.1/14.5	16.1	25.1	30.1	35.1	40.1	48.1
Qty	dm ³	0.62 ±0.03		0.93 ±0.04	2.3 ±0.1	4.5 ±0.1	11.0 ±0.2	16.0 ±0.2	29.0 ±0.4	36.0 ±0.4	56.0 ±0.5
Weight	kg ²⁾	0.56 ±0.03		0.84 ±0.04	2.1 ±0.1	4.1 ±0.1	9.9 ±0.2	14.4 ±0.2	26.1 ±0.4	32.4 ±0.4	50.4 ±0.5
SA		07.2/07.6		10.2	14.2/14.6	16.2					
		F07	F10/G0								
Qty	dm ³	0.58 ±0.02	0.525 ±0.02	0.9 ±0.02	1.76 ±0.05	3.1 ±0.05					
Weight	kg ²⁾	0.52 ±0.02	0.47 ±0.02	0.81 ±0.02	1.58 ±0.05	2.8 ±0.05					

Part-turn actuators

SQ		05.2	07.2	10.2	12.2	14.2					
Qty	dm ³	0.7 ±0.02	0.7 ±0.02	1.3 ±0.02	1.7 ±0.02	1.8 ±0.05					
Weight	kg ²⁾	0.63 ±0.02	0.63 ±0.02	1.17 ±0.02	1.53 ±0.02	1.62 ±0.05					
SG		05	07	10	12						
Qty	dm ³	0.3	0.3	0.52	0.8						
Weight	kg ²⁾	0.27	0.27	0.47	0.72						
SG		05.1	07.1	10.1	12.1						
Qty	dm ³	0.3	0.3	0.52	0.8						
Weight	kg ²⁾	0.27	0.27	0.47	0.72						
SG		04.2	05.2	07.2	10.2						
Qty	dm ³	0.09	0.14	0.30	0.52						
Weight	kg ³⁾	0.07	0.12	0.25	0.43						
SG		03.3	04.3	05.3							
Qty	dm ³	0.14	0.14	0.23							
Weight	kg ³⁾	0.12	0.12	0.19							
SGM/SGC		04.1	05.1	07.1	10.1						
Qty	dm ³	0.11	0.11	0.24	0.40						
Weight	kg ³⁾	0.09	0.09	0.20	0.33						

1) – 2) Refer to notes on page 3.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical data Grease and oil quantities

Globe valve actuators

SV		05.1	07.1								
Qty	dm ³	0.14	0.30								
Weight	kg ³⁾	0.12	0.25								
SVM/SVC		05.1	07.1/07.5								
Qty	dm ³	0.11	0.24								
Weight	kg ³⁾	0.09	0.20								

Worm gearboxes

GS		50.3	63.3	80.3	100.3 (52:1)	100.3 (126:1)	100.3 (160:1)	100.3 (208:1)	125.3 (52:1)	125.3 (126:1)	125.3 (160:1)
Qty	dm ³	0.1	0.3	0.4	1	1.35	1.35	1.35	1.3	1.65	1.65
Weight	kg ²⁾	0.09	0.27	0.36	0.9	1.22	1.22	1.22	1.17	1.49	1.49
GS		125.3 (208:1)	160.3 (54:1)	160.3 (218:1)	160.3 (442:1)	160.3 (880:1)	200.3 (53:1)	200.3 (67:1)	200.3 (214:1)	200.3 (434:1)	200.3 (864:1)
Qty	dm ³	1.65	3.3	4.3	4.3	4.3	6.6	6.6	8.1	8.1	8.6
Weight	kg ²⁾	1.49	3	3.9	3.9	3.9	6	6	7.4	7.4	7.8
GS		200.3 (1 752:1)	250.3 (52:1)	250.3 (210:1)	250.3 (411:1)	250.3 (848:1)	250.3 (1 718:1)				
Qty	dm ³	8.6	12.2	14.4	14.4	14.7	14.7				
Weight	kg ²⁾	7.8	11	13	13	13.3	13.3				
GS		315	400	500	630.3						
Qty	dm ³	27.5	55.0	110.0	216.7						
Weight	kg ²⁾	25.0	50.0	100.0	195.0						

Primary reduction gearing

GZ		30	35	40	40/16						
Qty	dm ³	17.6	18.7	57.2	61.9						
Weight	kg ²⁾	16.0	17.0	52.0	56.3						
GZ		630.3 (4:1/8:1)	630.3 (16:1/32:1)	630.3 (64:1/133:1)							
Qty	dm ³	11.1	16.7	21.1							
Weight	kg ²⁾	10.0	15.0	19.0							

Coaxial planetary gearing

GP		10.1/14.1 (2, 4:1)	10.1/14.1 (3:1)	10.1/14.1 (4:1)	16.1	25.1 (4:1/8:1)	25.1 (16:1)	30.1 (4:1/8:1)	30.1 (16:1)		
Qty	dm ³	0.35	0.35	0.35	1.0	1.5	2.0	2.2	2.5		
Weight	kg ²⁾	0.32	0.32	0.32	0.9	1.4	1.8	2.0	2.25		

Spur gearboxes

GST		10.1	14.1/14.5	16.1	25.1	30.1	35.1	40.1			
Qty	dm ³	0.7	1.5	3.0	8.0	12.0	20.0	27.0			
Weight	kg ²⁾	0.62	1.3	2.7	7.1	10.7	17.8	24.0			

Bevel gearboxes

GK		10.2	14.2/14.6	16.2	25.2	30.2	35.2	40.2			
Qty	dm ³	0.25	0.6	1.0	4.0	14.0	20.0	22.0			
Weight	kg ²⁾	0.22	0.53	0.9	3.6	12.5	17.8	19.6			

Multi-turn gearboxes

GHT		320.3	500.3	800.3	1200.3						
Qty	dm ³	30.0	71.5	93.5	146.5						
Weight	kg ²⁾	27	64.4	84.2	131.9						

1) – 2) Refer to notes on page 3.

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Technical data Grease and oil quantities

Linear thrust units

LE		12.1-50 25.1-50	12.1-100 25.1-100	12.1-125 25.1-125	12.1-200 25.1-200	12.1-250 25.1-250	12.1-400 25.1-400	12.1-500 25.1-500	50.1-63	50.1-125	50.1-250
Qty	dm ³	0.10	0.13	0.16	0.28	0.36	0.54	0.65	0.26	0.41	0.65
Weight	kg ²⁾	0.09	0.12	0.15	0.26	0.33	0.50	0.60	0.28	0.38	0.70
LE		50.1-400	70.1-80 100.1-80	70.1-160 100.1-160	70.1-320 100.1-320	70.1-400 100.1-400	200.1-100	200.1-200	200.1-400	200.1-500	
Qty	dm ³	1.09	0.52	0.88	1.48	1.79	1.71	2.80	4.92	6.11	
Weight	kg ²⁾	1.01	0.48	0.81	1.37	1.65	1.58	2.58	4.53	5.63	

Notes on tables on pages 1 and 2

1)	This overview is not applicable for products with F21.
2)	For ρ = approx. 0.9 kg/dm ³
3)	For ρ = approx. 0.83 kg/dm ³

Technical data Ambient temperatures/lubricant in the gear housing

Type		Temperature range								
		Normal (standard)		Low temperature		Extreme low temper- ature		High temperature		
		List designation		N		L		EL-60		H
Actuator	Version	°C	Grease/ oil	°C	Grease	°C	Grease	°C	Grease	
SA 07.2 – 16.2	Standard	–40/+80	F15	–	–	–60/+60	F2	0/+120	F3	
SA 07.2-UW – 16.2-UW	Standard	–30/+70	F15	–	–	–	–	–	–	
SAV 07.2 – 16.2	Standard	–40/+70	F15	–	–	–60/+60	F2	–	–	
SA 25.1 – 48.1	Standard	–40/+80	F15	–	–	–60/+60	F2	0/+120	F3	
SA 25.1-UW – 30.1-UW	Standard	–30/+70	F15	–	–	–	–	–	–	
SA 07.2 – 16.2	With oil ¹⁾	–25/+80	O9	–	–	–	–	–	–	
SAR 07.2 – 16.2	Standard	–40/+70	F15	–	–	–60/+60	F2	0/+100	F3	
SAR 07.2-UW – 16.2-UW	Standard	–30/+70	F15	–	–	–	–	–	–	
SARV 07.2 – 16.2	Standard	–40/+70	F15	–	–	–60/+60	F2	–	–	
SAR 25.1 – 30.1	Standard	–40/+70	F15	–	–	–60/+60	F2	0/+100	F3	
SAR 25.1-UW – 30.1-UW	Standard	–30/+70	F15	–	–	–	–	–	–	
SAR 07.2 – 16.2	With oil ¹⁾	–25/+70	O9	–	–	–	–	–	–	
SAEx 07.2	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAEx 07.6	4 – 32 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	45 – 180 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAEx 10.2	4 – 11 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	16 – 180 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAEx 14.2	4 – 11 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	16 – 180 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAEx 14.6	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAEx 16.2	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAVEx 07.2 – 16.2	Ex	–30/+40 (+60)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAEx 25.1 – 48.1	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAEx 07.2 – 16.2	With oil ¹⁾	–25/+70	O9	–	–	–	–	–	–	
SAREx 07.2	4 – 45 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	63 – 90 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAREx 07.6	4 – 45 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	63 – 90 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAREx 10.2	4 – 32 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	45 – 90 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAREx 14.2	4 – 11 rpm	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
	16 – 90 rpm	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SAREx 14.6	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAREx 16.2	Ex	–30/+40 (+60/+80)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SARVEx 07.2 – 16.2	Ex	–30/+40 (+60)	F11	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAREx 25.1 – 30.1	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–	
SAREx 07.2 – 16.2	With oil ¹⁾	–25/+70	O9	–	–	–	–	–	–	
SAN 07.1 – 35.1	Nuclear power plants	–25/+80	F11	–	–	–	–	–	–	
SARN 07.1 – SARN 35.1	Nuclear power plants	–25/+80	F11	–	–	–	–	–	–	
SAI 6 – 100	Nuclear power plants	–20/+80	F11	–	–	–	–	–	–	
SAI 07.2 – 16.2	Nuclear power plants	–30/+80	F11	–	–	–	–	–	–	
SARI 07.2 – 16.2	Nuclear power plants	–30/+60	F11	–	–	–	–	–	–	
SAN 07.2 – 16.2	Nuclear power plants	–30/+80	F11	–	–	–	–	–	–	
SARN 07.2 – SARN 16.2	Nuclear power plants	–30/+60	F11	–	–	–	–	–	–	

1) Refer to notes on page 2.

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Technical data Ambient temperatures/lubricant in the gear housing

Type List designation Actuator		Temperature range							
		Normal (standard)		Low temperature		Extreme low temperature		High temperature	
		N		L		EL-60		H	
		°C	Grease/ oil	°C	Grease	°C	Grease	°C	Grease
SQ 05.2 – 14.2	Standard	–40/+80	F15	–	–	–60/+60	F2	0/+120	F3
SQR 05.2 – 14.2	Standard	–40/+70	F15	–	–	–60/+60	F2	0/+100	F3
SQEx 05.2 – SQEx 14.2	Ex	–30/+60 (+80)	F15	–40/+60	F2	–60/+60	F2	–	–
SQREx 05.2 – 14.2	Ex	–30/+40 (+60/+80)	F15	–40/+40 (+60)	F2	–60/+40 (+60)	F2	–	–
SGC 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–
SGCR 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–
SGM 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–
SGMR 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–
SVC 05.1 – 07.5	Marine	–25/+70	O2	–	–	–	–	–	–
SVCR 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–
SVM 05.1 – 07.5	Marine	–25/+70	O2	–	–	–	–	–	–
SVMR 04.1 – 12.1	Marine	–25/+70	O2	–	–	–	–	–	–

Notes on table on page 1

1) With oil Mounting position: Perpendicular hollow shaft and bearing flange at the bottom stipulated

Lubricants:

F2 = Fuchs Discor R EP 000
F3 = Zepf AR 12 K
F11 = Fuchs Renolit LST
F15 = Shell Alvania 1029
O2 = Fuchs Unisyn SC 32
O9 = Oest SAE 75W-90

Technical data Anti-backdrive device

Type	Output torque	Valve attachment		Factor ¹⁾	Flange ²⁾ for mounting multi-turn actuator	Input shaft			Handwheel	Weight ⁴⁾
	Max. [Nm]	Standard EN ISO 5210	Option DIN 3210			Hollow shaft ³⁾ with dog coupling (for rising valve stem) Valve stem Ø Max.[mm]	Shaft journal		Max. Ø [mm]	approx. [kg]
LMS 07.1	60	F10	G0	0.95 0.95	F10	40	20	30	200 250	9.7
LMS 10.1	120	F14	G1/2	0.95 0.95	F10	40	20	30	250 315	9.7
LMS 14.1	500	F14	G1/2	0.95 0.95	F14	57	30	40	315 400	30
LMS 16.1	1,000	F16	G3	0.95 0.95	F16	75	40	50	400 500	55

Use

Ensuring both static and dynamic self-locking (self-braking) of motor-operated and manually operated valves. Applications subjected to strong loads (like protective weirs, fishbelly flap gates and sluice gates, etc.) are not permitted.

Exceptions are:

- Applications for which LMS are mounted to worm gearboxes.
- Applications for conventional industrial valves, such as butterfly valves and ball valves.
- Applications with self-locking trapezoidal threads.

Notes on table

1) Factor	Corresponds to the efficiency
2) Flange for mounting to multi-turn actuator	For the dimensions of the fixing holes, refer to dimension sheet
3) Hollow shaft	Suitable for mounting to multi-turn actuator with output drive type B1 (standard version)
4) Weight	Weight includes output drive type B1

Features and functions

Type of duty	Standard:	Short-time duty S2 - 15 min
	Option:	Short-time duty S2 - 30 min
	The type of duty must not be exceeded.	
Input shaft	Input shafts made of stainless steel as a standard	
	Standard:	Flange connection for multi-turn actuator with output drive type B1
	Option:	Input shaft with parallel key according to DIN 6885-1

Operation

Motor operation	Directly via multi-turn actuator
Manual operation	Directly via handwheel

Valve attachment

Valve attachment	A, B1, B3, B4 according to EN 5210 A, B according to DIN 3210

Service conditions

Use	Indoor and outdoor use permissible	
Mounting position	Any position	
Ambient temperature	Standard:	–25 °C to +80 °C
	Option:	–40 °C to +60 °C
Enclosure protection according to EN 60529	IP68	
	According to AUMA definition, enclosure protection IP68 meets the following requirements: • Depth of water: maximum 8 m head of water • Duration of continuous immersion in water: Max. 96 hours • Up to 10 operations during continuous immersion	

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Technical data Anti-backdrive device

Corrosion protection	Standard:	KN	Suitable for installation in industrial units, in water or power plants with a low pollutant concentration.
	Options:	KS	Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
		KX	Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
Coating	Double layer powder coating		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	AUMA anti-backdrive devices meet or exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request.		

Special features for use in potentially explosive atmospheres

Explosion protection	II2G c IIC T4 according to ATEX 94/9/EC		
Ambient temperatures	Standard:	−20 °C to +40 °C	
	Options:	−40 °C to +40 °C	
		−20 °C to +60 °C	
		−40 °C to +60 °C	
	Combinations with SAEx actuators at ambient temperatures > 40 °C with special sizing		

Further information

Reference documents	Information LMS 07.1 – LMS 16.1		
	Dimensions LMS 07.1 – LMS 16.1		

Technical data Torque measurement flang

Information relating to the sensor			
	DMF 10.1	DMF 14.5	DMF 16.1
Suitable AUMA multi-turn actuator	SA 07.2/SAR 07.2 SAV 07.2/SARV 07.2 SA 07.6/SAR 07.6 SAV 07.6/SARV 07.6 SA 10.2/SAR 10.2 SAV 10.2/SARV 10.2	SA 14.2/SAR 14.2 SAV 14.2/SARV 14.2 SA 14.6/SAR 14.6 SAV 14.6/SARV 14.6	SA 16.2/SAR 16.2 SAV 16.2/SARV 16.2
Input mounting flange for mounting of multi-turn actuator according to EN ISO 5210	F10	F14	F16
Output drive flange according to EN ISO 5210	F10	F14	F16
Measuring range/nominal torque ¹⁾	±120 Nm	±500 Nm	±1,000 Nm
Accuracy ²⁾	±2 % of the measuring range end value		
Insulation resistance	> 2 G Ω		
Temperature coefficient of rated value	0,2 %/10 °K		
Temperature coefficient of zero point	0,2 %/10 °K		
Reference temperature	20 °C		
Storage temperature	-40 °C to +105 °C		
Ambient temperature	-40 °C to +80 °C		
Maximum active torque ³⁾	1-fold nominal torque		
Limit torque ⁴⁾	2-fold nominal torque		
Breaking torque ⁵⁾	4-fold nominal torque		
Version/material	Anodised aluminium		
Corrosion protection	KS		
Enclosure protection according to EN 60529	IP67		
Dimensions	Ø125 x 102 (157 x 125 x 102)	Ø175 x 144 (207 x 175 x 144)	Ø210 x 165 (242 x 210 x 165)
Weight with hollow shaft	1.4 kg	3.3 kg	4.8 kg
Valve attachment	Standard:	B1 according to EN ISO 5210	
	Options:	A, B2, B3, B4 according to EN ISO 5210	

Information on integral amplifie	
Power supply (U _B)	10 – 30 V DC Maximum current consumption: 40 mA
Limit frequency ⁶⁾ (at -3 dB)	1,000 Hz
Output signal ¹⁾	12 ±6 mA; 3-wire
Load	(U _B – 6 V)/0.0205 A up to max. 500 Ω
Connection	M12x1 5-pole connector
Assignment	1 = U _B ; 3 = Ground; 4 = Current signal

Information on connecting cable		
AUMA article numbers	K008.536	Connecting cable with connecting socket, straight cable output, cable length 3 m
	K011.223	Connecting cable with connecting socket, straight cable output, cable length 5 m
	K011.224	Connecting cable with connecting socket, straight cable output, cable length 10 m
Plug/socket connector	Socket, 5-pole M12	
Contact material	CuZn gold-plated	
Enclosure protection according to EN 60529	IP67 when inserted and locked	
Cable shield	PUR black; free of PVC, silicone and halogen; shielded cable	
Cable diameter	5.6 mm	
Wire diameter	5 x 0.34 mm ²	

1) – 6) Refer to notes on page 2.

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Technical data Torque measurement flang

Wire	Fine-stranded; approx. 42 x 0.1 mm
Wire insulation	PP, free of halogen
Bending radius, fixed installation	Min. 5 x cable diameter
Wire colour and contact assignment	Brown (1), white (2), blue (3), black (4), grey (5)
Ambient temperature, fixed installation	–40 °C to +90 °C

General information

For torque measurement of multi-turn actuators in both directions.

Static and dynamic torques for both rotating and immobile output shaft are measured.

Further information

EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU)
Reference documents	Dimensions DMF 10.1 – DMF 16.1

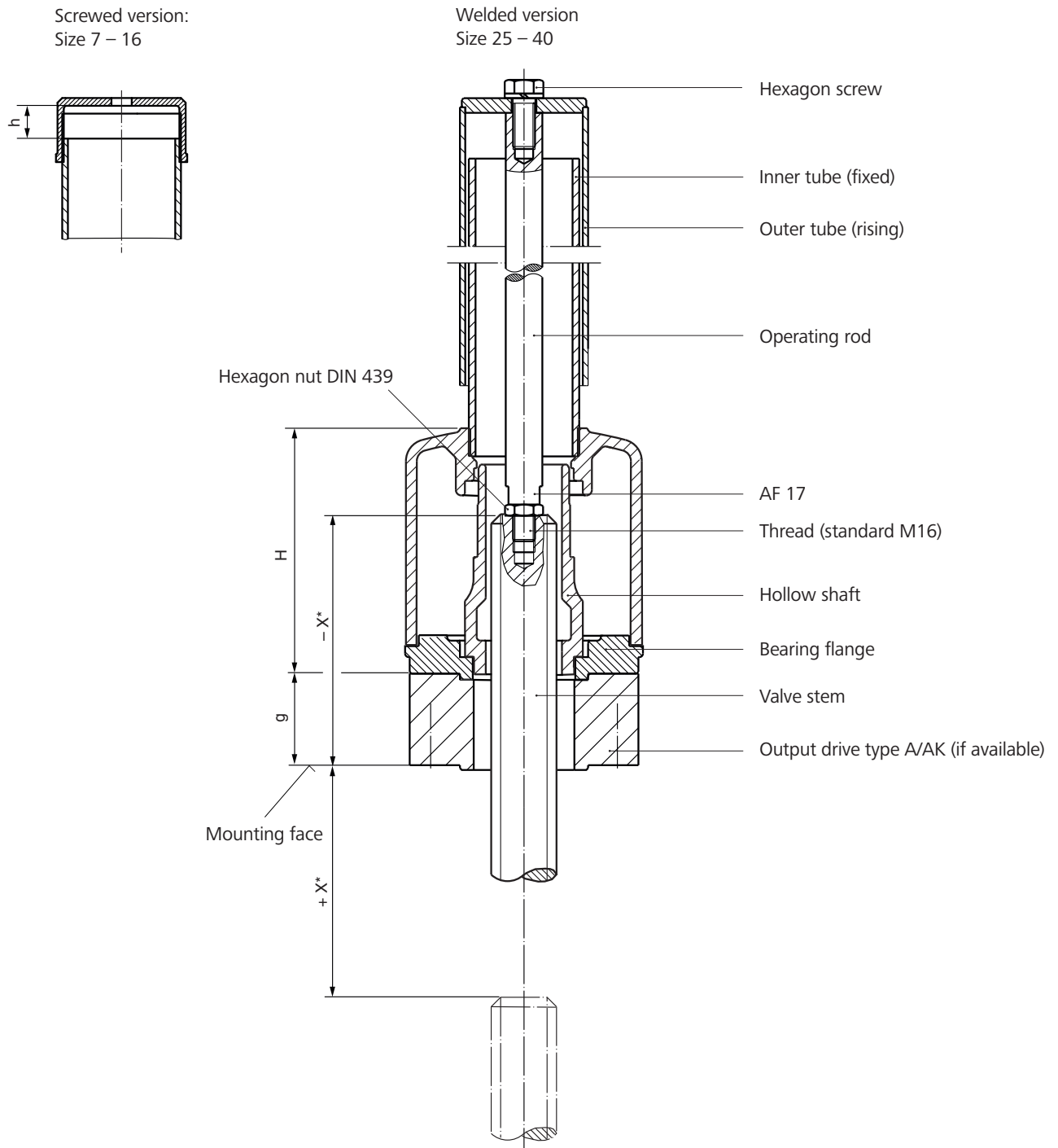
Notes on tables on page 1

1) Measuring range/ nominal torque	The amplifier integrated in the torque measurement flange supplies an analogue current signal, proportional to the torque within the ranges of 12 ±6 mA (from 6 – 12 mA for clockwise closing -> [- ... Nm] and from 12 – 18 mA for counterclockwise closing -> [+ ... Nm]). Under no-load conditions, i.e. if no torque is present, 12 mA are provided. Depending on both mounting conditions and temperature, a zero point deviation might occur under no-load condition (deviation of 12 mA) which must be considered for future assessments/measurements.
2) Accuracy	This indication contains non-linearity, measurement deviation at initial and final values and failure of proof test (for reference temperature of 20 °C and identical mounting position); temperature impacts are indicated separately.
3) Maximum active torque	Largest torque for which a defined and repeatable relation exists between torque and output signal.
4) Limit torque	Torque for which significant changes of measurement properties of the torque measurement flange must be accounted for.
5) Breaking torque	Torque for which mechanical destruction must be expected.
6) Limit frequency	The measured value update of the output signal is performed at a frequency of 1,000 Hz.

Technical description Position indication with telescopic protection tube

The schematic representation applies to:

Multi-turn actuators	SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2; SAEx 07.2 – SAEx 16.2; SAREx 07.2 – SAREx 16.2 SA 25.1 – SA 48.1; SAR 25.1 – SAR 30.1; SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1
Spur gearboxes	GST 10.1 – GST 40.1
Bevel gearboxes	GK 10.2 – GK 40.2



X* = Distance between mounting face and upper edge of stem while valve is closed
 –X, if stem protrudes into output drive or hollow shaft
 –X, if stem is outside output drive or hollow shaft

Note: Tube length will be adapted to the valve stroke.

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Technical description Position indication with telescopic protection tube

Calculation and sizing of the telescopic protection tube

1. Housing height for different products

Type	Housing of output drive type B H	Protective cap h	Output drive type A g		Output drive type AK g
SA 07.2/SA 07.6	153	25	40 (F07)	50 (F10/G0)	105
SA 10.2	162	25	50		105
SA 14.2/SA 14.6	188	32	65		135
SA 16.2	227	32	80		165
SA 25.1	292	–	130		216
SA 30.1	330	–	160		252
SA 35.1	388	–	185		315
SA 40.1	393	–	225		400
SA 48.1	430	–	270		–
GK 10.2	162	25	50		105
GK 14.2/GK 14.6	180	32	65		135
GK 16.2	194	32	80		165
GK 25.2	218	–	130		216
GK 30.1	258	–	160		252
GK 35.2	310	–	185		315
GK 40.2	325	–	225		400
GST 10.1	111	25	50		105
GST 14.1/GST 14.5	140	32	65		135
GST 16.1	175	32	80		165
GST 25.1	193	–	130		216
GST 30.1	226	–	160		252
GST 35.1	303	–	185		315
GST 40.1	318	–	225		400

2. Calculation of outer tube length and rod length

Determination of inner tube length (identical to outer tube length)

Stroke			mm
Safety factor	+	50	mm
Sum = Inner tube length	=		mm
Inner tube length rounded to full 100 mm	=		mm

Determining the rod length:

Housing height	H		mm
Height of protective cap	h	+	mm
Height of output drive type A/AK (if output drive type A/ AK is ordered)	g	+	mm
Outer tube length (=inner tube length)		+	mm
Safety factor		+	30
Sum 1		=	mm
Stem position according to drawing	+X/–X	+/-	mm
Rod length		=	mm
Rod length rounded to full 10 mm		=	mm

Determination of the thread:

Unless specified otherwise by the customer, the M16 thread will be used. If desired, an M12 thread can be used.

Purchase requirement:

Outer tube length/thread/rod length (e.g. 200/M16/275)

Technical description Stem protection tube for rising stem

The schematic representations apply to:

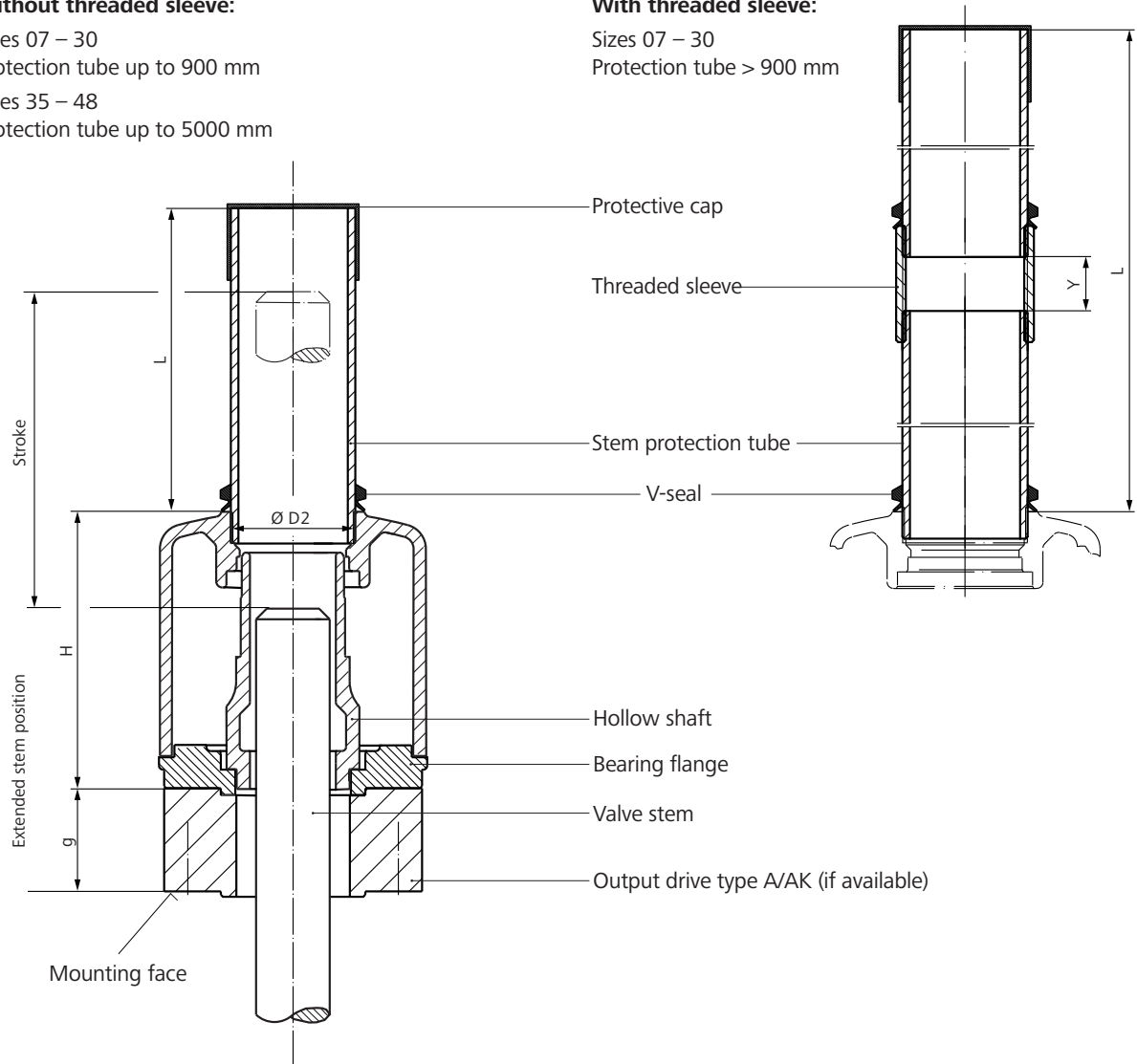
Multi-turn actuators SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2; SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2
 SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1; SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1
 Multi-turn gearboxes GK 10.2 – GK 40.2/GST 10.1 – GST 40.1

Without threaded sleeve:

Sizes 07 – 30
 Protection tube up to 900 mm
 Sizes 35 – 48
 Protection tube up to 5000 mm

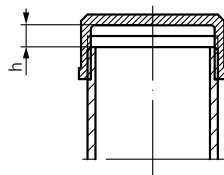
With threaded sleeve:

Sizes 07 – 30
 Protection tube > 900 mm



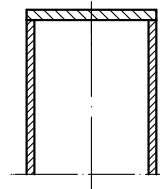
Option:

Sizes 07 – 25
 screwed version



Option:

Sizes 30 – 48
 welded version



Multi-turn actuator	SA 07.2 SA 07.6	SA 10.2	SA 14.2 SA 14.6	SA 16.2	SA 25.1	SA 30.1	SA 35.1	SA 40.1 SA 48.1
Gearbox		GST 10.1 GK 10.2	GST 14.1 GST 14.5 GK 14.2 GK 14.6	GST 16.1 GK 16.2	GST 25.1 GK 25.2	GST 30.1 GK 30.2	GST 35.1 GK 35.2	GST 40.1 GK 40.2
Ø D2	G 1 1/4"	G 2"	G 2 1/2"	G 3"	G 4"	G 5"	M190 x 3	M220 x 3
Y min.	18	26	32	37	49	58	— ¹⁾	— ¹⁾
Y max.	24	32	39	44	56	65	— ¹⁾	— ¹⁾

1) Sizes 35 – 48 are supplied without threaded sleeves

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Technical description Stem protection tube for rising stem

Calculation and sizing of the stem protection tube

1. Dimensions for different products

Type	Housing of output drive type B	Screwed on protective cap	Output drive type A		Output drive type AK
Dimensions	H	h	g		g
SA 07.2/SA 07.6	153	25	40 (F07)	50 (F10/G0)	105
SA 10.2	162	25		50	105
SA 14.2/SA 14.6	188	32		65	135
SA 16.2	227	32		80	165
SA 25.1	292	–		130	216
SA 30.1	330	–		160	252
SA 35.1	388	–		185	315
SA 40.1	393	–		225	400
SA 48.1	430	–		270	–
GK 10.2	162	25		50	105
GK 14.2/GK 14.6	180	32		65	135
GK 16.2	194	32		80	165
GK 25.2	218	–		130	216
GK 30.1	258	–		160	252
GK 35.2	310	–		185	315
GK 40.2	325	–		225	400
GST 10.1	111	25		50	105
GST 14.1/GST 14.5	140	32		65	135
GST 16.1	175	32		80	165
GST 25.1	193	–		130	216
GST 30.1	226	–		160	252
GST 35.1	303	–		185	315
GST 40.1	318	–		225	400

2. Calculation of stem protection tube length

Stroke			mm
Extended stem position	+		mm
Housing height H	–		mm
Output drive height g	–		mm
Stem protection tube length	=		mm

3. Available stem protection tube versions

Stem protection tube	Number of thread. sleeves	Lower stem prot. tube	Middle stem prot. tube	Middle stem prot. tube	Middle stem prot. tube	Middle stem prot. tube	Upper stem prot. tube
100	0	100	–	–	–	–	–
200	0	200	–	–	–	–	–
300	0	300	–	–	–	–	–
400	0	400	–	–	–	–	–
500	0	500	–	–	–	–	–
600	0	600	–	–	–	–	–
700	0	700	–	–	–	–	–
800	0	800	–	–	–	–	–
900	0	900	–	–	–	–	–
1000	1	900	–	–	–	–	100
1200	1	900	–	–	–	–	300
1400	1	900	–	–	–	–	500
1,600	1	900	–	–	–	–	700
1800	1	900	–	–	–	–	900
2,000	2	900	900	–	–	–	200
2,200	2	900	900	–	–	–	400
2400	2	900	900	–	–	–	600
2,600	2	900	900	–	–	–	800
2800	3	900	900	900	–	–	100
3,000	3	900	900	900	–	–	300
3,500	3	900	900	900	–	–	800
4,000	4	900	900	900	900	–	400
4,500	4	900	900	900	900	–	900
5,000	5	900	900	900	900	900	500

4. Useful stem protection tube length

		Y min.	Y max. ²⁾	
Available stem protection tube length				mm
Threaded sleeve (number x Y)	+			mm
Screwed on protective cap (option)	+			mm
Useful stem protection tube length L	=		²⁾	mm

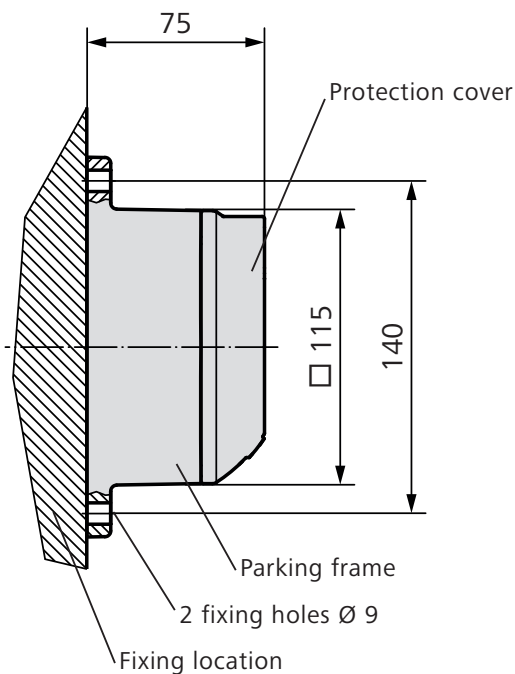
2) For max. space requirement for stem protection tube

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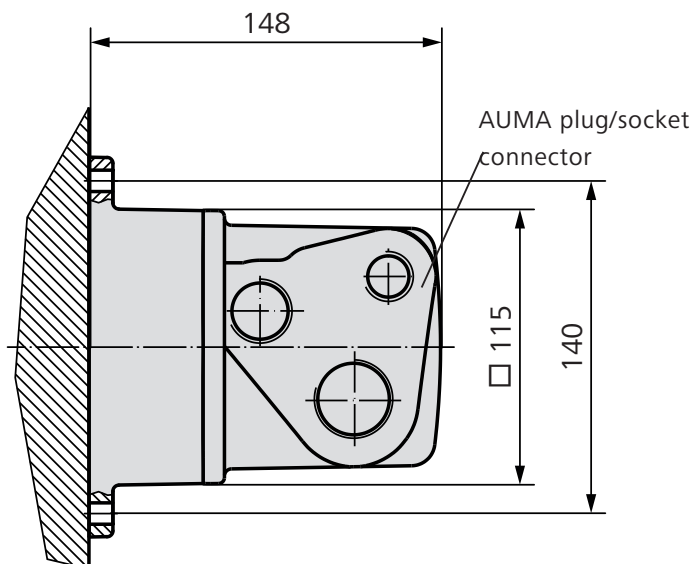
Technical description Parking frame and protection cover (also for Ex version)

SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2
SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2
AM 01.1 – AM 02.1/AC 01.2

AUMA device ready for operation
 Parking frame with protection cover

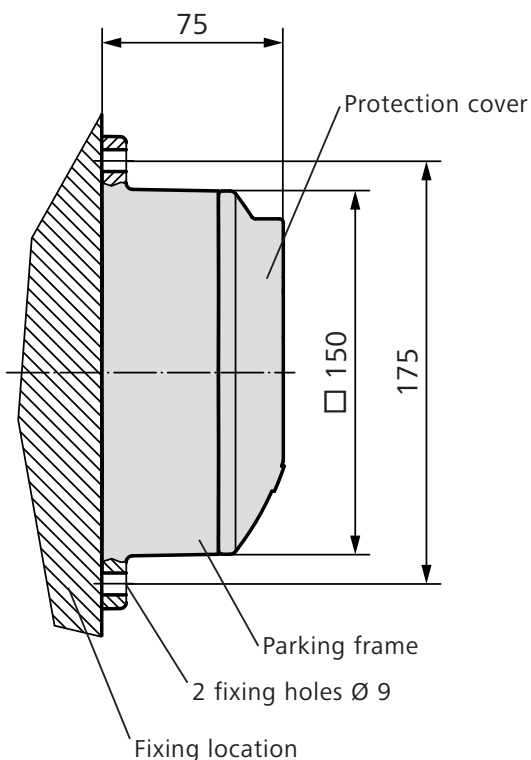


AUMA device out of service
 Parking frame with AUMA plug/socket connector

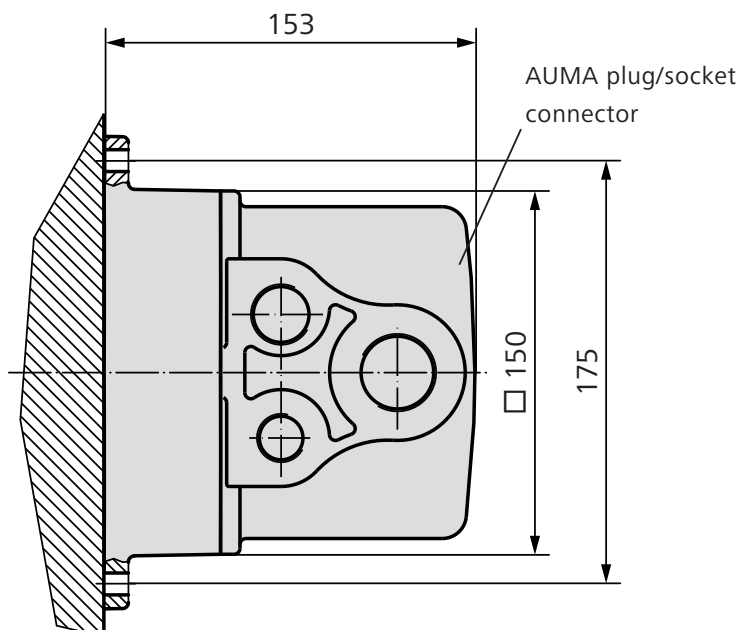


SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1

Multi-turn actuator ready for operation
 Parking frame with protection cover



Multi-turn actuator out of service
 Parking frame with AUMA plug/socket connector



We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

4 Electrical data actuators

Multi-turn actuators SA / SAR		212
3-phase AC current (standard voltages)	Notes on electrical data	212
SA 07.2 – SA 16.2, short-time duty S2-15 min.	220 V/60 Hz	213
	230 V/50 Hz	214
	380 V/50 Hz	215
	380 V/60 Hz	216
	400 V/50 Hz	217
	400 V/60 Hz	218
	415 V/50 Hz	219
	440 V/60 Hz	220
	460 V/60 Hz	221
	480 V/60 Hz	222
	500 V/50 Hz	223
SA 07.2 – SA 16.2, short-time duty S2-30 min.	220 V/60 Hz	224
	230 V/50 Hz	225
	380 V/50 Hz	226
	380 V/60 Hz	227
	400 V/50 Hz	228
	400 V/60 Hz	229
	415 V/50 Hz	230
	440 V/60 Hz	231
	460 V/60 Hz	232
	480 V/60 Hz	233
	500 V/50 Hz	234
SAR 07.2 – SAR 16.2, intermittent duty S4-25%	220 V/60 Hz	235
	230 V/50 Hz	236
	380 V/50 Hz	237
	380 V/60 Hz	238
	400 V/50 Hz	239
	400 V/60 Hz	240
	415 V/50 Hz	241
	440 V/60 Hz	242
	460 V/60 Hz	243
	480 V/60 Hz	244
	500 V/50 Hz	245
SAR 07.2 – SAR 16.2, intermittent duty S4-50%	220 V/60 Hz	246
	230 V/50 Hz	247
	380 V/50 Hz	248
	380 V/60 Hz	249
	400 V/50 Hz	250
	400 V/60 Hz	251
	415 V/50 Hz	252
	440 V/60 Hz	253
	460 V/60 Hz	254
	480 V/60 Hz	255
	500 V/50 Hz	256

4 Electrical data actuators

1-phase AC current (standard voltages)	Notes on electrical data	257
SA 07.2 – SA 07.6, short-time duty S2-15 min.	110 - 120 V/50 Hz VB	259
	110 - 120 V/60 Hz VB	260
	220 - 240 V/50 Hz VB	261
	220 - 240 V/60 Hz VB	262
SA 07.2 – SA 14.6, short-time duty S2-15 min.	110 - 120 V/50 Hz	263
	110 - 120 V/60 Hz	264
	220 - 240 V/50 Hz	265
	220 - 240 V/60 Hz	266
SAR 07.2 – SAR 07.6, intermittent duty S4-25%	110 - 120 V/50 Hz VB	267
	110 - 120 V/60 Hz VB	268
	220 - 240 V/50 Hz VB	269
	220 - 240 V/60 Hz VB	270
SAR 07.2 – SAR 14.6, intermittent duty S4-25%	110 - 120 V/60 Hz	271
	220 - 240 V/50 Hz	272
	220 - 240 V/60 Hz	273
Direct current (standard voltages)	Notes on electrical data	274
SA 07.2 – SA 16.2, short-time duty S2-15 min.	24 V DC	275
	24 V DC VK	276
	48 V DC	277
	60 V DC	278
	110 V DC	279
	125 V DC	280
	220 V DC	281
SAR 07.2 – SAR 16.2, intermittent duty S4-25%	24 V DC	282
	48 V DC	283
	60 V DC	284
	110 V DC	285
	125 V DC	286
	220 V DC	287
Multi-turn actuators SAV / SARV		
3-phase AC current (standard voltages)		
SAV 07.2 – SAV 14.6, short-time duty S2-15 min.	220 - 240 V/50 - 60 Hz	288
SAV 07.2 – SAV 16.2	380 - 480 V/50 - 60 Hz	289
SAV 07.2 – SAV 14.6, short-time duty S2-30 min.	220 - 240 V/50 - 60 Hz	290
SAV 07.2 – SAV 16.2	380 - 480 V/50 - 60 Hz	291
SARV 07.2 – SARV 14.6, intermittent duty S4-25%	220 - 240 V/50 - 60 Hz	292
SARV 07.2 – SARV 16.2	380 - 480 V/50 - 60 Hz	293
SARV 07.2 – SARV 14.6, intermittent duty S4-50%	220 - 240 V/50 - 60 Hz	294
SARV 07.2 – SARV 16.2	380 - 480 V/50 - 60 Hz	295
1-phase AC current (standard voltages)		
SAV 07.2 – SAV 10.2, short-time duty S2-15 min.	110 - 120 V/50 - 60 Hz	296
SAV 07.2 – SAV 14.2	220 - 240 V/50 - 60 Hz	297
SAV 07.2 – SAV 10.2, short-time duty S2-30 min.	110 - 120 V/50 - 60 Hz	298
SAV 07.2 – SAV 14.2	220 - 240 V/50 - 60 Hz	299
SARV 07.2 – SARV 10.2, intermittent duty S4-25%	110 - 120 V/50 - 60 Hz	300
SARV 07.2 – SARV 14.2	220 - 240 V/50 - 60 Hz	301
SARV 07.2 – SARV 07.6, intermittent duty S4-50%	110 - 120 V/50 - 60 Hz	302
SARV 07.2 – SARV 14.2	220 - 240 V/50 - 60 Hz	303

Part-turn actuators SQ / SQR		304
3-phase AC current (standard voltages)	Notes on electrical data	304
SQ 05.2 – SQ 14.2, short-time duty S2-15 min.	220 V/60 Hz	305
	230 V/50 Hz	306
	380 V/50 Hz	307
	380 V/60 Hz	308
	400 V/50 Hz	309
	400 V/60 Hz	310
	415 V/50 Hz	311
	440 V/60 Hz	312
	460 V/60 Hz	313
	480 V/60 Hz	314
	500 V/50 Hz	315
 SQR 05.2 – SQR 14.2, intermittent duty S4-25%	 220 V/60 Hz	 316
	230 V/50 Hz	317
	380 V/50 Hz	318
	380 V/60 Hz	319
	400 V/50 Hz	320
	400 V/60 Hz	321
	415 V/50 Hz	322
	440 V/60 Hz	323
	460 V/60 Hz	324
	480 V/60 Hz	325
	500 V/50 Hz	326
 1-phase AC current (standard voltages)	 Notes on electrical data	 327
SQ 05.2 – SQ 14.2, short-time duty S2-10 min.	110 - 120 V/50 Hz	328
	110 - 120 V/60 Hz	329
	220 - 240 V/50 Hz	330
	220 - 240 V/60 Hz	331
 SQR 05.2 – SQR 14.2, intermittent duty S4-20%	 110 - 120 V/50 Hz	 332
	110 - 120 V/60 Hz	333
	220 - 240 V/50 Hz	334
	220 - 240 V/60 Hz	335
 Direct current (standard voltages)		
SG 05.1 – SG 12.1, short-time duty S2-15 min.	24 V DC	336
	110 V DC	337
	220 V DC	338

Installation and sizing																																																											
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																																																										
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Actuators without integral actuator controls (AUMA NORM): Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan). Note: Failure to connect thermoswitches or PTC thermistors shall void the warranty for the motor. Rating of the thermoswitches <table><tr><th colspan="2">AC current</th><th colspan="2">DC current</th></tr><tr><td colspan="2">250 V, 50 – 60 Hz</td><td>60 V</td><td>1.0 A</td></tr><tr><td>cos φ = 1</td><td>2.5 A</td><td>42 V</td><td>1.2 A</td></tr><tr><td>cos φ = 0.6</td><td>1.6 A</td><td>24 V</td><td>1.5 A</td></tr></table> Actuators with AM or AC integral actuator controls: Thermal motor protection is already integrated.			AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A																																								
AC current		DC current																																																									
250 V, 50 – 60 Hz		60 V	1.0 A																																																								
cos φ = 1	2.5 A	42 V	1.2 A																																																								
cos φ = 0.6	1.6 A	24 V	1.5 A																																																								
Mains voltage, mains frequency	Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %																																																										
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: <table><tr><th rowspan="2">AUMA power class</th><th rowspan="2">Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3</th><th colspan="2">Reversing contactor Motor power according to UL/CSA at</th></tr><tr><th>480 V AC</th><th>600 V AC</th></tr><tr><td></td><td>400 V AC</td><td></td><td></td></tr><tr><td>A1</td><td>4.0 kW</td><td>5.0 hp</td><td>5.0 hp</td></tr><tr><td>A2</td><td>7.5 kW</td><td>10 hp</td><td>10 hp</td></tr><tr><td>A3</td><td>15 kW</td><td>20 hp</td><td>25 hp</td></tr><tr><td>A4</td><td>30 kW</td><td>60 hp</td><td>60 hp</td></tr><tr><td>A5</td><td>55 kW</td><td>75 hp</td><td>100 hp</td></tr><tr><td>A6</td><td>75 kW</td><td>100 hp</td><td>125 hp</td></tr></table> <table><tr><th rowspan="2">AUMA power class</th><th rowspan="2">Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a</th><th colspan="2"></th></tr><tr><th colspan="2"></th></tr><tr><td></td><td>400 V AC</td><td colspan="2"></td></tr><tr><td>B1</td><td>6 A</td><td colspan="2"></td></tr><tr><td>B2</td><td>8.5 A</td><td colspan="2"></td></tr><tr><td>B3</td><td>16 A</td><td colspan="2"></td></tr></table> Actuators with AM or AC integral actuator controls: Required switchgear in power classes A1 – A3 or B1 – B3 are already integrated in AM or AC actuator controls. For switchgear of power classes A4 – A6, a control box is additionally required. For actuators with AM integral actuator controls and installed switchgear in AUMA power class A3, an optional thermal overcurrent protection device cannot be directly integrated within the AM. A control box is additionally required. However, AC actuator controls can be used instead of AM actuator controls. When opting for AC actuator controls, the additional control box can be omitted.			AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at		480 V AC	600 V AC		400 V AC			A1	4.0 kW	5.0 hp	5.0 hp	A2	7.5 kW	10 hp	10 hp	A3	15 kW	20 hp	25 hp	A4	30 kW	60 hp	60 hp	A5	55 kW	75 hp	100 hp	A6	75 kW	100 hp	125 hp	AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a						400 V AC			B1	6 A			B2	8.5 A			B3	16 A		
AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at																																																									
		480 V AC	600 V AC																																																								
	400 V AC																																																										
A1	4.0 kW	5.0 hp	5.0 hp																																																								
A2	7.5 kW	10 hp	10 hp																																																								
A3	15 kW	20 hp	25 hp																																																								
A4	30 kW	60 hp	60 hp																																																								
A5	55 kW	75 hp	100 hp																																																								
A6	75 kW	100 hp	125 hp																																																								
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	400 V AC																																																										
B1	6 A																																																										
B2	8.5 A																																																										
B3	16 A																																																										

Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

1) Nominal power P_N	Mechanical power output at motor shaft at run torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque). The consumed electrical power can be calculated using the following formula: $P = U \times I \times \cos \varphi \times \sqrt{3}$
2) Nominal current I_N	Current at run torque at approx. 35 % of maximum torque
3) Max. current I_{max}	Current at maximum torque

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.9	0.9	2.2	0.40	0.9	A1	B1
	6.7					0.9	0.9	2.2	0.40	0.9	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.9	0.9	2.2	0.50	0.9	A1	B1
	13					0.9	1.1	2.2	0.50	1.1	A1	B1
	19		VD00063-2-0,06	0.06	3,360	1.3	1.3	4.1	0.42	1.3	A1	B1
	26					1.3	1.4	4.1	0.42	1.4	A1	B1
	38	25	AD00063-4-0,10	0.10	1,680	2.1	2.1	5.2	0.42	2.1	A1	B1
	54					2.1	2.2	5.2	0.42	2.2	A1	B1
	75		AD00063-2-0,20	0.20	3,360	1.7	2.6	9.6	0.60	2.6	A1	B1
	108					1.7	2.8	9.6	0.60	2.8	A1	B1
	150		AD00063-2-0,30	0.30	3,360	2.0	3.5	9.6	0.70	3.5	A1	B1
	216					2.0	3.7	9.6	0.70	3.7	A1	B1
SA 07.6	4.8	60	VD00063-4-0,03	0.03	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	1.3	1.4	3.5	0.38	1.4	A1	B1
	13					1.3	1.5	3.5	0.38	1.5	A1	B1
	19		VD00063-2-0,12	0.12	3,360	1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38	50	AD00063-4-0,20	0.20	1,680	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75		AD00063-2-0,40	0.40	3,360	3.9	5.0	20	0.53	5.0	A1	B2
	108					3.9	5.5	20	0.53	5.5	A1	B2
	150		AD00063-2-0,50	0.50	3,360	4.1	6.5	20	0.62	6.5	A1	B2
	216					4.1	7.0	20	0.62	7.0	A1	B2
SA 10.2	4.8	120	VD00071-4-0,06	0.06	1,680	1.1	1.3	4.4	0.40	1.3	A1	B1
	6.7					1.1	1.3	4.4	0.40	1.3	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	2.2	2.4	6.5	0.40	2.4	A1	B1
	13					2.2	2.6	6.5	0.40	2.6	A1	B1
	19		VD00071-2-0,25	0.25	3,360	2.8	3.3	9.8	0.52	3.3	A1	B1
	26					2.8	3.9	9.8	0.52	3.9	A1	B1
	38	100	AD00071-4-0,40	0.40	1,680	5.5	5.7	19	0.42	5.7	A1	B2
	54					5.5	6.5	19	0.42	6.5	A1	B2
	75		AD00071-2-0,70	0.70	3,360	6.5	8.7	35	0.54	8.7	A2	B2
	108					6.5	9.8	35	0.54	9.8	A2	B2
	150		AD00071-2-1,00	1.00	3,360	7.6	12	35	0.64	12	A2	B2
	216					7.6	13	35	0.64	13	A2	B2
SA 14.2	4.8	250	VD00090-4-0,12	0.12	1,680	1.1	1.7	6.1	0.60	1.7	A1	B1
	6.7					1.1	2.2	6.1	0.60	2.2	A1	B1
	9.6		VD00090-4-0,25	0.25	1,680	2.2	3.5	11	0.60	3.5	A1	B1
	13					2.2	3.7	11	0.60	3.7	A1	B1
	19		VD00090-2-0,45	0.45	3,360	3.3	6.5	20	0.64	6.5	A1	B2
	26					3.3	7.6	20	0.64	7.6	A1	B2
	38	200	AD00090-4-0,75	0.75	1,680	5.7	9.4	35	0.62	9.4	A2	B2
	54					5.7	11	35	0.62	11	A2	B2
	75		AD00090-2-1,40	1.40	3,360	11	17	83	0.60	17	A2	–
	108					11	20	83	0.60	20	A2	–
	150		AD00090-2-1,80	1.80	3,360	12	26	83	0.65	24	A2	–
	216					12	26	83	0.65	24	A2	–
SA 14.6	4.8	500	VD00090-4-0,20	0.20	1,680	2.0	3.3	11	0.54	3.3	A1	B1
	6.7					2.0	3.7	11	0.54	3.7	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	3.9	6.5	20	0.56	6.5	A1	B2
	13					3.9	7.6	20	0.56	7.6	A1	B2
	19		VD00090-2-0,80	0.80	3,360	7.9	11	39	0.51	11	A2	B2
	26					7.9	12	39	0.51	12	A2	B2
	38	400	AD00090-4-1,60	1.60	1,680	12	16	83	0.57	16	A2	–
	54					12	20	83	0.57	20	A2	–
	75		AD00090-2-3,00	3.00	3,360	20	31	148	0.60	31	A3	–
	108					20	35	148	0.60	35	A3	–
	150		AD00090-2-3,30	3.30	3,360	21	46	148	0.65	46	A3	–
	216					21	48	148	0.65	46	A3	–
SA 16.2	4.8	1,000	VD00112-4-0,40	0.40	1,680	3.1	5.9	22	0.65	5.9	A1	B2
	6.7					3.1	6.3	22	0.65	6.3	A1	B2
	9.6		VD00112-4-0,80	0.80	1,680	6.5	11	48	0.57	11	A2	B3
	13					6.5	12	48	0.57	12	A2	B3
	19		VD00112-2-1,50	1.50	3,360	12	20	87	0.60	20	A2	–
	26					12	23	87	0.60	23	A2	–
	38	800	AD00112-4-3,00	3.00	1,680	19	33	131	0.71	33	A3	–
	54					19	37	131	0.71	37	A3	–
	75		AD00112-2-5,00	5.00	3,360	26	55	249	0.80	54	A4	–
	108					26	65	249	0.80	54	A4	–
	150		AD00112-2-6,00	6.00	3,360	31	76	249	0.83	54	A4	–
	216					31	98	249	0.83	54	A4	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	30	VD00063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.40	0.7	A1	B1
	5.6					0.7	0.7	1.7	0.40	0.7	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.7	0.7	1.7	0.50	0.7	A1	B1
	11					0.7	0.9	1.7	0.50	0.9	A1	B1
	16		VD00063-2-0,06	0.06	2,800	1.0	1.0	3.3	0.42	1.0	A1	B1
	22					1.0	1.1	3.3	0.42	1.1	A1	B1
	32		AD00063-4-0,10	0.10	1,400	1.7	1.7	4.2	0.42	1.7	A1	B1
	45					1.7	1.7	4.2	0.42	1.7	A1	B1
	63		AD00063-2-0,20	0.20	2,800	1.4	2.1	7.7	0.60	2.1	A1	B1
	90					1.4	2.3	7.7	0.60	2.3	A1	B1
SA 07.6	125	25	AD00063-2-0,30	0.30	2,800	1.6	2.8	7.7	0.70	2.8	A1	B1
	180					1.6	3.0	7.7	0.70	3.0	A1	B1
	4		VD00063-4-0,03	0.03	1,400	0.7	0.9	1.7	0.43	0.9	A1	B1
	5.6					0.7	0.9	1.7	0.43	0.9	A1	B1
	8		VD00063-4-0,06	0.06	1,400	1.0	1.1	2.8	0.38	1.1	A1	B1
	11					1.0	1.2	2.8	0.38	1.2	A1	B1
	16		VD00063-2-0,12	0.12	2,800	1.2	1.6	5.2	0.52	1.6	A1	B1
	22					1.2	1.7	5.2	0.52	1.7	A1	B1
	32		AD00063-4-0,20	0.20	1,400	2.8	3.3	8.0	0.42	3.3	A1	B1
	45					2.8	3.5	8.0	0.42	3.5	A1	B1
SA 10.2	63	60	AD00063-2-0,40	0.40	2,800	3.1	4.0	16	0.53	4.0	A1	B1
	90					3.1	4.3	16	0.53	4.3	A1	B1
	125		AD00063-2-0,50	0.50	2,800	3.3	5.2	16	0.62	5.2	A1	B1
	180					3.3	5.6	16	0.62	5.6	A1	B1
	4		VD00071-4-0,06	0.06	1,400	0.9	1.0	3.5	0.40	1.0	A1	B1
	5.6					0.9	1.0	3.5	0.40	1.0	A1	B1
	8		VD00071-4-0,12	0.12	1,400	1.7	1.9	5.2	0.40	1.9	A1	B1
	11					1.7	2.1	5.2	0.40	2.1	A1	B1
	16		VD00071-2-0,25	0.25	2,800	2.3	2.6	7.8	0.52	2.6	A1	B1
	22					2.3	3.1	7.8	0.52	3.1	A1	B1
SA 10.2	32	120	AD00071-4-0,40	0.40	1,400	4.3	4.5	15	0.42	4.5	A1	B1
	45					4.3	5.2	15	0.42	5.2	A1	B1
	63		AD00071-2-0,70	0.70	2,800	5.2	7.0	28	0.54	7.0	A1	B2
	90					5.2	7.8	28	0.54	7.8	A1	B2
	125		AD00071-2-1,00	1.00	2,800	6.1	9.4	28	0.64	9.4	A2	B2
	180					6.1	10	28	0.64	10	A2	B2
SA 14.2	4	250	VD00090-4-0,12	0.12	1,400	0.9	1.4	4.9	0.60	1.4	A1	B1
	5.6					0.9	1.7	4.9	0.60	1.7	A1	B1
	8		VD00090-4-0,25	0.25	1,400	1.7	2.8	9.0	0.60	2.8	A1	B1
	11					1.7	3.0	9.0	0.60	3.0	A1	B1
	16		VD00090-2-0,45	0.45	2,800	2.6	5.2	16	0.64	5.2	A1	B1
	22					2.6	6.1	16	0.64	6.1	A1	B1
	32		AD00090-4-0,75	0.75	1,400	4.5	7.5	28	0.62	7.5	A1	B2
	45					4.5	8.7	28	0.62	8.7	A1	B2
	63		AD00090-2-1,40	1.40	2,800	8.2	13	66	0.60	13	A2	–
	90					8.2	16	66	0.60	16	A2	–
SA 14.2	125	200	AD00090-2-1,80	1.80	2,800	9.2	21	66	0.65	19	A2	–
	180					9.2	21	66	0.65	19	A2	–
	4		VD00090-4-0,20	0.20	1,400	1.6	2.6	9.0	0.54	2.6	A1	B1
	5.6					1.6	3.0	9.0	0.54	3.0	A1	B1
	8		VD00090-4-0,40	0.40	1,400	3.1	5.2	16	0.56	5.2	A1	B1
	11					3.1	6.1	16	0.56	6.1	A1	B1
	16		VD00090-2-0,80	0.80	2,800	6.3	8.7	31	0.51	8.7	A2	B2
	22					6.3	9.6	31	0.51	9.6	A2	B2
	32		AD00090-4-1,60	1.60	1,400	9.2	13	66	0.57	13	A2	–
	45					9.2	16	66	0.57	16	A2	–
SA 14.6	63	500	AD00090-2-3,00	3.00	2,800	16	24	118	0.60	24	A2	–
	90					16	28	118	0.60	28	A2	–
	125		AD00090-2-3,30	3.30	2,800	17	37	118	0.65	37	A2	–
	180					17	38	118	0.65	37	A2	–
	4		VD00112-4-0,40	0.40	1,400	2.4	4.7	17	0.65	4.7	A1	B1
	5.6					2.4	5.0	17	0.65	5.0	A1	B1
	8		VD00112-4-0,80	0.80	1,400	5.2	9.0	38	0.57	9.0	A2	B2
	11					5.2	9.6	38	0.57	9.6	A2	B2
	16		VD00112-2-1,50	1.50	2,800	9.7	16	70	0.60	16	A2	–
	22					9.7	18	70	0.60	18	A2	–
SA 16.2	32	1,000	AD00112-4-3,00	3.00	1,400	15	26	104	0.71	26	A2	–
	45					15	30	104	0.71	29	A2	–
	63		AD00112-2-5,00	5.00	2,800	21	43	198	0.80	43	A4	–
	90					21	52	198	0.80	43	A4	–
	125		AD00112-2-6,00	6.00	2,800	24	61	198	0.83	43	A4	–
	180					24	78	198	0.83	43	A4	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 380 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	30	VD00063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.40	0.4	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.1	0.50	0.4	A1	B1
	11					0.4	0.5	1.1	0.50	0.5	A1	B1
	16		VD00063-2-0,06	0.06	2,800	0.6	0.6	2.0	0.42	0.6	A1	B1
	22					0.6	0.7	2.0	0.42	0.7	A1	B1
	32		AD00063-4-0,10	0.10	1,400	1.0	1.0	2.5	0.42	1.0	A1	B1
	45					1.0	1.1	2.5	0.42	1.1	A1	B1
	63		AD00063-2-0,20	0.20	2,800	0.8	1.3	4.6	0.60	1.3	A1	B1
	90					0.8	1.4	4.6	0.60	1.4	A1	B1
SA 07.6	125	25	AD00063-2-0,30	0.30	2,800	0.9	1.7	4.6	0.70	1.7	A1	B1
	180					0.9	1.8	4.6	0.70	1.8	A1	B1
	4		VD00063-4-0,03	0.03	1,400	0.4	0.5	1.1	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.1	0.43	0.5	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	11					0.6	0.7	1.7	0.38	0.7	A1	B1
	16		VD00063-2-0,12	0.12	2,800	0.7	0.9	3.2	0.52	0.9	A1	B1
	22					0.7	1.1	3.2	0.52	1.1	A1	B1
	32		AD00063-4-0,20	0.20	1,400	1.7	2.0	4.8	0.42	2.0	A1	B1
	45					1.7	2.1	4.8	0.42	2.1	A1	B1
SA 10.2	63	60	AD00063-2-0,40	0.40	2,800	1.9	2.4	9.5	0.53	2.4	A1	B1
	90					1.9	2.6	9.5	0.53	2.6	A1	B1
	125		AD00063-2-0,50	0.50	2,800	2.0	3.2	9.5	0.62	3.2	A1	B1
	180					2.0	3.4	9.5	0.62	3.4	A1	B1
	4		VD00071-4-0,06	0.06	1,400	0.5	0.6	2.1	0.40	0.6	A1	B1
	5.6					0.5	0.6	2.1	0.40	0.6	A1	B1
	8		VD00071-4-0,12	0.12	1,400	1.1	1.2	3.2	0.40	1.2	A1	B1
	11					1.1	1.3	3.2	0.40	1.3	A1	B1
	16		VD00071-2-0,25	0.25	2,800	1.4	1.6	4.7	0.52	1.6	A1	B1
	22					1.4	1.9	4.7	0.52	1.9	A1	B1
SA 14.2	32	120	AD00071-4-0,40	0.40	1,400	2.6	2.7	8.9	0.42	2.7	A1	B1
	45					2.6	3.2	8.9	0.42	3.2	A1	B1
	63		AD00071-2-0,70	0.70	2,800	3.2	4.2	17	0.54	4.2	A1	B1
	90					3.2	4.7	17	0.54	4.7	A1	B1
	125		AD00071-2-1,00	1.00	2,800	3.7	5.7	17	0.64	5.7	A1	B1
	180					3.7	6.3	17	0.64	6.3	A1	B1
	4	100	VD00090-4-0,12	0.12	1,400	0.5	0.8	2.9	0.60	0.8	A1	B1
	5.6					0.5	1.1	2.9	0.60	1.1	A1	B1
	8		VD00090-4-0,25	0.25	1,400	1.1	1.7	5.5	0.60	1.7	A1	B1
	11					1.1	1.8	5.5	0.60	1.8	A1	B1
	16		VD00090-2-0,45	0.45	2,800	1.6	3.2	9.5	0.64	3.2	A1	B1
	22					1.6	3.7	9.5	0.64	3.7	A1	B1
	32		AD00090-4-0,75	0.75	1,400	2.7	4.5	17	0.62	4.5	A1	B1
	45					2.7	5.3	17	0.62	5.3	A1	B1
SA 14.6	63	250	AD00090-2-1,40	1.40	2,800	4.9	8.0	40	0.60	8.0	A2	B2
	90					4.9	9.5	40	0.60	9.5	A2	B2
	125		AD00090-2-1,80	1.80	2,800	5.6	13	40	0.65	12	A2	B2
	180					5.6	13	40	0.65	12	A2	B2
	4		VD00090-4-0,20	0.20	1,400	0.9	1.6	5.5	0.54	1.6	A1	B1
	5.6					0.9	1.8	5.5	0.54	1.8	A1	B1
	8		VD00090-4-0,40	0.40	1,400	1.9	3.2	9.8	0.56	3.2	A1	B1
	11					1.9	3.7	9.8	0.56	3.7	A1	B1
	16		VD00090-2-0,80	0.80	2,800	3.8	5.3	19	0.51	5.3	A1	B2
	22					3.8	5.8	19	0.51	5.8	A1	B2
SA 16.2	32	500	AD00090-4-1,60	1.60	1,400	5.6	7.9	40	0.57	7.9	A2	B2
	45					5.6	9.5	40	0.57	9.5	A2	B2
	63		AD00090-2-3,00	3.00	2,800	9.5	15	72	0.60	15	A2	–
	90					9.5	17	72	0.60	17	A2	–
	125		AD00090-2-3,30	3.30	2,800	10	22	72	0.65	22	A2	–
	180					10	23	72	0.65	23	A2	–
	4	1,000	VD00112-4-0,40	0.40	1,400	1.5	2.8	11	0.65	2.8	A1	B1
	5.6					1.5	3.1	11	0.65	3.1	A1	B1
	8		VD00112-4-0,80	0.80	1,400	3.2	5.5	23	0.57	5.5	A1	B2
	11					3.2	5.8	23	0.57	5.8	A1	B2
	16		VD00112-2-1,50	1.50	2,800	5.9	9.5	42	0.60	9.5	A2	B2
	22					5.9	11	42	0.60	11	A2	B2
	32		AD00112-4-3,00	3.00	1,400	8.9	16	63	0.71	16	A2	B3
	45					8.9	18	63	0.71	18	A2	B3
SA 16.2	63	800	AD00112-2-5,00	5.00	2,800	13	26	120	0.80	26	A2	–
	90					13	32	120	0.80	26	A2	–
	125		AD00112-2-6,00	6.00	2,800	15	37	120	0.83	26	A2	–
	180					15	47	120	0.83	26	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 380 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.5	0.5	1.3	0.40	0.5	A1	B1
	6.7					0.5	0.5	1.3	0.40	0.5	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.5	0.5	1.3	0.50	0.5	A1	B1
	13					0.5	0.6	1.3	0.50	0.6	A1	B1
	19		VD00063-2-0,06	0.06	3,360	0.8	0.8	2.4	0.42	0.8	A1	B1
	26					0.8	0.8	2.4	0.42	0.8	A1	B1
	38		AD00063-4-0,10	0.10	1,680	1.2	1.2	3.0	0.42	1.2	A1	B1
	54					1.2	1.3	3.0	0.42	1.3	A1	B1
	75		AD00063-2-0,20	0.20	3,360	1.0	1.5	5.6	0.60	1.5	A1	B1
	108					1.0	1.6	5.6	0.60	1.6	A1	B1
SA 07.6	150	25	AD00063-2-0,30	0.30	3,360	1.1	2.0	5.6	0.70	2.0	A1	B1
	216					1.1	2.1	5.6	0.70	2.1	A1	B1
	4.8		VD00063-4-0,03	0.03	1,680	0.5	0.6	1.3	0.43	0.6	A1	B1
	6.7					0.5	0.6	1.3	0.43	0.6	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	0.8	0.8	2.0	0.38	0.8	A1	B1
	13					0.8	0.9	2.0	0.38	0.9	A1	B1
	19		VD00063-2-0,12	0.12	3,360	0.9	1.1	3.8	0.52	1.1	A1	B1
	26					0.9	1.3	3.8	0.52	1.3	A1	B1
	38	60	AD00063-4-0,20	0.20	1,680	2.0	2.4	5.8	0.42	2.4	A1	B1
	54					2.0	2.5	5.8	0.42	2.5	A1	B1
SA 10.2	75		AD00063-2-0,40	0.40	3,360	2.3	2.9	11	0.53	2.9	A1	B1
	108					2.3	3.2	11	0.53	3.2	A1	B1
	150		AD00063-2-0,50	0.50	3,360	2.4	3.8	11	0.62	3.8	A1	B1
	216					2.4	4.0	11	0.62	4.0	A1	B1
	4.8	120	VD00071-4-0,06	0.06	1,680	0.6	0.8	2.5	0.40	0.8	A1	B1
	6.7					0.6	0.8	2.5	0.40	0.8	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	1.3	1.4	3.8	0.40	1.4	A1	B1
	13					1.3	1.5	3.8	0.40	1.5	A1	B1
	19		VD00071-2-0,25	0.25	3,360	1.6	1.9	5.7	0.52	1.9	A1	B1
	26					1.6	2.3	5.7	0.52	2.3	A1	B1
	38		AD00071-4-0,40	0.40	1,680	3.2	3.3	11	0.42	3.3	A1	B1
SA 14.2	54	100				3.2	3.8	11	0.42	3.8	A1	B1
	75		AD00071-2-0,70	0.70	3,360	3.8	5.1	20	0.54	5.1	A1	B2
	108					3.8	5.7	20	0.54	5.7	A1	B2
	150		AD00071-2-1,00	1.00	3,360	4.4	6.8	20	0.64	6.8	A2	B2
	216					4.4	7.6	20	0.64	7.6	A2	B2
	4.8	250	VD00090-4-0,12	0.12	1,680	0.6	1.0	3.5	0.60	1.0	A1	B1
	6.7					0.6	1.3	3.5	0.60	1.3	A1	B1
	9.6		VD00090-4-0,25	0.25	1,680	1.3	2.0	6.6	0.60	2.0	A1	B1
	13					1.3	2.1	6.6	0.60	2.1	A1	B1
	19		VD00090-2-0,45	0.45	3,360	1.9	3.8	11	0.64	3.8	A1	B1
	26					1.9	4.4	11	0.64	4.4	A1	B1
	38		AD00090-4-0,75	0.75	1,680	3.3	5.4	20	0.62	5.4	A1	B2
SA 14.6	54	200				3.3	6.3	20	0.62	6.3	A1	B2
	75		AD00090-2-1,40	1.40	3,360	5.9	9.6	48	0.60	9.6	A2	B3
	108					5.9	11	48	0.60	11	A2	B3
	150		AD00090-2-1,80	1.80	3,360	6.7	15	48	0.65	14	A2	B3
	216					6.7	15	48	0.65	14	A2	B3
	4.8	500	VD00090-4-0,20	0.20	1,680	1.1	1.9	6.6	0.54	1.9	A1	B1
	6.7					1.1	2.1	6.6	0.54	2.1	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	2.3	3.8	12	0.56	3.8	A1	B1
	13					2.3	4.4	12	0.56	4.4	A1	B1
	19		VD00090-2-0,80	0.80	3,360	4.5	6.3	23	0.51	6.3	A2	B2
	26					4.5	6.9	23	0.51	6.9	A2	B2
	38		AD00090-4-1,60	1.60	1,680	6.7	9.5	48	0.57	9.5	A2	B3
SA 16.2	54	800				6.7	11	48	0.57	11	A2	B3
	75		AD00090-2-3,00	3.00	3,360	11	18	86	0.60	18	A2	–
	108					11	20	86	0.60	20	A2	–
	150		AD00090-2-3,30	3.30	3,360	12	27	86	0.65	27	A2	–
	216					12	28	86	0.65	27	A2	–
	4.8	1,000	VD00112-4-0,40	0.40	1,680	1.8	3.4	13	0.65	3.4	A1	B1
	6.7					1.8	3.7	13	0.65	3.7	A1	B1
	9.6		VD00112-4-0,80	0.80	1,680	3.8	6.6	28	0.57	6.6	A2	B2
	13					3.8	6.9	28	0.57	6.9	A2	B2
	19		VD00112-2-1,50	1.50	3,360	7.1	11	51	0.60	11	A2	B3
	26					7.1	13	51	0.60	13	A2	B3
	38		AD00112-4-3,00	3.00	1,680	11	19	76	0.71	19	A2	–
SA 16.2	54	800				11	21	76	0.71	21	A2	–
	75		AD00112-2-5,00	5.00	3,360	15	32	144	0.80	31	A3	–
	108					15	38	144	0.80	31	A3	–
	150		AD00112-2-6,00	6.00	3,360	18	44	144	0.83	31	A3	–
	216					18	57	144	0.83	31	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	30	VD00063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.5	1.0	0.50	0.5	A1	B1
	16		VD00063-2-0,06	0.06	2,800	0.6	0.6	1.9	0.42	0.6	A1	B1
	22					0.6	0.7	1.9	0.42	0.7	A1	B1
	32		AD00063-4-0,10	0.10	1,400	1.0	1.0	2.4	0.42	1.0	A1	B1
	45					1.0	1.0	2.4	0.42	1.0	A1	B1
	63		AD00063-2-0,20	0.20	2,800	0.8	1.2	4.4	0.60	1.2	A1	B1
	90					0.8	1.3	4.4	0.60	1.3	A1	B1
SA 07.6	125	25	AD00063-2-0,30	0.30	2,800	0.9	1.6	4.4	0.70	1.6	A1	B1
	180					0.9	1.7	4.4	0.70	1.7	A1	B1
	4		VD00063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.0	0.43	0.5	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	11					0.6	0.7	1.6	0.38	0.7	A1	B1
	16		VD00063-2-0,12	0.12	2,800	0.7	0.9	3.0	0.52	0.9	A1	B1
	22					0.7	1.0	3.0	0.52	1.0	A1	B1
	32		AD00063-4-0,20	0.20	1,400	1.6	1.9	4.6	0.42	1.9	A1	B1
	45					1.6	2.0	4.6	0.42	2.0	A1	B1
SA 10.2	63	60	AD00063-2-0,40	0.40	2,800	1.8	2.3	9.0	0.53	2.3	A1	B1
	90					1.8	2.5	9.0	0.53	2.5	A1	B1
	125		AD00063-2-0,50	0.50	2,800	1.9	3.0	9.0	0.62	3.0	A1	B1
	180					1.9	3.2	9.0	0.62	3.2	A1	B1
	4		VD00071-4-0,06	0.06	1,400	0.5	0.6	2.0	0.40	0.6	A1	B1
	5.6					0.5	0.6	2.0	0.40	0.6	A1	B1
	8		VD00071-4-0,12	0.12	1,400	1.0	1.1	3.0	0.40	1.1	A1	B1
	11					1.0	1.2	3.0	0.40	1.2	A1	B1
	16		VD00071-2-0,25	0.25	2,800	1.3	1.5	4.5	0.52	1.5	A1	B1
	22					1.3	1.8	4.5	0.52	1.8	A1	B1
SA 14.2	32	120	AD00071-4-0,40	0.40	1,400	2.5	2.6	8.5	0.42	2.6	A1	B1
	45					2.5	3.0	8.5	0.42	3.0	A1	B1
	63		AD00071-2-0,70	0.70	2,800	3.0	4.0	16	0.54	4.0	A1	B1
	90					3.0	4.5	16	0.54	4.5	A1	B1
	125		AD00071-2-1,00	1.00	2,800	3.5	5.4	16	0.64	5.4	A1	B1
	180					3.5	6.0	16	0.64	6.0	A1	B1
	4		VD00090-4-0,12	0.12	1,400	0.5	0.8	2.8	0.60	0.8	A1	B1
	5.6					0.5	1.0	2.8	0.60	1.0	A1	B1
	8		VD00090-4-0,25	0.25	1,400	1.0	1.6	5.2	0.60	1.6	A1	B1
	11					1.0	1.7	5.2	0.60	1.7	A1	B1
SA 14.6	16	250	VD00090-2-0,45	0.45	2,800	1.5	3.0	9.0	0.64	3.0	A1	B1
	22					1.5	3.5	9.0	0.64	3.5	A1	B1
	32		AD00090-4-0,75	0.75	1,400	2.6	4.3	16	0.62	4.3	A1	B1
	45					2.6	5.0	16	0.62	5.0	A1	B1
	63		AD00090-2-1,40	1.40	2,800	4.7	7.6	38	0.60	7.6	A2	B2
	90					4.7	9.0	38	0.60	9.0	A2	B2
	125		AD00090-2-1,80	1.80	2,800	5.3	12	38	0.65	11	A2	B2
	180					5.3	12	38	0.65	11	A2	B2
	4	400	VD00090-4-0,20	0.20	1,400	0.9	1.5	5.2	0.54	1.5	A1	B1
	5.6					0.9	1.7	5.2	0.54	1.7	A1	B1
	8		VD00090-4-0,40	0.40	1,400	1.8	3.0	9.3	0.56	3.0	A1	B1
	11					1.8	3.5	9.3	0.56	3.5	A1	B1
	16		VD00090-2-0,80	0.80	2,800	3.6	5.0	18	0.51	5.0	A1	B1
	22					3.6	5.5	18	0.51	5.5	A1	B1
	32		AD00090-4-1,60	1.60	1,400	5.3	7.5	38	0.57	7.5	A2	B2
	45					5.3	9.0	38	0.57	9.0	A2	B2
	63		AD00090-2-3,00	3.00	2,800	9.0	14	68	0.60	14	A2	–
	90					9.0	16	68	0.60	16	A2	–
SA 16.2	125	800	AD00090-2-3,30	3.30	2,800	9.5	21	68	0.65	21	A2	–
	180					9.5	22	68	0.65	22	A2	–
	4		VD00112-4-0,40	0.40	1,400	1.4	2.7	10	0.65	2.7	A1	B1
	5.6					1.4	2.9	10	0.65	2.9	A1	B1
	8		VD00112-4-0,80	0.80	1,400	3.0	5.2	22	0.57	5.2	A1	B2
	11					3.0	5.5	22	0.57	5.5	A1	B2
	16		VD00112-2-1,50	1.50	2,800	5.6	9.0	40	0.60	9.0	A2	B2
	22					5.6	11	40	0.60	11	A2	B2
	32		AD00112-4-3,00	3.00	1,400	8.5	15	60	0.71	15	A2	B3
	45					8.5	17	60	0.71	17	A2	B3
	63		AD00112-2-5,00	5.00	2,800	12	25	114	0.80	25	A2	–
	90					12	30	114	0.80	25	A2	–
SA 16.2	125		AD00112-2-6,00	6.00	2,800	14	35	114	0.83	25	A2	–
	180					14	45	114	0.83	25	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 400 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.5	0.5	1.2	0.40	0.5	A1	B1
	6.7					0.5	0.5	1.2	0.40	0.5	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.5	0.5	1.2	0.50	0.5	A1	B1
	13					0.5	0.6	1.2	0.50	0.6	A1	B1
	19		VD00063-2-0,06	0.06	3,360	0.7	0.7	2.3	0.42	0.7	A1	B1
	26					0.7	0.8	2.3	0.42	0.8	A1	B1
	38		AD00063-4-0,10	0.10	1,680	1.1	1.1	2.9	0.42	1.1	A1	B1
	54					1.1	1.2	2.9	0.42	1.2	A1	B1
	75		AD00063-2-0,20	0.20	3,360	1.0	1.4	5.3	0.60	1.4	A1	B1
	108					1.0	1.6	5.3	0.60	1.6	A1	B1
SA 07.6	150	25	AD00063-2-0,30	0.30	3,360	1.1	1.9	5.3	0.70	1.9	A1	B1
	216					1.1	2.0	5.3	0.70	2.0	A1	B1
	4.8		VD00063-4-0,03	0.03	1,680	0.5	0.6	1.2	0.43	0.6	A1	B1
	6.7					0.5	0.6	1.2	0.43	0.6	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	13					0.7	0.8	1.9	0.38	0.8	A1	B1
	19		VD00063-2-0,12	0.12	3,360	0.8	1.1	3.6	0.52	1.1	A1	B1
	26					0.8	1.2	3.6	0.52	1.2	A1	B1
	38	60	AD00063-4-0,20	0.20	1,680	1.9	2.3	5.5	0.42	2.3	A1	B1
	54					1.9	2.4	5.5	0.42	2.4	A1	B1
SA 10.2	75		AD00063-2-0,40	0.40	3,360	2.2	2.8	11	0.53	2.8	A1	B1
	108					2.2	3.0	11	0.53	3.0	A1	B1
	150		AD00063-2-0,50	0.50	3,360	2.3	3.6	11	0.62	3.6	A1	B1
	216					2.3	3.8	11	0.62	3.8	A1	B1
	4.8	120	VD00071-4-0,06	0.06	1,680	0.6	0.7	2.4	0.40	0.7	A1	B1
	6.7					0.6	0.7	2.4	0.40	0.7	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	1.2	1.3	3.6	0.40	1.3	A1	B1
	13					1.2	1.4	3.6	0.40	1.4	A1	B1
	19		VD00071-2-0,25	0.25	3,360	1.6	1.8	5.4	0.52	1.8	A1	B1
	26					1.6	2.2	5.4	0.52	2.2	A1	B1
	38		AD00071-4-0,40	0.40	1,680	3.0	3.1	10	0.42	3.1	A1	B1
SA 14.2	54	100				3.0	3.6	10	0.42	3.6	A1	B1
	75		AD00071-2-0,70	0.70	3,360	3.6	4.8	19	0.54	4.8	A1	B2
	108					3.6	5.4	19	0.54	5.4	A1	B2
	150		AD00071-2-1,00	1.00	3,360	4.2	6.5	19	0.64	6.5	A2	B2
	216					4.2	7.2	19	0.64	7.2	A2	B2
	4.8	250	VD00090-4-0,12	0.12	1,680	0.6	1.0	3.4	0.60	1.0	A1	B1
	6.7					0.6	1.2	3.4	0.60	1.2	A1	B1
	9.6		VD00090-4-0,25	0.25	1,680	1.2	1.9	6.2	0.60	1.9	A1	B1
	13					1.2	2.0	6.2	0.60	2.0	A1	B1
	19		VD00090-2-0,45	0.45	3,360	1.8	3.6	11	0.64	3.6	A1	B1
	26					1.8	4.2	11	0.64	4.2	A1	B1
	38		AD00090-4-0,75	0.75	1,680	3.1	5.2	19	0.62	5.2	A1	B2
SA 14.6	54	200				3.1	6.0	19	0.62	6.0	A1	B2
	75		AD00090-2-1,40	1.40	3,360	5.6	9.1	46	0.60	9.1	A2	B3
	108					5.6	11	46	0.60	11	A2	B3
	150		AD00090-2-1,80	1.80	3,360	6.4	14	46	0.65	14	A2	B3
	216					6.4	14	46	0.65	14	A2	B3
	4.8	500	VD00090-4-0,20	0.20	1,680	1.1	1.8	6.2	0.54	1.8	A1	B1
	6.7					1.1	2.0	6.2	0.54	2.0	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	2.2	3.6	11	0.56	3.6	A1	B1
	13					2.2	4.2	11	0.56	4.2	A1	B1
	19		VD00090-2-0,80	0.80	3,360	4.3	6.0	22	0.51	6.0	A2	B2
	26					4.3	6.6	22	0.51	6.6	A2	B2
	38		AD00090-4-1,60	1.60	1,680	6.4	9.0	46	0.57	9.0	A2	B3
SA 16.2	54	1,000				6.4	11	46	0.57	11	A2	B3
	75		AD00090-2-3,00	3.00	3,360	11	17	82	0.60	17	A2	–
	108					11	19	82	0.60	19	A2	–
	150		AD00090-2-3,30	3.30	3,360	11	25	82	0.65	25	A2	–
	216					11	26	82	0.65	26	A2	–
	4.8	800	VD00112-4-0,40	0.40	1,680	1.7	3.2	12	0.65	3.2	A1	B1
	6.7					1.7	3.5	12	0.65	3.5	A1	B1
	9.6		VD00112-4-0,80	0.80	1,680	3.6	6.2	26	0.57	6.2	A2	B2
	13					3.6	6.6	26	0.57	6.6	A2	B2
	19		VD00112-2-1,50	1.50	3,360	6.7	11	48	0.60	11	A2	B3
	26					6.7	13	48	0.60	13	A2	B3
	38		AD00112-4-3,00	3.00	1,680	10	18	72	0.71	18	A2	–
SA 16.2	54					10	20	72	0.71	20	A2	–
	75		AD00112-2-5,00	5.00	3,360	14	30	137	0.80	30	A3	–
	108					14	36	137	0.80	30	A3	–
	150		AD00112-2-6,00	6.00	3,360	17	42	137	0.83	30	A3	–
	216					17	54	137	0.83	30	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4	30	VD00063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.5	1.0	0.50	0.5	A1	B1
	16		VD00063-2-0,06	0.06	2,800	0.6	0.6	1.8	0.42	0.6	A1	B1
	22					0.6	0.6	1.8	0.42	0.6	A1	B1
	32		AD00063-4-0,10	0.10	1,400	0.9	0.9	2.3	0.42	0.9	A1	B1
	45					0.9	1.0	2.3	0.42	1.0	A1	B1
	63		AD00063-2-0,20	0.20	2,800	0.8	1.2	4.2	0.60	1.2	A1	B1
	90					0.8	1.3	4.2	0.60	1.3	A1	B1
SA 07.6	125	25	AD00063-2-0,30	0.30	2,800	0.9	1.5	4.2	0.70	1.5	A1	B1
	180					0.9	1.6	4.2	0.70	1.6	A1	B1
	4	60	VD00063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.0	0.43	0.5	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.6	0.6	1.5	0.38	0.6	A1	B1
	11					0.6	0.7	1.5	0.38	0.7	A1	B1
	16		VD00063-2-0,12	0.12	2,800	0.7	0.9	2.9	0.52	0.9	A1	B1
	22					0.7	1.0	2.9	0.52	1.0	A1	B1
	32		AD00063-4-0,20	0.20	1,400	1.5	1.8	4.4	0.42	1.8	A1	B1
	45					1.5	1.9	4.4	0.42	1.9	A1	B1
	63		AD00063-2-0,40	0.40	2,800	1.7	2.2	8.7	0.53	2.2	A1	B1
	90					1.7	2.4	8.7	0.53	2.4	A1	B1
SA 10.2	125	50	AD00063-2-0,50	0.50	2,800	1.8	2.9	8.7	0.62	2.9	A1	B1
	180					1.8	3.1	8.7	0.62	3.1	A1	B1
	4	120	VD00071-4-0,06	0.06	1,400	0.5	0.6	1.9	0.40	0.6	A1	B1
	5.6					0.5	0.6	1.9	0.40	0.6	A1	B1
	8		VD00071-4-0,12	0.12	1,400	1.0	1.1	2.9	0.40	1.1	A1	B1
	11					1.0	1.2	2.9	0.40	1.2	A1	B1
	16		VD00071-2-0,25	0.25	2,800	1.3	1.4	4.3	0.52	1.4	A1	B1
	22					1.3	1.7	4.3	0.52	1.7	A1	B1
	32		AD00071-4-0,40	0.40	1,400	2.4	2.5	8.2	0.42	2.5	A1	B1
	45					2.4	2.9	8.2	0.42	2.9	A1	B1
	63		AD00071-2-0,70	0.70	2,800	2.9	3.9	15	0.54	3.9	A1	B1
	90					2.9	4.3	15	0.54	4.3	A1	B1
SA 14.2	125	100	AD00071-2-1,00	1.00	2,800	3.4	5.2	15	0.64	5.2	A1	B1
	180					3.4	5.8	15	0.64	5.8	A1	B1
	4	250	VD00090-4-0,12	0.12	1,400	0.5	0.8	2.7	0.60	0.8	A1	B1
	5.6					0.5	1.0	2.7	0.60	1.0	A1	B1
	8		VD00090-4-0,25	0.25	1,400	1.0	1.5	5.0	0.60	1.5	A1	B1
	11					1.0	1.6	5.0	0.60	1.6	A1	B1
	16		VD00090-2-0,45	0.45	2,800	1.4	2.9	8.7	0.64	2.9	A1	B1
	22					1.4	3.4	8.7	0.64	3.4	A1	B1
	32		AD00090-4-0,75	0.75	1,400	2.5	4.1	15	0.62	4.1	A1	B1
	45					2.5	4.8	15	0.62	4.8	A1	B1
	63		AD00090-2-1,40	1.40	2,800	4.5	7.3	37	0.60	7.3	A2	B2
	90					4.5	8.7	37	0.60	8.7	A2	B2
SA 14.6	125	200	AD00090-2-1,80	1.80	2,800	5.1	12	37	0.65	11	A2	B2
	180					5.1	12	37	0.65	11	A2	B2
	4	500	VD00090-4-0,20	0.20	1,400	0.9	1.4	5.0	0.54	1.4	A1	B1
	5.6					0.9	1.6	5.0	0.54	1.6	A1	B1
	8		VD00090-4-0,40	0.40	1,400	1.7	2.9	9.0	0.56	2.9	A1	B1
	11					1.7	3.4	9.0	0.56	3.4	A1	B1
	16		VD00090-2-0,80	0.80	2,800	3.5	4.8	17	0.51	4.8	A1	B1
	22					3.5	5.3	17	0.51	5.3	A1	B1
	32		AD00090-4-1,60	1.60	1,400	5.1	7.2	37	0.57	7.2	A2	B2
	45					5.1	8.7	37	0.57	8.7	A2	B2
	63		AD00090-2-3,00	3.00	2,800	8.7	13	66	0.60	13	A2	–
	90					8.7	15	66	0.60	15	A2	–
SA 16.2	125	400	AD00090-2-3,30	3.30	2,800	9.2	20	66	0.65	20	A2	–
	180					9.2	21	66	0.65	21	A2	–
	4	1,000	VD00112-4-0,40	0.40	1,400	1.3	2.6	9.6	0.65	2.6	A1	B1
	5.6					1.3	2.8	9.6	0.65	2.8	A1	B1
	8		VD00112-4-0,80	0.80	1,400	2.9	5.0	21	0.57	5.0	A1	B2
	11					2.9	5.3	21	0.57	5.3	A1	B2
	16		VD00112-2-1,50	1.50	2,800	5.4	8.7	39	0.60	8.7	A2	B2
	22					5.4	10	39	0.60	10	A2	B2
	32		AD00112-4-3,00	3.00	1,400	8.2	14	58	0.71	14	A2	B3
	45					8.2	16	58	0.71	16	A2	B3
	63		AD00112-2-5,00	5.00	2,800	12	24	110	0.80	24	A2	–
	90					12	29	110	0.80	24	A2	–
SA 16.2	125	800	AD00112-2-6,00	6.00	2,800	13	34	110	0.83	24	A2	–
	180					13	43	110	0.83	24	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 440 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.4	0.4	1.1	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.40	0.4	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.1	0.50	0.4	A1	B1
	13					0.4	0.5	1.1	0.50	0.5	A1	B1
	19		VD00063-2-0,06	0.06	3,360	0.7	0.7	2.1	0.42	0.7	A1	B1
	26					0.7	0.7	2.1	0.42	0.7	A1	B1
	38		AD00063-4-0,10	0.10	1,680	1.0	1.0	2.6	0.42	1.0	A1	B1
	54					1.0	1.1	2.6	0.42	1.1	A1	B1
	75		AD00063-2-0,20	0.20	3,360	0.9	1.3	4.8	0.60	1.3	A1	B1
	108					0.9	1.4	4.8	0.60	1.4	A1	B1
SA 07.6	150	25	AD00063-2-0,30	0.30	3,360	1.0	1.7	4.8	0.70	1.7	A1	B1
	216					1.0	1.9	4.8	0.70	1.9	A1	B1
	4.8		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.1	0.43	0.5	A1	B1
	6.7					0.4	0.5	1.1	0.43	0.5	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	0.7	0.7	1.7	0.38	0.7	A1	B1
	13					0.7	0.8	1.7	0.38	0.8	A1	B1
	19		VD00063-2-0,12	0.12	3,360	0.8	1.0	3.3	0.52	1.0	A1	B1
	26					0.8	1.1	3.3	0.52	1.1	A1	B1
	38	60	AD00063-4-0,20	0.20	1,680	1.7	2.1	5.0	0.42	2.1	A1	B1
	54					1.7	2.2	5.0	0.42	2.2	A1	B1
SA 10.2	75		AD00063-2-0,40	0.40	3,360	2.0	2.5	9.8	0.53	2.5	A1	B1
	108					2.0	2.7	9.8	0.53	2.7	A1	B1
	150		AD00063-2-0,50	0.50	3,360	2.1	3.3	9.8	0.62	3.3	A1	B1
	216					2.1	3.5	9.8	0.62	3.5	A1	B1
	4.8	120	VD00071-4-0,06	0.06	1,680	0.5	0.7	2.2	0.40	0.7	A1	B1
	6.7					0.5	0.7	2.2	0.40	0.7	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	1.1	1.2	3.3	0.40	1.2	A1	B1
	13					1.1	1.3	3.3	0.40	1.3	A1	B1
	19		VD00071-2-0,25	0.25	3,360	1.4	1.6	4.9	0.52	1.6	A1	B1
	26					1.4	2.0	4.9	0.52	2.0	A1	B1
	38		AD00071-4-0,40	0.40	1,680	2.7	2.8	9.3	0.42	2.8	A1	B1
SA 14.2	54	100				2.7	3.3	9.3	0.42	3.3	A1	B1
	75		AD00071-2-0,70	0.70	3,360	3.3	4.4	17	0.54	4.4	A1	B1
	108					3.3	4.9	17	0.54	4.9	A1	B1
	150		AD00071-2-1,00	1.00	3,360	3.8	5.9	17	0.64	5.9	A1	B1
	216					3.8	6.5	17	0.64	6.5	A1	B1
	4.8		VD00090-4-0,12	0.12	1,680	0.5	0.9	3.1	0.60	0.9	A1	B1
	6.7					0.5	1.1	3.1	0.60	1.1	A1	B1
	9.6	250	VD00090-4-0,25	0.25	1,680	1.1	1.7	5.7	0.60	1.7	A1	B1
	13					1.1	1.9	5.7	0.60	1.9	A1	B1
	19		VD00090-2-0,45	0.45	3,360	1.6	3.3	9.8	0.64	3.3	A1	B1
SA 14.6	26					1.6	3.8	9.8	0.64	3.8	A1	B1
	38		AD00090-4-0,75	0.75	1,680	2.8	4.7	17	0.62	4.7	A1	B1
	54					2.8	5.5	17	0.62	5.5	A1	B1
	75		AD00090-2-1,40	1.40	3,360	5.1	8.3	41	0.60	8.3	A2	B2
	108					5.1	9.8	41	0.60	9.8	A2	B2
	150		AD00090-2-1,80	1.80	3,360	5.8	13	41	0.65	12	A2	B2
	216					5.8	13	41	0.65	12	A2	B2
	4.8	500	VD00090-4-0,20	0.20	1,680	1.0	1.6	5.7	0.54	1.6	A1	B1
	6.7					1.0	1.9	5.7	0.54	1.9	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	2.0	3.3	10	0.56	3.3	A1	B1
	13					2.0	3.8	10	0.56	3.8	A1	B1
	19		VD00090-2-0,80	0.80	3,360	3.9	5.5	20	0.51	5.5	A1	B2
	26					3.9	6.0	20	0.51	6.0	A1	B2
	38		AD00090-4-1,60	1.60	1,680	5.8	8.2	41	0.57	8.2	A2	B2
SA 16.2	54	1,000				5.8	9.8	41	0.57	9.8	A2	B2
	75		AD00090-2-3,00	3.00	3,360	9.8	15	74	0.60	15	A2	–
	108					9.8	17	74	0.60	17	A2	–
	150		AD00090-2-3,30	3.30	3,360	10	23	74	0.65	23	A2	–
	216					10	24	74	0.65	23	A2	–
	4.8		VD00112-4-0,40	0.40	1,680	1.5	2.9	11	0.65	2.9	A1	B1
	6.7					1.5	3.2	11	0.65	3.2	A1	B1
	9.6	800	VD00112-4-0,80	0.80	1,680	3.3	5.7	24	0.57	5.7	A1	B2
	13					3.3	6.0	24	0.57	6.0	A1	B2
	19		VD00112-2-1,50	1.50	3,360	6.1	9.8	44	0.60	9.8	A2	B2
	26					6.1	12	44	0.60	12	A2	B2
	38		AD00112-4-3,00	3.00	1,680	9.3	16	65	0.71	16	A2	B3
	54					9.3	19	65	0.71	19	A2	B3
	75		AD00112-2-5,00	5.00	3,360	13	27	124	0.80	27	A3	–
	108					13	33	124	0.80	27	A3	–
	150		AD00112-2-6,00	6.00	3,360	15	38	124	0.83	27	A3	–
	216					15	49	124	0.83	27	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 460 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.5	1.0	0.50	0.5	A1	B1
	19		VD00063-2-0,06	0.06	3,360	0.6	0.6	2.0	0.42	0.6	A1	B1
	26					0.6	0.7	2.0	0.42	0.7	A1	B1
	38		AD00063-4-0,10	0.10	1,680	1.0	1.0	2.5	0.42	1.0	A1	B1
	54					1.0	1.0	2.5	0.42	1.0	A1	B1
	75		AD00063-2-0,20	0.20	3,360	0.8	1.3	4.6	0.60	1.3	A1	B1
	108					0.8	1.4	4.6	0.60	1.4	A1	B1
SA 07.6	150	25	AD00063-2-0,30	0.30	3,360	0.9	1.7	4.6	0.70	1.7	A1	B1
	216					0.9	1.8	4.6	0.70	1.8	A1	B1
	4.8		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.4	A1	B1
	6.7					0.4	0.5	1.0	0.43	0.5	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	13					0.6	0.7	1.7	0.38	0.7	A1	B1
	19		VD00063-2-0,12	0.12	3,360	0.7	0.9	3.1	0.52	0.9	A1	B1
	26					0.7	1.0	3.1	0.52	1.0	A1	B1
	38	60	AD00063-4-0,20	0.20	1,680	1.7	2.0	4.8	0.42	2.0	A1	B1
	54					1.7	2.1	4.8	0.42	2.1	A1	B1
SA 10.2	75		AD00063-2-0,40	0.40	3,360	1.9	2.4	9.4	0.53	2.4	A1	B1
	108					1.9	2.6	9.4	0.53	2.6	A1	B1
	150		AD00063-2-0,50	0.50	3,360	2.0	3.1	9.4	0.62	3.1	A1	B1
	216					2.0	3.3	9.4	0.62	3.3	A1	B1
	4.8	120	VD00071-4-0,06	0.06	1,680	0.5	0.6	2.1	0.40	0.6	A1	B1
	6.7					0.5	0.6	2.1	0.40	0.6	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	1.0	1.1	3.1	0.40	1.1	A1	B1
	13					1.0	1.3	3.1	0.40	1.3	A1	B1
	19		VD00071-2-0,25	0.25	3,360	1.4	1.6	4.7	0.52	1.6	A1	B1
	26					1.4	1.9	4.7	0.52	1.9	A1	B1
	38		AD00071-4-0,40	0.40	1,680	2.6	2.7	8.9	0.42	2.7	A1	B1
SA 14.2	54	100				2.6	3.1	8.9	0.42	3.1	A1	B1
	75		AD00071-2-0,70	0.70	3,360	3.1	4.2	17	0.54	4.2	A1	B1
	108					3.1	4.7	17	0.54	4.7	A1	B1
	150		AD00071-2-1,00	1.00	3,360	3.7	5.6	17	0.64	5.6	A1	B1
	216					3.7	6.3	17	0.64	6.3	A1	B1
	4.8	250	VD00090-4-0,12	0.12	1,680	0.5	0.8	2.9	0.60	0.8	A1	B1
	6.7					0.5	1.0	2.9	0.60	1.0	A1	B1
	9.6		VD00090-4-0,25	0.25	1,680	1.0	1.7	5.4	0.60	1.7	A1	B1
	13					1.0	1.8	5.4	0.60	1.8	A1	B1
	19		VD00090-2-0,45	0.45	3,360	1.6	3.1	9.4	0.64	3.1	A1	B1
	26					1.6	3.7	9.4	0.64	3.7	A1	B1
	38		AD00090-4-0,75	0.75	1,680	2.7	4.5	17	0.62	4.5	A1	B1
SA 14.6	54	200				2.7	5.2	17	0.62	5.2	A1	B1
	75		AD00090-2-1,40	1.40	3,360	4.9	7.9	40	0.60	7.9	A2	B2
	108					4.9	9.4	40	0.60	9.4	A2	B2
	150		AD00090-2-1,80	1.80	3,360	5.5	13	40	0.65	12	A2	B2
	216					5.5	13	40	0.65	12	A2	B2
	4.8	500	VD00090-4-0,20	0.20	1,680	0.9	1.6	5.4	0.54	1.6	A1	B1
	6.7					0.9	1.8	5.4	0.54	1.8	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	1.9	3.1	9.7	0.56	3.1	A1	B1
	13					1.9	3.7	9.7	0.56	3.7	A1	B1
	19		VD00090-2-0,80	0.80	3,360	3.8	5.2	19	0.51	5.2	A1	B2
	26					3.8	5.7	19	0.51	5.7	A1	B2
	38		AD00090-4-1,60	1.60	1,680	5.5	7.8	40	0.57	7.8	A2	B2
SA 16.2	54	800				5.5	9.4	40	0.57	9.4	A2	B2
	75		AD00090-2-3,00	3.00	3,360	9.4	15	71	0.60	15	A2	–
	108					9.4	17	71	0.60	17	A2	–
	150		AD00090-2-3,30	3.30	3,360	9.9	22	71	0.65	22	A2	–
	216					9.9	23	71	0.65	22	A2	–
	4.8	1,000	VD00112-4-0,40	0.40	1,680	1.5	2.8	10	0.65	2.8	A1	B1
	6.7					1.5	3.0	10	0.65	3.0	A1	B1
	9.6		VD00112-4-0,80	0.80	1,680	3.1	5.4	23	0.57	5.4	A1	B2
	13					3.1	5.7	23	0.57	5.7	A1	B2
	19		VD00112-2-1,50	1.50	3,360	5.8	9.4	42	0.60	9.4	A2	B2
	26					5.8	11	42	0.60	11	A2	B2
	38		AD00112-4-3,00	3.00	1,680	8.9	16	63	0.71	16	A2	B3
SA 16.2	54	800				8.9	18	63	0.71	18	A2	B3
	75		AD00112-2-5,00	5.00	3,360	13	26	119	0.80	26	A2	–
	108					13	31	119	0.80	26	A2	–
	150		AD00112-2-6,00	6.00	3,360	15	37	119	0.83	26	A2	–
	216					15	47	119	0.83	26	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4.8	30	VD00063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.5	1.0	0.50	0.5	A1	B1
	19		VD00063-2-0,06	0.06	3,360	0.6	0.6	1.9	0.42	0.6	A1	B1
	26					0.6	0.7	1.9	0.42	0.7	A1	B1
	38		AD00063-4-0,10	0.10	1,680	1.0	1.0	2.4	0.42	1.0	A1	B1
	54					1.0	1.0	2.4	0.42	1.0	A1	B1
	75		AD00063-2-0,20	0.20	3,360	0.8	1.2	4.4	0.60	1.2	A1	B1
	108					0.8	1.3	4.4	0.60	1.3	A1	B1
SA 07.6	150	25	AD00063-2-0,30	0.30	3,360	0.9	1.6	4.4	0.70	1.6	A1	B1
	216					0.9	1.7	4.4	0.70	1.7	A1	B1
	4.8		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	6.7					0.4	0.5	1.0	0.43	0.5	A1	B1
	9.6		VD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	13					0.6	0.7	1.6	0.38	0.7	A1	B1
	19		VD00063-2-0,12	0.12	3,360	0.7	0.9	3.0	0.52	0.9	A1	B1
	26					0.7	1.0	3.0	0.52	1.0	A1	B1
	38	60	AD00063-4-0,20	0.20	1,680	1.6	1.9	4.6	0.42	1.9	A1	B1
	54					1.6	2.0	4.6	0.42	2.0	A1	B1
SA 10.2	75		AD00063-2-0,40	0.40	3,360	1.8	2.3	9.0	0.53	2.3	A1	B1
	108					1.8	2.5	9.0	0.53	2.5	A1	B1
	150		AD00063-2-0,50	0.50	3,360	1.9	3.0	9.0	0.62	3.0	A1	B1
	216					1.9	3.2	9.0	0.62	3.2	A1	B1
	4.8	120	VD00071-4-0,06	0.06	1,680	0.5	0.6	2.0	0.40	0.6	A1	B1
	6.7					0.5	0.6	2.0	0.40	0.6	A1	B1
	9.6		VD00071-4-0,12	0.12	1,680	1.0	1.1	3.0	0.40	1.1	A1	B1
	13					1.0	1.2	3.0	0.40	1.2	A1	B1
	19		VD00071-2-0,25	0.25	3,360	1.3	1.5	4.5	0.52	1.5	A1	B1
	26					1.3	1.8	4.5	0.52	1.8	A1	B1
	38		AD00071-4-0,40	0.40	1,680	2.5	2.6	8.5	0.42	2.6	A1	B1
SA 14.2	54	100				2.5	3.0	8.5	0.42	3.0	A1	B1
	75		AD00071-2-0,70	0.70	3,360	3.0	4.0	16	0.54	4.0	A1	B1
	108					3.0	4.5	16	0.54	4.5	A1	B1
	150		AD00071-2-1,00	1.00	3,360	3.5	5.4	16	0.64	5.4	A1	B1
	216					3.5	6.0	16	0.64	6.0	A1	B1
	4.8	250	VD00090-4-0,12	0.12	1,680	0.5	0.8	2.8	0.60	0.8	A1	B1
	6.7					0.5	1.0	2.8	0.60	1.0	A1	B1
	9.6		VD00090-4-0,25	0.25	1,680	1.0	1.6	5.2	0.60	1.6	A1	B1
	13					1.0	1.7	5.2	0.60	1.7	A1	B1
	19		VD00090-2-0,45	0.45	3,360	1.5	3.0	9.0	0.64	3.0	A1	B1
	26					1.5	3.5	9.0	0.64	3.5	A1	B1
	38		AD00090-4-0,75	0.75	1,680	2.6	4.3	16	0.62	4.3	A1	B1
SA 14.6	54	200				2.6	5.0	16	0.62	5.0	A1	B1
	75		AD00090-2-1,40	1.40	3,360	4.7	7.6	38	0.60	7.6	A2	B2
	108					4.7	9.0	38	0.60	9.0	A2	B2
	150		AD00090-2-1,80	1.80	3,360	5.3	12	38	0.65	11	A2	B2
	216					5.3	12	38	0.65	11	A2	B2
	4.8	500	VD00090-4-0,20	0.20	1,680	0.9	1.5	5.2	0.54	1.5	A1	B1
	6.7					0.9	1.7	5.2	0.54	1.7	A1	B1
	9.6		VD00090-4-0,40	0.40	1,680	1.8	3.0	9.3	0.56	3.0	A1	B1
	13					1.8	3.5	9.3	0.56	3.5	A1	B1
	19		VD00090-2-0,80	0.80	3,360	3.6	5.0	18	0.51	5.0	A1	B1
	26					3.6	5.5	18	0.51	5.5	A1	B1
	38		AD00090-4-1,60	1.60	1,680	5.3	7.5	38	0.57	7.5	A2	B2
SA 16.2	54	800				5.3	9.0	38	0.57	9.0	A2	B2
	75		AD00090-2-3,00	3.00	3,360	9.0	14	68	0.60	14	A2	–
	108					9.0	16	68	0.60	16	A2	–
	150		AD00090-2-3,30	3.30	3,360	9.5	21	68	0.65	22	A2	–
	216					9.5	22	68	0.65	22	A2	–
	4.8	1,000	VD00112-4-0,40	0.40	1,680	1.4	2.7	10	0.65	2.7	A1	B1
	6.7					1.4	2.9	10	0.65	2.9	A1	B1
	9.6		VD00112-4-0,80	0.80	1,680	3.0	5.2	22	0.57	5.2	A1	B2
	13					3.0	5.5	22	0.57	5.5	A1	B2
	19		VD00112-2-1,50	1.50	3,360	5.6	9.0	40	0.60	9.0	A2	B2
	26					5.6	11	40	0.60	11	A2	B2
	38		AD00112-4-3,00	3.00	1,680	8.5	15	60	0.71	15	A2	B3
SA 16.2	54	800				8.5	17	60	0.71	17	A2	B3
	75		AD00112-2-5,00	5.00	3,360	12	25	114	0.80	25	A2	–
	108					12	30	114	0.80	25	A2	–
	150		AD00112-2-6,00	6.00	3,360	14	35	114	0.83	25	A2	–
	216					14	45	114	0.83	25	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 500 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	30	VD00063-4-0,02	0.02	1,400	0.3	0.3	0.8	0.40	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.40	0.3	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.3	0.3	0.8	0.50	0.3	A1	B1
	11					0.3	0.4	0.8	0.50	0.4	A1	B1
	16		VD00063-2-0,06	0.06	2,800	0.5	0.5	1.5	0.42	0.5	A1	B1
	22					0.5	0.5	1.5	0.42	0.5	A1	B1
	32		AD00063-4-0,10	0.10	1,400	0.8	0.8	1.9	0.42	0.8	A1	B1
	45					0.8	0.8	1.9	0.42	0.8	A1	B1
	63		AD00063-2-0,20	0.20	2,800	0.6	1.0	3.5	0.60	1.0	A1	B1
	90					0.6	1.0	3.5	0.60	1.0	A1	B1
SA 07.6	125	25	AD00063-2-0,30	0.30	2,800	0.7	1.3	3.5	0.70	1.3	A1	B1
	180					0.7	1.4	3.5	0.70	1.4	A1	B1
	4		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	5.6					0.3	0.4	0.8	0.43	0.4	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.5	1.3	0.38	0.5	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	22					0.6	0.8	2.4	0.52	0.8	A1	B1
	32		AD00063-4-0,20	0.20	1,400	1.3	1.5	3.7	0.42	1.5	A1	B1
	45					1.3	1.6	3.7	0.42	1.6	A1	B1
SA 10.2	63	60	AD00063-2-0,40	0.40	2,800	1.4	1.8	7.2	0.53	1.8	A1	B1
	90					1.4	2.0	7.2	0.53	2.0	A1	B1
	125		AD00063-2-0,50	0.50	2,800	1.5	2.4	7.2	0.62	2.4	A1	B1
	180					1.5	2.6	7.2	0.62	2.6	A1	B1
	4		VD00071-4-0,06	0.06	1,400	0.4	0.5	1.6	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.6	0.40	0.5	A1	B1
	8		VD00071-4-0,12	0.12	1,400	0.8	0.9	2.4	0.40	0.9	A1	B1
	11					0.8	1.0	2.4	0.40	1.0	A1	B1
	16		VD00071-2-0,25	0.25	2,800	1.0	1.2	3.6	0.52	1.2	A1	B1
	22					1.0	1.4	3.6	0.52	1.4	A1	B1
SA 14.2	32	250	AD00071-4-0,40	0.40	1,400	2.0	2.1	6.8	0.42	2.1	A1	B1
	45					2.0	2.4	6.8	0.42	2.4	A1	B1
	63		AD00071-2-0,70	0.70	2,800	2.4	3.2	13	0.54	3.2	A1	B1
	90					2.4	3.6	13	0.54	3.6	A1	B1
	125		AD00071-2-1,00	1.00	2,800	2.8	4.3	13	0.64	4.3	A1	B1
	180					2.8	4.8	13	0.64	4.8	A1	B1
	4		VD00090-4-0,12	0.12	1,400	0.4	0.6	2.2	0.60	0.6	A1	B1
	5.6					0.4	0.8	2.2	0.60	0.8	A1	B1
	8		VD00090-4-0,25	0.25	1,400	0.8	1.3	4.2	0.60	1.3	A1	B1
	11					0.8	1.4	4.2	0.60	1.4	A1	B1
SA 14.6	16	250	VD00090-2-0,45	0.45	2,800	1.2	2.4	7.2	0.64	2.4	A1	B1
	22					1.2	2.8	7.2	0.64	2.8	A1	B1
	32		AD00090-4-0,75	0.75	1,400	2.1	3.4	13	0.62	3.4	A1	B1
	45					2.1	4.0	13	0.62	4.0	A1	B1
	63		AD00090-2-1,40	1.40	2,800	3.8	6.1	30	0.60	6.1	A2	B2
	90					3.8	7.2	30	0.60	7.2	A2	B2
	125		AD00090-2-1,80	1.80	2,800	4.2	9.6	30	0.65	8.6	A2	B2
	180					4.2	9.6	30	0.65	8.6	A2	B2
	4	500	VD00090-4-0,20	0.20	1,400	0.7	1.2	4.2	0.54	1.2	A1	B1
	5.6					0.7	1.4	4.2	0.54	1.4	A1	B1
	8		VD00090-4-0,40	0.40	1,400	1.4	2.4	7.4	0.56	2.4	A1	B1
	11					1.4	2.8	7.4	0.56	2.8	A1	B1
	16		VD00090-2-0,80	0.80	2,800	2.9	4.0	14	0.51	4.0	A1	B1
	22					2.9	4.4	14	0.51	4.4	A1	B1
	32		AD00090-4-1,60	1.60	1,400	4.2	6.0	30	0.57	6.0	A2	B2
	45					4.2	7.2	30	0.57	7.2	A2	B2
	63		AD00090-2-3,00	3.00	2,800	7.2	11	54	0.60	11	A2	B3
	90					7.2	13	54	0.60	13	A2	B3
SA 16.2	125	800	AD00090-2-3,30	3.30	2,800	7.6	17	54	0.65	17	A2	B3
	180					7.6	18	54	0.65	17	A2	B3
	4		VD00112-4-0,40	0.40	1,400	1.1	2.2	8.0	0.65	2.2	A1	B1
	5.6					1.1	2.3	8.0	0.65	2.3	A1	B1
	8		VD00112-4-0,80	0.80	1,400	2.4	4.2	18	0.57	4.2	A1	B1
	11					2.4	4.4	18	0.57	4.4	A1	B1
	16		VD00112-2-1,50	1.50	2,800	4.5	7.2	32	0.60	7.2	A2	B2
	22					4.5	8.4	32	0.60	8.4	A2	B2
	32		AD00112-4-3,00	3.00	1,400	6.8	12	48	0.71	12	A2	B3
	45					6.8	14	48	0.71	14	A2	B3
	63		AD00112-2-5,00	5.00	2,800	9.6	20	91	0.80	20	A3	–
	90					9.6	24	91	0.80	20	A3	–
	125		AD00112-2-6,00	6.00	2,800	11	28	91	0.83	20	A3	–
	180					11	36	91	0.83	20	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.8	0.9	2.2	0.40	0.9	A1	B1
	6.7					0.8	0.9	2.2	0.40	0.9	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.9	0.9	2.0	0.50	0.9	A1	B1
	13					0.9	0.9	2.0	0.50	0.9	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	1.1	1.3	3.7	0.43	1.3	A1	B1
	26					1.1	1.3	3.7	0.43	1.3	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	1.7	2.0	4.4	0.40	2.0	A1	B1
	54					1.7	2.0	4.4	0.40	2.0	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	1.5	2.0	7.9	0.55	2.0	A1	B1
	108					1.5	2.2	7.9	0.55	2.2	A1	B1
SA 07.6	150	40	AD0L063-2-0,21	0.21	3,360	1.5	2.6	7.9	0.70	2.6	A1	B1
	216					1.5	3.1	7.9	0.70	3.1	A1	B1
	4.8		VD0L063-4-0,02	0.02	1,680	0.9	0.9	2.2	0.50	0.9	A1	B1
	6.7					0.9	0.9	2.2	0.50	0.9	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	1.1	1.1	3.1	0.45	1.1	A1	B1
	13					1.1	1.1	3.1	0.45	1.1	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	1.1	1.7	5.5	0.52	1.7	A1	B1
	26					1.1	1.7	5.5	0.52	1.7	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	2.6	3.3	7.6	0.40	3.3	A1	B1
	54					2.6	3.3	7.6	0.40	3.3	A1	B1
SA 10.2	75	30	AD0L063-2-0,28	0.28	3,360	2.4	3.5	12	0.53	3.5	A1	B1
	108					2.4	3.7	12	0.53	3.7	A1	B1
	150		AD0L063-2-0,35	0.35	3,360	2.6	4.4	12	0.60	4.4	A1	B1
	216					2.6	4.4	12	0.60	4.4	A1	B1
	4.8	90	VD0L071-4-0,04	0.04	1,680	0.8	1.1	3.3	0.40	1.1	A1	B1
	6.7					0.8	1.1	3.3	0.40	1.1	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	1.7	2.0	5.7	0.40	2.0	A1	B1
	13					1.7	2.2	5.7	0.40	2.2	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	2.2	2.4	8.7	0.52	2.4	A1	B1
	26					2.2	2.8	8.7	0.52	2.8	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	3.5	4.4	16	0.43	4.4	A1	B1
	54					3.5	4.8	16	0.43	4.8	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	3.9	5.5	26	0.56	5.5	A1	B2
	108					3.9	7.0	26	0.56	7.0	A1	B2
SA 14.2	150	70	AD0L071-2-0,70	0.70	3,360	4.4	8.3	26	0.67	8.3	A1	B2
	216					4.4	8.7	26	0.67	8.7	A1	B2
	4.8	180	VD0L090-4-0,08	0.08	1,680	0.9	1.3	5.7	0.60	1.3	A1	B1
	6.7					0.9	1.5	5.7	0.60	1.5	A1	B1
	9.6		VD0L090-4-0,18	0.18	1,680	2.0	3.1	9.2	0.60	3.1	A1	B1
	13					2.0	3.3	9.2	0.60	3.3	A1	B1
	19		VD0L090-2-0,30	0.30	3,360	2.0	4.4	16	0.68	4.4	A1	B1
	26					2.0	5.0	16	0.68	5.0	A1	B1
	38		AD0L090-4-0,50	0.50	1,680	4.4	6.5	26	0.56	6.5	A1	B2
	54					4.4	7.6	26	0.56	7.6	A1	B2
	75		AD0L090-2-1,00	1.00	3,360	6.8	12	61	0.65	12	A2	B3
	108					6.8	13	61	0.65	13	A2	B3
SA 14.6	150	140	AD0L090-2-1,30	1.30	3,360	7.6	18	61	0.73	18	A2	–
	216					7.6	18	61	0.73	18	A2	–
	4.8	360	VD0L090-4-0,14	0.14	1,680	1.5	2.4	8.5	0.55	2.4	A1	B1
	6.7					1.5	2.6	8.5	0.55	2.6	A1	B1
	9.6		VD0L090-4-0,30	0.30	1,680	3.5	5.5	19	0.52	5.5	A1	B2
	13					3.5	6.1	19	0.52	6.1	A1	B2
	19		VD0L090-2-0,60	0.60	3,360	5.0	7.9	33	0.61	7.9	A2	B2
	26					5.0	8.3	33	0.61	8.3	A2	B2
	38		AD0L090-4-1,00	1.00	1,680	7.9	13	65	0.60	13	A2	B3
	54					7.9	14	65	0.60	14	A2	B3
	75		AD0L090-2-2,00	2.00	3,360	12	21	120	0.69	21	A2	–
	108					12	24	120	0.69	24	A2	–
SA 16.2	150	290	AD0L090-2-2,30	2.30	3,360	13	31	120	0.72	31	A2	–
	216					13	33	120	0.72	33	A2	–
	4.8	710	VD0L112-4-0,30	0.30	1,680	2.6	5.0	17	0.60	5.0	A1	B1
	6.7					2.6	5.5	17	0.60	5.5	A1	B1
	9.6		VD0L112-4-0,60	0.60	1,680	5.0	8.7	37	0.53	8.7	A2	B2
	13					5.0	9.8	37	0.53	9.8	A2	B2
	19		VD0L112-2-1,00	1.00	3,360	7.0	13	72	0.68	13	A2	–
	26					7.0	15	72	0.68	15	A2	–
	38		AD0L112-4-2,00	2.00	1,680	13	22	87	0.65	22	A2	–
	54					13	26	87	0.65	24	A2	–
	75		AD0L112-2-3,50	3.50	3,360	19	39	196	0.78	39	A4	–
	108					19	46	196	0.78	42	A4	–
SA 16.2	150	570	AD0L112-2-4,00	4.00	3,360	20	50	196	0.81	42	A4	–
	216					20	68	196	0.81	42	A4	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	20	VD0L063-4-0,01	0.01	1,400	0.6	0.7	1.7	0.40	0.7	A1	B1
	5.6					0.6	0.7	1.7	0.40	0.7	A1	B1
	8		VD0L063-4-0,03	0.03	1,400	0.7	0.7	1.6	0.50	0.7	A1	B1
	11					0.7	0.7	1.6	0.50	0.7	A1	B1
	16		VD0L063-2-0,04	0.04	2,800	0.9	1.0	3.0	0.43	1.0	A1	B1
	22					0.9	1.0	3.0	0.43	1.0	A1	B1
	32		AD0L063-4-0,07	0.07	1,400	1.4	1.6	3.5	0.40	1.6	A1	B1
	45					1.4	1.6	3.5	0.40	1.6	A1	B1
	63		AD0L063-2-0,14	0.14	2,800	1.2	1.6	6.3	0.55	1.6	A1	B1
	90					1.2	1.7	6.3	0.55	1.7	A1	B1
SA 07.6	4	40	VD0L063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.50	0.7	A1	B1
	5.6					0.7	0.7	1.7	0.50	0.7	A1	B1
	8		VD0L063-4-0,04	0.04	1,400	0.9	0.9	2.4	0.45	0.9	A1	B1
	11					0.9	0.9	2.4	0.45	0.9	A1	B1
	16		VD0L063-2-0,08	0.08	2,800	0.9	1.4	4.3	0.52	1.4	A1	B1
	22					0.9	1.4	4.3	0.52	1.4	A1	B1
	32		AD0L063-4-0,14	0.14	1,400	2.1	2.6	6.1	0.40	2.6	A1	B1
	45					2.1	2.6	6.1	0.40	2.6	A1	B1
	63		AD0L063-2-0,28	0.28	2,800	1.9	2.8	9.9	0.53	2.8	A1	B1
	90					1.9	3.0	9.9	0.53	3.0	A1	B1
SA 10.2	4	90	VD0L071-4-0,04	0.04	1,400	0.6	0.9	2.6	0.40	0.9	A1	B1
	5.6					0.6	0.9	2.6	0.40	0.9	A1	B1
	8		VD0L071-4-0,08	0.08	1,400	1.4	1.6	4.5	0.40	1.6	A1	B1
	11					1.4	1.7	4.5	0.40	1.7	A1	B1
	16		VD0L071-2-0,17	0.17	2,800	1.7	1.9	7.0	0.52	1.9	A1	B1
	22					1.7	2.3	7.0	0.52	2.3	A1	B1
	32		AD0L071-4-0,28	0.28	1,400	2.8	3.5	13	0.43	3.5	A1	B1
	45					2.8	3.8	13	0.43	3.8	A1	B1
	63		AD0L071-2-0,50	0.50	2,800	3.1	4.3	21	0.56	4.3	A1	B2
	90					3.1	5.6	21	0.56	5.6	A1	B2
SA 14.2	4	180	VD0L090-4-0,08	0.08	1,400	0.7	1.0	4.5	0.60	1.0	A1	B1
	5.6					0.7	1.2	4.5	0.60	1.2	A1	B1
	8		VD0L090-4-0,18	0.18	1,400	1.6	2.4	7.3	0.60	2.4	A1	B1
	11					1.6	2.6	7.3	0.60	2.6	A1	B1
	16		VD0L090-2-0,30	0.30	2,800	1.6	3.5	13	0.68	3.5	A1	B1
	22					1.6	4.0	13	0.68	4.0	A1	B1
	32		AD0L090-4-0,50	0.50	1,400	3.5	5.2	21	0.56	5.2	A1	B2
	45					3.5	6.1	21	0.56	6.1	A1	B2
	63		AD0L090-2-1,00	1.00	2,800	5.4	9.6	49	0.65	9.6	A2	B3
	90					5.4	10	49	0.65	10	A2	B3
SA 14.6	4	360	VD0L090-2-1,30	1.30	2,800	6.1	14	49	0.73	14	A2	B3
	5.6					6.1	14	49	0.73	14	A2	B3
	8		VD0L090-4-0,14	0.14	1,400	1.2	1.9	6.8	0.55	1.9	A1	B1
	11					1.2	2.1	6.8	0.55	2.1	A1	B1
	16		VD0L090-4-0,30	0.30	1,400	2.8	4.3	15	0.52	4.3	A1	B1
	22					2.8	4.9	15	0.52	4.9	A1	B1
	32		VD0L090-2-0,60	0.60	2,800	4.0	6.3	26	0.61	6.3	A1	B2
	45					4.0	6.6	26	0.61	6.6	A1	B2
	63		AD0L090-4-1,00	1.00	1,400	6.3	10	52	0.60	10	A2	B3
	90					6.3	11	52	0.60	11	A2	B3
SA 16.2	4	710	AD0L090-2-2,00	2.00	2,800	9.9	17	96	0.69	17	A2	–
	5.6					9.9	19	96	0.69	19	A2	–
	8		AD0L090-2-2,30	2.30	2,800	10	24	96	0.72	24	A2	–
	11					10	26	96	0.72	26	A2	–
	16		VD0L112-4-0,30	0.30	1,400	2.1	4.0	14	0.60	4.0	A1	B1
	22					2.1	4.3	14	0.60	4.3	A1	B1
	32		VD0L112-4-0,60	0.60	1,400	4.0	7.0	30	0.53	7.0	A2	B2
	45					4.0	7.8	30	0.53	7.8	A2	B2
	63		VD0L112-2-1,00	1.00	2,800	5.6	11	57	0.68	11	A2	B3
	90					5.6	12	57	0.68	12	A2	B3
SA 16.2	4	570	AD0L112-4-2,00	2.00	1,400	10	17	70	0.65	17	A2	–
	5.6					10	21	70	0.65	20	A2	–
	8		AD0L112-2-3,50	3.50	2,800	15	31	157	0.78	31	A3	–
	11					15	37	157	0.78	34	A3	–
	16		AD0L112-2-4,00	4.00	2,800	16	40	157	0.81	34	A3	–
	22					16	54	157	0.81	34	A3	–
	32											
	45											
	63											
	90											
	125											
	180											

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	20	VD0L063-4-0,01	0.01	1,400	0.4	0.4	1.1	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.40	0.4	A1	B1
	8		VD0L063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	11					0.4	0.4	0.9	0.50	0.4	A1	B1
	16		VD0L063-2-0,04	0.04	2,800	0.5	0.6	1.8	0.43	0.6	A1	B1
	22					0.5	0.6	1.8	0.43	0.6	A1	B1
	32		AD0L063-4-0,07	0.07	1,400	0.8	0.9	2.1	0.40	0.9	A1	B1
	45					0.8	0.9	2.1	0.40	0.9	A1	B1
	63		AD0L063-2-0,14	0.14	2,800	0.7	0.9	3.8	0.55	0.9	A1	B1
	90					0.7	1.1	3.8	0.55	1.1	A1	B1
SA 07.6	125	40	AD0L063-2-0,21	0.21	2,800	0.7	1.3	3.8	0.70	1.3	A1	B1
	180					0.7	1.5	3.8	0.70	1.5	A1	B1
	4		VD0L063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.50	0.4	A1	B1
	8		VD0L063-4-0,04	0.04	1,400	0.5	0.5	1.5	0.45	0.5	A1	B1
	11					0.5	0.5	1.5	0.45	0.5	A1	B1
	16		VD0L063-2-0,08	0.08	2,800	0.5	0.8	2.6	0.52	0.8	A1	B1
	22					0.5	0.8	2.6	0.52	0.8	A1	B1
	32		AD0L063-4-0,14	0.14	1,400	1.3	1.6	3.7	0.40	1.6	A1	B1
	45					1.3	1.6	3.7	0.40	1.6	A1	B1
SA 10.2	63	90	AD0L063-2-0,28	0.28	2,800	1.2	1.7	6.0	0.53	1.7	A1	B1
	90					1.2	1.8	6.0	0.53	1.8	A1	B1
	125		AD0L063-2-0,35	0.35	2,800	1.3	2.1	6.0	0.60	2.1	A1	B1
	180					1.3	2.1	6.0	0.60	2.1	A1	B1
	4	30	VD0L071-4-0,04	0.04	1,400	0.4	0.5	1.6	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.6	0.40	0.5	A1	B1
	8		VD0L071-4-0,08	0.08	1,400	0.8	0.9	2.7	0.40	0.9	A1	B1
	11					0.8	1.1	2.7	0.40	1.1	A1	B1
	16		VD0L071-2-0,17	0.17	2,800	1.1	1.2	4.2	0.52	1.2	A1	B1
	22					1.1	1.4	4.2	0.52	1.4	A1	B1
	32		AD0L071-4-0,28	0.28	1,400	1.7	2.1	7.6	0.43	2.1	A1	B1
	45					1.7	2.3	7.6	0.43	2.3	A1	B1
	63		AD0L071-2-0,50	0.50	2,800	1.9	2.6	13	0.56	2.6	A1	B1
	90					1.9	3.4	13	0.56	3.4	A1	B1
SA 14.2	125	70	AD0L071-2-0,70	0.70	2,800	2.1	4.0	13	0.67	4.0	A1	B1
	180					2.1	4.2	13	0.67	4.2	A1	B1
	4	180	VD0L090-4-0,08	0.08	1,400	0.4	0.6	2.7	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.7	0.60	0.7	A1	B1
	8		VD0L090-4-0,18	0.18	1,400	0.9	1.5	4.4	0.60	1.5	A1	B1
	11					0.9	1.6	4.4	0.60	1.6	A1	B1
	16		VD0L090-2-0,30	0.30	2,800	0.9	2.1	7.6	0.68	2.1	A1	B1
	22					0.9	2.4	7.6	0.68	2.4	A1	B1
	32		AD0L090-4-0,50	0.50	1,400	2.1	3.2	13	0.56	3.2	A1	B1
	45					2.1	3.7	13	0.56	3.7	A1	B1
	63		AD0L090-2-1,00	1.00	2,800	3.3	5.8	29	0.65	5.8	A2	B2
	90					3.3	6.3	29	0.65	6.3	A2	B2
SA 14.6	125	140	AD0L090-2-1,30	1.30	2,800	3.7	8.6	29	0.73	8.3	A2	B2
	180					3.7	8.6	29	0.73	8.3	A2	B2
	4	360	VD0L090-4-0,14	0.14	1,400	0.7	1.2	4.1	0.55	1.2	A1	B1
	5.6					0.7	1.3	4.1	0.55	1.3	A1	B1
	8		VD0L090-4-0,30	0.30	1,400	1.7	2.6	8.9	0.52	2.6	A1	B1
	11					1.7	2.9	8.9	0.52	2.9	A1	B1
	16		VD0L090-2-0,60	0.60	2,800	2.4	3.8	16	0.61	3.8	A1	B1
	22					2.4	4.0	16	0.61	4.0	A1	B1
	32		AD0L090-4-1,00	1.00	1,400	3.8	6.3	32	0.60	6.3	A2	B2
	45					3.8	6.8	32	0.60	6.8	A2	B2
	63		AD0L090-2-2,00	2.00	2,800	6.0	10	58	0.69	10	A2	B3
	90					6.0	12	58	0.69	12	A2	B3
SA 16.2	125	290	AD0L090-2-2,30	2.30	2,800	6.3	15	58	0.72	15	A2	B3
	180					6.3	16	58	0.72	16	A2	B3
	4	710	VD0L112-4-0,30	0.30	1,400	1.3	2.4	8.4	0.60	2.4	A1	B1
	5.6					1.3	2.6	8.4	0.60	2.6	A1	B1
	8		VD0L112-4-0,60	0.60	1,400	2.4	4.2	18	0.53	4.2	A1	B1
	11					2.4	4.7	18	0.53	4.7	A1	B1
	16		VD0L112-2-1,00	1.00	2,800	3.4	6.4	35	0.68	6.4	A2	B2
	22					3.4	7.2	35	0.68	7.2	A2	B2
	32		AD0L112-4-2,00	2.00	1,400	6.3	11	42	0.65	11	A2	B3
	45					6.3	13	42	0.65	12	A2	B3
	63		AD0L112-2-3,50	3.50	2,800	8.9	19	95	0.78	19	A2	–
	90					8.9	22	95	0.78	21	A2	–
SA 16.2	125	570	AD0L112-2-4,00	4.00	2,800	9.5	24	95	0.81	21	A2	–
	180					9.5	33	95	0.81	21	A2	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.4	0.5	1.3	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.3	0.40	0.5	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.5	0.5	1.1	0.50	0.5	A1	B1
	13					0.5	0.5	1.1	0.50	0.5	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	0.6	0.8	2.1	0.43	0.8	A1	B1
	26					0.6	0.8	2.1	0.43	0.8	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	1.0	1.1	2.5	0.40	1.1	A1	B1
	54					1.0	1.1	2.5	0.40	1.1	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	0.9	1.1	4.5	0.55	1.1	A1	B1
	108					0.9	1.3	4.5	0.55	1.3	A1	B1
	150		AD0L063-2-0,21	0.21	3,360	0.9	1.5	4.5	0.70	1.5	A1	B1
SA 07.6	4.8	40	VD0L063-4-0,02	0.02	1,680	0.5	0.5	1.3	0.50	0.5	A1	B1
	6.7					0.5	0.5	1.3	0.50	0.5	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	0.6	0.6	1.8	0.45	0.6	A1	B1
	13					0.6	0.6	1.8	0.45	0.6	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	0.6	1.0	3.2	0.52	1.0	A1	B1
	26					0.6	1.0	3.2	0.52	1.0	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	1.5	1.9	4.4	0.40	1.9	A1	B1
	54					1.5	1.9	4.4	0.40	1.9	A1	B1
	75		AD0L063-2-0,28	0.28	3,360	1.4	2.0	7.2	0.53	2.0	A1	B1
	108					1.4	2.1	7.2	0.53	2.1	A1	B1
	150		AD0L063-2-0,35	0.35	3,360	1.5	2.5	7.2	0.60	2.5	A1	B1
SA 10.2	4.8	90	VD0L071-4-0,04	0.04	1,680	0.4	0.6	1.9	0.40	0.6	A1	B1
	6.7					0.4	0.6	1.9	0.40	0.6	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	1.0	1.1	3.3	0.40	1.1	A1	B1
	13					1.0	1.3	3.3	0.40	1.3	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	1.3	1.4	5.1	0.52	1.4	A1	B1
	26					1.3	1.6	5.1	0.52	1.6	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	2.0	2.5	9.1	0.43	2.5	A1	B1
	54					2.0	2.8	9.1	0.43	2.8	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	2.3	3.2	15	0.56	3.2	A1	B1
	108					2.3	4.0	15	0.56	4.0	A1	B1
	150		AD0L071-2-0,70	0.70	3,360	2.5	4.8	15	0.67	4.8	A1	B1
SA 14.2	4.8	180	VD0L090-4-0,08	0.08	1,680	0.5	0.8	3.3	0.60	0.8	A1	B1
	6.7					0.5	0.9	3.3	0.60	0.9	A1	B1
	9.6		VD0L090-4-0,18	0.18	1,680	1.1	1.8	5.3	0.60	1.8	A1	B1
	13					1.1	1.9	5.3	0.60	1.9	A1	B1
	19		VD0L090-2-0,30	0.30	3,360	1.1	2.5	9.1	0.68	2.5	A1	B1
	26					1.1	2.9	9.1	0.68	2.9	A1	B1
	38		AD0L090-4-0,50	0.50	1,680	2.5	3.8	15	0.56	3.8	A1	B1
	54					2.5	4.4	15	0.56	4.4	A1	B1
	75		AD0L090-2-1,00	1.00	3,360	3.9	6.9	35	0.65	6.9	A2	B2
	108					3.9	7.6	35	0.65	7.6	A2	B2
	150		AD0L090-2-1,30	1.30	3,360	4.4	10	35	0.73	10	A2	B2
SA 14.6	4.8	360	VD0L090-4-0,14	0.14	1,680	0.9	1.4	4.9	0.55	1.4	A1	B1
	6.7					0.9	1.5	4.9	0.55	1.5	A1	B1
	9.6		VD0L090-4-0,30	0.30	1,680	2.0	3.2	11	0.52	3.2	A1	B1
	13					2.0	3.5	11	0.52	3.5	A1	B1
	19		VD0L090-2-0,60	0.60	3,360	2.9	4.5	19	0.61	4.5	A1	B2
	26					2.9	4.8	19	0.61	4.8	A1	B2
	38		AD0L090-4-1,00	1.00	1,680	4.5	7.6	38	0.60	7.6	A2	B2
	54					4.5	8.2	38	0.60	8.2	A2	B2
	75		AD0L090-2-2,00	2.00	3,360	7.2	12	69	0.69	12	A2	–
	108					7.2	14	69	0.69	14	A2	–
	150		AD0L090-2-2,30	2.30	3,360	7.6	18	69	0.72	18	A2	–
SA 16.2	4.8	710	VD0L112-4-0,30	0.30	1,680	1.5	2.9	10	0.60	2.9	A1	B1
	6.7					1.5	3.2	10	0.60	3.2	A1	B1
	9.6		VD0L112-4-0,60	0.60	1,680	2.9	5.1	21	0.53	5.1	A1	B2
	13					2.9	5.7	21	0.53	5.7	A1	B2
	19		VD0L112-2-1,00	1.00	3,360	4.0	7.7	42	0.68	7.7	A2	B2
	26					4.0	8.6	42	0.68	8.6	A2	B2
	38		AD0L112-4-2,00	2.00	1,680	7.6	13	51	0.65	13	A2	B3
	54					7.6	15	51	0.65	14	A2	B3
	75		AD0L112-2-3,50	3.50	3,360	11	23	114	0.78	23	A2	–
	108					11	27	114	0.78	25	A2	–
	150		AD0L112-2-4,00	4.00	3,360	11	29	114	0.81	25	A2	–
SA 16.2	216					11	39	114	0.81	25	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 30 min, 400 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
											Contactors	Thyristor
SA 07.2	4	20	VD0L063-4-0,01	0.01	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8		VD0L063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	11					0.4	0.4	0.9	0.50	0.4	A1	B1
	16		VD0L063-2-0,04	0.04	2,800	0.5	0.6	1.7	0.43	0.6	A1	B1
	22					0.5	0.6	1.7	0.43	0.6	A1	B1
	32		AD0L063-4-0,07	0.07	1,400	0.8	0.9	2.0	0.40	0.9	A1	B1
	45					0.8	0.9	2.0	0.40	0.9	A1	B1
	63		AD0L063-2-0,14	0.14	2,800	0.7	0.9	3.6	0.55	0.9	A1	B1
	90					0.7	1.0	3.6	0.55	1.0	A1	B1
SA 07.6	4	40	VD0L063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.50	0.4	A1	B1
	8		VD0L063-4-0,04	0.04	1,400	0.5	0.5	1.4	0.45	0.5	A1	B1
	11					0.5	0.5	1.4	0.45	0.5	A1	B1
	16		VD0L063-2-0,08	0.08	2,800	0.5	0.8	2.5	0.52	0.8	A1	B1
	22					0.5	0.8	2.5	0.52	0.8	A1	B1
	32		AD0L063-4-0,14	0.14	1,400	1.2	1.5	3.5	0.40	1.5	A1	B1
	45					1.2	1.5	3.5	0.40	1.5	A1	B1
	63		AD0L063-2-0,28	0.28	2,800	1.1	1.6	5.7	0.53	1.6	A1	B1
	90					1.1	1.7	5.7	0.53	1.7	A1	B1
SA 10.2	4	90	VD0L071-4-0,04	0.04	1,400	0.4	0.5	1.5	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.5	0.40	0.5	A1	B1
	8		VD0L071-4-0,08	0.08	1,400	0.8	0.9	2.6	0.40	0.9	A1	B1
	11					0.8	1.0	2.6	0.40	1.0	A1	B1
	16		VD0L071-2-0,17	0.17	2,800	1.0	1.1	4.0	0.52	1.1	A1	B1
	22					1.0	1.3	4.0	0.52	1.3	A1	B1
	32		AD0L071-4-0,28	0.28	1,400	1.6	2.0	7.2	0.43	2.0	A1	B1
	45					1.6	2.2	7.2	0.43	2.2	A1	B1
	63		AD0L071-2-0,50	0.50	2,800	1.8	2.5	12	0.56	2.5	A1	B1
	90					1.8	3.2	12	0.56	3.2	A1	B1
SA 14.2	4	180	VD0L090-4-0,08	0.08	1,400	0.4	0.6	2.6	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.6	0.60	0.7	A1	B1
	8		VD0L090-4-0,18	0.18	1,400	0.9	1.4	4.2	0.60	1.4	A1	B1
	11					0.9	1.5	4.2	0.60	1.5	A1	B1
	16		VD0L090-2-0,30	0.30	2,800	0.9	2.0	7.2	0.68	2.0	A1	B1
	22					0.9	2.3	7.2	0.68	2.3	A1	B1
	32		AD0L090-4-0,50	0.50	1,400	2.0	3.0	12	0.56	3.0	A1	B1
	45					2.0	3.5	12	0.56	3.5	A1	B1
	63		AD0L090-2-1,00	1.00	2,800	3.1	5.5	28	0.65	5.5	A2	B2
	90					3.1	6.0	28	0.65	6.0	A2	B2
SA 14.6	4	140	AD0L090-2-1,30	1.30	2,800	3.5	8.2	28	0.73	8.0	A2	B2
	5.6					3.5	8.2	28	0.73	8.0	A2	B2
	8		VD0L090-4-0,14	0.14	1,400	0.7	1.1	3.9	0.55	1.1	A1	B1
	11					0.7	1.2	3.9	0.55	1.2	A1	B1
	16		VD0L090-4-0,30	0.30	1,400	1.6	2.5	8.5	0.52	2.5	A1	B1
	22					1.6	2.8	8.5	0.52	2.8	A1	B1
	32		VD0L090-2-0,60	0.60	2,800	2.3	3.6	15	0.61	3.6	A1	B1
	45					2.3	3.8	15	0.61	3.8	A1	B1
	63		AD0L090-4-1,00	1.00	1,400	3.6	6.0	30	0.60	6.0	A2	B2
	90					3.6	6.5	30	0.60	6.5	A2	B2
SA 16.2	4	710	AD0L090-2-2,00	2.00	2,800	5.7	9.5	55	0.69	9.5	A2	B3
	5.6					5.7	11	55	0.69	11	A2	B3
	8		AD0L090-2-2,30	2.30	2,800	6.0	14	55	0.72	14	A2	B3
	11					6.0	15	55	0.72	15	A2	B3
	16		VD0L112-4-0,30	0.30	1,400	1.2	2.3	8.0	0.60	2.3	A1	B1
	22					1.2	2.5	8.0	0.60	2.5	A1	B1
	32		VD0L112-4-0,60	0.60	1,400	2.3	4.0	17	0.53	4.0	A1	B1
	45					2.3	4.5	17	0.53	4.5	A1	B1
	63		VD0L112-2-1,00	1.00	2,800	3.2	6.1	33	0.68	6.1	A2	B2
	90					3.2	6.8	33	0.68	6.8	A2	B2
SA 16.2	4	570	AD0L112-4-2,00	2.00	1,400	6.0	10	40	0.65	10	A2	B2
	5.6					6.0	12	40	0.65	11	A2	B2
	8		AD0L112-2-3,50	3.50	2,800	8.5	18	90	0.78	18	A2	–
	11					8.5	21	90	0.78	20	A2	–
	16		AD0L112-2-4,00	4.00	2,800	9.0	23	90	0.81	20	A2	–
	22					9.0	31	90	0.81	20	A2	–
	32											
	45											
	63											
	90											
	125											
	180											

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.4	0.5	1.2	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.2	0.40	0.5	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.5	0.5	1.1	0.50	0.5	A1	B1
	13					0.5	0.5	1.1	0.50	0.5	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	0.6	0.7	2.0	0.43	0.7	A1	B1
	26					0.6	0.7	2.0	0.43	0.7	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	1.0	1.1	2.4	0.40	1.1	A1	B1
	54					1.0	1.1	2.4	0.40	1.1	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	0.8	1.1	4.3	0.55	1.1	A1	B1
	108					0.8	1.2	4.3	0.55	1.2	A1	B1
	150		AD0L063-2-0,21	0.21	3,360	0.8	1.4	4.3	0.70	1.4	A1	B1
SA 07.6	4.8	40	VD0L063-4-0,02	0.02	1,680	0.5	0.5	1.2	0.50	0.5	A1	B1
	6.7					0.5	0.5	1.2	0.50	0.5	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	0.6	0.6	1.7	0.45	0.6	A1	B1
	13					0.6	0.6	1.7	0.45	0.6	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	0.6	1.0	3.0	0.52	1.0	A1	B1
	26					0.6	1.0	3.0	0.52	1.0	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	1.4	1.8	4.2	0.40	1.8	A1	B1
	54					1.4	1.8	4.2	0.40	1.8	A1	B1
	75		AD0L063-2-0,28	0.28	3,360	1.3	1.9	6.8	0.53	1.9	A1	B1
	108					1.3	2.0	6.8	0.53	2.0	A1	B1
	150	30	AD0L063-2-0,35	0.35	3,360	1.4	2.4	6.8	0.60	2.4	A1	B1
SA 10.2	4.8		VD0L071-4-0,04	0.04	1,680	0.4	0.6	1.8	0.40	0.6	A1	B1
	6.7	90				0.4	0.6	1.8	0.40	0.6	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	1.0	1.1	3.1	0.40	1.1	A1	B1
	13					1.0	1.2	3.1	0.40	1.2	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	1.2	1.3	4.8	0.52	1.3	A1	B1
	26					1.2	1.6	4.8	0.52	1.6	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	1.9	2.4	8.6	0.43	2.4	A1	B1
	54					1.9	2.6	8.6	0.43	2.6	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	2.2	3.0	14	0.56	3.0	A1	B1
	108					2.2	3.8	14	0.56	3.8	A1	B1
	150	70	AD0L071-2-0,70	0.70	3,360	2.4	4.6	14	0.67	4.6	A1	B1
SA 14.2	4.8					2.4	4.8	14	0.67	4.8	A1	B1
	6.7	180	VD0L090-4-0,08	0.08	1,680	0.5	0.7	3.1	0.60	0.7	A1	B1
	9.6					0.5	0.8	3.1	0.60	0.8	A1	B1
	13		VD0L090-4-0,18	0.18	1,680	1.1	1.7	5.0	0.60	1.7	A1	B1
	19					1.1	1.8	5.0	0.60	1.8	A1	B1
	26		VD0L090-2-0,30	0.30	3,360	1.1	2.4	8.6	0.68	2.4	A1	B1
	38					1.1	2.8	8.6	0.68	2.8	A1	B1
	54		AD0L090-4-0,50	0.50	1,680	2.4	3.6	14	0.56	3.6	A1	B1
	75					2.4	4.2	14	0.56	4.2	A1	B1
	108		AD0L090-2-1,00	1.00	3,360	3.7	6.6	34	0.65	6.6	A2	B2
	150	140				3.7	7.2	34	0.65	7.2	A2	B2
SA 14.6	4.8		AD0L090-2-1,30	1.30	3,360	4.2	9.8	34	0.73	9.7	A2	B2
	6.7	360				4.2	9.8	34	0.73	9.7	A2	B2
	9.6		VD0L090-4-0,14	0.14	1,680	0.8	1.3	4.7	0.55	1.3	A1	B1
	13					0.8	1.4	4.7	0.55	1.4	A1	B1
	19		VD0L090-4-0,30	0.30	1,680	1.9	3.0	10	0.52	3.0	A1	B1
	26					1.9	3.4	10	0.52	3.4	A1	B1
	38		VD0L090-2-0,60	0.60	3,360	2.8	4.3	18	0.61	4.3	A1	B1
	54					2.8	4.6	18	0.61	4.6	A1	B1
	75		AD0L090-4-1,00	1.00	1,680	4.3	7.2	36	0.60	7.2	A2	B2
	108					4.3	7.8	36	0.60	7.8	A2	B2
	150	290	AD0L090-2-2,00	2.00	3,360	6.8	11	66	0.69	11	A2	–
SA 16.2	4.8					6.8	13	66	0.69	13	A2	–
	6.7	710	AD0L090-2-2,30	2.30	3,360	7.2	17	66	0.72	17	A2	–
	9.6					7.2	18	66	0.72	18	A2	–
	13		VD0L112-4-0,30	0.30	1,680	1.4	2.8	9.6	0.60	2.8	A1	B1
	19					1.4	3.0	9.6	0.60	3.0	A1	B1
	26		VD0L112-4-0,60	0.60	1,680	2.8	4.8	20	0.53	4.8	A1	B2
	38					2.8	5.4	20	0.53	5.4	A1	B2
	54		VD0L112-2-1,00	1.00	3,360	3.8	7.3	40	0.68	7.3	A2	B2
	75					3.8	8.2	40	0.68	8.2	A2	B2
	108		AD0L112-4-2,00	2.00	1,680	7.2	12	48	0.65	12	A2	B3
	150	570				7.2	14	48	0.65	14	A2	B3
SA 16.2	4.8		AD0L112-2-3,50	3.50	3,360	10	22	108	0.78	22	A2	–
	6.7					10	25	108	0.78	24	A2	–
SA 16.2	9.6		AD0L112-2-4,00	4.00	3,360	11	28	108	0.81	24	A2	–
	13					11	37	108	0.81	24	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4	20	VD0L063-4-0,01	0.01	1,400	0.3	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.3	0.4	1.0	0.40	0.4	A1	B1
	8		VD0L063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	11					0.4	0.4	0.9	0.50	0.4	A1	B1
	16		VD0L063-2-0,04	0.04	2,800	0.5	0.6	1.6	0.43	0.6	A1	B1
	22					0.5	0.6	1.6	0.43	0.6	A1	B1
	32		AD0L063-4-0,07	0.07	1,400	0.8	0.9	1.9	0.40	0.9	A1	B1
	45					0.8	0.9	1.9	0.40	0.9	A1	B1
	63		AD0L063-2-0,14	0.14	2,800	0.7	0.9	3.5	0.55	0.9	A1	B1
	90					0.7	1.0	3.5	0.55	1.0	A1	B1
SA 07.6	125	40	AD0L063-2-0,21	0.21	2,800	0.7	1.2	3.5	0.70	1.2	A1	B1
	180					0.7	1.3	3.5	0.70	1.3	A1	B1
	4		VD0L063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.50	0.4	A1	B1
	8		VD0L063-4-0,04	0.04	1,400	0.5	0.5	1.3	0.45	0.5	A1	B1
	11					0.5	0.5	1.3	0.45	0.5	A1	B1
	16		VD0L063-2-0,08	0.08	2,800	0.5	0.8	2.4	0.52	0.8	A1	B1
	22					0.5	0.8	2.4	0.52	0.8	A1	B1
	32		AD0L063-4-0,14	0.14	1,400	1.2	1.4	3.4	0.40	1.4	A1	B1
	45					1.2	1.4	3.4	0.40	1.4	A1	B1
SA 10.2	63	90	AD0L063-2-0,28	0.28	2,800	1.1	1.5	5.5	0.53	1.5	A1	B1
	90					1.1	1.6	5.5	0.53	1.6	A1	B1
	125		AD0L063-2-0,35	0.35	2,800	1.2	1.9	5.5	0.60	1.9	A1	B1
	180					1.2	1.9	5.5	0.60	1.9	A1	B1
	4	30	VD0L071-4-0,04	0.04	1,400	0.3	0.5	1.4	0.40	0.5	A1	B1
	5.6					0.3	0.5	1.4	0.40	0.5	A1	B1
	8		VD0L071-4-0,08	0.08	1,400	0.8	0.9	2.5	0.40	0.9	A1	B1
	11					0.8	1.0	2.5	0.40	1.0	A1	B1
	16		VD0L071-2-0,17	0.17	2,800	1.0	1.1	3.9	0.52	1.1	A1	B1
	22					1.0	1.3	3.9	0.52	1.3	A1	B1
	32		AD0L071-4-0,28	0.28	1,400	1.5	1.9	6.9	0.43	1.9	A1	B1
	45					1.5	2.1	6.9	0.43	2.1	A1	B1
	63		AD0L071-2-0,50	0.50	2,800	1.7	2.4	12	0.56	2.4	A1	B1
	90					1.7	3.1	12	0.56	3.1	A1	B1
SA 14.2	125	70	AD0L071-2-0,70	0.70	2,800	1.9	3.7	12	0.67	3.7	A1	B1
	180					1.9	3.9	12	0.67	3.9	A1	B1
	4	180	VD0L090-4-0,08	0.08	1,400	0.4	0.6	2.5	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.5	0.60	0.7	A1	B1
	8		VD0L090-4-0,18	0.18	1,400	0.9	1.3	4.0	0.60	1.3	A1	B1
	11					0.9	1.4	4.0	0.60	1.4	A1	B1
	16		VD0L090-2-0,30	0.30	2,800	0.9	1.9	6.9	0.68	1.9	A1	B1
	22					0.9	2.2	6.9	0.68	2.2	A1	B1
	32		AD0L090-4-0,50	0.50	1,400	1.9	2.9	12	0.56	2.9	A1	B1
	45					1.9	3.4	12	0.56	3.4	A1	B1
	63		AD0L090-2-1,00	1.00	2,800	3.0	5.3	27	0.65	5.3	A2	B2
	90					3.0	5.8	27	0.65	5.8	A2	B2
SA 14.6	125	140	AD0L090-2-1,30	1.30	2,800	3.4	7.9	27	0.73	7.7	A2	B2
	180					3.4	7.9	27	0.73	7.7	A2	B2
	4	360	VD0L090-4-0,14	0.14	1,400	0.7	1.1	3.8	0.55	1.1	A1	B1
	5.6					0.7	1.2	3.8	0.55	1.2	A1	B1
	8		VD0L090-4-0,30	0.30	1,400	1.5	2.4	8.2	0.52	2.4	A1	B1
	11					1.5	2.7	8.2	0.52	2.7	A1	B1
	16		VD0L090-2-0,60	0.60	2,800	2.2	3.5	14	0.61	3.5	A1	B1
	22					2.2	3.7	14	0.61	3.7	A1	B1
	32		AD0L090-4-1,00	1.00	1,400	3.5	5.8	29	0.60	5.8	A2	B2
	45					3.5	6.3	29	0.60	6.3	A2	B2
	63		AD0L090-2-2,00	2.00	2,800	5.5	9.2	53	0.69	9.2	A2	B3
	90					5.5	11	53	0.69	11	A2	B3
SA 16.2	125	290	AD0L090-2-2,30	2.30	2,800	5.8	13	53	0.72	13	A2	B3
	180					5.8	14	53	0.72	14	A2	B3
	4	710	VD0L112-4-0,30	0.30	1,400	1.2	2.2	7.7	0.60	2.2	A1	B1
	5.6					1.2	2.4	7.7	0.60	2.4	A1	B1
	8		VD0L112-4-0,60	0.60	1,400	2.2	3.9	16	0.53	3.9	A1	B1
	11					2.2	4.3	16	0.53	4.3	A1	B1
	16		VD0L112-2-1,00	1.00	2,800	3.1	5.9	32	0.68	5.9	A2	B2
	22					3.1	6.6	32	0.68	6.6	A2	B2
	32		AD0L112-4-2,00	2.00	1,400	5.8	9.6	39	0.65	9.6	A2	B2
	45					5.8	12	39	0.65	11	A2	B2
	63		AD0L112-2-3,50	3.50	2,800	8.2	17	87	0.78	17	A2	–
	90					8.2	20	87	0.78	19	A2	–
SA 16.2	125	570	AD0L112-2-4,00	4.00	2,800	8.7	22	87	0.81	19	A2	–
	180					8.7	30	87	0.81	19	A2	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.4	0.4	1.1	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.40	0.4	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.4	1.0	0.50	0.4	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	0.5	0.7	1.9	0.43	0.7	A1	B1
	26					0.5	0.7	1.9	0.43	0.7	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	0.9	1.0	2.2	0.40	1.0	A1	B1
	54					0.9	1.0	2.2	0.40	1.0	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	0.8	1.0	3.9	0.55	1.0	A1	B1
	108					0.8	1.1	3.9	0.55	1.1	A1	B1
	150		AD0L063-2-0,21	0.21	3,360	0.8	1.3	3.9	0.70	1.3	A1	B1
SA 07.6	4.8	40	VD0L063-4-0,02	0.02	1,680	0.4	0.4	1.1	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.50	0.4	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	0.5	0.5	1.5	0.45	0.5	A1	B1
	13					0.5	0.5	1.5	0.45	0.5	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	0.5	0.9	2.7	0.52	0.9	A1	B1
	26					0.5	0.9	2.7	0.52	0.9	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	1.3	1.6	3.8	0.40	1.6	A1	B1
	54					1.3	1.6	3.8	0.40	1.6	A1	B1
	75		AD0L063-2-0,28	0.28	3,360	1.2	1.7	6.2	0.53	1.7	A1	B1
	108					1.2	1.9	6.2	0.53	1.9	A1	B1
	150		AD0L063-2-0,35	0.35	3,360	1.3	2.2	6.2	0.60	2.2	A1	B1
SA 10.2	4.8	90	VD0L071-4-0,04	0.04	1,680	0.4	0.5	1.6	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.6	0.40	0.5	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	0.9	1.0	2.8	0.40	1.0	A1	B1
	13					0.9	1.1	2.8	0.40	1.1	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	1.1	1.2	4.4	0.52	1.2	A1	B1
	26					1.1	1.4	4.4	0.52	1.4	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	1.7	2.2	7.9	0.43	2.2	A1	B1
	54					1.7	2.4	7.9	0.43	2.4	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	2.0	2.7	13	0.56	2.7	A1	B1
	108					2.0	3.5	13	0.56	3.5	A1	B1
	150		AD0L071-2-0,70	0.70	3,360	2.2	4.1	13	0.67	4.1	A1	B1
SA 14.2	4.8	180	VD0L090-4-0,08	0.08	1,680	0.4	0.7	2.8	0.60	0.7	A1	B1
	6.7					0.4	0.8	2.8	0.60	0.8	A1	B1
	9.6		VD0L090-4-0,18	0.18	1,680	1.0	1.5	4.6	0.60	1.5	A1	B1
	13					1.0	1.6	4.6	0.60	1.6	A1	B1
	19		VD0L090-2-0,30	0.30	3,360	1.0	2.2	7.9	0.68	2.2	A1	B1
	26					1.0	2.5	7.9	0.68	2.5	A1	B1
	38		AD0L090-4-0,50	0.50	1,680	2.2	3.3	13	0.56	3.3	A1	B1
	54					2.2	3.8	13	0.56	3.8	A1	B1
	75		AD0L090-2-1,00	1.00	3,360	3.4	6.0	31	0.65	6.0	A2	B2
	108					3.4	6.5	31	0.65	6.5	A2	B2
	150		AD0L090-2-1,30	1.30	3,360	3.8	8.9	31	0.73	8.8	A2	B2
SA 14.6	4.8	360	VD0L090-4-0,14	0.14	1,680	0.8	1.2	4.3	0.55	1.2	A1	B1
	6.7					0.8	1.3	4.3	0.55	1.3	A1	B1
	9.6		VD0L090-4-0,30	0.30	1,680	1.7	2.7	9.3	0.52	2.7	A1	B1
	13					1.7	3.1	9.3	0.52	3.1	A1	B1
	19		VD0L090-2-0,60	0.60	3,360	2.5	3.9	16	0.61	3.9	A1	B1
	26					2.5	4.1	16	0.61	4.1	A1	B1
	38		AD0L090-4-1,00	1.00	1,680	3.9	6.5	33	0.60	6.5	A2	B2
	54					3.9	7.1	33	0.60	7.1	A2	B2
	75		AD0L090-2-2,00	2.00	3,360	6.2	10	60	0.69	10	A2	B3
	108					6.2	12	60	0.69	12	A2	B3
	150		AD0L090-2-2,30	2.30	3,360	6.5	15	60	0.72	15	A2	B3
SA 16.2	4.8	710	VD0L112-4-0,30	0.30	1,680	1.3	2.5	8.7	0.60	2.5	A1	B1
	6.7					1.3	2.7	8.7	0.60	2.7	A1	B1
	9.6		VD0L112-4-0,60	0.60	1,680	2.5	4.4	19	0.53	4.4	A1	B2
	13					2.5	4.9	19	0.53	4.9	A1	B2
	19		VD0L112-2-1,00	1.00	3,360	3.5	6.7	36	0.68	6.7	A2	B2
	26					3.5	7.4	36	0.68	7.4	A2	B2
	38		AD0L112-4-2,00	2.00	1,680	6.5	11	44	0.65	11	A2	B2
	54					6.5	13	44	0.65	13	A2	B2
	75		AD0L112-2-3,50	3.50	3,360	9.3	20	98	0.78	20	A2	–
	108					9.3	23	98	0.78	21	A2	–
	150		AD0L112-2-4,00	4.00	3,360	9.8	25	98	0.81	21	A2	–
SA 16.2	216					9.8	34	98	0.81	21	A2	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.4	0.4	0.9	0.50	0.4	A1	B1
	13					0.4	0.4	0.9	0.50	0.4	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	0.5	0.6	1.8	0.43	0.6	A1	B1
	26					0.5	0.6	1.8	0.43	0.6	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	0.8	0.9	2.1	0.40	0.9	A1	B1
	54					0.8	0.9	2.1	0.40	0.9	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	0.7	0.9	3.8	0.55	0.9	A1	B1
	108					0.7	1.0	3.8	0.55	1.0	A1	B1
	150		AD0L063-2-0,21	0.21	3,360	0.7	1.3	3.8	0.70	1.3	A1	B1
SA 07.6	4.8	40	VD0L063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.50	0.4	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	0.5	0.5	1.5	0.45	0.5	A1	B1
	13					0.5	0.5	1.5	0.45	0.5	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	0.5	0.8	2.6	0.52	0.8	A1	B1
	26					0.5	0.8	2.6	0.52	0.8	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	1.3	1.6	3.7	0.40	1.6	A1	B1
	54					1.3	1.6	3.7	0.40	1.6	A1	B1
	75		AD0L063-2-0,28	0.28	3,360	1.1	1.7	5.9	0.53	1.7	A1	B1
	108					1.1	1.8	5.9	0.53	1.8	A1	B1
	150		AD0L063-2-0,35	0.35	3,360	1.3	2.1	5.9	0.60	2.1	A1	B1
SA 10.2	4.8	90	VD0L071-4-0,04	0.04	1,680	0.4	0.5	1.6	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.6	0.40	0.5	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	0.8	0.9	2.7	0.40	0.9	A1	B1
	13					0.8	1.0	2.7	0.40	1.0	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	1.0	1.1	4.2	0.52	1.1	A1	B1
	26					1.0	1.4	4.2	0.52	1.4	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	1.7	2.1	7.5	0.43	2.1	A1	B1
	54					1.7	2.3	7.5	0.43	2.3	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	1.9	2.6	13	0.56	2.6	A1	B1
	108					1.9	3.3	13	0.56	3.3	A1	B1
	150		AD0L071-2-0,70	0.70	3,360	2.1	4.0	13	0.67	4.0	A1	B1
SA 14.2	4.8	180	VD0L090-4-0,08	0.08	1,680	0.4	0.6	2.7	0.60	0.6	A1	B1
	6.7					0.4	0.7	2.7	0.60	0.7	A1	B1
	9.6		VD0L090-4-0,18	0.18	1,680	0.9	1.5	4.4	0.60	1.5	A1	B1
	13					0.9	1.6	4.4	0.60	1.6	A1	B1
	19		VD0L090-2-0,30	0.30	3,360	0.9	2.1	7.5	0.68	2.1	A1	B1
	26					0.9	2.4	7.5	0.68	2.4	A1	B1
	38		AD0L090-4-0,50	0.50	1,680	2.1	3.1	13	0.56	3.1	A1	B1
	54					2.1	3.7	13	0.56	3.7	A1	B1
	75		AD0L090-2-1,00	1.00	3,360	3.2	5.7	29	0.65	5.7	A2	B2
	108					3.2	6.3	29	0.65	6.3	A2	B2
	150		AD0L090-2-1,30	1.30	3,360	3.7	8.6	29	0.73	8.3	A2	B2
SA 14.6	4.8	360	VD0L090-4-0,14	0.14	1,680	0.7	1.1	4.1	0.55	1.1	A1	B1
	6.7					0.7	1.3	4.1	0.55	1.3	A1	B1
	9.6		VD0L090-4-0,30	0.30	1,680	1.7	2.6	8.9	0.52	2.6	A1	B1
	13					1.7	2.9	8.9	0.52	2.9	A1	B1
	19		VD0L090-2-0,60	0.60	3,360	2.4	3.8	16	0.61	3.8	A1	B1
	26					2.4	4.0	16	0.61	4.0	A1	B1
	38		AD0L090-4-1,00	1.00	1,680	3.8	6.3	31	0.60	6.3	A2	B2
	54					3.8	6.8	31	0.60	6.8	A2	B2
	75		AD0L090-2-2,00	2.00	3,360	5.9	9.9	57	0.69	9.9	A2	B3
	108					5.9	12	57	0.69	12	A2	B3
	150		AD0L090-2-2,30	2.30	3,360	6.3	15	57	0.72	15	A2	B3
SA 16.2	4.8	710	VD0L112-4-0,30	0.30	1,680	1.3	2.4	8.3	0.60	2.4	A1	B1
	6.7					1.3	2.6	8.3	0.60	2.6	A1	B1
	9.6		VD0L112-4-0,60	0.60	1,680	2.4	4.2	18	0.53	4.2	A1	B1
	13					2.4	4.7	18	0.53	4.7	A1	B1
	19		VD0L112-2-1,00	1.00	3,360	3.3	6.4	34	0.68	6.4	A2	B2
	26					3.3	7.1	34	0.68	7.1	A2	B2
	38		AD0L112-4-2,00	2.00	1,680	6.3	10	42	0.65	10	A2	B2
	54					6.3	13	42	0.65	12	A2	B2
	75		AD0L112-2-3,50	3.50	3,360	8.9	19	94	0.78	19	A2	–
	108					8.9	22	94	0.78	21	A2	–
	150		AD0L112-2-4,00	4.00	3,360	9.4	24	94	0.81	21	A2	–
SA 16.2	216					9.4	32	94	0.81	21	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 30 min, 480 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4.8	20	VD0L063-4-0,01	0.01	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0L063-4-0,03	0.03	1,680	0.4	0.4	0.9	0.50	0.4	A1	B1
	13					0.4	0.4	0.9	0.50	0.4	A1	B1
	19		VD0L063-2-0,04	0.04	3,360	0.5	0.6	1.7	0.43	0.6	A1	B1
	26					0.5	0.6	1.7	0.43	0.6	A1	B1
	38		AD0L063-4-0,07	0.07	1,680	0.8	0.9	2.0	0.40	0.9	A1	B1
	54					0.8	0.9	2.0	0.40	0.9	A1	B1
	75		AD0L063-2-0,14	0.14	3,360	0.7	0.9	3.6	0.55	0.9	A1	B1
	108					0.7	1.0	3.6	0.55	1.0	A1	B1
	150		AD0L063-2-0,21	0.21	3,360	0.7	1.2	3.6	0.70	1.2	A1	B1
SA 07.6	4.8	40	VD0L063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.50	0.4	A1	B1
	9.6		VD0L063-4-0,04	0.04	1,680	0.5	0.5	1.4	0.45	0.5	A1	B1
	13					0.5	0.5	1.4	0.45	0.5	A1	B1
	19		VD0L063-2-0,08	0.08	3,360	0.5	0.8	2.5	0.52	0.8	A1	B1
	26					0.5	0.8	2.5	0.52	0.8	A1	B1
	38		AD0L063-4-0,14	0.14	1,680	1.2	1.5	3.5	0.40	1.5	A1	B1
	54					1.2	1.5	3.5	0.40	1.5	A1	B1
	75		AD0L063-2-0,28	0.28	3,360	1.1	1.6	5.7	0.53	1.6	A1	B1
	108					1.1	1.7	5.7	0.53	1.7	A1	B1
	150		AD0L063-2-0,35	0.35	3,360	1.2	2.0	5.7	0.60	2.0	A1	B1
SA 10.2	4.8	90	VD0L071-4-0,04	0.04	1,680	0.4	0.5	1.5	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.5	0.40	0.5	A1	B1
	9.6		VD0L071-4-0,08	0.08	1,680	0.8	0.9	2.6	0.40	0.9	A1	B1
	13					0.8	1.0	2.6	0.40	1.0	A1	B1
	19		VD0L071-2-0,17	0.17	3,360	1.0	1.1	4.0	0.52	1.1	A1	B1
	26					1.0	1.3	4.0	0.52	1.3	A1	B1
	38		AD0L071-4-0,28	0.28	1,680	1.6	2.0	7.2	0.43	2.0	A1	B1
	54					1.6	2.2	7.2	0.43	2.2	A1	B1
	75		AD0L071-2-0,50	0.50	3,360	1.8	2.5	12	0.56	2.5	A1	B1
	108					1.8	3.2	12	0.56	3.2	A1	B1
	150		AD0L071-2-0,70	0.70	3,360	2.0	3.8	12	0.67	3.8	A1	B1
SA 14.2	4.8	180	VD0L090-4-0,08	0.08	1,680	0.4	0.6	2.6	0.60	0.6	A1	B1
	6.7					0.4	0.7	2.6	0.60	0.7	A1	B1
	9.6		VD0L090-4-0,18	0.18	1,680	0.9	1.4	4.2	0.60	1.4	A1	B1
	13					0.9	1.5	4.2	0.60	1.5	A1	B1
	19		VD0L090-2-0,30	0.30	3,360	0.9	2.0	7.2	0.68	2.0	A1	B1
	26					0.9	2.3	7.2	0.68	2.3	A1	B1
	38		AD0L090-4-0,50	0.50	1,680	2.0	3.0	12	0.56	3.0	A1	B1
	54					2.0	3.5	12	0.56	3.5	A1	B1
	75		AD0L090-2-1,00	1.00	3,360	3.1	5.5	28	0.65	5.5	A2	B2
	108					3.1	6.0	28	0.65	6.0	A2	B2
	150		AD0L090-2-1,30	1.30	3,360	3.5	8.2	28	0.73	8.0	A2	B2
SA 14.6	4.8	360	VD0L090-4-0,14	0.14	1,680	0.7	1.1	3.9	0.55	1.1	A1	B1
	6.7					0.7	1.2	3.9	0.55	1.2	A1	B1
	9.6		VD0L090-4-0,30	0.30	1,680	1.6	2.5	8.5	0.52	2.5	A1	B1
	13					1.6	2.8	8.5	0.52	2.8	A1	B1
	19		VD0L090-2-0,60	0.60	3,360	2.3	3.6	15	0.61	3.6	A1	B1
	26					2.3	3.8	15	0.61	3.8	A1	B1
	38		AD0L090-4-1,00	1.00	1,680	3.6	6.0	30	0.60	6.0	A2	B2
	54					3.6	6.5	30	0.60	6.5	A2	B2
	75		AD0L090-2-2,00	2.00	3,360	5.7	9.5	55	0.69	9.5	A2	B3
	108					5.7	11	55	0.69	11	A2	B3
	150		AD0L090-2-2,30	2.30	3,360	6.0	14	55	0.72	14	A2	B3
SA 16.2	4.8	710	VD0L112-4-0,30	0.30	1,680	1.2	2.3	8.0	0.60	2.3	A1	B1
	6.7					1.2	2.5	8.0	0.60	2.5	A1	B1
	9.6		VD0L112-4-0,60	0.60	1,680	2.3	4.0	17	0.53	4.0	A1	B1
	13					2.3	4.5	17	0.53	4.5	A1	B1
	19		VD0L112-2-1,00	1.00	3,360	3.2	6.1	33	0.68	6.1	A2	B2
	26					3.2	6.8	33	0.68	6.8	A2	B2
	38		AD0L112-4-2,00	2.00	1,680	6.0	10	40	0.65	10	A2	B2
	54					6.0	12	40	0.65	11	A2	B2
	75		AD0L112-2-3,50	3.50	3,360	8.5	18	90	0.78	18	A2	–
	108					8.5	21	90	0.78	20	A2	–
	150		AD0L112-2-4,00	4.00	3,360	9.0	23	90	0.81	20	A2	–
SA 16.2	216					9.0	31	90	0.81	20	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SA 07.2 – SA 16.2

Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 30 min, 500 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurr. prot. device setting [A]	AUMA power class for switchgear	
SA 07.2	4	20	VD0L063-4-0,01	0.01	1,400	0.3	0.3	0.8	0.40	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.40	0.3	A1	B1
	8		VD0L063-4-0,03	0.03	1,400	0.3	0.3	0.7	0.50	0.3	A1	B1
	11					0.3	0.3	0.7	0.50	0.3	A1	B1
	16		VD0L063-2-0,04	0.04	2,800	0.4	0.5	1.4	0.43	0.5	A1	B1
	22					0.4	0.5	1.4	0.43	0.5	A1	B1
	32		AD0L063-4-0,07	0.07	1,400	0.6	0.7	1.6	0.40	0.7	A1	B1
	45					0.6	0.7	1.6	0.40	0.7	A1	B1
	63		AD0L063-2-0,14	0.14	2,800	0.6	0.7	2.9	0.55	0.7	A1	B1
	90					0.6	0.8	2.9	0.55	0.8	A1	B1
SA 07.6	125	40	AD0L063-2-0,21	0.21	2,800	0.6	1.0	2.9	0.70	1.0	A1	B1
	180					0.6	1.1	2.9	0.70	1.1	A1	B1
	4		VD0L063-4-0,02	0.02	1,400	0.3	0.3	0.8	0.50	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.50	0.3	A1	B1
	8		VD0L063-4-0,04	0.04	1,400	0.4	0.4	1.1	0.45	0.4	A1	B1
	11					0.4	0.4	1.1	0.45	0.4	A1	B1
	16		VD0L063-2-0,08	0.08	2,800	0.4	0.6	2.0	0.52	0.6	A1	B1
	22					0.4	0.6	2.0	0.52	0.6	A1	B1
	32		AD0L063-4-0,14	0.14	1,400	1.0	1.2	2.8	0.40	1.2	A1	B1
	45					1.0	1.2	2.8	0.40	1.2	A1	B1
SA 10.2	63	90	AD0L063-2-0,28	0.28	2,800	0.9	1.3	4.6	0.53	1.3	A1	B1
	90					0.9	1.4	4.6	0.53	1.4	A1	B1
	125		AD0L063-2-0,35	0.35	2,800	1.0	1.6	4.6	0.60	1.6	A1	B1
	180					1.0	1.6	4.6	0.60	1.6	A1	B1
	4	30	VD0L071-4-0,04	0.04	1,400	0.3	0.4	1.2	0.40	0.4	A1	B1
	5.6					0.3	0.4	1.2	0.40	0.4	A1	B1
	8		VD0L071-4-0,08	0.08	1,400	0.6	0.7	2.1	0.40	0.7	A1	B1
	11					0.6	0.8	2.1	0.40	0.8	A1	B1
	16		VD0L071-2-0,17	0.17	2,800	0.8	0.9	3.2	0.52	0.9	A1	B1
	22					0.8	1.0	3.2	0.52	1.0	A1	B1
	32		AD0L071-4-0,28	0.28	1,400	1.3	1.6	5.8	0.43	1.6	A1	B1
	45					1.3	1.8	5.8	0.43	1.8	A1	B1
	63		AD0L071-2-0,50	0.50	2,800	1.4	2.0	9.6	0.56	2.0	A1	B1
	90					1.4	2.6	9.6	0.56	2.6	A1	B1
SA 14.2	125	70	AD0L071-2-0,70	0.70	2,800	1.6	3.0	9.6	0.67	3.0	A1	B1
	180					1.6	3.2	9.6	0.67	3.2	A1	B1
	4	180	VD0L090-4-0,08	0.08	1,400	0.3	0.5	2.1	0.60	0.5	A1	B1
	5.6					0.3	0.6	2.1	0.60	0.6	A1	B1
	8		VD0L090-4-0,18	0.18	1,400	0.7	1.1	3.4	0.60	1.1	A1	B1
	11					0.7	1.2	3.4	0.60	1.2	A1	B1
	16		VD0L090-2-0,30	0.30	2,800	0.7	1.6	5.8	0.68	1.6	A1	B1
	22					0.7	1.8	5.8	0.68	1.8	A1	B1
	32		AD0L090-4-0,50	0.50	1,400	1.6	2.4	9.6	0.56	2.4	A1	B1
	45					1.6	2.8	9.6	0.56	2.8	A1	B1
	63		AD0L090-2-1,00	1.00	2,800	2.5	4.4	22	0.65	4.4	A2	B2
	90					2.5	4.8	22	0.65	4.8	A2	B2
SA 14.6	125	140	AD0L090-2-1,30	1.30	2,800	2.8	6.6	22	0.73	6.6	A2	B2
	180					2.8	6.6	22	0.73	6.6	A2	B2
	4	360	VD0L090-4-0,14	0.14	1,400	0.6	0.9	3.1	0.55	0.9	A1	B1
	5.6					0.6	1.0	3.1	0.55	1.0	A1	B1
	8		VD0L090-4-0,30	0.30	1,400	1.3	2.0	6.8	0.52	2.0	A1	B1
	11					1.3	2.2	6.8	0.52	2.2	A1	B1
	16		VD0L090-2-0,60	0.60	2,800	1.8	2.9	12	0.61	2.9	A1	B1
	22					1.8	3.0	12	0.61	3.0	A1	B1
	32		AD0L090-4-1,00	1.00	1,400	2.9	4.8	24	0.60	4.8	A2	B2
	45					2.9	5.2	24	0.60	5.2	A2	B2
	63		AD0L090-2-2,00	2.00	2,800	4.6	7.6	44	0.69	7.6	A2	B2
	90					4.6	8.8	44	0.69	8.8	A2	B2
SA 16.2	125	290	AD0L090-2-2,30	2.30	2,800	4.8	11	44	0.72	11	A2	B2
	180					4.8	12	44	0.72	12	A2	B2
	4	710	VD0L112-4-0,30	0.30	1,400	1.0	1.8	6.4	0.60	1.8	A1	B1
	5.6					1.0	2.0	6.4	0.60	2.0	A1	B1
	8		VD0L112-4-0,60	0.60	1,400	1.8	3.2	14	0.53	3.2	A1	B1
	11					1.8	3.6	14	0.53	3.6	A1	B1
	16		VD0L112-2-1,00	1.00	2,800	2.6	4.9	26	0.68	4.9	A2	B2
	22					2.6	5.4	26	0.68	5.4	A2	B2
	32		AD0L112-4-2,00	2.00	1,400	4.8	8.0	32	0.65	8.0	A2	B2
	45					4.8	9.6	32	0.65	8.9	A2	B2
	63		AD0L112-2-3,50	3.50	2,800	6.8	14	72	0.78	14	A2	–
	90					6.8	17	72	0.78	16	A2	–
SA 16.2	125	570	AD0L112-2-4,00	4.00	2,800	7.2	18	72	0.81	16	A2	–
	180					7.2	25	72	0.81	16	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 220 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1 680	0.9	0.9	2.2	0.40	0.9	A1	B1
	6.7					0.9	0.9	2.2	0.40	0.9	A1	B1
	9.6					0.9	0.9	2.2	0.50	0.9	A1	B1
	13		VD0R063-4-0,04	0.04	1,680	0.9	1.1	2.2	0.50	1.1	A1	B1
	19					1.3	1.3	4.1	0.42	1.3	A1	B1
	26					1.3	1.4	4.1	0.42	1.4	A1	B1
	38		VD0R063-2-0,06	0.06	3,360	2.1	2.1	5.2	0.42	2.1	A1	B1
	54					2.1	2.2	5.2	0.42	2.2	A1	B1
	75					1.7	2.6	9.6	0.60	2.6	A1	B1
SAR 07.6	4.8	60	VD0R063-4-0,03	0.03	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6					1.3	1.4	3.5	0.38	1.4	A1	B1
	13		VD0R063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	19					1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38		VD0R063-2-0,12	0.12	3,360	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75					3.9	5.0	20	0.53	5.0	A1	B2
SAR 10.2	4.8	120	VD0R071-4-0,06	0.06	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6					1.3	1.4	3.5	0.38	1.4	A1	B1
	13		VD0R071-4-0,12	0.12	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	19					1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38		VD0R071-2-0,25	0.25	3,360	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75					3.9	5.0	20	0.53	5.0	A1	B2
SAR 14.2	4.8	250	VD0R090-4-0,12	0.12	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6					1.3	1.4	3.5	0.38	1.4	A1	B1
	13		VD0R090-4-0,25	0.25	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	19					1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38		VD0R090-2-0,45	0.45	3,360	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75					3.9	5.0	20	0.53	5.0	A1	B2
SAR 14.6	4.8	500	VD0R090-4-0,06	0.06	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6					1.3	1.4	3.5	0.38	1.4	A1	B1
	13		VD0R090-4-0,25	0.25	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	19					1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38		VD0R090-2-0,45	0.45	3,360	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75					3.9	5.0	20	0.53	5.0	A1	B2
SAR 16.2	4.8	1 000	VD0R112-4-0,12	0.12	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	6.7					0.9	1.1	2.2	0.43	1.1	A1	B1
	9.6					1.3	1.4	3.5	0.38	1.4	A1	B1
	13		VD0R112-4-0,25	0.25	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	19					1.5	2.0	6.5	0.52	2.0	A1	B1
	26					1.5	2.2	6.5	0.52	2.2	A1	B1
	38		VD0R112-2-1,50	1.50	3,360	3.5	4.1	10	0.42	4.1	A1	B1
	54					3.5	4.4	10	0.42	4.4	A1	B1
	75					3.9	5.0	20	0.53	5.0	A1	B2

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 230 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.40	0.7	A1	B1
	5.6					0.7	0.7	1.7	0.40	0.7	A1	B1
	8					0.7	0.7	1.7	0.50	0.7	A1	B1
	11		VD0R063-4-0,04	0.04	1,400	0.7	0.9	1.7	0.50	0.9	A1	B1
	16					1.0	1.0	3.3	0.42	1.0	A1	B1
	22					1.0	1.1	3.3	0.42	1.1	A1	B1
	32		VD0R063-2-0,06	0.06	2,800	1.7	1.7	4.2	0.42	1.7	A1	B1
	45					1.7	1.7	4.2	0.42	1.7	A1	B1
	63					1.4	2.1	7.7	0.60	2.1	A1	B1
SAR 07.6	4	60	VD0R063-4-0,03	0.03	1,400	0.7	0.9	1.7	0.43	0.9	A1	B1
	5.6					0.7	0.9	1.7	0.43	0.9	A1	B1
	8					1.0	1.1	2.8	0.38	1.1	A1	B1
	11		VD0R063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1
	16					1.2	1.6	5.2	0.52	1.6	A1	B1
	22					1.2	1.7	5.2	0.52	1.7	A1	B1
	32		VD0R063-2-0,12	0.12	2,800	2.8	3.3	8.0	0.42	3.3	A1	B1
	45					2.8	3.5	8.0	0.42	3.5	A1	B1
	63					3.1	4.0	16	0.53	4.0	A1	B1
SAR 10.2	4	120	VD0R071-4-0,06	0.06	1,400	0.9	1.0	3.5	0.40	1.0	A1	B1
	5.6					0.9	1.0	3.5	0.40	1.0	A1	B1
	8					1.7	1.9	5.2	0.40	1.9	A1	B1
	11		VD0R071-4-0,12	0.12	1,400	1.7	2.1	5.2	0.40	2.1	A1	B1
	16					2.3	2.6	7.8	0.52	2.6	A1	B1
	22					2.3	3.1	7.8	0.52	3.1	A1	B1
	32		VD0R071-2-0,25	0.25	2,800	4.3	4.5	15	0.42	4.5	A1	B1
	45					4.3	5.2	15	0.42	5.2	A1	B1
	63					5.2	7.0	28	0.54	7.0	A1	B2
SAR 14.2	4	250	VD0R090-4-0,12	0.12	1,400	0.9	1.4	4.9	0.60	1.4	A1	B1
	5.6					0.9	1.7	4.9	0.60	1.7	A1	B1
	8					1.7	2.8	9.0	0.60	2.8	A1	B1
	11		VD0R090-4-0,25	0.25	1,400	1.7	3.0	9.0	0.60	3.0	A1	B1
	16					2.6	5.2	16	0.64	5.2	A1	B1
	22					2.6	6.1	16	0.64	6.1	A1	B1
	32		VD0R090-2-0,45	0.45	2,800	4.5	7.5	28	0.62	7.5	A1	B2
	45					4.5	8.7	28	0.62	8.7	A1	B2
	63					8.2	13	66	0.60	13	A2	–
SAR 14.6	4	500	VD0R090-2-1,40	1.40	2,800	8.2	16	66	0.60	16	A2	–
	5.6					1.6	2.6	9.0	0.54	2.6	A1	B1
	8					1.6	3.0	9.0	0.54	3.0	A1	B1
	11		VD0R090-4-0,40	0.40	1,400	3.1	5.2	16	0.56	5.2	A1	B1
	16					3.1	6.1	16	0.56	6.1	A1	B1
	22					6.3	8.7	31	0.51	8.7	A2	B2
	32		VD0R090-2-0,80	0.80	2,800	6.3	9.6	31	0.51	9.6	A2	B2
	45					9.2	13	66	0.57	13	A2	–
	63					9.2	16	66	0.57	16	A2	–
SAR 16.2	4	1 000	AD0R090-4-1,60	1.60	1,400	16	24	118	0.60	24	A3	–
	5.6					16	28	118	0.60	28	A3	–
	8					16	28	118	0.60	28	A3	–
	11		AD0R090-2-3,00	3.00	2,800	16	24	118	0.60	24	A3	–
	16					16	24	118	0.60	24	A3	–
	22					16	24	118	0.60	24	A3	–
	32		AD0R112-4-3,00	3.00	1,400	15	30	104	0.71	29	A3	–
	45					15	30	104	0.71	29	A3	–
	63					21	43	198	0.80	43	A4	–
SAR 16.2	4	1 000	AD0R112-2-5,00	5.00	2,800	21	52	198	0.80	43	A4	–
	5.6					21	52	198	0.80	43	A4	–
	8					21	52	198	0.80	43	A4	–
	11		VD0R112-4-0,40	0.40	1,400	2.4	4.7	17	0.65	4.7	A1	B1
	16					2.4	5.0	17	0.65	5.0	A1	B1
	22					5.2	9.0	38	0.57	9.0	A2	B2
	32		VD0R112-4-0,80	0.80	1,400	5.2	9.6	38	0.57	9.6	A2	B2
	45					5.2	9.6	38	0.57	9.6	A2	B2
	63					9.7	16	70	0.60	16	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.40	0.4	A1	B1
	8					0.4	0.4	1.1	0.50	0.4	A1	B1
	11		VD0R063-4-0,04	0.04	1,400	0.4	0.5	1.1	0.50	0.5	A1	B1
	16					0.6	0.6	2.0	0.42	0.6	A1	B1
	22					0.6	0.7	2.0	0.42	0.7	A1	B1
	32		VD0R063-2-0,06	0.06	2,800	1.0	1.0	2.5	0.42	1.0	A1	B1
	45					1.0	1.1	2.5	0.42	1.1	A1	B1
	63					0.8	1.3	4.6	0.60	1.3	A1	B1
SAR 07.6	4	60	VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.1	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.1	0.43	0.5	A1	B1
	8					0.6	0.7	1.7	0.38	0.7	A1	B1
	11		VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	16					0.7	0.9	3.2	0.52	0.9	A1	B1
	22					0.7	1.1	3.2	0.52	1.1	A1	B1
	32		VD0R063-2-0,12	0.12	2,800	1.7	2.0	4.8	0.42	2.0	A1	B1
	45					1.7	2.1	4.8	0.42	2.1	A1	B1
	63					1.9	2.4	9.5	0.53	2.4	A1	B1
SAR 10.2	4	120	VD0R071-4-0,06	0.06	1,400	0.5	0.6	2.1	0.40	0.6	A1	B1
	5.6					0.5	0.6	2.1	0.40	0.6	A1	B1
	8					1.1	1.2	3.2	0.40	1.2	A1	B1
	11		VD0R071-4-0,12	0.12	1,400	1.1	1.3	3.2	0.40	1.3	A1	B1
	16					1.4	1.6	4.7	0.52	1.6	A1	B1
	22					1.4	1.9	4.7	0.52	1.9	A1	B1
	32		VD0R071-2-0,25	0.25	2,800	2.6	2.7	8.9	0.42	2.7	A1	B1
	45					2.6	3.2	8.9	0.42	3.2	A1	B1
	63					3.2	4.2	17	0.54	4.2	A1	B1
SAR 14.2	4	250	VD0R090-4-0,12	0.12	1,400	0.5	0.8	2.9	0.60	0.8	A1	B1
	5.6					0.5	1.1	2.9	0.60	1.1	A1	B1
	8					1.1	1.7	5.5	0.60	1.7	A1	B1
	11		VD0R090-4-0,25	0.25	1,400	1.1	1.8	5.5	0.60	1.8	A1	B1
	16					1.6	3.2	9.5	0.64	3.2	A1	B1
	22					1.6	3.7	9.5	0.64	3.7	A1	B1
	32		VD0R090-2-0,45	0.45	2,800	2.7	4.5	17	0.62	4.5	A1	B1
	45					2.7	5.3	17	0.62	5.3	A1	B1
	63					4.9	8.0	40	0.60	8.0	A2	B2
SAR 14.6	4	500	VD0R090-2-1,40	1.40	2,800	4.9	9.5	40	0.60	9.5	A2	B2
	5.6					0.9	1.6	5.5	0.54	1.6	A1	B1
	8					0.9	1.8	5.5	0.54	1.8	A1	B1
	11		VD0R090-4-0,40	0.40	1,400	1.9	3.2	9.8	0.56	3.2	A1	B1
	16					1.9	3.7	9.8	0.56	3.7	A1	B1
	22					3.8	5.3	19	0.51	5.3	A1	B2
	32		VD0R090-2-0,80	0.80	2,800	3.8	5.8	19	0.51	5.8	A1	B2
	45					5.6	7.9	40	0.57	7.9	A2	B2
	63					5.6	9.5	40	0.57	9.5	A2	B2
SAR 16.2	4	1 000	AD0R090-2-3,00	3.00	2,800	9.5	15	72	0.60	15	A2	–
	5.6					9.5	17	72	0.60	17	A2	–
	8					1.5	2.8	11	0.65	2.8	A1	B1
	11		VD0R112-4-0,40	0.40	1,400	1.5	3.1	11	0.65	3.1	A1	B1
	16					3.2	5.5	23	0.57	5.5	A1	B2
	22					3.2	5.8	23	0.57	5.8	A1	B2
	32		VD0R112-4-0,80	0.80	1,400	5.9	9.5	42	0.60	9.5	A2	B2
	45					5.9	11	42	0.60	11	A2	B2
	63					8.9	16	63	0.71	16	A2	B3
SAR 16.2	4	1 000	AD0R112-4-3,00	3.00	1,400	8.9	18	63	0.71	18	A2	B3
	5.6					13	26	120	0.80	26	A3	–
	8					13	32	120	0.80	26	A3	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1 680	0.5	0.5	1.3	0.40	0.5	A1	B1
	6.7					0.5	0.5	1.3	0.40	0.5	A1	B1
	9.6					0.5	0.5	1.3	0.50	0.5	A1	B1
	13		VD0R063-4-0,04	0.04	1,680	0.5	0.6	1.3	0.50	0.6	A1	B1
	19					0.8	0.8	2.4	0.42	0.8	A1	B1
	26					0.8	0.8	2.4	0.42	0.8	A1	B1
	38		VD0R063-2-0,06	0.06	3,360	1.2	1.2	3.0	0.42	1.2	A1	B1
	54					1.2	1.3	3.0	0.42	1.3	A1	B1
	75					1.0	1.5	5.6	0.60	1.5	A1	B1
SAR 07.6	4.8	60	VD0R063-4-0,03	0.03	1,680	0.5	0.6	1.3	0.43	0.6	A1	B1
	6.7					0.5	0.6	1.3	0.43	0.6	A1	B1
	9.6					0.8	0.8	2.0	0.38	0.8	A1	B1
	13		VD0R063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	19					0.9	1.1	3.8	0.52	1.1	A1	B1
	26					0.9	1.3	3.8	0.52	1.3	A1	B1
	38		VD0R063-2-0,12	0.12	3,360	2.0	2.4	5.8	0.42	2.4	A1	B1
	54					2.0	2.5	5.8	0.42	2.5	A1	B1
	75					2.3	2.9	11	0.53	2.9	A1	B1
SAR 10.2	4.8	120	VD0R071-4-0,06	0.06	1,680	0.6	0.8	2.5	0.40	0.8	A1	B1
	6.7					0.6	0.8	2.5	0.40	0.8	A1	B1
	9.6					1.3	1.4	3.8	0.40	1.4	A1	B1
	13		VD0R071-4-0,12	0.12	1,680	1.3	1.5	3.8	0.40	1.5	A1	B1
	19					1.6	1.9	5.7	0.52	1.9	A1	B1
	26					1.6	2.3	5.7	0.52	2.3	A1	B1
	38		VD0R071-2-0,25	0.25	3,360	3.2	3.3	11	0.42	3.3	A1	B1
	54					3.2	3.8	11	0.42	3.8	A1	B1
	75					3.8	5.1	20	0.54	5.1	A1	B2
SAR 14.2	4.8	250	VD0R071-2-0,70	0.70	3,360	3.8	5.7	20	0.54	5.7	A1	B2
	6.7					0.6	1.0	3.5	0.60	1.0	A1	B1
	9.6					0.6	1.3	3.5	0.60	1.3	A1	B1
	13		VD0R090-4-0,12	0.12	1,680	1.3	2.0	6.6	0.60	2.0	A1	B1
	19					1.3	2.1	6.6	0.60	2.1	A1	B1
	26					1.9	3.8	11	0.64	3.8	A1	B1
	38		VD0R090-2-0,45	0.45	3,360	1.9	4.4	11	0.64	4.4	A1	B1
	54					3.3	5.4	20	0.62	5.4	A1	B2
	75					3.3	6.3	20	0.62	6.3	A1	B2
SAR 14.6	4.8	500	AD0R090-4-0,75	0.75	1,680	5.9	9.6	48	0.60	9.6	A2	B3
	6.7					5.9	11	48	0.60	11	A2	B3
	9.6					1.1	1.9	6.6	0.54	1.9	A1	B1
	13		VD0R090-4-0,20	0.20	1,680	1.1	2.1	6.6	0.54	2.1	A1	B1
	19					2.3	3.8	12	0.56	3.8	A1	B1
	26					2.3	4.4	12	0.56	4.4	A1	B1
	38		VD0R090-2-0,80	0.80	3,360	4.5	6.3	23	0.51	6.3	A2	B2
	54					4.5	6.9	23	0.51	6.9	A2	B2
	75					6.7	9.5	48	0.57	9.5	A2	B3
SAR 16.2	4.8	1,000	AD0R090-4-1,60	1.60	1,680	6.7	11	48	0.57	11	A2	B3
	6.7					11	18	86	0.60	18	A2	–
	9.6					11	20	86	0.60	20	A2	–
	13		VD0R112-4-0,40	0.40	1,680	1.8	3.4	13	0.65	3.4	A1	B1
	19					1.8	3.7	13	0.65	3.7	A1	B1
	26					3.8	6.6	28	0.57	6.6	A2	B2
	38		VD0R112-4-0,80	0.80	1,680	3.8	6.9	28	0.57	6.9	A2	B2
	54					7.1	11	51	0.60	11	A2	B3
	75					7.1	13	51	0.60	13	A2	B3
SAR 16.2	4.8	1,000	AD0R112-2-1,50	1.50	3,360	11	19	76	0.71	19	A2	–
	6.7					11	21	76	0.71	21	A2	–
	9.6					15	32	144	0.80	31	A3	–
	13		AD0R112-4-3,00	3.00	1,680	15	38	144	0.80	31	A3	–
	19					15	38	144	0.80	31	A3	–
	26					15	38	144	0.80	31	A3	–
	38		AD0R112-2-5,00	5.00	3,360	15	38	144	0.80	31	A3	–
	54					15	38	144	0.80	31	A3	–
	75					15	38	144	0.80	31	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8		VD0R063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.5	1.0	0.50	0.5	A1	B1
	16		VD0R063-2-0,06	0.06	2,800	0.6	0.6	1.9	0.42	0.6	A1	B1
	22					0.6	0.7	1.9	0.42	0.7	A1	B1
	32		AD0R063-4-0,10	0.10	1,400	1.0	1.0	2.4	0.42	1.0	A1	B1
	45					1.0	1.0	2.4	0.42	1.0	A1	B1
	63		AD0R063-2-0,20	0.20	2,800	0.8	1.2	4.4	0.60	1.2	A1	B1
SAR 07.6	4	60	VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.0	0.43	0.5	A1	B1
	8		VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	11					0.6	0.7	1.6	0.38	0.7	A1	B1
	16		VD0R063-2-0,12	0.12	2,800	0.7	0.9	3.0	0.52	0.9	A1	B1
	22					0.7	1.0	3.0	0.52	1.0	A1	B1
	32		AD0R063-4-0,20	0.20	1,400	1.6	1.9	4.6	0.42	1.9	A1	B1
	45					1.6	2.0	4.6	0.42	2.0	A1	B1
	63		AD0R063-2-0,40	0.40	2,800	1.8	2.3	9.0	0.53	2.3	A1	B1
SAR 10.2	4	120	VD0R071-4-0,06	0.06	1,400	0.5	0.6	2.0	0.40	0.6	A1	B1
	5.6					0.5	0.6	2.0	0.40	0.6	A1	B1
	8		VD0R071-4-0,12	0.12	1,400	1.0	1.1	3.0	0.40	1.1	A1	B1
	11					1.0	1.2	3.0	0.40	1.2	A1	B1
	16		VD0R071-2-0,25	0.25	2,800	1.3	1.5	4.5	0.52	1.5	A1	B1
	22					1.3	1.8	4.5	0.52	1.8	A1	B1
	32		AD0R071-4-0,40	0.40	1,400	2.5	2.6	8.5	0.42	2.6	A1	B1
	45					2.5	3.0	8.5	0.42	3.0	A1	B1
	63		AD0R071-2-0,70	0.70	2,800	3.0	4.0	16	0.54	4.0	A1	B1
SAR 14.2	4	250	VD0R090-4-0,12	0.12	1,400	0.5	0.8	2.8	0.60	0.8	A1	B1
	5.6					0.5	1.0	2.8	0.60	1.0	A1	B1
	8		VD0R090-4-0,25	0.25	1,400	1.0	1.6	5.2	0.60	1.6	A1	B1
	11					1.0	1.7	5.2	0.60	1.7	A1	B1
	16		VD0R090-2-0,45	0.45	2,800	1.5	3.0	9.0	0.64	3.0	A1	B1
	22					1.5	3.5	9.0	0.64	3.5	A1	B1
	32		AD0R090-4-0,75	0.75	1,400	2.6	4.3	16	0.62	4.3	A1	B1
	45					2.6	5.0	16	0.62	5.0	A1	B1
	63		AD0R090-2-1,40	1.40	2,800	4.7	7.6	38	0.60	7.6	A2	B2
SAR 14.6	4	500	VD0R090-4-0,20	0.20	1,400	0.9	1.5	5.2	0.54	1.5	A1	B1
	5.6					0.9	1.7	5.2	0.54	1.7	A1	B1
	8		VD0R090-4-0,40	0.40	1,400	1.8	3.0	9.3	0.56	3.0	A1	B1
	11					1.8	3.5	9.3	0.56	3.5	A1	B1
	16		VD0R090-2-0,80	0.80	2,800	3.6	5.0	18	0.51	5.0	A1	B1
	22					3.6	5.5	18	0.51	5.5	A1	B1
	32		AD0R090-4-1,60	1.60	1,400	5.3	7.5	38	0.57	7.5	A2	B2
	45					5.3	9.0	38	0.57	9.0	A2	B2
	63		AD0R090-2-3,00	3.00	2,800	9.0	14	68	0.60	14	A2	–
SAR 16.2	4	1 000	VD0R112-4-0,40	0.40	1,400	1.4	2.7	10	0.65	2.7	A1	B1
	5.6					1.4	2.9	10	0.65	2.9	A1	B1
	8		VD0R112-4-0,80	0.80	1,400	3.0	5.2	22	0.57	5.2	A1	B2
	11					3.0	5.5	22	0.57	5.5	A1	B2
	16		VD0R112-2-1,50	1.50	2,800	5.6	9.0	40	0.60	9.0	A2	B2
	22					5.6	11	40	0.60	11	A2	B2
	32		AD0R112-4-3,00	3.00	1,400	8.5	15	60	0.71	15	A2	B3
	45					8.5	17	60	0.71	17	A2	B3
	63		AD0R112-2-5,00	5.00	2,800	12	25	114	0.80	25	A3	–
	90					12	30	114	0.80	25	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1 680	0.5	0.5	1.2	0.40	0.5	A1	B1
	6.7					0.5	0.5	1.2	0.40	0.5	A1	B1
	9.6					0.5	0.5	1.2	0.50	0.5	A1	B1
	13		VD0R063-4-0,04	0.04	1,680	0.5	0.6	1.2	0.50	0.6	A1	B1
	19					0.7	0.7	2.3	0.42	0.7	A1	B1
	26					0.7	0.8	2.3	0.42	0.8	A1	B1
	38		VD0R063-2-0,06	0.06	3,360	1.1	1.1	2.9	0.42	1.1	A1	B1
	54					1.1	1.2	2.9	0.42	1.2	A1	B1
	75					1.0	1.4	5.3	0.60	1.4	A1	B1
SAR 07.6	4.8	60	VD0R063-4-0,03	0.03	1,680	0.5	0.6	1.2	0.43	0.6	A1	B1
	6.7					0.5	0.6	1.2	0.43	0.6	A1	B1
	9.6					0.7	0.8	1.9	0.38	0.8	A1	B1
	13		VD0R063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	19					0.8	1.1	3.6	0.52	1.1	A1	B1
	26					0.8	1.2	3.6	0.52	1.2	A1	B1
	38		VD0R063-2-0,12	0.12	3,360	1.9	2.3	5.5	0.42	2.3	A1	B1
	54					1.9	2.4	5.5	0.42	2.4	A1	B1
	75					2.2	2.8	11	0.53	2.8	A1	B1
SAR 10.2	4.8	120	VD0R071-4-0,06	0.06	1,680	0.6	0.7	2.4	0.40	0.7	A1	B1
	6.7					0.6	0.7	2.4	0.40	0.7	A1	B1
	9.6					1.2	1.3	3.6	0.40	1.3	A1	B1
	13		VD0R071-4-0,12	0.12	1,680	1.2	1.4	3.6	0.40	1.4	A1	B1
	19					1.6	1.8	5.4	0.52	1.8	A1	B1
	26					1.6	2.2	5.4	0.52	2.2	A1	B1
	38		VD0R071-2-0,25	0.25	3,360	3.0	3.1	10	0.42	3.1	A1	B1
	54					3.0	3.6	10	0.42	3.6	A1	B1
	75					3.6	4.8	19	0.54	4.8	A1	B2
SAR 14.2	4.8	250	VD0R071-2-0,70	0.70	3,360	3.6	5.4	19	0.54	5.4	A1	B2
	6.7					0.6	1.0	3.4	0.60	1.0	A1	B1
	9.6					0.6	1.2	3.4	0.60	1.2	A1	B1
	13		VD0R090-4-0,12	0.12	1,680	1.2	1.9	6.2	0.60	1.9	A1	B1
	19					1.2	2.0	6.2	0.60	2.0	A1	B1
	26					1.8	3.6	11	0.64	3.6	A1	B1
	38		VD0R090-2-0,45	0.45	3,360	1.8	4.2	11	0.64	4.2	A1	B1
	54					3.1	5.2	19	0.62	5.2	A1	B2
	75					3.1	6.0	19	0.62	6.0	A1	B2
SAR 14.6	4.8	500	AD0R090-4-0,75	0.75	1,680	5.6	9.1	46	0.60	9.1	A2	B3
	6.7					5.6	11	46	0.60	11	A2	B3
	9.6					1.1	1.8	6.2	0.54	1.8	A1	B1
	13		VD0R090-2-1,40	1.40	3,360	1.1	2.0	6.2	0.54	2.0	A1	B1
	19					2.2	3.6	11	0.56	3.6	A1	B1
	26					2.2	4.2	11	0.56	4.2	A1	B1
	38		VD0R090-4-0,20	0.20	1,680	4.3	6.0	22	0.51	6.0	A2	B2
	54					4.3	6.6	22	0.51	6.6	A2	B2
	75					6.4	9.0	46	0.57	9.0	A2	B3
SAR 16.2	4.8	1,000	AD0R090-4-1,60	1.60	1,680	6.4	11	46	0.57	11	A2	B3
	6.7					11	17	82	0.60	17	A2	–
	9.6					11	19	82	0.60	19	A2	–
	13		AD0R090-2-3,00	3.00	3,360	1.7	3.2	12	0.65	3.2	A1	B1
	19					1.7	3.5	12	0.65	3.5	A1	B1
	26					3.6	6.2	26	0.57	6.2	A2	B2
	38		VD0R112-4-0,40	0.40	1,680	3.6	6.6	26	0.57	6.6	A2	B2
	54					6.7	11	48	0.60	11	A2	B3
	75					6.7	13	48	0.60	13	A2	B3
SAR 16.2	4.8	1,000	VD0R112-2-1,50	1.50	3,360	10	18	72	0.71	18	A2	–
	6.7					10	20	72	0.71	20	A2	–
	9.6					14	30	137	0.80	30	A3	–
	13		AD0R112-4-3,00	3.00	1,680	14	36	137	0.80	30	A3	–
	19					14	36	137	0.80	30	A3	–
	26					14	36	137	0.80	30	A3	–
	38		AD0R112-2-5,00	5.00	3,360	14	36	137	0.80	30	A3	–
	54					14	36	137	0.80	30	A3	–
	75					14	36	137	0.80	30	A3	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8					0.4	0.4	1.0	0.50	0.4	A1	B1
	11		VD0R063-4-0,04	0.04	1,400	0.4	0.5	1.0	0.50	0.5	A1	B1
	16					0.6	0.6	1.8	0.42	0.6	A1	B1
	22					0.6	0.6	1.8	0.42	0.6	A1	B1
	32		VD0R063-2-0,06	0.06	2,800	0.9	0.9	2.3	0.42	0.9	A1	B1
	45					0.9	1.0	2.3	0.42	1.0	A1	B1
	63					0.8	1.2	4.2	0.60	1.2	A1	B1
SAR 07.6	4	60	VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	5.6					0.4	0.5	1.0	0.43	0.5	A1	B1
	8					0.6	0.6	1.5	0.38	0.6	A1	B1
	11		VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	16					0.7	0.9	2.9	0.52	0.9	A1	B1
	22					0.7	1.0	2.9	0.52	1.0	A1	B1
	32		VD0R063-2-0,12	0.12	2,800	1.5	1.8	4.4	0.42	1.8	A1	B1
	45					1.5	1.9	4.4	0.42	1.9	A1	B1
	63					1.7	2.2	8.7	0.53	2.2	A1	B1
SAR 10.2	4	120	VD0R071-4-0,06	0.06	1,400	0.5	0.6	1.9	0.40	0.6	A1	B1
	5.6					0.5	0.6	1.9	0.40	0.6	A1	B1
	8					1.0	1.1	2.9	0.40	1.1	A1	B1
	11		VD0R071-4-0,12	0.12	1,400	1.0	1.2	2.9	0.40	1.2	A1	B1
	16					1.3	1.4	4.3	0.52	1.4	A1	B1
	22					1.3	1.7	4.3	0.52	1.7	A1	B1
	32		VD0R071-2-0,25	0.25	2,800	2.4	2.5	8.2	0.42	2.5	A1	B1
	45					2.4	2.9	8.2	0.42	2.9	A1	B1
	63					2.9	3.9	15	0.54	3.9	A1	B1
SAR 14.2	4	250	VD0R090-4-0,12	0.12	1,400	0.5	0.8	2.7	0.60	0.8	A1	B1
	5.6					0.5	1.0	2.7	0.60	1.0	A1	B1
	8					1.0	1.5	5.0	0.60	1.5	A1	B1
	11		VD0R090-4-0,25	0.25	1,400	1.0	1.6	5.0	0.60	1.6	A1	B1
	16					1.4	2.9	8.7	0.64	2.9	A1	B1
	22					1.4	3.4	8.7	0.64	3.4	A1	B1
	32		VD0R090-2-0,45	0.45	2,800	2.5	4.1	15	0.62	4.1	A1	B1
	45					2.5	4.8	15	0.62	4.8	A1	B1
	63					4.5	7.3	37	0.60	7.3	A2	B2
SAR 14.6	4	500	VD0R090-2-1,40	1.40	2,800	4.5	8.7	37	0.60	8.7	A2	B2
	5.6					0.9	1.4	5.0	0.54	1.4	A1	B1
	8					0.9	1.6	5.0	0.54	1.6	A1	B1
	11		VD0R090-4-0,40	0.40	1,400	1.7	2.9	9.0	0.56	2.9	A1	B1
	16					1.7	3.4	9.0	0.56	3.4	A1	B1
	22					3.5	4.8	17	0.51	4.8	A1	B1
	32		VD0R090-2-0,80	0.80	2,800	3.5	5.3	17	0.51	5.3	A1	B1
	45					5.1	7.2	37	0.57	7.2	A2	B2
	63					5.1	8.7	37	0.57	8.7	A2	B2
SAR 16.2	4	1 000	AD0R090-2-3,00	3.00	2,800	8.7	13	66	0.60	13	A2	–
	5.6					8.7	15	66	0.60	15	A2	–
	8		VD0R112-4-0,40	0.40	1,400	1.3	2.6	9.6	0.65	2.6	A1	B1
	11					1.3	2.8	9.6	0.65	2.8	A1	B1
	16					2.9	5.0	21	0.57	5.0	A1	B2
	22		VD0R112-4-0,80	0.80	1,400	2.9	5.3	21	0.57	5.3	A1	B2
	32					5.4	8.7	39	0.60	8.7	A2	B2
	45					5.4	10	39	0.60	10	A2	B2
	63		AD0R112-2-1,50	1.50	2,800	8.2	14	58	0.71	14	A2	B3
	90					8.2	16	58	0.71	16	A2	B3
						12	24	110	0.80	24	A2	–
			AD0R112-4-3,00	3.00	1,400	12	29	110	0.80	24	A2	–
			AD0R112-2-5,00	5.00	2,800							

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-tor	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1 680	0.4	0.4	1.1	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.40	0.4	A1	B1
	9.6					0.4	0.4	1.1	0.50	0.4	A1	B1
	13		VD0R063-4-0,04	0.04	1,680	0.4	0.5	1.1	0.50	0.5	A1	B1
	19					0.7	0.7	2.1	0.42	0.7	A1	B1
	26					0.7	0.7	2.1	0.42	0.7	A1	B1
	38		AD0R063-4-0,10	0.10	1,680	1.0	1.0	2.6	0.42	1.0	A1	B1
	54					1.0	1.1	2.6	0.42	1.1	A1	B1
	75					0.9	1.3	4.8	0.60	1.3	A1	B1
108	AD0R063-2-0,20	0.20	3,360	0.9	1.4	4.8	0.60	1.4	A1	B1		
SAR 07.6	4.8	60	VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.1	0.43	0.5	A1	B1
	6.7					0.4	0.5	1.1	0.43	0.5	A1	B1
	9.6					0.7	0.7	1.7	0.38	0.7	A1	B1
	13		VD0R063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	19					0.8	1.0	3.3	0.52	1.0	A1	B1
	26					0.8	1.1	3.3	0.52	1.1	A1	B1
	38		AD0R063-4-0,20	0.20	1,680	1.7	2.1	5.0	0.42	2.1	A1	B1
	54					1.7	2.2	5.0	0.42	2.2	A1	B1
	75					2.0	2.5	9.8	0.53	2.5	A1	B1
108	AD0R063-2-0,40	0.40	3,360	2.0	2.7	9.8	0.53	2.7	A1	B1		
SAR 10.2	4.8	120	VD0R071-4-0,06	0.06	1,680	0.5	0.7	2.2	0.40	0.7	A1	B1
	6.7					0.5	0.7	2.2	0.40	0.7	A1	B1
	9.6					1.1	1.2	3.3	0.40	1.2	A1	B1
	13		VD0R071-4-0,12	0.12	1,680	1.1	1.3	3.3	0.40	1.3	A1	B1
	19					1.4	1.6	4.9	0.52	1.6	A1	B1
	26					1.4	2.0	4.9	0.52	2.0	A1	B1
	38		AD0R071-4-0,40	0.40	1,680	2.7	2.8	9.3	0.42	2.8	A1	B1
	54					2.7	3.3	9.3	0.42	3.3	A1	B1
	75					3.3	4.4	17	0.54	4.4	A1	B1
108	AD0R071-2-0,70	0.70	3,360	3.3	4.9	17	0.54	4.9	A1	B1		
SAR 14.2	4.8	250	VD0R090-4-0,12	0.12	1,680	0.5	0.9	3.1	0.60	0.9	A1	B1
	6.7					0.5	1.1	3.1	0.60	1.1	A1	B1
	9.6					1.1	1.7	5.7	0.60	1.7	A1	B1
	13		VD0R090-4-0,25	0.25	1,680	1.1	1.9	5.7	0.60	1.9	A1	B1
	19					1.6	3.3	9.8	0.64	3.3	A1	B1
	26					1.6	3.8	9.8	0.64	3.8	A1	B1
	38		AD0R090-4-0,75	0.75	1,680	2.8	4.7	17	0.62	4.7	A1	B1
	54					2.8	5.5	17	0.62	5.5	A1	B1
	75					5.1	8.3	41	0.60	8.3	A2	B2
108	AD0R090-2-1,40	1.40	3,360	5.1	9.8	41	0.60	9.8	A2	B2		
SAR 14.6	4.8	500	VD0R090-4-0,20	0.20	1,680	1.0	1.6	5.7	0.54	1.6	A1	B1
	6.7					1.0	1.9	5.7	0.54	1.9	A1	B1
	9.6					2.0	3.3	10	0.56	3.3	A1	B1
	13		VD0R090-4-0,40	0.40	1,680	2.0	3.8	10	0.56	3.8	A1	B1
	19					3.9	5.5	20	0.51	5.5	A1	B2
	26					3.9	6.0	20	0.51	6.0	A1	B2
	38		AD0R090-4-1,60	1.60	1,680	5.8	8.2	41	0.57	8.2	A2	B2
	54					5.8	9.8	41	0.57	9.8	A2	B2
	75					9.8	15	74	0.60	15	A2	–
108	AD0R090-2-3,00	3.00	3,360	9.8	17	74	0.60	17	A2	–		
SAR 16.2	4.8	1,000	VD0R112-4-0,40	0.40	1,680	1.5	2.9	11	0.65	2.9	A1	B1
	6.7					1.5	3.2	11	0.65	3.2	A1	B1
	9.6					3.3	5.7	24	0.57	5.7	A1	B2
	13		VD0R112-4-0,80	0.80	1,680	3.3	6.0	24	0.57	6.0	A1	B2
	19					6.1	9.8	44	0.60	9.8	A2	B2
	26					6.1	12	44	0.60	12	A2	B2
	38		AD0R112-2-1,50	1.50	3,360	9.3	16	65	0.71	16	A2	B3
	54					9.3	19	65	0.71	19	A2	B3
	75					13	27	124	0.80	27	A3	–
108	AD0R112-2-5,00	5.00	3,360	13	33	124	0.80	27	A3	–		

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0R063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.5	1.0	0.50	0.5	A1	B1
	19		VD0R063-2-0,06	0.06	3,360	0.6	0.6	2.0	0.42	0.6	A1	B1
	26					0.6	0.7	2.0	0.42	0.7	A1	B1
	38		AD0R063-4-0,10	0.10	1,680	1.0	1.0	2.5	0.42	1.0	A1	B1
	54					1.0	1.0	2.5	0.42	1.0	A1	B1
	75		AD0R063-2-0,20	0.20	3,360	0.8	1.3	4.6	0.60	1.3	A1	B1
SAR 07.6	108					0.8	1.4	4.6	0.60	1.4	A1	B1
	4.8	60	VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.4	A1	B1
	6.7					0.4	0.5	1.0	0.43	0.5	A1	B1
	9.6		VD0R063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	13					0.6	0.7	1.7	0.38	0.7	A1	B1
	19		VD0R063-2-0,12	0.12	3,360	0.7	0.9	3.1	0.52	0.9	A1	B1
	26					0.7	1.0	3.1	0.52	1.0	A1	B1
	38		AD0R063-4-0,20	0.20	1,680	1.7	2.0	4.8	0.42	2.0	A1	B1
	54					1.7	2.1	4.8	0.42	2.1	A1	B1
SAR 10.2	75		AD0R063-2-0,40	0.40	3,360	1.9	2.4	9.4	0.53	2.4	A1	B1
	108					1.9	2.6	9.4	0.53	2.6	A1	B1
	4.8	120	VD0R071-4-0,06	0.06	1,680	0.5	0.6	2.1	0.40	0.6	A1	B1
	6.7					0.5	0.6	2.1	0.40	0.6	A1	B1
	9.6		VD0R071-4-0,12	0.12	1,680	1.0	1.1	3.1	0.40	1.1	A1	B1
	13					1.0	1.3	3.1	0.40	1.3	A1	B1
	19		VD0R071-2-0,25	0.25	3,360	1.4	1.6	4.7	0.52	1.6	A1	B1
	26					1.4	1.9	4.7	0.52	1.9	A1	B1
	38		AD0R071-4-0,40	0.40	1,680	2.6	2.7	8.9	0.42	2.7	A1	B1
	54					2.6	3.1	8.9	0.42	3.1	A1	B1
SAR 14.2	75		AD0R071-2-0,70	0.70	3,360	3.1	4.2	17	0.54	4.2	A1	B1
	108					3.1	4.7	17	0.54	4.7	A1	B1
	4.8	250	VD0R090-4-0,12	0.12	1,680	0.5	0.8	2.9	0.60	0.8	A1	B1
	6.7					0.5	1.0	2.9	0.60	1.0	A1	B1
	9.6		VD0R090-4-0,25	0.25	1,680	1.0	1.7	5.4	0.60	1.7	A1	B1
	13					1.0	1.8	5.4	0.60	1.8	A1	B1
	19		VD0R090-2-0,45	0.45	3,360	1.6	3.1	9.4	0.64	3.1	A1	B1
	26					1.6	3.7	9.4	0.64	3.7	A1	B1
	38		AD0R090-4-0,75	0.75	1,680	2.7	4.5	17	0.62	4.5	A1	B1
	54					2.7	5.2	17	0.62	5.2	A1	B1
SAR 14.6	75		AD0R090-2-1,40	1.40	3,360	4.9	7.9	40	0.60	7.9	A2	B2
	108					4.9	9.4	40	0.60	9.4	A2	B2
	4.8	500	VD0R090-4-0,20	0.20	1,680	0.9	1.6	5.4	0.54	1.6	A1	B1
	6.7					0.9	1.8	5.4	0.54	1.8	A1	B1
	9.6		VD0R090-4-0,40	0.40	1,680	1.9	3.1	9.7	0.56	3.1	A1	B1
	13					1.9	3.7	9.7	0.56	3.7	A1	B1
	19		VD0R090-2-0,80	0.80	3,360	3.8	5.2	19	0.51	5.2	A1	B2
	26					3.8	5.7	19	0.51	5.7	A1	B2
	38		AD0R090-4-1,60	1.60	1,680	5.5	7.8	40	0.57	7.8	A2	B2
SAR 16.2	54					5.5	9.4	40	0.57	9.4	A2	B2
	75	1,000	AD0R090-2-3,00	3.00	3,360	9.4	15	71	0.60	15	A2	–
	108					9.4	17	71	0.60	17	A2	–
	4.8		VD0R112-4-0,40	0.40	1,680	1.5	2.8	10	0.65	2.8	A1	B1
	6.7					1.5	3.0	10	0.65	3.0	A1	B1
	9.6		VD0R112-4-0,80	0.80	1,680	3.1	5.4	23	0.57	5.4	A1	B2
	13					3.1	5.7	23	0.57	5.7	A1	B2
	19		VD0R112-2-1,50	1.50	3,360	5.8	9.4	42	0.60	9.4	A2	B2
	26					5.8	11	42	0.60	11	A2	B2
SAR 16.2	38		AD0R112-4-3,00	3.00	1,680	8.9	16	63	0.71	16	A2	B3
	54					8.9	18	63	0.71	18	A2	B3
	75		AD0R112-2-5,00	5.00	3,360	13	26	119	0.80	26	A3	–
	108					13	31	119	0.80	26	A3	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4.8	30	VD0R063-4-0,02	0.02	1 680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0R063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.5	1.0	0.50	0.5	A1	B1
	19		VD0R063-2-0,06	0.06	3,360	0.6	0.6	1.9	0.42	0.6	A1	B1
	26					0.6	0.7	1.9	0.42	0.7	A1	B1
	38		AD0R063-4-0,10	0.10	1,680	1.0	1.0	2.4	0.42	1.0	A1	B1
	54					1.0	1.0	2.4	0.42	1.0	A1	B1
	75		AD0R063-2-0,20	0.20	3,360	0.8	1.2	4.4	0.60	1.2	A1	B1
SAR 07.6	4.8	60	VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	6.7					0.4	0.5	1.0	0.43	0.5	A1	B1
	9.6		VD0R063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	13					0.6	0.7	1.6	0.38	0.7	A1	B1
	19		VD0R063-2-0,12	0.12	3,360	0.7	0.9	3.0	0.52	0.9	A1	B1
	26					0.7	1.0	3.0	0.52	1.0	A1	B1
	38		AD0R063-4-0,20	0.20	1,680	1.6	1.9	4.6	0.42	1.9	A1	B1
	54					1.6	2.0	4.6	0.42	2.0	A1	B1
	75		AD0R063-2-0,40	0.40	3,360	1.8	2.3	9.0	0.53	2.3	A1	B1
SAR 10.2	4.8	120	VD0R071-4-0,06	0.06	1,680	0.5	0.6	2.0	0.40	0.6	A1	B1
	6.7					0.5	0.6	2.0	0.40	0.6	A1	B1
	9.6		VD0R071-4-0,12	0.12	1,680	1.0	1.1	3.0	0.40	1.1	A1	B1
	13					1.0	1.2	3.0	0.40	1.2	A1	B1
	19		VD0R071-2-0,25	0.25	3,360	1.3	1.5	4.5	0.52	1.5	A1	B1
	26					1.3	1.8	4.5	0.52	1.8	A1	B1
	38		AD0R071-4-0,40	0.40	1,680	2.5	2.6	8.5	0.42	2.6	A1	B1
	54					2.5	3.0	8.5	0.42	3.0	A1	B1
	75		AD0R071-2-0,70	0.70	3,360	3.0	4.0	16	0.54	4.0	A1	B1
SAR 14.2	4.8	250	VD0R090-4-0,12	0.12	1,680	0.5	0.8	2.8	0.60	0.8	A1	B1
	6.7					0.5	1.0	2.8	0.60	1.0	A1	B1
	9.6		VD0R090-4-0,25	0.25	1,680	1.0	1.6	5.2	0.60	1.6	A1	B1
	13					1.0	1.7	5.2	0.60	1.7	A1	B1
	19		VD0R090-2-0,45	0.45	3,360	1.5	3.0	9.0	0.64	3.0	A1	B1
	26					1.5	3.5	9.0	0.64	3.5	A1	B1
	38		AD0R090-4-0,75	0.75	1,680	2.6	4.3	16	0.62	4.3	A1	B1
	54					2.6	5.0	16	0.62	5.0	A1	B1
	75		AD0R090-2-1,40	1.40	3,360	4.7	7.6	38	0.60	7.6	A2	B2
SAR 14.6	4.8	500	VD0R090-4-0,20	0.20	1,680	0.9	1.5	5.2	0.54	1.5	A1	B1
	6.7					0.9	1.7	5.2	0.54	1.7	A1	B1
	9.6		VD0R090-4-0,40	0.40	1,680	1.8	3.0	9.3	0.56	3.0	A1	B1
	13					1.8	3.5	9.3	0.56	3.5	A1	B1
	19		VD0R090-2-0,80	0.80	3,360	3.6	5.0	18	0.51	5.0	A1	B1
	26					3.6	5.5	18	0.51	5.5	A1	B1
	38		AD0R090-4-1,60	1.60	1,680	5.3	7.5	38	0.57	7.5	A2	B2
	54					5.3	9.0	38	0.57	9.0	A2	B2
	75		AD0R090-2-3,00	3.00	3,360	9.0	14	68	0.60	14	A2	–
SAR 16.2	4.8	1,000	VD0R112-4-0,40	0.40	1,680	1.4	2.7	10	0.65	2.7	A1	B1
	6.7					1.4	2.9	10	0.65	2.9	A1	B1
	9.6		VD0R112-4-0,80	0.80	1,680	3.0	5.2	22	0.57	5.2	A1	B2
	13					3.0	5.5	22	0.57	5.5	A1	B2
	19		VD0R112-2-1,50	1.50	3,360	5.6	9.0	40	0.60	9.0	A2	B2
	26					5.6	11	40	0.60	11	A2	B2
	38		AD0R112-4-3,00	3.00	1,680	8.5	15	60	0.71	15	A2	B3
	54					8.5	17	60	0.71	17	A2	B3
	75		AD0R112-2-5,00	5.00	3,360	12	25	114	0.80	25	A3	–
	108					12	30	114	0.80	25	A3	–

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4	30	VD0R063-4-0,02	0.02	1 400	0.3	0.3	0.8	0.40	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.40	0.3	A1	B1
	8					0.3	0.3	0.8	0.50	0.3	A1	B1
	11		VD0R063-4-0,04	0.04	1,400	0.3	0.4	0.8	0.50	0.4	A1	B1
	16					0.5	0.5	1.5	0.42	0.5	A1	B1
	22					0.5	0.5	1.5	0.42	0.5	A1	B1
	32		VD0R063-2-0,06	0.06	2,800	0.8	0.8	1.9	0.42	0.8	A1	B1
	45					0.8	0.8	1.9	0.42	0.8	A1	B1
	63					0.6	1.0	3.5	0.60	1.0	A1	B1
SAR 07.6	4	60	VD0R063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	5.6					0.3	0.4	0.8	0.43	0.4	A1	B1
	8					0.5	0.5	1.3	0.38	0.5	A1	B1
	11		VD0R063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	16					0.6	0.7	2.4	0.52	0.7	A1	B1
	22					0.6	0.8	2.4	0.52	0.8	A1	B1
	32		VD0R063-2-0,12	0.12	2,800	1.3	1.5	3.7	0.42	1.5	A1	B1
	45					1.3	1.6	3.7	0.42	1.6	A1	B1
	63					1.4	1.8	7.2	0.53	1.8	A1	B1
SAR 10.2	4	120	VD0R071-4-0,06	0.06	1,400	0.4	0.5	1.6	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.6	0.40	0.5	A1	B1
	8					0.8	0.9	2.4	0.40	0.9	A1	B1
	11		VD0R071-4-0,12	0.12	1,400	0.8	1.0	2.4	0.40	1.0	A1	B1
	16					1.0	1.2	3.6	0.52	1.2	A1	B1
	22					1.0	1.4	3.6	0.52	1.4	A1	B1
	32		VD0R071-2-0,25	0.25	2,800	2.0	2.1	6.8	0.42	2.1	A1	B1
	45					2.0	2.4	6.8	0.42	2.4	A1	B1
	63					2.4	3.2	13	0.54	3.2	A1	B1
SAR 14.2	4	250	VD0R090-4-0,12	0.12	1,400	0.4	0.6	2.2	0.60	0.6	A1	B1
	5.6					0.4	0.8	2.2	0.60	0.8	A1	B1
	8					0.8	1.3	4.2	0.60	1.3	A1	B1
	11		VD0R090-4-0,25	0.25	1,400	0.8	1.4	4.2	0.60	1.4	A1	B1
	16					1.2	2.4	7.2	0.64	2.4	A1	B1
	22					1.2	2.8	7.2	0.64	2.8	A1	B1
	32		VD0R090-2-0,45	0.45	2,800	2.1	3.4	13	0.62	3.4	A1	B1
	45					2.1	4.0	13	0.62	4.0	A1	B1
	63					3.8	6.1	30	0.60	6.1	A2	B2
SAR 14.6	4	500	VD0R090-2-1,40	1.40	2,800	3.8	7.2	30	0.60	7.2	A2	B2
	5.6					0.7	1.2	4.2	0.54	1.2	A1	B1
	8					0.7	1.4	4.2	0.54	1.4	A1	B1
	11		VD0R090-4-0,40	0.40	1,400	1.4	2.4	7.4	0.56	2.4	A1	B1
	16					1.4	2.8	7.4	0.56	2.8	A1	B1
	22					2.9	4.0	14	0.51	4.0	A1	B1
	32		VD0R090-2-0,80	0.80	2,800	2.9	4.4	14	0.51	4.4	A1	B1
	45					4.2	6.0	30	0.57	6.0	A2	B2
	63					4.2	7.2	30	0.57	7.2	A2	B2
SAR 16.2	4	1,000	AD0R090-4-1,60	1.60	1,400	7.2	11	54	0.60	11	A2	B3
	5.6					7.2	13	54	0.60	13	A2	B3
	8					1.1	2.2	8.0	0.65	2.2	A1	B1
	11		VD0R112-4-0,40	0.40	1,400	1.1	2.3	8.0	0.65	2.3	A1	B1
	16					2.4	4.2	18	0.57	4.2	A1	B1
	22					2.4	4.4	18	0.57	4.4	A1	B1
	32		VD0R112-4-0,80	0.80	1,400	4.5	7.2	32	0.60	7.2	A2	B2
	45					4.5	8.4	32	0.60	8.4	A2	B2
	63					6.8	12	48	0.71	12	A2	B3
SAR 16.2	4	1,000	AD0R112-4-3,00	3.00	1,400	6.8	14	48	0.71	14	A2	B3
	5.6					9.6	20	91	0.80	20	A3	–
	8					9.6	24	91	0.80	20	A3	–
	11		AD0R112-2-5,00	5.00	2,800	9.6	24	91	0.80	20	A3	–
	16					9.6	24	91	0.80	20	A3	–
	22					9.6	24	91	0.80	20	A3	–
	32					9.6	24	91	0.80	20	A3	–
	45					9.6	24	91	0.80	20	A3	–
	63					9.6	24	91	0.80	20	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.8	0.9	2.2	0.40	0.9	A1	B1
	6.7					0.8	0.9	2.2	0.40	0.9	A1	B1
	9.6		VD0Q063-4-0,03	0.03	1,680	0.9	0.9	2.0	0.50	0.9	A1	B1
	13					0.9	0.9	2.0	0.50	0.9	A1	B1
	19		VD0Q063-2-0,04	0.04	3,360	1.1	1.3	3.7	0.43	1.3	A1	B1
	26					1.1	1.3	3.7	0.43	1.3	A1	B1
	38		AD0Q063-4-0,07	0.07	1,680	1.7	2.0	4.4	0.40	2.0	A1	B1
	54					1.7	2.0	4.4	0.40	2.0	A1	B1
	75		AD0Q063-2-0,14	0.14	3,360	1.5	2.0	7.9	0.55	2.0	A1	B1
	108					1.5	2.2	7.9	0.55	2.2	A1	B1
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.9	0.9	2.2	0.50	0.9	A1	B1
	6.7					0.9	0.9	2.2	0.50	0.9	A1	B1
	9.6		VD0Q063-4-0,04	0.04	1,680	1.1	1.1	3.1	0.45	1.1	A1	B1
	13					1.1	1.1	3.1	0.45	1.1	A1	B1
	19		VD0Q063-2-0,08	0.08	3,360	1.1	1.7	5.5	0.52	1.7	A1	B1
	26					1.1	1.7	5.5	0.52	1.7	A1	B1
	38		AD0Q063-4-0,14	0.14	1,680	2.6	3.3	7.6	0.40	3.3	A1	B1
	54					2.6	3.3	7.6	0.40	3.3	A1	B1
	75		AD0Q063-2-0,28	0.28	3,360	2.4	3.5	12	0.53	3.5	A1	B1
	108					2.4	3.7	12	0.53	3.7	A1	B1
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.8	1.1	3.3	0.40	1.1	A1	B1
	6.7					0.8	1.1	3.3	0.40	1.1	A1	B1
	9.6		VD0Q071-4-0,08	0.08	1,680	1.7	2.0	5.7	0.40	2.0	A1	B1
	13					1.7	2.2	5.7	0.40	2.2	A1	B1
	19		VD0Q071-2-0,17	0.17	3,360	2.2	2.4	8.7	0.52	2.4	A1	B1
	26					2.2	2.8	8.7	0.52	2.8	A1	B1
	38		AD0Q071-4-0,28	0.28	1,680	3.5	4.4	16	0.43	4.4	A1	B1
	54					3.5	4.8	16	0.43	4.8	A1	B1
	75		AD0Q071-2-0,50	0.50	3,360	3.9	5.5	26	0.56	5.5	A1	B2
	108					3.9	7.0	26	0.56	7.0	A1	B2
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.9	1.3	5.7	0.60	1.3	A1	B1
	6.7					0.9	1.5	5.7	0.60	1.5	A1	B1
	9.6		VD0Q090-4-0,18	0.18	1,680	2.0	3.1	9.2	0.60	3.1	A1	B1
	13					2.0	3.3	9.2	0.60	3.3	A1	B1
	19		VD0Q090-2-0,30	0.30	3,360	2.0	4.4	16	0.68	4.4	A1	B1
	26					2.0	5.0	16	0.68	5.0	A1	B1
	38		AD0Q090-4-0,50	0.50	1,680	4.4	6.5	26	0.56	6.5	A1	B2
	54					4.4	7.6	26	0.56	7.6	A1	B2
	75		AD0Q090-2-1,00	1.00	3,360	6.8	12	61	0.65	12	A2	B3
	108					6.8	13	61	0.65	13	A2	B3
SAR 14.6	4.8	360	VD0Q090-4-0,14	0.14	1,680	1.5	2.4	8.5	0.55	2.4	A1	B1
	6.7					1.5	2.6	8.5	0.55	2.6	A1	B1
	9.6		VD0Q090-4-0,30	0.30	1,680	3.5	5.5	19	0.52	5.5	A1	B2
	13					3.5	6.1	19	0.52	6.1	A1	B2
	19		VD0Q090-2-0,60	0.60	3,360	5.0	7.9	33	0.61	7.9	A2	B2
	26					5.0	8.3	33	0.61	8.3	A2	B2
	38		AD0Q090-4-1,00	1.00	1,680	7.9	13	65	0.60	13	A2	B3
	54					7.9	14	65	0.60	14	A2	B3
	75		AD0Q090-2-2,00	2.00	3,360	12	21	120	0.69	21	A3	–
	108					12	24	120	0.69	24	A3	–
SAR 16.2	4.8	710	VD0Q112-4-0,30	0.30	1,680	2.6	5.0	17	0.60	5.0	A1	B1
	6.7					2.6	5.5	17	0.60	5.5	A1	B1
	9.6		VD0Q112-4-0,60	0.60	1,680	5.0	8.7	37	0.53	8.7	A2	B2
	13					5.0	9.8	37	0.53	9.8	A2	B2
	19		VD0Q112-2-1,00	1.00	3,360	7.0	13	72	0.68	13	A2	–
	26					7.0	15	72	0.68	15	A2	–
	38		AD0Q112-4-2,00	2.00	1,680	13	22	87	0.65	22	A2	–
	54					13	26	87	0.65	24	A2	–
	75		AD0Q112-2-3,50	3.50	3,360	19	39	196	0.78	39	A4	–
	108					19	46	196	0.78	42	A4	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 230 V/50 Hz

Multi-turn actuator			Motor									
Type	Speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4	20	VD0Q063-4-0,01	0.01	1,400	0.6	0.7	1.7	0.40	0.7	A1	B1
	5.6					0.6	0.7	1.7	0.40	0.7	A1	B1
	8		VD0Q063-4-0,03	0.03	1,400	0.7	0.7	1.6	0.50	0.7	A1	B1
	11					0.7	0.7	1.6	0.50	0.7	A1	B1
	16		VD0Q063-2-0,04	0.04	2,800	0.9	1.0	3.0	0.43	1.0	A1	B1
	22					0.9	1.0	3.0	0.43	1.0	A1	B1
	32		AD0Q063-4-0,07	0.07	1,400	1.4	1.6	3.5	0.40	1.6	A1	B1
	45					1.4	1.6	3.5	0.40	1.6	A1	B1
	63		AD0Q063-2-0,14	0.14	2,800	1.2	1.6	6.3	0.55	1.6	A1	B1
	90					1.2	1.7	6.3	0.55	1.7	A1	B1
SAR 07.6	4	40	VD0Q063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.50	0.7	A1	B1
	5.6					0.7	0.7	1.7	0.50	0.7	A1	B1
	8		VD0Q063-4-0,04	0.04	1,400	0.9	0.9	2.4	0.45	0.9	A1	B1
	11					0.9	0.9	2.4	0.45	0.9	A1	B1
	16		VD0Q063-2-0,08	0.08	2,800	0.9	1.4	4.3	0.52	1.4	A1	B1
	22					0.9	1.4	4.3	0.52	1.4	A1	B1
	32		AD0Q063-4-0,14	0.14	1,400	2.1	2.6	6.1	0.40	2.6	A1	B1
	45					2.1	2.6	6.1	0.40	2.6	A1	B1
	63		AD0Q063-2-0,28	0.28	2,800	1.9	2.8	9.9	0.53	2.8	A1	B1
	90					1.9	3.0	9.9	0.53	3.0	A1	B1
SAR 10.2	4	90	VD0Q071-4-0,04	0.04	1,400	0.6	0.9	2.6	0.40	0.9	A1	B1
	5.6					0.6	0.9	2.6	0.40	0.9	A1	B1
	8		VD0Q071-4-0,08	0.08	1,400	1.4	1.6	4.5	0.40	1.6	A1	B1
	11					1.4	1.7	4.5	0.40	1.7	A1	B1
	16		VD0Q071-2-0,17	0.17	2,800	1.7	1.9	7.0	0.52	1.9	A1	B1
	22					1.7	2.3	7.0	0.52	2.3	A1	B1
	32		AD0Q071-4-0,28	0.28	1,400	2.8	3.5	13	0.43	3.5	A1	B1
	45					2.8	3.8	13	0.43	3.8	A1	B1
	63		AD0Q071-2-0,50	0.50	2,800	3.1	4.3	21	0.56	4.3	A1	B2
	90					3.1	5.6	21	0.56	5.6	A1	B2
SAR 14.2	4	180	VD0Q090-4-0,08	0.08	1,400	0.7	1.0	4.5	0.60	1.0	A1	B1
	5.6					0.7	1.2	4.5	0.60	1.2	A1	B1
	8		VD0Q090-4-0,18	0.18	1,400	1.6	2.4	7.3	0.60	2.4	A1	B1
	11					1.6	2.6	7.3	0.60	2.6	A1	B1
	16		VD0Q090-2-0,30	0.30	2,800	1.6	3.5	13	0.68	3.5	A1	B1
	22					1.6	4.0	13	0.68	4.0	A1	B1
	32		AD0Q090-4-0,50	0.50	1,400	3.5	5.2	21	0.56	5.2	A1	B2
	45					3.5	6.1	21	0.56	6.1	A1	B2
	63		AD0Q090-2-1,00	1.00	2,800	5.4	9.6	49	0.65	9.6	A2	B3
	90					5.4	10	49	0.65	10	A2	B3
SAR 14.6	4	360	VD0Q090-4-0,14	0.14	1,400	1.2	1.9	6.8	0.55	1.9	A1	B1
	5.6					1.2	2.1	6.8	0.55	2.1	A1	B1
	8		VD0Q090-4-0,30	0.30	1,400	2.8	4.3	15	0.52	4.3	A1	B1
	11					2.8	4.9	15	0.52	4.9	A1	B1
	16		VD0Q090-2-0,60	0.60	2,800	4.0	6.3	26	0.61	6.3	A1	B2
	22					4.0	6.6	26	0.61	6.6	A1	B2
	32		AD0Q090-4-1,00	1.00	1,400	6.3	10	52	0.60	10	A2	B3
	45					6.3	11	52	0.60	11	A2	B3
	63		AD0Q090-2-2,00	2.00	2,800	9.9	17	96	0.69	17	A2	–
	90					9.9	19	96	0.69	19	A2	–
SAR 16.2	4	710	VD0Q112-4-0,30	0.30	1,400	2.1	4.0	14	0.60	4.0	A1	B1
	5.6					2.1	4.3	14	0.60	4.3	A1	B1
	8		VD0Q112-4-0,60	0.60	1,400	4.0	7.0	30	0.53	7.0	A2	B2
	11					4.0	7.8	30	0.53	7.8	A2	B2
	16		VD0Q112-2-1,00	1.00	2,800	5.6	11	57	0.68	11	A2	B3
	22					5.6	12	57	0.68	12	A2	B3
	32		AD0Q112-4-2,00	2.00	1,400	10	17	70	0.65	17	A2	–
	45					10	21	70	0.65	20	A2	–
	63		AD0Q112-2-3,50	3.50	2,800	15	31	157	0.78	31	A4	–
	90					15	37	157	0.78	34	A4	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4	20	VD0Q063-4-0,01	0.01	1 400	0.4	0.4	1.1	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.40	0.4	A1	B1
	8		VD0Q063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	11					0.4	0.4	0.9	0.50	0.4	A1	B1
	16		VD0Q063-2-0,04	0.04	2,800	0.5	0.6	1.8	0.43	0.6	A1	B1
	22					0.5	0.6	1.8	0.43	0.6	A1	B1
	32		AD0Q063-4-0,07	0.07	1,400	0.8	0.9	2.1	0.40	0.9	A1	B1
	45					0.8	0.9	2.1	0.40	0.9	A1	B1
	63		AD0Q063-2-0,14	0.14	2,800	0.7	0.9	3.8	0.55	0.9	A1	B1
	90					0.7	1.1	3.8	0.55	1.1	A1	B1
SAR 07.6	4	40	VD0Q063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.1	0.50	0.4	A1	B1
	8		VD0Q063-4-0,04	0.04	1,400	0.5	0.5	1.5	0.45	0.5	A1	B1
	11					0.5	0.5	1.5	0.45	0.5	A1	B1
	16		VD0Q063-2-0,08	0.08	2,800	0.5	0.8	2.6	0.52	0.8	A1	B1
	22					0.5	0.8	2.6	0.52	0.8	A1	B1
	32		AD0Q063-4-0,14	0.14	1,400	1.3	1.6	3.7	0.40	1.6	A1	B1
	45					1.3	1.6	3.7	0.40	1.6	A1	B1
	63		AD0Q063-2-0,28	0.28	2,800	1.2	1.7	6.0	0.53	1.7	A1	B1
	90					1.2	1.8	6.0	0.53	1.8	A1	B1
SAR 10.2	4	90	VD0Q071-4-0,04	0.04	1,400	0.4	0.5	1.6	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.6	0.40	0.5	A1	B1
	8		VD0Q071-4-0,08	0.08	1,400	0.8	0.9	2.7	0.40	0.9	A1	B1
	11					0.8	1.1	2.7	0.40	1.1	A1	B1
	16		VD0Q071-2-0,17	0.17	2,800	1.1	1.2	4.2	0.52	1.2	A1	B1
	22					1.1	1.4	4.2	0.52	1.4	A1	B1
	32		AD0Q071-4-0,28	0.28	1,400	1.7	2.1	7.6	0.43	2.1	A1	B1
	45					1.7	2.3	7.6	0.43	2.3	A1	B1
	63		AD0Q071-2-0,50	0.50	2,800	1.9	2.6	13	0.56	2.6	A1	B1
	90					1.9	3.4	13	0.56	3.4	A1	B1
SAR 14.2	4	180	VD0Q090-4-0,08	0.08	1,400	0.4	0.6	2.7	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.7	0.60	0.7	A1	B1
	8		VD0Q090-4-0,18	0.18	1,400	0.9	1.5	4.4	0.60	1.5	A1	B1
	11					0.9	1.6	4.4	0.60	1.6	A1	B1
	16		VD0Q090-2-0,30	0.30	2,800	0.9	2.1	7.6	0.68	2.1	A1	B1
	22					0.9	2.4	7.6	0.68	2.4	A1	B1
	32		AD0Q090-4-0,50	0.50	1,400	2.1	3.2	13	0.56	3.2	A1	B1
	45					2.1	3.7	13	0.56	3.7	A1	B1
	63		AD0Q090-2-1,00	1.00	2,800	3.3	5.8	29	0.65	5.8	A2	B2
	90					3.3	6.3	29	0.65	6.3	A2	B2
SAR 14.6	4	360	VD0Q090-4-0,14	0.14	1,400	0.7	1.2	4.1	0.55	1.2	A1	B1
	5.6					0.7	1.3	4.1	0.55	1.3	A1	B1
	8		VD0Q090-4-0,30	0.30	1,400	1.7	2.6	8.9	0.52	2.6	A1	B1
	11					1.7	2.9	8.9	0.52	2.9	A1	B1
	16		VD0Q090-2-0,60	0.60	2,800	2.4	3.8	16	0.61	3.8	A1	B1
	22					2.4	4.0	16	0.61	4.0	A1	B1
	32		AD0Q090-4-1,00	1.00	1,400	3.8	6.3	32	0.60	6.3	A2	B2
	45					3.8	6.8	32	0.60	6.8	A2	B2
	63		AD0Q090-2-2,00	2.00	2,800	6.0	10	58	0.69	10	A2	B3
	90					6.0	12	58	0.69	12	A2	B3
SAR 16.2	4	710	VD0Q112-4-0,30	0.30	1,400	1.3	2.4	8.4	0.60	2.4	A1	B1
	5.6					1.3	2.6	8.4	0.60	2.6	A1	B1
	8		VD0Q112-4-0,60	0.60	1,400	2.4	4.2	18	0.53	4.2	A1	B1
	11					2.4	4.7	18	0.53	4.7	A1	B1
	16		VD0Q112-2-1,00	1.00	2,800	3.4	6.4	35	0.68	6.4	A2	B2
	22					3.4	7.2	35	0.68	7.2	A2	B2
	32		AD0Q112-4-2,00	2.00	1,400	6.3	11	42	0.65	11	A2	B3
	45					6.3	13	42	0.65	12	A2	B3
	63		AD0Q112-2-3,50	3.50	2,800	8.9	19	95	0.78	19	A2	–
	90					8.9	22	95	0.78	21	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 380 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.4	0.5	1.3	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.3	0.40	0.5	A1	B1
	9.6		VD0Q063-4-0,03	0.03	1,680	0.5	0.5	1.1	0.50	0.5	A1	B1
	13					0.5	0.5	1.1	0.50	0.5	A1	B1
	19		VD0Q063-2-0,04	0.04	3,360	0.6	0.8	2.1	0.43	0.8	A1	B1
	26					0.6	0.8	2.1	0.43	0.8	A1	B1
	38		AD0Q063-4-0,07	0.07	1,680	1.0	1.1	2.5	0.40	1.1	A1	B1
	54					1.0	1.1	2.5	0.40	1.1	A1	B1
	75		AD0Q063-2-0,14	0.14	3,360	0.9	1.1	4.5	0.55	1.1	A1	B1
	108					0.9	1.3	4.5	0.55	1.3	A1	B1
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.5	0.5	1.3	0.50	0.5	A1	B1
	6.7					0.5	0.5	1.3	0.50	0.5	A1	B1
	9.6		VD0Q063-4-0,04	0.04	1,680	0.6	0.6	1.8	0.45	0.6	A1	B1
	13					0.6	0.6	1.8	0.45	0.6	A1	B1
	19		VD0Q063-2-0,08	0.08	3,360	0.6	1.0	3.2	0.52	1.0	A1	B1
	26					0.6	1.0	3.2	0.52	1.0	A1	B1
	38		AD0Q063-4-0,14	0.14	1,680	1.5	1.9	4.4	0.40	1.9	A1	B1
	54					1.5	1.9	4.4	0.40	1.9	A1	B1
	75		AD0Q063-2-0,28	0.28	3,360	1.4	2.0	7.2	0.53	2.0	A1	B1
	108					1.4	2.1	7.2	0.53	2.1	A1	B1
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.4	0.6	1.9	0.40	0.6	A1	B1
	6.7					0.4	0.6	1.9	0.40	0.6	A1	B1
	9.6		VD0Q071-4-0,08	0.08	1,680	1.0	1.1	3.3	0.40	1.1	A1	B1
	13					1.0	1.3	3.3	0.40	1.3	A1	B1
	19		VD0Q071-2-0,17	0.17	3,360	1.3	1.4	5.1	0.52	1.4	A1	B1
	26					1.3	1.6	5.1	0.52	1.6	A1	B1
	38		AD0Q071-4-0,28	0.28	1,680	2.0	2.5	9.1	0.43	2.5	A1	B1
	54					2.0	2.8	9.1	0.43	2.8	A1	B1
	75		AD0Q071-2-0,50	0.50	3,360	2.3	3.2	15	0.56	3.2	A1	B1
	108					2.3	4.0	15	0.56	4.0	A1	B1
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.5	0.8	3.3	0.60	0.8	A1	B1
	6.7					0.5	0.9	3.3	0.60	0.9	A1	B1
	9.6		VD0Q090-4-0,18	0.18	1,680	1.1	1.8	5.3	0.60	1.8	A1	B1
	13					1.1	1.9	5.3	0.60	1.9	A1	B1
	19		VD0Q090-2-0,30	0.30	3,360	1.1	2.5	9.1	0.68	2.5	A1	B1
	26					1.1	2.9	9.1	0.68	2.9	A1	B1
	38		AD0Q090-4-0,50	0.50	1,680	2.5	3.8	15	0.56	3.8	A1	B1
	54					2.5	4.4	15	0.56	4.4	A1	B1
	75		AD0Q090-2-1,00	1.00	3,360	3.9	6.9	35	0.65	6.9	A2	B2
	108					3.9	7.6	35	0.65	7.6	A2	B2
SAR 14.6	4.8	360	VD0Q090-4-0,14	0.14	1,680	0.9	1.4	4.9	0.55	1.4	A1	B1
	6.7					0.9	1.5	4.9	0.55	1.5	A1	B1
	9.6		VD0Q090-4-0,30	0.30	1,680	2.0	3.2	11	0.52	3.2	A1	B1
	13					2.0	3.5	11	0.52	3.5	A1	B1
	19		VD0Q090-2-0,60	0.60	3,360	2.9	4.5	19	0.61	4.5	A1	B2
	26					2.9	4.8	19	0.61	4.8	A1	B2
	38		AD0Q090-4-1,00	1.00	1,680	4.5	7.6	38	0.60	7.6	A2	B2
	54					4.5	8.2	38	0.60	8.2	A2	B2
	75		AD0Q090-2-2,00	2.00	3,360	7.2	12	69	0.69	12	A2	–
	108					7.2	14	69	0.69	14	A2	–
SAR 16.2	4.8	710	VD0Q112-4-0,30	0.30	1,680	1.5	2.9	10	0.60	2.9	A1	B1
	6.7					1.5	3.2	10	0.60	3.2	A1	B1
	9.6		VD0Q112-4-0,60	0.60	1,680	2.9	5.1	21	0.53	5.1	A1	B2
	13					2.9	5.7	21	0.53	5.7	A1	B2
	19		VD0Q112-2-1,00	1.00	3,360	4.0	7.7	42	0.68	7.7	A2	B2
	26					4.0	8.6	42	0.68	8.6	A2	B2
	38		AD0Q112-4-2,00	2.00	1,680	7.6	13	51	0.65	13	A2	B3
	54					7.6	15	51	0.65	14	A2	B3
	75		AD0Q112-2-3,50	3.50	3,360	11	23	114	0.78	23	A3	–
	108					11	27	114	0.78	25	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 400 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4	20	VD0Q063-4-0,01	0.01	1 400	0.4	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.40	0.4	A1	B1
	8					0.4	0.4	0.9	0.50	0.4	A1	B1
	11		VD0Q063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	16					0.5	0.6	1.7	0.43	0.6	A1	B1
	22					0.5	0.6	1.7	0.43	0.6	A1	B1
	32		VD0Q063-2-0,04	0.04	2,800	0.8	0.9	2.0	0.40	0.9	A1	B1
	45					0.8	0.9	2.0	0.40	0.9	A1	B1
	63					0.7	0.9	3.6	0.55	0.9	A1	B1
SAR 07.6	4	40	VD0Q063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.50	0.4	A1	B1
	8					0.5	0.5	1.4	0.45	0.5	A1	B1
	11		VD0Q063-4-0,04	0.04	1,400	0.5	0.5	1.4	0.45	0.5	A1	B1
	16					0.5	0.8	2.5	0.52	0.8	A1	B1
	22					0.5	0.8	2.5	0.52	0.8	A1	B1
	32		VD0Q063-2-0,08	0.08	2,800	1.2	1.5	3.5	0.40	1.5	A1	B1
	45					1.2	1.5	3.5	0.40	1.5	A1	B1
	63					1.1	1.6	5.7	0.53	1.6	A1	B1
SAR 10.2	4	90	VD0Q071-4-0,04	0.04	1,400	0.4	0.5	1.5	0.40	0.5	A1	B1
	5.6					0.4	0.5	1.5	0.40	0.5	A1	B1
	8					0.8	0.9	2.6	0.40	0.9	A1	B1
	11		VD0Q071-4-0,08	0.08	1,400	0.8	1.0	2.6	0.40	1.0	A1	B1
	16					1.0	1.1	4.0	0.52	1.1	A1	B1
	22					1.0	1.3	4.0	0.52	1.3	A1	B1
	32		VD0Q071-2-0,17	0.17	2,800	1.6	2.0	7.2	0.43	2.0	A1	B1
	45					1.6	2.2	7.2	0.43	2.2	A1	B1
	63					1.8	2.5	12	0.56	2.5	A1	B1
SAR 14.2	4	180	VD0Q090-4-0,08	0.08	1,400	0.4	0.6	2.6	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.6	0.60	0.7	A1	B1
	8					0.9	1.4	4.2	0.60	1.4	A1	B1
	11		VD0Q090-4-0,18	0.18	1,400	0.9	1.5	4.2	0.60	1.5	A1	B1
	16					0.9	2.0	7.2	0.68	2.0	A1	B1
	22					0.9	2.3	7.2	0.68	2.3	A1	B1
	32		VD0Q090-2-0,30	0.30	2,800	2.0	3.0	12	0.56	3.0	A1	B1
	45					2.0	3.5	12	0.56	3.5	A1	B1
	63					3.1	5.5	28	0.65	5.5	A2	B2
SAR 14.6	4	360	VD0Q090-4-0,08	0.08	1,400	0.4	0.6	2.6	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.6	0.60	0.7	A1	B1
	8					0.9	1.4	4.2	0.60	1.4	A1	B1
	11		VD0Q090-4-0,18	0.18	1,400	0.9	1.5	4.2	0.60	1.5	A1	B1
	16					0.9	2.0	7.2	0.68	2.0	A1	B1
	22					0.9	2.3	7.2	0.68	2.3	A1	B1
	32		VD0Q090-2-0,30	0.30	2,800	2.0	3.0	12	0.56	3.0	A1	B1
	45					2.0	3.5	12	0.56	3.5	A1	B1
	63					3.1	5.5	28	0.65	5.5	A2	B2
SAR 16.2	4	710	VD0Q112-4-0,30	0.30	1,400	1.2	2.3	8.0	0.60	2.3	A1	B1
	5.6					1.2	2.5	8.0	0.60	2.5	A1	B1
	8					2.3	4.0	17	0.53	4.0	A1	B1
	11		VD0Q112-4-0,60	0.60	1,400	2.3	4.5	17	0.53	4.5	A1	B1
	16					3.2	6.1	33	0.68	6.1	A2	B2
	22					3.2	6.8	33	0.68	6.8	A2	B2
	32		VD0Q112-2-1,00	1.00	2,800	6.0	10	40	0.65	10	A2	B2
	45					6.0	12	40	0.65	11	A2	B2
	63					8.5	18	90	0.78	18	A2	–
	90		AD0Q112-2-3,50	3.50	2,800	8.5	21	90	0.78	20	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 400 V/60 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.4	0.5	1.2	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.2	0.40	0.5	A1	B1
	9.6					0.5	0.5	1.1	0.50	0.5	A1	B1
	13		VD0Q063-4-0,03	0.03	1,680	0.5	0.5	1.1	0.50	0.5	A1	B1
	19					0.6	0.7	2.0	0.43	0.7	A1	B1
	26					0.6	0.7	2.0	0.43	0.7	A1	B1
	38		VD0Q063-2-0,04	0.04	3,360	1.0	1.1	2.4	0.40	1.1	A1	B1
	54					1.0	1.1	2.4	0.40	1.1	A1	B1
	75					0.8	1.1	4.3	0.55	1.1	A1	B1
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.5	0.5	1.2	0.50	0.5	A1	B1
	6.7					0.5	0.5	1.2	0.50	0.5	A1	B1
	9.6					0.6	0.6	1.7	0.45	0.6	A1	B1
	13		VD0Q063-4-0,04	0.04	1,680	0.6	0.6	1.7	0.45	0.6	A1	B1
	19					0.6	1.0	3.0	0.52	1.0	A1	B1
	26					0.6	1.0	3.0	0.52	1.0	A1	B1
	38		VD0Q063-2-0,08	0.08	3,360	1.4	1.8	4.2	0.40	1.8	A1	B1
	54					1.4	1.8	4.2	0.40	1.8	A1	B1
	75					1.3	1.9	6.8	0.53	1.9	A1	B1
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.4	0.6	1.8	0.40	0.6	A1	B1
	6.7					0.4	0.6	1.8	0.40	0.6	A1	B1
	9.6					1.0	1.1	3.1	0.40	1.1	A1	B1
	13		VD0Q071-4-0,08	0.08	1,680	1.0	1.2	3.1	0.40	1.2	A1	B1
	19					1.2	1.3	4.8	0.52	1.3	A1	B1
	26					1.2	1.6	4.8	0.52	1.6	A1	B1
	38		VD0Q071-2-0,17	0.17	3,360	1.9	2.4	8.6	0.43	2.4	A1	B1
	54					1.9	2.6	8.6	0.43	2.6	A1	B1
	75					2.2	3.0	14	0.56	3.0	A1	B1
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.5	0.7	3.1	0.60	0.7	A1	B1
	6.7					0.5	0.8	3.1	0.60	0.8	A1	B1
	9.6					1.1	1.7	5.0	0.60	1.7	A1	B1
	13		VD0Q090-4-0,18	0.18	1,680	1.1	1.8	5.0	0.60	1.8	A1	B1
	19					1.1	2.4	8.6	0.68	2.4	A1	B1
	26					1.1	2.8	8.6	0.68	2.8	A1	B1
	38		VD0Q090-2-0,30	0.30	3,360	2.4	3.6	14	0.56	3.6	A1	B1
	54					2.4	4.2	14	0.56	4.2	A1	B1
	75					3.7	6.6	34	0.65	6.6	A2	B2
SAR 14.6	4.8	360	VD0Q090-2-1,00	1.00	3,360	3.7	7.2	34	0.65	7.2	A2	B2
	6.7					0.8	1.3	4.7	0.55	1.3	A1	B1
	9.6					0.8	1.4	4.7	0.55	1.4	A1	B1
	13		VD0Q090-4-0,14	0.14	1,680	1.9	3.0	10	0.52	3.0	A1	B1
	19					1.9	3.4	10	0.52	3.4	A1	B1
	26					2.8	4.3	18	0.61	4.3	A1	B1
	38		VD0Q090-2-0,60	0.60	3,360	2.8	4.6	18	0.61	4.6	A1	B1
	54					4.3	7.2	36	0.60	7.2	A2	B2
	75					4.3	7.8	36	0.60	7.8	A2	B2
SAR 16.2	4.8	710	AD0Q090-2-2,00	2.00	3,360	6.8	11	66	0.69	11	A2	–
	6.7					6.8	13	66	0.69	13	A2	–
	9.6					1.4	2.8	9.6	0.60	2.8	A1	B1
	13		VD0Q112-4-0,30	0.30	1,680	1.4	3.0	9.6	0.60	3.0	A1	B1
	19					2.8	4.8	20	0.53	4.8	A1	B2
	26					2.8	5.4	20	0.53	5.4	A1	B2
	38		VD0Q112-4-0,60	0.60	1,680	3.8	7.3	40	0.68	7.3	A2	B2
	54					3.8	8.2	40	0.68	8.2	A2	B2
	75					7.2	12	48	0.65	12	A2	B3
SAR 16.2	108		AD0Q112-4-2,00	2.00	1,680	7.2	14	48	0.65	14	A2	B3
						10	22	108	0.78	22	A3	–
						10	25	108	0.78	24	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 415 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyristor
SAR 07.2	4	20	VD0Q063-4-0,01	0.01	1,400	0.3	0.4	1.0	0.40	0.4	A1	B1
	5.6					0.3	0.4	1.0	0.40	0.4	A1	B1
	8		VD0Q063-4-0,03	0.03	1,400	0.4	0.4	0.9	0.50	0.4	A1	B1
	11					0.4	0.4	0.9	0.50	0.4	A1	B1
	16		VD0Q063-2-0,04	0.04	2,800	0.5	0.6	1.6	0.43	0.6	A1	B1
	22					0.5	0.6	1.6	0.43	0.6	A1	B1
	32		AD0Q063-4-0,07	0.07	1,400	0.8	0.9	1.9	0.40	0.9	A1	B1
	45					0.8	0.9	1.9	0.40	0.9	A1	B1
	63		AD0Q063-2-0,14	0.14	2,800	0.7	0.9	3.5	0.55	0.9	A1	B1
	90					0.7	1.0	3.5	0.55	1.0	A1	B1
SAR 07.6	4	40	VD0Q063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	5.6					0.4	0.4	1.0	0.50	0.4	A1	B1
	8		VD0Q063-4-0,04	0.04	1,400	0.5	0.5	1.3	0.45	0.5	A1	B1
	11					0.5	0.5	1.3	0.45	0.5	A1	B1
	16		VD0Q063-2-0,08	0.08	2,800	0.5	0.8	2.4	0.52	0.8	A1	B1
	22					0.5	0.8	2.4	0.52	0.8	A1	B1
	32		AD0Q063-4-0,14	0.14	1,400	1.2	1.4	3.4	0.40	1.4	A1	B1
	45					1.2	1.4	3.4	0.40	1.4	A1	B1
	63		AD0Q063-2-0,28	0.28	2,800	1.1	1.5	5.5	0.53	1.5	A1	B1
	90					1.1	1.6	5.5	0.53	1.6	A1	B1
SAR 10.2	4	90	VD0Q071-4-0,04	0.04	1,400	0.3	0.5	1.4	0.40	0.5	A1	B1
	5.6					0.3	0.5	1.4	0.40	0.5	A1	B1
	8		VD0Q071-4-0,08	0.08	1,400	0.8	0.9	2.5	0.40	0.9	A1	B1
	11					0.8	1.0	2.5	0.40	1.0	A1	B1
	16		VD0Q071-2-0,17	0.17	2,800	1.0	1.1	3.9	0.52	1.1	A1	B1
	22					1.0	1.3	3.9	0.52	1.3	A1	B1
	32		AD0Q071-4-0,28	0.28	1,400	1.5	1.9	6.9	0.43	1.9	A1	B1
	45					1.5	2.1	6.9	0.43	2.1	A1	B1
	63		AD0Q071-2-0,50	0.50	2,800	1.7	2.4	12	0.56	2.4	A1	B1
	90					1.7	3.1	12	0.56	3.1	A1	B1
SAR 14.2	4	180	VD0Q090-4-0,08	0.08	1,400	0.4	0.6	2.5	0.60	0.6	A1	B1
	5.6					0.4	0.7	2.5	0.60	0.7	A1	B1
	8		VD0Q090-4-0,18	0.18	1,400	0.9	1.3	4.0	0.60	1.3	A1	B1
	11					0.9	1.4	4.0	0.60	1.4	A1	B1
	16		VD0Q090-2-0,30	0.30	2,800	0.9	1.9	6.9	0.68	1.9	A1	B1
	22					0.9	2.2	6.9	0.68	2.2	A1	B1
	32		AD0Q090-4-0,50	0.50	1,400	1.9	2.9	12	0.56	2.9	A1	B1
	45					1.9	3.4	12	0.56	3.4	A1	B1
	63		AD0Q090-2-1,00	1.00	2,800	3.0	5.3	27	0.65	5.3	A2	B2
	90					3.0	5.8	27	0.65	5.8	A2	B2
SAR 14.6	4	360	VD0Q090-4-0,14	0.14	1,400	0.7	1.1	3.8	0.55	1.1	A1	B1
	5.6					0.7	1.2	3.8	0.55	1.2	A1	B1
	8		VD0Q090-4-0,30	0.30	1,400	1.5	2.4	8.2	0.52	2.4	A1	B1
	11					1.5	2.7	8.2	0.52	2.7	A1	B1
	16		VD0Q090-2-0,60	0.60	2,800	2.2	3.5	14	0.61	3.5	A1	B1
	22					2.2	3.7	14	0.61	3.7	A1	B1
	32		AD0Q090-4-1,00	1.00	1,400	3.5	5.8	29	0.60	5.8	A2	B2
	45					3.5	6.3	29	0.60	6.3	A2	B2
	63		AD0Q090-2-2,00	2.00	2,800	5.5	9.2	53	0.69	9.2	A2	B3
	90					5.5	11	53	0.69	11	A2	B3
SAR 16.2	4	710	VD0Q112-4-0,30	0.30	1,400	1.2	2.2	7.7	0.60	2.2	A1	B1
	5.6					1.2	2.4	7.7	0.60	2.4	A1	B1
	8		VD0Q112-4-0,60	0.60	1,400	2.2	3.9	16	0.53	3.9	A1	B1
	11					2.2	4.3	16	0.53	4.3	A1	B1
	16		VD0Q112-2-1,00	1.00	2,800	3.1	5.9	32	0.68	5.9	A2	B2
	22					3.1	6.6	32	0.68	6.6	A2	B2
	32		AD0Q112-4-2,00	2.00	1,400	5.8	9.6	39	0.65	9.6	A2	B2
	45					5.8	12	39	0.65	11	A2	B2
	63		AD0Q112-2-3,50	3.50	2,800	8.2	17	87	0.78	17	A2	–
	90					8.2	20	87	0.78	19	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact- tor	Thyris- tor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.4	0.4	1.1	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.40	0.4	A1	B1
	9.6		VD0Q063-4-0,03	0.03	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	13					0.4	0.4	1.0	0.50	0.4	A1	B1
	19		VD0Q063-2-0,04	0.04	3,360	0.5	0.7	1.9	0.43	0.7	A1	B1
	26					0.5	0.7	1.9	0.43	0.7	A1	B1
	38		AD0Q063-4-0,07	0.07	1,680	0.9	1.0	2.2	0.40	1.0	A1	B1
	54					0.9	1.0	2.2	0.40	1.0	A1	B1
	75		AD0Q063-2-0,14	0.14	3,360	0.8	1.0	3.9	0.55	1.0	A1	B1
	108					0.8	1.1	3.9	0.55	1.1	A1	B1
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.4	0.4	1.1	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.1	0.50	0.4	A1	B1
	9.6		VD0Q063-4-0,04	0.04	1,680	0.5	0.5	1.5	0.45	0.5	A1	B1
	13					0.5	0.5	1.5	0.45	0.5	A1	B1
	19		VD0Q063-2-0,08	0.08	3,360	0.5	0.9	2.7	0.52	0.9	A1	B1
	26					0.5	0.9	2.7	0.52	0.9	A1	B1
	38		AD0Q063-4-0,14	0.14	1,680	1.3	1.6	3.8	0.40	1.6	A1	B1
	54					1.3	1.6	3.8	0.40	1.6	A1	B1
	75		AD0Q063-2-0,28	0.28	3,360	1.2	1.7	6.2	0.53	1.7	A1	B1
	108					1.2	1.9	6.2	0.53	1.9	A1	B1
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.4	0.5	1.6	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.6	0.40	0.5	A1	B1
	9.6		VD0Q071-4-0,08	0.08	1,680	0.9	1.0	2.8	0.40	1.0	A1	B1
	13					0.9	1.1	2.8	0.40	1.1	A1	B1
	19		VD0Q071-2-0,17	0.17	3,360	1.1	1.2	4.4	0.52	1.2	A1	B1
	26					1.1	1.4	4.4	0.52	1.4	A1	B1
	38		AD0Q071-4-0,28	0.28	1,680	1.7	2.2	7.9	0.43	2.2	A1	B1
	54					1.7	2.4	7.9	0.43	2.4	A1	B1
	75		AD0Q071-2-0,50	0.50	3,360	2.0	2.7	13	0.56	2.7	A1	B1
	108					2.0	3.5	13	0.56	3.5	A1	B1
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.4	0.7	2.8	0.60	0.7	A1	B1
	6.7					0.4	0.8	2.8	0.60	0.8	A1	B1
	9.6		VD0Q090-4-0,18	0.18	1,680	1.0	1.5	4.6	0.60	1.5	A1	B1
	13					1.0	1.6	4.6	0.60	1.6	A1	B1
	19		VD0Q090-2-0,30	0.30	3,360	1.0	2.2	7.9	0.68	2.2	A1	B1
	26					1.0	2.5	7.9	0.68	2.5	A1	B1
	38		AD0Q090-4-0,50	0.50	1,680	2.2	3.3	13	0.56	3.3	A1	B1
	54					2.2	3.8	13	0.56	3.8	A1	B1
	75		AD0Q090-2-1,00	1.00	3,360	3.4	6.0	31	0.65	6.0	A2	B2
	108					3.4	6.5	31	0.65	6.5	A2	B2
SAR 14.6	4.8	360	VD0Q090-4-0,14	0.14	1,680	0.8	1.2	4.3	0.55	1.2	A1	B1
	6.7					0.8	1.3	4.3	0.55	1.3	A1	B1
	9.6		VD0Q090-4-0,30	0.30	1,680	1.7	2.7	9.3	0.52	2.7	A1	B1
	13					1.7	3.1	9.3	0.52	3.1	A1	B1
	19		VD0Q090-2-0,60	0.60	3,360	2.5	3.9	16	0.61	3.9	A1	B1
	26					2.5	4.1	16	0.61	4.1	A1	B1
	38		AD0Q090-4-1,00	1.00	1,680	3.9	6.5	33	0.60	6.5	A2	B2
	54					3.9	7.1	33	0.60	7.1	A2	B2
	75		AD0Q090-2-2,00	2.00	3,360	6.2	10	60	0.69	10	A2	B3
	108					6.2	12	60	0.69	12	A2	B3
SAR 16.2	4.8	710	VD0Q112-4-0,30	0.30	1,680	1.3	2.5	8.7	0.60	2.5	A1	B1
	6.7					1.3	2.7	8.7	0.60	2.7	A1	B1
	9.6		VD0Q112-4-0,60	0.60	1,680	2.5	4.4	19	0.53	4.4	A1	B2
	13					2.5	4.9	19	0.53	4.9	A1	B2
	19		VD0Q112-2-1,00	1.00	3,360	3.5	6.7	36	0.68	6.7	A2	B2
	26					3.5	7.4	36	0.68	7.4	A2	B2
	38		AD0Q112-4-2,00	2.00	1,680	6.5	11	44	0.65	11	A2	B3
	54					6.5	13	44	0.65	13	A2	B3
	75		AD0Q112-2-3,50	3.50	3,360	9.3	20	98	0.78	20	A2	–
	108					9.3	23	98	0.78	21	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-tor	Thyristor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0Q063-4-0,03	0.03	1,680	0.4	0.4	0.9	0.50	0.4	A1	B1
	13					0.4	0.4	0.9	0.50	0.4	A1	B1
	19		VD0Q063-2-0,04	0.04	3,360	0.5	0.6	1.8	0.43	0.6	A1	B1
	26					0.5	0.6	1.8	0.43	0.6	A1	B1
	38		AD0Q063-4-0,07	0.07	1,680	0.8	0.9	2.1	0.40	0.9	A1	B1
	54					0.8	0.9	2.1	0.40	0.9	A1	B1
75	AD0Q063-2-0,14	0.14	3,360	0.7	0.9	3.8	0.55	0.9	A1	B1		
108				0.7	1.0	3.8	0.55	1.0	A1	B1		
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.50	0.4	A1	B1
	9.6		VD0Q063-4-0,04	0.04	1,680	0.5	0.5	1.5	0.45	0.5	A1	B1
	13					0.5	0.5	1.5	0.45	0.5	A1	B1
	19		VD0Q063-2-0,08	0.08	3,360	0.5	0.8	2.6	0.52	0.8	A1	B1
	26					0.5	0.8	2.6	0.52	0.8	A1	B1
	38		AD0Q063-4-0,14	0.14	1,680	1.3	1.6	3.7	0.40	1.6	A1	B1
	54					1.3	1.6	3.7	0.40	1.6	A1	B1
75	AD0Q063-2-0,28	0.28	3,360	1.1	1.7	5.9	0.53	1.7	A1	B1		
108				1.1	1.8	5.9	0.53	1.8	A1	B1		
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.4	0.5	1.6	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.6	0.40	0.5	A1	B1
	9.6		VD0Q071-4-0,08	0.08	1,680	0.8	0.9	2.7	0.40	0.9	A1	B1
	13					0.8	1.0	2.7	0.40	1.0	A1	B1
	19		VD0Q071-2-0,17	0.17	3,360	1.0	1.1	4.2	0.52	1.1	A1	B1
	26					1.0	1.4	4.2	0.52	1.4	A1	B1
	38		AD0Q071-4-0,28	0.28	1,680	1.7	2.1	7.5	0.43	2.1	A1	B1
	54					1.7	2.3	7.5	0.43	2.3	A1	B1
75	AD0Q071-2-0,50	0.50	3,360	1.9	2.6	13	0.56	2.6	A1	B1		
108				1.9	3.3	13	0.56	3.3	A1	B1		
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.4	0.6	2.7	0.60	0.6	A1	B1
	6.7					0.4	0.7	2.7	0.60	0.7	A1	B1
	9.6		VD0Q090-4-0,18	0.18	1,680	0.9	1.5	4.4	0.60	1.5	A1	B1
	13					0.9	1.6	4.4	0.60	1.6	A1	B1
	19		VD0Q090-2-0,30	0.30	3,360	0.9	2.1	7.5	0.68	2.1	A1	B1
	26					0.9	2.4	7.5	0.68	2.4	A1	B1
	38		AD0Q090-4-0,50	0.50	1,680	2.1	3.1	13	0.56	3.1	A1	B1
	54					2.1	3.7	13	0.56	3.7	A1	B1
75	AD0Q090-2-1,00	1.00	3,360	3.2	5.7	29	0.65	5.7	A2	B2		
108				3.2	6.3	29	0.65	6.3	A2	B2		
SAR 14.6	4.8	360	VD0Q090-4-0,14	0.14	1,680	0.7	1.1	4.1	0.55	1.1	A1	B1
	6.7					0.7	1.3	4.1	0.55	1.3	A1	B1
	9.6		VD0Q090-4-0,30	0.30	1,680	1.7	2.6	8.9	0.52	2.6	A1	B1
	13					1.7	2.9	8.9	0.52	2.9	A1	B1
	19		VD0Q090-2-0,60	0.60	3,360	2.4	3.8	16	0.61	3.8	A1	B1
	26					2.4	4.0	16	0.61	4.0	A1	B1
	38		AD0Q090-4-1,00	1.00	1,680	3.8	6.3	31	0.60	6.3	A2	B2
	54					3.8	6.8	31	0.60	6.8	A2	B2
75	AD0Q090-2-2,00	2.00	3,360	5.9	9.9	57	0.69	9.9	A2	B3		
108				5.9	12	57	0.69	12	A2	B3		
SAR 16.2	4.8	710	VD0Q112-4-0,30	0.30	1,680	1.3	2.4	8.3	0.60	2.4	A1	B1
	6.7					1.3	2.6	8.3	0.60	2.6	A1	B1
	9.6		VD0Q112-4-0,60	0.60	1,680	2.4	4.2	18	0.53	4.2	A1	B1
	13					2.4	4.7	18	0.53	4.7	A1	B1
	19		VD0Q112-2-1,00	1.00	3,360	3.3	6.4	34	0.68	6.4	A2	B2
	26					3.3	7.1	34	0.68	7.1	A2	B2
	38		AD0Q112-4-2,00	2.00	1,680	6.3	10	42	0.65	10	A2	B3
	54					6.3	13	42	0.65	12	A2	B3
75	AD0Q112-2-3,50	3.50	3,360	8.9	19	94	0.78	19	A3	—		
108				8.9	22	94	0.78	21	A3	—		

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
SAR 07.2	4.8	20	VD0Q063-4-0,01	0.01	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.40	0.4	A1	B1
	9.6		VD0Q063-4-0,03	0.03	1,680	0.4	0.4	0.9	0.50	0.4	A1	B1
	13					0.4	0.4	0.9	0.50	0.4	A1	B1
	19		VD0Q063-2-0,04	0.04	3,360	0.5	0.6	1.7	0.43	0.6	A1	B1
	26					0.5	0.6	1.7	0.43	0.6	A1	B1
	38		AD0Q063-4-0,07	0.07	1,680	0.8	0.9	2.0	0.40	0.9	A1	B1
	54					0.8	0.9	2.0	0.40	0.9	A1	B1
	75		AD0Q063-2-0,14	0.14	3,360	0.7	0.9	3.6	0.55	0.9	A1	B1
	108					0.7	1.0	3.6	0.55	1.0	A1	B1
SAR 07.6	4.8	40	VD0Q063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	6.7					0.4	0.4	1.0	0.50	0.4	A1	B1
	9.6		VD0Q063-4-0,04	0.04	1,680	0.5	0.5	1.4	0.45	0.5	A1	B1
	13					0.5	0.5	1.4	0.45	0.5	A1	B1
	19		VD0Q063-2-0,08	0.08	3,360	0.5	0.8	2.5	0.52	0.8	A1	B1
	26					0.5	0.8	2.5	0.52	0.8	A1	B1
	38		AD0Q063-4-0,14	0.14	1,680	1.2	1.5	3.5	0.40	1.5	A1	B1
	54					1.2	1.5	3.5	0.40	1.5	A1	B1
	75		AD0Q063-2-0,28	0.28	3,360	1.1	1.6	5.7	0.53	1.6	A1	B1
	108					1.1	1.7	5.7	0.53	1.7	A1	B1
SAR 10.2	4.8	90	VD0Q071-4-0,04	0.04	1,680	0.4	0.5	1.5	0.40	0.5	A1	B1
	6.7					0.4	0.5	1.5	0.40	0.5	A1	B1
	9.6		VD0Q071-4-0,08	0.08	1,680	0.8	0.9	2.6	0.40	0.9	A1	B1
	13					0.8	1.0	2.6	0.40	1.0	A1	B1
	19		VD0Q071-2-0,17	0.17	3,360	1.0	1.1	4.0	0.52	1.1	A1	B1
	26					1.0	1.3	4.0	0.52	1.3	A1	B1
	38		AD0Q071-4-0,28	0.28	1,680	1.6	2.0	7.2	0.43	2.0	A1	B1
	54					1.6	2.2	7.2	0.43	2.2	A1	B1
	75		AD0Q071-2-0,50	0.50	3,360	1.8	2.5	12	0.56	2.5	A1	B1
	108					1.8	3.2	12	0.56	3.2	A1	B1
SAR 14.2	4.8	180	VD0Q090-4-0,08	0.08	1,680	0.4	0.6	2.6	0.60	0.6	A1	B1
	6.7					0.4	0.7	2.6	0.60	0.7	A1	B1
	9.6		VD0Q090-4-0,18	0.18	1,680	0.9	1.4	4.2	0.60	1.4	A1	B1
	13					0.9	1.5	4.2	0.60	1.5	A1	B1
	19		VD0Q090-2-0,30	0.30	3,360	0.9	2.0	7.2	0.68	2.0	A1	B1
	26					0.9	2.3	7.2	0.68	2.3	A1	B1
	38		AD0Q090-4-0,50	0.50	1,680	2.0	3.0	12	0.56	3.0	A1	B1
	54					2.0	3.5	12	0.56	3.5	A1	B1
	75		AD0Q090-2-1,00	1.00	3,360	3.1	5.5	28	0.65	5.5	A2	B2
	108					3.1	6.0	28	0.65	6.0	A2	B2
SAR 14.6	4.8	360	VD0Q090-4-0,14	0.14	1,680	0.7	1.1	3.9	0.55	1.1	A1	B1
	6.7					0.7	1.2	3.9	0.55	1.2	A1	B1
	9.6		VD0Q090-4-0,30	0.30	1,680	1.6	2.5	8.5	0.52	2.5	A1	B1
	13					1.6	2.8	8.5	0.52	2.8	A1	B1
	19		VD0Q090-2-0,60	0.60	3,360	2.3	3.6	15	0.61	3.6	A1	B1
	26					2.3	3.8	15	0.61	3.8	A1	B1
	38		AD0Q090-4-1,00	1.00	1,680	3.6	6.0	30	0.60	6.0	A2	B2
	54					3.6	6.5	30	0.60	6.5	A2	B2
	75		AD0Q090-2-2,00	2.00	3,360	5.7	9.5	55	0.69	9.5	A2	B3
	108					5.7	11	55	0.69	11	A2	B3
SAR 16.2	4.8	710	VD0Q112-4-0,30	0.30	1,680	1.2	2.3	8.0	0.60	2.3	A1	B1
	6.7					1.2	2.5	8.0	0.60	2.5	A1	B1
	9.6		VD0Q112-4-0,60	0.60	1,680	2.3	4.0	17	0.53	4.0	A1	B1
	13					2.3	4.5	17	0.53	4.5	A1	B1
	19		VD0Q112-2-1,00	1.00	3,360	3.2	6.1	33	0.68	6.1	A2	B2
	26					3.2	6.8	33	0.68	6.8	A2	B2
	38		AD0Q112-4-2,00	2.00	1,680	6.0	10	40	0.65	10	A2	B2
	54					6.0	12	40	0.65	11	A2	B2
	75		AD0Q112-2-3,50	3.50	3,360	8.5	18	90	0.78	18	A2	–
	108					8.5	21	90	0.78	20	A2	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 50 %, 500 V/50 Hz

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switchgear	
											Contact-	Thyristor
											tor	
SAR 07.2	4	20	VD0Q063-4-0,01	0.01	1,400	0.3	0.3	0.8	0.40	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.40	0.3	A1	B1
	8					0.3	0.3	0.7	0.50	0.3	A1	B1
	11		VD0Q063-4-0,03	0.03	1,400	0.3	0.3	0.7	0.50	0.3	A1	B1
	16					0.4	0.5	1.4	0.43	0.5	A1	B1
	22					0.4	0.5	1.4	0.43	0.5	A1	B1
	32		VD0Q063-2-0,04	0.04	2,800	0.6	0.7	1.6	0.40	0.7	A1	B1
	45					0.6	0.7	1.6	0.40	0.7	A1	B1
	63					0.6	0.7	2.9	0.55	0.7	A1	B1
SAR 07.6	4	40	VD0Q063-4-0,02	0.02	1,400	0.3	0.3	0.8	0.50	0.3	A1	B1
	5.6					0.3	0.3	0.8	0.50	0.3	A1	B1
	8					0.4	0.4	1.1	0.45	0.4	A1	B1
	11		VD0Q063-4-0,04	0.04	1,400	0.4	0.4	1.1	0.45	0.4	A1	B1
	16					0.4	0.6	2.0	0.52	0.6	A1	B1
	22					0.4	0.6	2.0	0.52	0.6	A1	B1
	32		VD0Q063-2-0,08	0.08	2,800	1.0	1.2	2.8	0.40	1.2	A1	B1
	45					1.0	1.2	2.8	0.40	1.2	A1	B1
	63					0.9	1.3	4.6	0.53	1.3	A1	B1
SAR 10.2	4	90	VD0Q071-4-0,04	0.04	1,400	0.3	0.4	1.2	0.40	0.4	A1	B1
	5.6					0.3	0.4	1.2	0.40	0.4	A1	B1
	8					0.6	0.7	2.1	0.40	0.7	A1	B1
	11		VD0Q071-4-0,08	0.08	1,400	0.6	0.8	2.1	0.40	0.8	A1	B1
	16					0.8	0.9	3.2	0.52	0.9	A1	B1
	22					0.8	1.0	3.2	0.52	1.0	A1	B1
	32		VD0Q071-2-0,17	0.17	2,800	1.3	1.6	5.8	0.43	1.6	A1	B1
	45					1.3	1.8	5.8	0.43	1.8	A1	B1
	63					1.4	2.0	9.6	0.56	2.0	A1	B1
SAR 14.2	4	180	VD0Q090-4-0,08	0.08	1,400	0.3	0.5	2.1	0.60	0.5	A1	B1
	5.6					0.3	0.6	2.1	0.60	0.6	A1	B1
	8					0.7	1.1	3.4	0.60	1.1	A1	B1
	11		VD0Q090-4-0,18	0.18	1,400	0.7	1.2	3.4	0.60	1.2	A1	B1
	16					0.7	1.6	5.8	0.68	1.6	A1	B1
	22					0.7	1.8	5.8	0.68	1.8	A1	B1
	32		VD0Q090-2-0,30	0.30	2,800	1.6	2.4	9.6	0.56	2.4	A1	B1
	45					1.6	2.8	9.6	0.56	2.8	A1	B1
	63					2.5	4.4	22	0.65	4.4	A2	B2
SAR 14.6	4	360	VD0Q090-4-0,50	0.50	1,400	2.5	4.8	22	0.65	4.8	A2	B2
	5.6					2.5	4.8	22	0.65	4.8	A2	B2
	8					0.6	0.9	3.1	0.55	0.9	A1	B1
	11		VD0Q090-4-0,14	0.14	1,400	0.6	1.0	3.1	0.55	1.0	A1	B1
	16					1.3	2.0	6.8	0.52	2.0	A1	B1
	22					1.3	2.2	6.8	0.52	2.2	A1	B1
	32		VD0Q090-2-0,30	0.30	1,400	1.8	2.9	12	0.61	2.9	A1	B1
	45					1.8	3.0	12	0.61	3.0	A1	B1
	63					2.9	4.8	24	0.60	4.8	A2	B2
SAR 16.2	4	710	VD0Q090-4-1,00	1.00	1,400	2.9	5.2	24	0.60	5.2	A2	B2
	5.6					4.6	7.6	44	0.69	7.6	A2	B2
	8					4.6	8.8	44	0.69	8.8	A2	B2
	11		VD0Q090-2-2,00	2.00	2,800	1.0	1.8	6.4	0.60	1.8	A1	B1
	16					1.0	2.0	6.4	0.60	2.0	A1	B1
	22					1.8	3.2	14	0.53	3.2	A1	B1
	32		VD0Q112-4-0,60	0.60	1,400	1.8	3.6	14	0.53	3.6	A1	B1
	45					2.6	4.9	26	0.68	4.9	A2	B2
	63					2.6	5.4	26	0.68	5.4	A2	B2
SAR 16.2	4	710	VD0Q112-2-1,00	1.00	2,800	4.8	8.0	32	0.65	8.0	A2	B2
	5.6					4.8	9.6	32	0.65	8.9	A2	B2
	8					6.8	14	72	0.78	14	A3	–
	11		AD0Q112-4-2,00	2.00	1,400	6.8	17	72	0.78	16	A3	–
	16					6.8	17	72	0.78	16	A3	–
	22					6.8	17	72	0.78	16	A3	–
	32		AD0Q112-2-3,50	3.50	2,800	6.8	17	72	0.78	16	A3	–
	45					6.8	17	72	0.78	16	A3	–
	63					6.8	17	72	0.78	16	A3	–

1) – 3) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Installation and sizing																																		
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																																	
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Actuators without integral actuator controls (AUMA NORM): Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan). Note: Failure to connect thermoswitches or PTC thermistors shall void the warranty for the motor. Rating of the thermoswitches <table><tr><th colspan="2">AC current</th><th colspan="2">DC current</th></tr><tr><td colspan="2">250 V, 50 – 60 Hz</td><td>60 V</td><td>1.0 A</td></tr><tr><td>cos φ = 1</td><td>2.5 A</td><td>42 V</td><td>1.2 A</td></tr><tr><td>cos φ = 0.6</td><td>1.6 A</td><td>24 V</td><td>1.5 A</td></tr></table> Actuators with AM or AC integral actuator controls: Thermal motor protection is already integrated.				AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A														
AC current		DC current																																
250 V, 50 – 60 Hz		60 V	1.0 A																															
cos φ = 1	2.5 A	42 V	1.2 A																															
cos φ = 0.6	1.6 A	24 V	1.5 A																															
Mains voltage, mains frequency	Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %																																	
Terminal plan	<table><tr><th>Multi-turn actuators</th><th>Motor (type)</th><th>Terminal plan</th><th>Mains voltage range</th></tr><tr><td>SA 07.2 – SA 14.6</td><td>VE.../AE...</td><td>TPA01R1AA-101-000</td><td>Applies to all variants</td></tr><tr><td>SA 07.2 – SA 14.6</td><td>VC.../AC...</td><td>TPA02R1AA-101-000</td><td>100 V – 120 V</td></tr><tr><td>SA 07.2 – SA 14.6</td><td>VC.../AC...</td><td>TPA03R1AA-101-000</td><td>200 V – 240 V</td></tr><tr><td>SAR 07.2 – SAR 14.6</td><td>VE.../AE...</td><td>TPA01R1AA-001-000</td><td>Applies to all variants</td></tr></table> For further information refer to “Technical data Multi-turn actuators SA 07.2 – SA 14.6 / SAR 07.2 – SAR 14.6 with 1-phase AC motors”.				Multi-turn actuators	Motor (type)	Terminal plan	Mains voltage range	SA 07.2 – SA 14.6	VE.../AE...	TPA01R1AA-101-000	Applies to all variants	SA 07.2 – SA 14.6	VC.../AC...	TPA02R1AA-101-000	100 V – 120 V	SA 07.2 – SA 14.6	VC.../AC...	TPA03R1AA-101-000	200 V – 240 V	SAR 07.2 – SAR 14.6	VE.../AE...	TPA01R1AA-001-000	Applies to all variants										
Multi-turn actuators	Motor (type)	Terminal plan	Mains voltage range																															
SA 07.2 – SA 14.6	VE.../AE...	TPA01R1AA-101-000	Applies to all variants																															
SA 07.2 – SA 14.6	VC.../AC...	TPA02R1AA-101-000	100 V – 120 V																															
SA 07.2 – SA 14.6	VC.../AC...	TPA03R1AA-101-000	200 V – 240 V																															
SAR 07.2 – SAR 14.6	VE.../AE...	TPA01R1AA-001-000	Applies to all variants																															
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: <table><tr><th>AUMA power class</th><th>Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3</th><th colspan="2">Reversing contactor Motor power according to UL/CSA at</th></tr><tr><td></td><td>400 V AC</td><td>480 V AC</td><td>600 V AC</td></tr><tr><td>A1</td><td>4.0 kW</td><td>5.0 hp</td><td>5.0 hp</td></tr><tr><td>A2</td><td>7.5 kW</td><td>10 hp</td><td>10 hp</td></tr><tr><td>A3</td><td>15 kW</td><td>20 hp</td><td>25 hp</td></tr></table> <table><tr><th>AUMA power class</th><th>Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a</th></tr><tr><td></td><td>400 V AC</td></tr><tr><td>B1</td><td>6 A</td></tr><tr><td>B2</td><td>8.5 A</td></tr><tr><td>B3</td><td>16 A</td></tr></table> Actuators with AM or AC integral actuator controls: Required switchgear in power classes A1 – A3 or B1 – B3 are already integrated in AM or AC actuator controls. For actuators with AM integral actuator controls and installed switchgear in AUMA power class A3, an optional thermal overcurrent protection device cannot be directly integrated within the AM. A control box is additionally required. However, AC actuator controls can be used instead of AM actuator controls. When opting for AC actuator controls, the additional control box can be omitted.				AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at			400 V AC	480 V AC	600 V AC	A1	4.0 kW	5.0 hp	5.0 hp	A2	7.5 kW	10 hp	10 hp	A3	15 kW	20 hp	25 hp	AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a		400 V AC	B1	6 A	B2	8.5 A	B3	16 A
AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at																																
	400 V AC	480 V AC	600 V AC																															
A1	4.0 kW	5.0 hp	5.0 hp																															
A2	7.5 kW	10 hp	10 hp																															
A3	15 kW	20 hp	25 hp																															
AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a																																	
	400 V AC																																	
B1	6 A																																	
B2	8.5 A																																	
B3	16 A																																	

Notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors	
1) Nominal power P_N	Mechanical power output at motor shaft at run torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque). The consumed electrical power can be calculated using the following formula: $P = U \times I \times \cos \varphi$
2) Operating/starting capacitor	For VE/AE motors, operating capacitors are integrated within the motor. For VC/AC motors, starting capacitors and starting switchgear are integrated within the motor.
3) Nominal current I_N	current at run torque at approx. 35 % of maximum torque
4) Max. current I_{max}	Current at maximum torque

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SA 07.2	4	25	VB0063-4-0,02	0.02	1,400	25	1.4	1.5	3.6	0.81	1.5	A1	B1
	5.6						1.4	1.5	3.6	0.81	1.5	A1	B1
	8		VB0063-4-0,04	0.04	1,400	50	2	2.2	4	0.98	2.2	A1	B1
	11						2	2.3	4	0.98	2.3	A1	B1
	16		VB0063-2-0,06	0.06	2,800	70	1.9	2.9	10	0.95	2.9	A1	B1
	22						1.9	3	10	0.95	3	A1	B1
SA 07.6	4	45	VB0063-4-0,03	0.03	1,400	50	2	2.1	4	0.98	2.1	A1	B1
	5.6						2	2.2	4	0.98	2.2	A1	B1
	8		VB0063-4-0,07	0.07	1,400	70	2.8	3.3	6.5	0.92	3.3	A1	B1
	11						2.8	3.4	6.5	0.92	3.4	A1	B1
	16		VB0063-2-0,12	0.12	2,800	100	3	4.8	11	0.98	4.8	A1	B1
	22						3	5.2	11	0.98	5.2	A1	B1

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SA 07.2	4,8	25	VB0063-4-0,02	0,02	1 680	25	1.4	1.5	4.2	0.94	1.5	A1	B1
	6,7						1.4	1.5	4.2	0.94	1.5	A1	B1
	9,6		VB0063-4-0,04	0,04	1 680	50	2.6	2.9	4.8	0.95	2.9	A1	B1
	13						2.6	3	4.8	0.95	3	A1	B1
	19		VB0063-2-0,06	0,06	3 360	70	2.5	3.4	12.5	0.94	3.4	A1	B1
	26						2.5	3.6	12.5	0.94	3.6	A1	B1
SA 07.6	4,8	45	VB0063-4-0,03	0,03	1 680	50	2.5	2.8	4.8	0.95	2.8	A1	B1
	6,7						2.5	2.9	4.8	0.95	2.9	A1	B1
	9,6		VB0063-4-0,06	0,07	1 680	70	2.9	3.7	6.8	0.98	3.7	A1	B1
	13						2.9	3.9	6.8	0.98	3.9	A1	B1
	19		VB0063-2-0,12	0,12	3 360	100	4.5	6	13	0.85	6	A1	B1
	26						4.5	6.5	13	0.85	6.5	A1	B1

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SA 07.2	4	30	VB0063-4-0,02	0,02	1 400	6	0.96	1.08	2.64	0.9	1.08	A1	B1
	5,6						0.96	1.08	2.64	0.9	1.08	A1	B1
	8		VB0063-4-0,04	0,04	1 400	12	1.56	1.68	2.88	1.4	1.68	A1	B1
	11						1.56	1.8	2.88	1.5	1.8	A1	B1
	16		VB0063-2-0,06	0,06	2 800	16	1.44	2.04	7.8	1.7	2.04	A1	B1
	22						1.44	2.16	7.8	1.8	2.16	A1	B1
SA 07.6	4	60	VB0063-4-0,03	0,03	1 400	12	1.44	1.56	2.88	1.3	1.56	A1	B1
	5,6						1.44	1.68	2.88	1.4	1.68	A1	B1
	8		VB0063-4-0,07	0,07	1 400	20	2.28	2.64	4.8	2.2	2.64	A1	B1
	11						2.28	2.76	4.8	2.3	2.76	A1	B1
	16		VB0063-2-0,12	0,12	2 800	25	3	3.96	8.4	3.3	3.96	A1	B1
	22						3	4.32	8.4	3.6	4.32	A1	B1

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SA 07.2	4,8	25	VB0063-4-0,02	0,02	1 680	6	0,8	0,9	2,2	0,73	0,9	A1	B1
	6,8						0,8	0,9	2,2	0,73	0,9	A1	B1
	9,6		VB0063-4-0,04	0,04	1 680	12	1,3	1,4	2,4	0,95	1,4	A1	B1
	13						1,3	1,5	2,4	0,95	1,5	A1	B1
	19		VB0063-2-0,06	0,06	3 360	16	1,2	1,7	6,5	0,92	1,7	A1	B1
	26						1,2	1,8	6,5	0,92	1,8	A1	B1
SA 07.6	4,8	45	VB0063-4-0,03	0,03	1 680	12	1,2	1,3	2,4	0,95	1,3	A1	B1
	6,8						1,2	1,4	2,4	0,95	1,4	A1	B1
	9,6		VB0063-4-0,07	0,07	1 680	20	1,9	2,2	4	0,95	2,2	A1	B1
	13						1,9	2,3	4	0,95	2,3	A1	B1
	19		VB0063-2-0,12	0,12	3 360	25	2,5	3,3	7	0,87	3,3	A1	B1
	26						2,5	3,6	7	0,87	3,6	A1	B1

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
SA 07.2	4	30	VE0048-4-0,02	0.02	1 400	30	–	4.7	4.7	6.7	0.48	4.7	A1	B1
	5.6							4.7	4.7	6.7	0.48	4.7	A1	B1
	8		VE0048-4-0,04	0.04	1,400	50	–	4.7	4.7	7.2	0.60	4.7	A1	B1
	11							4.7	4.7	7.2	0.60	4.7	A1	B1
	16		VE0048-2-0,06	0.06	2,800	90	–	3.0	3.5	16	0.90	3.3	A1	B1
	22							3.0	3.5	16	0.90	3.3	A1	B1
	32		AE0048-4-0,10	0.10	1,400	120	–	8.9	8.9	16	0.64	8.9	A2	B3
	45							8.9	8.9	16	0.64	8.9	A2	B3
	63	25	AC0048-2-0,20	0.20	2,800	–	285	8.9	11	60	0.40	9.3	A2	–
	90							8.9	11	60	0.40	9.3	A2	–
	125		AC0048-2-0,30	0.30	2,800	–	285	9.3	13	60	0.48	9.3	A2	–
	180							9.3	13	60	0.48	9.3	A2	–
SA 07.6	4	60	VE0048-4-0,03	0.03	1,400	30	–	4.7	4.7	6.7	0.48	4.7	A1	B1
	5.6							4.7	4.7	6.7	0.48	4.7	A1	B1
	8		VE0048-4-0,07	0.07	1,400	50	–	4.7	4.7	7.2	0.65	4.7	A1	B1
	11							4.7	4.7	7.2	0.65	4.7	A1	B1
	16		VE0048-2-0,12	0.12	2,800	90	–	3.1	4.4	16	0.93	3.3	A1	B1
	22							3.1	4.4	16	0.93	3.3	A1	B1
	32		AE0048-4-0,20	0.20	1,400	120	–	9.3	9.3	16	0.65	9.3	A2	B3
	45							9.3	9.7	16	0.65	9.3	A2	B3
	63	50	AC0048-2-0,40	0.40	2,800	–	480	18	20	95	0.39	18	A3	–
	90							18	20	95	0.39	18	A3	–
	125		AC0048-2-0,50	0.50	2,800	–	480	18	23	95	0.44	18	A3	–
	180							18	23	95	0.44	18	A3	–
SA 10.2	4	120	VE0048-4-0,06	0.06	1,400	50	–	4.7	4.7	7.2	0.62	4.7	A1	B1
	5.6							4.7	4.7	7.2	0.62	4.7	A1	B1
	8		VE0048-4-0,12	0.12	1,400	120	–	8.9	9.0	16	0.72	8.9	A2	B3
	11							8.9	9.0	16	0.72	8.9	A2	B3
	16		VE0048-2-0,25	0.25	2,800	145	–	5.5	7.3	25	0.89	5.8	A2	B2
	22							5.5	8.5	25	0.89	5.8	A2	B2
	32		AC0056-4-0,40	0.40	1,400	–	440	17	19	80	0.37	18	A3	–
	45							17	21	80	0.37	18	A3	–
	63	100	AC0056-2-0,70	0.70	2,800	–	780	17	23	125	0.55	20	A3	–
	90							17	28	125	0.55	20	A3	–
	125		AC0056-2-1,00	1.00	2,800	–	780	18	33	125	0.65	20	A3	–
	180							18	37	125	0.65	20	A3	–
SA 14.2	4	250	VE0056-4-0,12	0.12	1,400	100	–	3.6	4.9	22	0.78	3.8	A1	B2
	5.6							3.6	4.9	22	0.78	3.8	A1	B2
	8		VE0056-4-0,25	0.25	1,400	180	–	6.4	9.1	23	0.93	6.8	A1	B2
	11							6.4	9.6	23	0.93	6.8	A1	B2
	16		VC0056-2-0,45	0.45	2,800	–	480	13	18	95	0.47	14	A2	–
	22							13	20	95	0.47	14	A2	–
SA 14.6	32	400	AC0056-4-0,75	0.75	1,400	–	850	26	33	110	0.42	28	–	–
	45							26	37	110	0.42	28	–	–
	4		VE0056-4-0,20	0.20	1,400	180	–	5.9	8.6	23	0.93	6.8	A1	B2
	5.6							5.9	9.1	23	0.93	6.8	A1	B2
	8		VC0056-4-0,40	0.40	1,400	–	440	17	21	80	0.37	18	A3	–
	11							17	23	80	0.37	18	A3	–
	16	400	VC0056-2-0,80	0.80	2,800	–	780	17	28	125	0.55	20	A3	–
	22							17	33	125	0.55	20	A3	–

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor ²⁾ [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
SA 07.2	4.8	30	VE0048-4-0,02	0.02	1 680	30	–	3.4	3.4	6.0	0.82	3.4	A1	B1
	6.7							3.4	3.4	6.0	0.82	3.4	A1	B1
	9.6		VE0048-4-0,04	0.04	1 680	50	–	3.6	3.8	7.0	0.88	3.6	A1	B1
	13							3.6	3.8	7.0	0.88	3.6	A1	B1
	19		VE0048-2-0,06	0.06	3,360	90	–	4.5	6.0	13	0.90	5.0	A1	B2
	26							4.5	6.0	13	0.90	5.0	A1	B2
	38		AE0048-4-0,10	0.10	1,680	120	–	5.8	7.5	14	0.95	6.5	A1	B2
	54							5.8	7.5	14	0.95	6.5	A1	B2
	75		AC0048-2-0,20	0.20	3,360	–	285	8.5	12	72	0.65	9.2	A2	–
	108							8.5	12	72	0.65	9.2	A2	–
SA 07.6	150	25	AC0048-2-0,30	0.30	3,360	–	285	9.2	14	72	0.65	9.2	A2	–
	216							9.2	15	72	0.65	9.2	A2	–
	4.8	60	VE0048-4-0,03	0.03	1,680	30	–	3.4	3.8	6.0	0.82	3.4	A1	B1
	6.7							3.4	3.8	6.0	0.82	3.4	A1	B1
	9.6		VE0048-4-0,07	0.07	1,680	50	–	3.6	4.6	7.0	0.85	3.6	A1	B1
	13							3.6	4.6	7.0	0.85	3.6	A1	B1
	19		VE0048-2-0,12	0.12	3,360	90	–	4.5	7.0	13	0.93	5.0	A1	B2
	26							4.5	7.0	13	0.93	5.0	A1	B2
	38		AE0048-4-0,20	0.20	1,680	120	–	6.4	9.6	14	0.95	6.5	A1	B2
	54							6.4	9.6	14	0.95	6.5	A1	B2
	75		AC0048-2-0,40	0.40	3,360	–	480	11	20	80	0.75	14	A2	–
	108							11	20	80	0.75	14	A2	–
SA 10.2	150	50	AC0048-2-0,50	0.50	3,360	–	480	12	24	80	0.75	14	A2	–
	216							12	26	80	0.75	14	A2	–
	4.8	120	VE0048-4-0,06	0.06	1,680	50	–	3.6	4.6	7.0	0.85	3.6	A1	B1
	6.7							3.6	4.6	7.0	0.85	3.6	A1	B1
	9.6		VE0048-4-0,12	0.12	1,680	120	–	5.9	7.7	14	0.95	6.5	A1	B2
	13							5.9	7.7	14	0.95	6.5	A1	B2
	19		VE0048-2-0,25	0.25	3,360	100	–	5.8	11	22	0.92	7.0	A2	B2
	26							5.8	11	22	0.92	7.0	A2	B2
	38		AC0056-4-0,40	0.40	1,680	–	440	13	22	73	0.65	14	A2	–
	54							13	22	73	0.65	14	A2	–
	75		AC0056-2-0,70	0.70	3,360	–	780	14	34	110	0.84	22	A3	–
	108							14	34	110	0.84	22	A3	–
SA 14.2	150	100	AC0056-2-1,00	1.00	3,360	–	780	18	40	110	0.84	22	A3	–
	216							18	50	110	0.84	22	A3	–
	4.8	250	VE0056-4-0,12	0.12	1,680	100	–	4.6	6.6	20	0.93	4.8	A1	B2
	6.7							4.6	6.6	20	0.93	4.8	A1	B2
	9.6		VE0056-4-0,25	0.25	1,680	180	–	12	15	20	0.84	12	A2	B3
	13							12	15	20	0.84	12	A2	B3
	19		VC0056-2-0,45	0.45	3,360	–	480	11	23	100	0.81	12	A2	–
	26							11	23	100	0.81	12	A2	–
	38		AC0056-4-0,75	0.75	1,680	–	850	20	55	120	0.73	25	A3	–
	54							20	55	120	0.73	25	A3	–
SA 14.6	4.8	500	VE0056-4-0,20	0.20	1,680	180	–	11	15	20	0.84	12	A2	B3
	6.7							11	15	20	0.84	12	A2	B3
	9.6	400	VC0056-4-0,40	0.40	1,680	–	440	13	25	73	0.65	15	A2	–
	13							13	25	73	0.65	15	A2	–
	19							16	48	110	0.80	22	A3	–
	26							16	48	110	0.80	22	A3	–

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor																
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear						
													Con-tactor	Thyris-tor					
SA 07.2	4	30	VE0048-4-0,02	0.02	1,400	10	–	1.9	2.5	3.1	0.55	2.5	A1	B1					
	5.6							1.9	2.5	3.1	0.55	2.5	A1	B1					
	8							1.9	2.5	3.1	0.75	2.5	A1	B1					
	11							1.9	2.5	3.1	0.75	2.5	A1	B1					
	16		VE0048-2-0,06	0.06	2,800	25	–	1.8	2.2	7.5	0.97	2.0	A1	B1					
	22							1.8	2.2	7.5	0.97	2.0	A1	B1					
	32							4.7	4.7	6.6	0.65	4.7	A1	B1					
	45							4.7	4.7	6.6	0.65	4.7	A1	B1					
	63	AC0048-2-0,20	0.20	2,800	–	480	4.9	5.6	36	0.52	5.0	A2	–						
	90						4.9	5.6	36	0.52	5.0	A2	–						
	125						AC0048-2-0,30	0.30	2,800	–	480	4.9	6.3	36	0.52	5.0	A2	–	
	180											4.9	6.5	36	0.52	5.0	A2	–	
SA 07.6	4	60	VE0048-4-0,03	0.03	1,400	10	–	1.9	2.5	3.1	0.55	2.5	A1	B1					
	5.6							1.9	2.5	3.1	0.55	2.5	A1	B1					
	8							1.9	2.5	3.1	0.75	2.5	A1	B1					
	11							1.9	2.5	3.1	0.75	2.5	A1	B1					
	16		VE0048-2-0,12	0.12	2,800	25	–	1.8	2.7	7.5	0.97	2.0	A1	B1					
	22							1.8	2.7	7.5	0.97	2.0	A1	B1					
	32							4.7	4.7	6.6	0.71	4.7	A1	B1					
	45							4.7	4.7	6.6	0.71	4.7	A1	B1					
	63	AC0048-2-0,40	0.40	2,800	–	480	9.1	11	55	0.42	10	A2	–						
	90						9.1	11	55	0.42	10	A2	–						
	125						AC0048-2-0,50	0.50	2,800	–	480	9.1	11	55	0.42	10	A2	–	
	180											9.1	11	55	0.42	10	A2	–	
SA 10.2	4	120	VE0048-4-0,06	0.06	1,400	15	–	1.8	2.5	3.1	0.75	2.5	A1	B1					
	5.6							1.8	2.5	3.1	0.75	2.5	A1	B1					
	8							4.7	4.7	6.6	0.65	4.7	A1	B1					
	11							4.7	4.7	6.6	0.65	4.7	A1	B1					
	16		VE0048-2-0,25	0.25	2,800	30	–	2.6	4.2	14	0.78	3.0	A1	B1					
	22							2.6	4.2	14	0.78	3.0	A1	B1					
	32							9.8	12	44	0.40	10	A2	–					
	45							9.8	12	44	0.40	10	A2	–					
	63	AC0056-4-0,40	0.40	1,400	–	440	8.0	14	70	0.80	12	A2	–						
	90						8.0	14	70	0.80	12	A2	–						
	125						AC0056-2-0,70	0.70	2,800	–	850	9.1	17	70	0.80	12	A2	–	
	180											9.1	18	70	0.80	12	A2	–	
SA 14.2	4	250	VE0056-4-0,12	0.12	1,400	25	–	2.4	2.8	13	0.68	2.5	A1	B1					
	5.6							2.4	2.8	13	0.68	2.5	A1	B1					
	8							2.8	4.8	13	0.99	3.4	A1	B1					
	11							2.8	4.8	13	0.99	3.4	A1	B1					
	16		VC0056-2-0,45	0.45	2,800	–	480	6.4	10	54	0.65	7.3	A2	–					
	22							6.4	10	54	0.65	7.3	A2	–					
	32							14	20	40	0.60	17	A2	–					
	45							14	20	40	0.60	17	A2	–					
SA 14.6	4	500	VE0056-4-0,20	0.20	1,400	40	–	2.7	4.8	13	0.99	3.4	A1	B1					
	5.6							2.7	4.8	13	0.99	3.4	A1	B1					
	8		VC0056-4-0,40	0.40	1,400	–	440	9.8	12	44	0.40	10	A2	–					
	11							9.8	12	44	0.40	10	A2	–					
	16	400						8.3	16	70	0.80	12	A2	–					
	22							8.3	16	70	0.80	12	A2	–					

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
SA 07.2	4.8	30	VE0048-4-0,02	0.02	1 680	10	–	1.8	1.9	3.4	0.60	1.8	A1	B1
	6.7							1.8	1.9	3.4	0.60	1.8	A1	B1
	9.6		VE0048-4-0,04	0.04	1,680	15	–	2.0	2.1	3.5	0.75	2.0	A1	B1
	13							2.0	2.1	3.5	0.75	2.0	A1	B1
	19		VE0048-2-0,06	0.06	3,360	25	–	2.7	3.5	6.8	0.75	3.4	A1	B1
	26							2.7	3.5	6.8	0.75	3.4	A1	B1
	38		AE0048-4-0,10	0.10	1,680	30	–	2.9	3.6	7.2	0.96	4.1	A1	B1
	54							2.9	3.6	7.2	0.96	4.1	A1	B1
	75		AC0048-2-0,20	0.20	3,360	–	480	4.4	5.7	40	0.46	5.1	A2	–
	108							4.4	6.2	40	0.46	5.1	A2	–
SA 07.6	150	25	AC0048-2-0,30	0.30	3,360	–	480	4.8	7.1	40	0.55	5.1	A2	–
	216							4.8	7.4	40	0.55	5.1	A2	–
	4.8		VE0048-4-0,03	0.03	1,680	10	–	1.8	1.9	3.4	0.85	1.8	A1	B1
	6.7							1.8	1.9	3.4	0.85	1.8	A1	B1
	9.6		VE0048-4-0,07	0.07	1,680	15	–	2.0	2.3	3.5	0.85	2.0	A1	B1
	13							2.0	2.3	3.5	0.85	2.0	A1	B1
	19		VE0048-2-0,12	0.12	3,360	25	–	3.3	4.0	6.8	0.80	3.4	A1	B1
	26							3.3	4.0	6.8	0.80	3.4	A1	B1
	38		AE0048-4-0,20	0.20	1,680	30	–	3.2	4.8	7.2	0.97	4.1	A1	B1
	54							3.2	4.8	7.2	0.97	4.1	A1	B1
SA 10.2	75	50	AC0048-2-0,40	0.40	3,360	–	480	5.8	8.5	45	0.64	7.8	A2	–
	108							5.8	9.6	45	0.64	7.8	A2	–
	150		AC0048-2-0,50	0.50	3,360	–	480	6.4	12	45	0.68	7.8	A2	–
	216							6.4	13	45	0.68	7.8	A2	–
	4.8		VE0048-4-0,06	0.06	1,680	15	–	2.0	2.3	3.6	0.85	2.0	A1	B1
	6.7							2.0	2.3	3.6	0.85	2.0	A1	B1
	9.6		VE0048-4-0,12	0.12	1,680	30	–	3.0	3.6	7.2	0.98	3.4	A1	B1
	13							3.0	3.6	7.2	0.98	3.4	A1	B1
	19		VE0048-2-0,25	0.25	3,360	35	–	3.9	5.6	12	0.82	4.3	A1	B1
	26							3.9	5.6	12	0.82	4.3	A1	B1
SA 14.2	38	120	AC0056-4-0,40	0.40	1,680	–	440	6.0	11	38	0.55	8.1	A2	–
	54							6.0	11	38	0.55	8.1	A2	–
	75		AC0056-2-0,70	0.70	3,360	–	850	6.8	13	72	0.76	13	A2	–
	108							6.8	17	72	0.76	13	A2	–
	150		AC0056-2-1,00	1.00	3,360	–	850	8.7	21	72	0.83	13	A2	–
	216							8.7	25	72	0.83	13	A2	–
	4.8	250	VE0056-4-0,12	0.12	1,680	25	–	1.9	2.9	12	0.94	2.1	A1	B1
	6.7							1.9	2.9	12	0.94	2.1	A1	B1
	9.6		VE0056-4-0,25	0.25	1,680	40	–	5.0	6.3	12	0.81	5.2	A1	B1
	13							5.0	6.3	12	0.81	5.2	A1	B1
	19		VC0056-2-0,45	0.45	3,360	–	480	6.0	12	52	0.63	6.7	A2	–
	26							6.0	12	52	0.63	6.7	A2	–
	38		AC0056-4-0,75	0.75	1,680	–	850	11	22	74	0.60	16	A2	–
	54							11	22	74	0.60	16	A2	–
SA 14.6	4.8	500	VE0056-4-0,20	0.20	1,680	45	–	5.5	6.9	12	0.80	5.5	A1	B2
	6.7							5.5	6.9	12	0.80	5.5	A1	B2
	9.6	400	VC0056-4-0,40	0.40	1,680	–	440	6.0	13	35	0.55	8.1	A2	–
	13							6.0	13	35	0.55	8.1	A2	–
	19		VC0056-2-0,80	0.80	3,360	–	850	7.5	21	72	0.80	13	A2	–
	26							7.5	21	72	0.80	13	A2	–

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 07.6

Electrical data Multi-turn actuators for modulating duty with 1-phase AC motors of type range VB 63

Intermittent duty S4 - 25 %, 110 V – 120 V/50 Hz

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SAR 07.2	4	25	VB0R63-4-0,02	0,02	1 400	25	1.4	1.5	3.6	0.81	1.5	A1	B1
	5,6						1.4	1.5	3.6	0.81	1.5	A1	B1
	8		VB0R63-4-0,04	0,04	1 400	50	2	2.2	4	0.98	2.2	A1	B1
	11						2	2.3	4	0.98	2.3	A1	B1
	16		VB0R63-2-0,06	0,06	2 800	70	1.9	2.9	10	0.95	2.9	A1	B1
	22						1.9	3	10	0.95	3	A1	B1
SAR 07.6	4	45	VB0R63-4-0,03	0,03	1 400	50	2	2.1	4	0.98	2.1	A1	B1
	5,6						2	2.2	4	0.98	2.2	A1	B1
	8		VB0R63-4-0,06	0,07	1 400	70	2.8	3.3	6.5	0.92	3.3	A1	B1
	11						2.8	3.4	6.5	0.92	3.4	A1	B1
	16		VB0R63-2-0,12	0,12	2 800	100	3	4.8	11	0.98	4.8	A1	B1
	22						3	5.2	11	0.98	5.2	A1	B1

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SAR 07.2	4,8	25	VB0R63-4-0,02	0,02	1 680	25	1.4	1.5	4.2	0.94	1.5	A1	B1
	6,7						1.4	1.5	4.2	0.94	1.5	A1	B1
	9,6		VB0R63-4-0,04	0,04	1 680	50	2.6	2.9	4.8	0.95	2.9	A1	B1
	13						2.6	3	4.8	0.95	3	A1	B1
	19		VB0R63-2-0,06	0,06	3 360	70	2.5	3.4	12.5	0.94	3.4	A1	B1
	26						2.5	3.6	12.5	0.94	3.6	A1	B1
SAR 07.6	4,8	45	VB0R63-4-0,03	0,03	1 680	50	2.5	2.8	4.8	0.95	2.8	A1	B1
	6,7						2.5	2.9	4.8	0.95	2.9	A1	B1
	9,6		VB0R63-4-0,06	0,07	1 680	70	2.9	3.7	6.8	0.98	3.7	A1	B1
	13						2.9	3.9	6.8	0.98	3.9	A1	B1
	19		VB0R63-2-0,12	0,12	3 360	100	4.5	6	13	0.85	6	A1	B1
	26						4.5	6.5	13	0.85	6.5	A1	B1

SAR 07.2 – SAR 07.6

Electrical data Multi-turn actuators for modulating duty with 1-phase AC motors of type range VB 63

Intermittent duty S4 - 25 %, 220 V – 240 V/50 Hz

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SAR 07.2	4	30	VB0R63-4-0,02	0,02	1 400	6	0.96	1.08	2.64	0.9	1.08	A1	B1
	5,6						0.96	1.08	2.64	0.9	1.08	A1	B1
	8		VB0R63-4-0,04	0,04	1 400	12	1.56	1.68	2.88	1.4	1.68	A1	B1
	11						1.56	1.8	2.88	1.5	1.8	A1	B1
	16		VB0R63-2-0,06	0,06	2 800	16	1.44	2.04	7.8	1.7	2.04	A1	B1
	22						1.44	2.16	7.8	1.8	2.16	A1	B1
SAR 07.6	4	60	VB0R63-4-0,03	0,03	1 400	12	1.44	1.56	2.88	1.3	1.56	A1	B1
	5,6						1.44	1.68	2.88	1.4	1.68	A1	B1
	8		VB0R63-4-0,07	0,07	1 400	20	2.28	2.64	4.8	2.2	2.64	A1	B1
	11						2.28	2.76	4.8	2.3	2.76	A1	B1
	16		VB0R63-2-0,12	0,12	2 800	25	3	3.96	8.4	3.3	3.96	A1	B1
	22						3	4.32	8.4	3.6	4.32	A1	B1

Multi-turn actuator			Motor										
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class switchgear	
												Con-tactor	Thyristor
SAR 07.2	4,8	30	VB0R63-4-0,02	0,02	1 680	6	0.8	0.9	2.2	0.73	0.9	A1	B1
	6,7						0.8	0.9	2.2	0.73	0.9	A1	B1
	9,6		VB0R63-4-0,04	0,04	1 680	12	1.3	1.4	2.4	0.95	1.4	A1	B1
	13						1.3	1.5	2.4	0.95	1.5	A1	B1
	19		VB0R63-2-0,06	0,06	3 360	16	1.2	1.7	6.5	0.92	1.7	A1	B1
	26						1.2	1.8	6.5	0.92	1.8	A1	B1
SAR 07.6	4,8	60	VB0R63-4-0,03	0,03	1 680	12	1.2	1.4	2.7	0.95	1.3	A1	B1
	6,7						1.2	1.5	2.7	0.95	1.4	A1	B1
	9,6		VB0R63-4-0,07	0,07	1 680	20	1.9	2.3	4.6	0.95	2.2	A1	B1
	13						1.9	2.4	4.6	0.95	2.3	A1	B1
	19		VB0R63-2-0,12	0,12	3 360	25	2.4	3.1	7.6	0.87	3.3	A1	B1
	26						2.4	3.4	7.6	0.87	3.6	A1	B1

SAR 07.2 – SAR 14.6

Electrical data Multi-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 25 %, 110 V – 120 V/60 Hz

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor [μF]	Nennstrom ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
													Contact-tor	Thyristor
SAR 07.2	4.8	30	VE0R48-4-0,02	0.02	1,680	30	–	3.4	3.4	6.0	0.82	3.4	A1	B1
	6.7							3.4	3.4	6.0	0.82	3.4	A1	B1
	9.6		VE0R48-4-0,04	0.04	1,680	50	–	3.6	3.8	7.0	0.88	3.6	A1	B1
	13							3.6	3.8	7.0	0.88	3.6	A1	B1
	19		VE0R48-2-0,06	0.06	3,360	90	–	4.5	6.0	13	0.90	5.0	A1	B2
	26							4.5	6.0	13	0.90	5.0	A1	B2
	38		AE0R48-4-0,10	0.10	1,680	120	–	5.8	7.5	14	0.95	6.5	A1	B2
	54							5.8	7.5	14	0.95	6.5	A1	B2
SAR 07.6	4.8	60	VE0R48-4-0,03	0.03	1,680	30	–	3.4	3.8	6.0	0.82	3.4	A1	B1
	6.7							3.4	3.8	6.0	0.82	3.4	A1	B1
	9.6		VE0R48-4-0,07	0.07	1,680	50	–	3.6	4.6	7.0	0.85	3.6	A1	B1
	13							3.6	4.6	7.0	0.85	3.6	A1	B1
	19		VE0R48-2-0,12	0.12	3,360	90	–	4.5	7.0	13	0.93	5.0	A1	B2
	26							4.5	7.0	13	0.93	5.0	A1	B2
	38		AE0R48-4-0,20	0.20	1,680	120	–	6.4	9.6	14	0.95	6.5	A1	B2
	54							6.4	9.6	14	0.95	6.5	A1	B2
SAR 10.2	4.8	120	VE0R48-4-0,06	0.06	1,680	50	–	3.6	4.6	7.0	0.85	3.6	A1	B1
	6.7							3.6	4.6	7.0	0.85	3.6	A1	B1
	9.6		VE0R48-4-0,12	0.12	1,680	120	–	5.9	7.7	14	0.95	6.5	A1	B2
	13							5.9	7.7	14	0.95	6.5	A1	B2
	19		VE0R48-2-0,25	0.25	3,360	100	–	5.8	11	22	0.92	7.0	A2	B2
SAR 14.2	26							5.8	11	22	0.92	7.0	A2	B2
	4.8	250	VE0R56-4-0,12	0.12	1,680	100	–	4.6	6.6	20	0.93	4.8	A1	B2
	6.7							4.6	6.6	20	0.93	4.8	A1	B2
	9.6		VE0R56-4-0,25	0.25	1,680	180	–	12	15	20	0.84	12	A2	B3
	13							12	15	20	0.84	12	A2	B3
SAR 14.6	4.8	500	VE0R56-4-0,20	0.20	1,680	180	–	11	15	20	0.84	12	A2	B3
	6.7							11	15	20	0.84	12	A2	B3

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 14.6

Electrical data Multi-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 25 %, 220 V – 240 V/50 Hz

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
													Contact-tor	Thyristor
SAR 07.2	4	30	VEOR48-4-0,02	0.02	1,400	10	–	1.9	2.5	3.1	0.55	2.5	A1	B1
	5.6							1.9	2.5	3.1	0.55	2.5	A1	B1
	8							1.9	2.5	3.1	0.75	2.5	A1	B1
	11		VEOR48-4-0,04	0.04	1,400	15	–	1.9	2.5	3.1	0.75	2.5	A1	B1
	16							1.8	2.2	7.5	0.97	2.0	A1	B1
	22							1.8	2.2	7.5	0.97	2.0	A1	B1
	32		AEOR48-4-0,10	0.10	1,400	30	–	4.7	4.7	6.6	0.65	4.6	A1	B1
	45							4.7	4.7	6.6	0.65	4.6	A1	B1
SAR 07.6	4	60	VEOR48-4-0,03	0.03	1,400	10	–	1.9	2.5	3.1	0.55	2.5	A1	B1
	5.6							1.9	2.5	3.1	0.55	2.5	A1	B1
	8							1.9	2.5	3.1	0.75	2.5	A1	B1
	11		VEOR48-4-0,07	0.07	1,400	15	–	1.9	2.5	3.1	0.75	2.5	A1	B1
	16							1.8	2.7	7.5	0.97	2.0	A1	B1
	22							1.8	2.7	7.5	0.97	2.0	A1	B1
	32		AEOR48-4-0,20	0.20	1,400	30	–	4.7	4.7	6.6	0.71	4.6	A1	B1
	45							4.7	4.7	6.6	0.71	4.6	A1	B1
SAR 10.2	4	120	VEOR48-4-0,06	0.06	1,400	15	–	1.8	2.5	3.1	0.75	2.5	A1	B1
	5.6							1.8	2.5	3.1	0.75	2.5	A1	B1
	8		VEOR48-4-0,12	0.12	1,400	30	–	4.7	4.7	6.6	0.65	4.6	A1	B1
	11							4.7	4.7	6.6	0.65	4.6	A1	B1
	16		VEOR48-2-0,25	0.25	2,800	30	–	2.6	4.2	14	0.78	3.0	A1	B1
	22							2.6	4.2	14	0.78	3.0	A1	B1
SAR 14.2	4	250	VEOR56-4-0,12	0.12	1,400	25	–	2.4	2.8	13	0.68	2.5	A1	B1
	5.6							2.4	2.8	13	0.68	2.5	A1	B1
	8		VEOR56-4-0,25	0.25	1,400	40	–	2.8	4.8	13	0.99	3.4	A1	B1
	11							2.8	4.8	13	0.99	3.4	A1	B1
SAR 14.6	4	500	VEOR56-4-0,20	0.20	1,400	40	–	2.7	4.8	13	0.99	3.4	A1	B1
	5.6							2.7	4.8	13	0.99	3.4	A1	B1

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor											
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Starting capacitor [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
													Con-tactor	Thyris-tor
SAR 07.2	4.8	30	VEOR48-4-0,02	0.02	1,680	10	–	1.8	1.9	3.4	0.60	1.8	A1	B1
	6.7							1.8	1.9	3.4	0.60	1.8	A1	B1
	9.6		VEOR48-4-0,04	0.04	1,680	15	–	2.0	2.1	3.5	0.75	2.0	A1	B1
	13							2.0	2.1	3.5	0.75	2.0	A1	B1
	19		VEOR48-2-0,06	0.06	3,360	25	–	2.7	3.5	6.8	0.75	3.4	A1	B1
	26							2.7	3.5	6.8	0.75	3.4	A1	B1
SAR 07.6	38	60	AEOR48-4-0,10	0.10	1,680	30	–	2.9	3.6	7.2	0.96	4.1	A1	B1
	54							2.9	3.6	7.2	0.96	4.1	A1	B1
	4.8		VEOR48-4-0,03	0.03	1,680	10	–	1.8	1.9	3.4	0.85	1.8	A1	B1
	6.7							1.8	1.9	3.4	0.85	1.8	A1	B1
	9.6		VEOR48-4-0,07	0.07	1,680	15	–	2.0	2.3	3.5	0.85	2.0	A1	B1
	13							2.0	2.3	3.5	0.85	2.0	A1	B1
SAR 10.2	19	120	VEOR48-2-0,12	0.12	3,360	25	–	3.3	4.0	6.8	0.80	3.4	A1	B1
	26							3.3	4.0	6.8	0.80	3.4	A1	B1
	38		AEOR48-4-0,20	0.20	1,680	30	–	3.2	4.8	7.2	0.97	4.1	A1	B1
	54							3.2	4.8	7.2	0.97	4.1	A1	B1
	4.8		VEOR48-4-0,06	0.06	1,680	15	–	2.0	2.3	3.6	0.85	2.0	A1	B1
	6.7							2.0	2.3	3.6	0.85	2.0	A1	B1
SAR 14.2	9.6	250	VEOR48-4-0,12	0.12	1,680	30	–	3.0	3.6	7.2	0.98	3.4	A1	B1
	13							3.0	3.6	7.2	0.98	3.4	A1	B1
	19		VEOR48-2-0,25	0.25	3,360	35	–	3.9	5.6	12	0.82	4.3	A1	B1
	26							3.9	5.6	12	0.82	4.3	A1	B1
SAR 14.6	4.8	500	VEOR56-4-0,12	0.12	1,680	25	–	1.9	2.9	12	0.94	2.1	A1	B1
	6.7							1.9	2.9	12	0.94	2.1	A1	B1
	9.6		VEOR56-4-0,25	0.25	1,680	40	–	5.0	6.3	12	0.81	5.2	A1	B1
SAR 14.6	13	500						5.0	6.3	12	0.81	5.2	A1	B1
	19		VEOR56-4-0,20	0.20	1,680	45	–	5.5	6.9	12	0.80	5.2	A1	B2
SAR 14.6	26							5.5	6.9	12	0.80	5.2	A1	B2

1) – 4) Refer to notes on Electrical data SA .2/SAR .2 multi-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Installation and sizing																			
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																		
Motor type	<table> <tr> <th>Motor</th><th>Version</th></tr> <tr> <td>FN...</td><td>Shunt motor</td></tr> <tr> <td>FL...</td><td>Compound motor</td></tr> </table>	Motor	Version	FN...	Shunt motor	FL...	Compound motor												
Motor	Version																		
FN...	Shunt motor																		
FL...	Compound motor																		
Motor protection	DC motors are generally designed without motor protection since the motor heats up within the rotor and not within the field windings. Actuators without integral actuator controls (AUMA NORM): Motor protection within the external controls must be implemented via an overcurrent protection device. Setting of the overcurrent protection device is based on the value listed in the table. Actuators with AC integral actuator controls: Motor protection is ensured by the overcurrent protection device integrated within actuator controls.																		
Mains voltage	Permissible variation of mains voltage: $\pm 10\%$																		
Cable entry	For notes on the threads of the cable entries as well as other information, refer to "Technical data Multi-turn actuators with DC motors".																		
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating currents in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: DC shunt motor, motor type FN: <table> <tr> <th>AUMA power class</th><th>Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3</th></tr> <tr> <td>A2</td><td>30 A</td></tr> <tr> <td>A4</td><td>110 A</td></tr> <tr> <td>A5</td><td>160 A</td></tr> </table> DC compound motor, motor type FL: <table> <tr> <th>AUMA power class</th><th>Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-5</th></tr> <tr> <td>A2</td><td>30 A</td></tr> <tr> <td>A4</td><td>110 A</td></tr> <tr> <td>A5</td><td>160 A</td></tr> <tr> <td>A6</td><td>250 A</td></tr> </table> Actuators with AC integral actuator controls: For actuators without starting resistance, the required switchgear in power class A2 are directly integrated into AC actuator actuator controls. For switchgear of power classes A4 to A6 or for actuators with starting resistance, a control box is additionally required.	AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3	A2	30 A	A4	110 A	A5	160 A	AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-5	A2	30 A	A4	110 A	A5	160 A	A6	250 A
AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3																		
A2	30 A																		
A4	110 A																		
A5	160 A																		
AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-5																		
A2	30 A																		
A4	110 A																		
A5	160 A																		
A6	250 A																		

Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors	
1) Nominal power P_N	Mechanical power output at motor shaft at run torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).
2) Nominal current I_N	current at run torque at approx. 35 % of maximum torque
3) Max. current I_{max}	Current at maximum torque
4) Starting resistance R_A	The recommended protective resistors are not included in the scope of supply of the DC motors.
5)	Actuators with starting resistance and AC integral actuator controls additionally require a control box.

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ^{4/5)} R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	2.0	3.5	27	2.4	—	3.5	A2
	5.6					2.0	3.8	27	2.4	—	3.8	A2
	8		FN00063-4-0,04	0.04	1,400	3.3	6.0	27	2.4	—	6.0	A2
	11					3.3	6.5	27	2.4	—	6.5	A2
	16		FN00063-2-0,06	0.06	2,800	5.5	12	80	2.4	—	12	A4
	22					5.5	13	80	2.4	—	13	A4
	32	25	FN00071-4-0,10	0.10	1,400	7.0	16	67	2.6	—	16	A2
	45					7.0	19	67	2.6	—	16	A2
	63		FN00071-2-0,20	0.20	2,800	12	26	170	3.6	—	25	A4
	90					12	30	170	3.6	—	25	A4
SA 07.6	125	25	FN00071-2-0,30	0.30	2,800	18	38	170	3.6	—	25	A4
	180					18	42	170	3.6	—	25	A4
	4	60	FN00063-4-0,03	0.03	1,400	2.8	5.0	27	2.4	—	5.0	A2
	5.6					2.8	5.0	27	2.4	—	5.0	A2
	8		FN00063-4-0,07	0.07	1,400	6.0	10	27	2.4	—	10	A2
	11					6.0	11	27	2.4	—	11	A2
	16		FN00063-2-0,12	0.12	2,800	9.0	19	80	2.4	—	18	A4
	22					9.0	22	80	2.4	—	18	A4
	32	50	FN00080-4-0,20	0.20	1,400	13	28	150	3.4	—	28	A4
	45					13	35	150	3.4	—	29	A4
	63		FN00080-2-0,40	0.40	2,800	25	50	240	3.4	—	47	A5
	90					25	62	240	3.4	—	47	A5
	125	50	FN00080-2-0,50	0.50	2,800	30	80	240	3.4	—	47	A5
	180					30	90	240	3.4	—	47	A5
SA 10.2	4	120	FN00063-4-0,06	0.06	1,400	4.0	8.0	27	2.4	—	8.0	A2
	5.6					4.0	11	27	2.4	—	11	A2
	8		FN00071-4-0,12	0.12	1,400	8.0	16	67	2.6	—	16	A2
	11					8.0	20	67	2.6	—	16	A2
	16		FN00071-2-0,25	0.25	2,800	15	28	170	3.6	—	25	A4
	22					15	38	170	3.6	—	25	A4
	32	100	FN00090-4-0,40	0.40	1,400	28	55	210	2.6	—	47	A5
	45					28	70	210	2.6	—	47	A5
	63		FN00090-2-0,70	0.70	2,800	55	92	250	2.6	—	85	A5
	90					55	112	250	2.6	—	85	A5
	125	100	FN00090-2-1,00	1.00	2,800	68	140	250	2.6	—	85	A5
	180					68	145	250	2.6	—	85	A5
SA 14.2	4	250	FN00071-4-0,13	0.13	1,400	8.2	18	67	2.6	—	17	A2
	5.6					8.2	20	67	2.6	—	17	A2
	8		FN00080-4-0,25	0.25	1,400	16	40	150	3.4	—	29	A4
	11					16	48	150	3.4	—	29	A4
	16		FN00080-2-0,45	0.45	2,800	29	70	240	3.4	—	47	A5
	22					29	77	240	3.4	—	47	A5
	32	200	FL00100-4-0,75	0.75	1,400	44	107	200	13	—	86	A5
	45					44	124	200	13	—	86	A5
	63		FL00100-2-1,40	1.40	2,800	85	201	400	13	—	170	A6
	90					85	234	400	13	—	170	A6
	125	200	FL00100-2-1,80	1.80	2,800	110	310	400	13	—	170	A6
	180					110	308	400	13	—	170	A6
SA 14.6	4	500	FN00080-4-0,22	0.22	1,400	16	34	150	3.4	—	29	A4
	5.6					16	39	150	3.4	—	29	A4
	8		FN00090-4-0,45	0.45	1,400	26	72	210	4.6	—	47	A5
	11					26	81	210	4.6	—	47	A5
	16		FN00090-2-0,80	0.80	2,800	60	120	250	4.6	—	85	A5
	22					60	138	250	4.6	—	85	A5
	32		FL00112-4-1,60	1.60	1,400	100	193	270	10	—	170	A5
	45					100	226	270	10	—	170	A5
SA 16.2	4	1,000	FL00100-4-0,40	0.40	1,400	25	68	200	12	—	48	A5
	5.6					25	72	200	12	—	48	A5
	8		FL00100-4-0,80	0.80	1,400	48	128	200	12	—	86	A5
	11					48	140	200	12	—	86	A5
	16		FL00100-2-1,50	1.50	2,800	80	230	400	13	—	170	A6
	22					80	264	400	13	—	170	A6

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor							
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Overcurrent protection device setting [A]	AUMA power class switchgear Contactor
SA 07.2	4 – 5.5	30	VK00063-4-0,02G	0.02	1,800	4.5	5 – 6	25	5 – 6	A2
	6 – 7.5					4.5	5 – 7	25	5 – 7	A2
	7.5 – 11		VK00063-4-0,04G	0.04	1,600	6.0	9 – 12	25	9 – 12	A2
	10 – 15.5					6.0	10 – 13	25	10 – 13	A2
	12.5 – 17		VK00063-2-0,06G	0.06	2,700	6.0	13 – 15	40	13 – 15	A2
SA 07.6	17 – 23.5	60				6.0	14 – 16	40	14 – 16	A2
	3.5 – 5.5		VK00063-4-0,03G	0.03	1,700	5.0	9 – 12	25	9 – 12	A2
	5 – 7.5					5.0	10 – 13	25	10 – 13	A2
	6 – 8		VK00063-2-0,07G	0.07	2,700	6.0	10 – 11.5	40	10 – 11.5	A2
	8 – 11					6.0	11 – 13	40	11 – 13	A2
	12 – 17		VK00063-2-0,08G	0.08	2,700	6.5	13 – 15	40	13 – 15	A2
	16 – 23.5					6.5	14 – 16	40	14 – 16	A2

Hinweise zur Tabelle

1) Nominal power P _N	Mechanical power output at motor shaft at run torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).
2) Nominal current I _N	Current at run torque
3) Max. current I _{max}	Current at maximum torque

Notes on installation and sizing

Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																
Motor type	The DC motors are designed as shunt motors.																
Motor protection	To protect against overheating, thermostats are embedded in the motor windings. Actuators without integral actuator controls (AUMA NORM): Thermostats have to be considered within the external controls (refer to terminal plan). Note: Failure to connect thermostats shall void the warranty for the motor. Rating of the thermostats <table><tr><th colspan="2">AC current</th><th colspan="2">DC current</th></tr><tr><td colspan="2">250 V, 50 – 60 Hz</td><td>60 V</td><td>1.0 A</td></tr><tr><td>cos φ = 1</td><td>2.5 A</td><td>42 V</td><td>1.2 A</td></tr><tr><td>cos φ = 0.6</td><td>1.6 A</td><td>24 V</td><td>1.5 A</td></tr></table> Actuators with AC integral actuator controls: Thermal motor protection is already integrated.	AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A
AC current		DC current															
250 V, 50 – 60 Hz		60 V	1.0 A														
cos φ = 1	2.5 A	42 V	1.2 A														
cos φ = 0.6	1.6 A	24 V	1.5 A														
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating currents in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: DC shunt motor, motor type VK: <table><tr><th>AUMA power class</th><th>Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3</th></tr><tr><td>A2</td><td>30 A</td></tr></table> Actuators with AC integral actuator controls: Required switchgear in power class A2 are directly integrated in the AC actuator controls.	AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3	A2	30 A												
AUMA power class	Reversing contactor Rated operating current acc. to EN 60947-4 Utilization category DC-3																
A2	30 A																

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ^{4/5)} R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	1.0	1.8	14	1.2	–	1.8	A2
	5.6					1.0	1.9	14	1.2	–	1.9	A2
	8		FN00063-4-0,04	0.04	1,400	1.7	3.0	14	1.2	–	3.0	A2
	11					1.7	3.3	14	1.2	–	3.3	A2
	16		FN00063-2-0,06	0.06	2,800	2.8	6.0	40	1.2	–	6.0	A2
	22					2.8	6.5	40	1.2	–	6.5	A2
	32	25	FN00071-4-0,10	0.10	1,400	3.5	8.0	34	1.3	–	7.8	A2
	45					3.5	9.5	34	1.3	–	7.8	A2
	63		FN00071-2-0,20	0.20	2,800	6.0	13	85	1.8	–	13	A4
	90					6.0	15	85	1.8	–	13	A4
SA 07.6	125	60	FN00080-4-0,20	0.20	1,400	6.5	14	75	1.7	–	14	A2
	180					6.5	18	75	1.7	–	15	A2
	4		FN00080-2-0,40	0.40	2,800	13	25	120	1.7	–	24	A4
	5.6					13	31	120	1.7	–	24	A4
	8		FN00080-2-0,50	0.50	2,800	15	40	120	1.7	–	24	A4
	11					15	45	120	1.7	–	24	A4
	16	50	FN00063-4-0,03	0.03	1,400	1.4	2.5	14	1.2	–	2.5	A2
	22					1.4	2.5	14	1.2	–	2.5	A2
	32		FN00063-4-0,07	0.07	1,400	3.0	5.0	14	1.2	–	5.0	A2
	45					3.0	5.5	14	1.2	–	5.4	A2
SA 10.2	63	120	FN00071-2-0,25	0.25	2,800	7.5	14	85	1.8	–	13	A4
	90					7.5	19	85	1.8	–	13	A4
	125		FN00090-4-0,40	0.40	1,400	14	28	105	1.3	–	23	A4
	180					14	35	105	1.3	–	23	A4
	4	100	FN00090-2-0,70	0.70	2,800	28	46	125	1.3	–	46	A4
	5.6					28	56	125	1.3	–	47	A4
SA 14.2	8	250	FN00090-2-1,00	1.00	2,800	34	70	125	1.3	–	47	A4
	11					34	73	125	1.3	–	47	A4
	16		FN00071-4-0,13	0.13	1,400	4.1	9	34	1.3	–	8.7	A2
	22					4.1	10	34	1.3	–	8.7	A2
	32		FN00080-4-0,25	0.25	1,400	8.0	20	75	1.7	–	15	A2
	45					8.0	24	75	1.7	–	15	A2
SA 14.6	63	500	FN00080-2-0,45	0.45	2,800	15	35	120	1.7	–	24	A4
	90					15	39	120	1.7	–	24	A4
	125		FL00100-4-0,75	0.75	1,400	22	54	100	6.5	–	37	A4
	180					22	62	100	6.5	–	37	A4
	4	200	FL00100-2-1,40	1.40	2,800	43	101	200	6.5	–	73	A5
	5.6					43	117	200	6.5	–	73	A5
SA 16.2	8	1,000	FL00100-2-1,80	1.80	2,800	55	155	200	6.5	–	73	A5
	11					55	154	200	6.5	–	73	A5
	16		FN00080-4-0,22	0.22	1,400	8.0	17	75	1.7	–	15	A2
	22					8.0	20	75	1.7	–	15	A2
	32		FN00090-4-0,45	0.45	1,400	13	36	105	2.3	–	23	A4
	45					13	41	105	2.3	–	23	A4
SA 16.2	63	1,000	FN00090-2-0,80	0.80	2,800	30	60	125	2.3	–	47	A4
	90					30	69	125	2.3	–	47	A4
	125		FL00112-4-1,60	1.60	1,400	50	97	135	5.0	–	73	A4
	180					50	113	135	5.0	–	73	A4
	4		FL00100-4-0,40	0.40	1,400	13	34	100	6.0	–	21	A4
	5.6					13	36	100	6.0	–	21	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	0.8	1.4	11	1.0	–	1.4	A2
	5.6					0.8	1.5	11	1.0	–	1.5	A2
	8		FN00063-4-0,04	0.04	1,400	1.3	2.4	11	1.0	–	2.4	A2
	11					1.3	2.6	11	1.0	–	2.6	A2
	16		FN00063-2-0,06	0.06	2,800	2.2	4.8	32	1.0	–	4.8	A2
	22					2.2	5.2	32	1.0	–	5.2	A2
	32		FN00071-4-0,10	0.10	1,400	2.8	6.4	27	1.0	–	6.2	A2
	45					2.8	7.6	27	1.0	–	6.2	A2
	63	25	FN00071-2-0,20	0.20	2,800	4.8	10	68	1.4	–	10	A2
	90					4.8	12	68	1.4	–	10	A2
SA 07.6	125		FN00071-2-0,30	0.30	2,800	7.0	15	68	1.4	–	10	A2
	180					7.0	17	68	1.4	–	10	A2
	4	60	FN00063-4-0,03	0.03	1,400	1.1	2.0	11	1.0	–	2.0	A2
	5.6					1.1	2.0	11	1.0	–	2.0	A2
	8		FN00063-4-0,07	0.07	1,400	2.4	4.0	11	1.0	–	4.0	A2
	11					2.4	4.4	11	1.0	–	4.4	A2
	16		FN00063-2-0,12	0.12	2,800	3.6	7.6	32	1.0	–	7.1	A2
	22					3.6	8.8	32	1.0	–	7.1	A2
	32		FN00080-4-0,20	0.20	1,400	5.2	11	60	1.4	–	11	A2
	45					5.2	14	60	1.4	–	12	A2
	63	50	FN00080-2-0,40	0.40	2,800	10	20	96	1.4	–	19	A4
	90					10	25	96	1.4	–	19	A4
SA 10.2	125		FN00080-2-0,50	0.50	2,800	12	32	96	1.4	–	19	A4
	180					12	36	96	1.4	–	19	A4
	4	120	FN00063-4-0,06	0.06	1,400	1.6	3.2	11	1.0	–	3.2	A2
	5.6					1.6	4.4	11	1.0	–	4.0	A2
	8		FN00071-4-0,12	0.12	1,400	3.2	6.4	27	1.0	–	6.2	A2
	11					3.2	8.0	27	1.0	–	6.2	A2
	16		FN00071-2-0,25	0.25	2,800	6.0	11	68	1.4	–	10	A2
	22					6.0	15	68	1.4	–	10	A2
	32		FN00090-4-0,40	0.40	1,400	11	22	84	1.0	0.7	19	A4
	45					11	28	84	1.0	0.7	19	A4
	63	100	FN00090-2-0,70	0.70	2,800	22	37	100	1.0	0.5	35	A4
	90					22	45	100	1.0	0.5	35	A4
SA 14.2	125		FN00090-2-1,00	1.00	2,800	27	56	100	1.0	0.5	35	A4
	180					27	58	100	1.0	0.5	35	A4
	4	250	FN00071-4-0,13	0.13	1,400	3.3	7.2	27	1.04	–	6.9	A2
	5.6					3.3	8.0	27	1.04	–	6.9	A2
	8		FN00080-4-0,25	0.25	1,400	6.4	16	60	1.4	–	12	A2
	11					6.4	19	60	1.4	–	12	A2
	16		FN00080-2-0,45	0.45	2,800	12	28	96	1.4	–	19	A4
	22					12	31	96	1.4	–	19	A4
	32		FL00100-4-0,75	0.75	1,400	18	43	80	5.2	0.4	30	A4
	45					18	50	80	5.2	0.4	30	A4
	63	200	FL00100-2-1,40	1.40	2,800	34	80	160	5.2	0.3	58	A5
	90					34	94	160	5.2	0.3	58	A5
SA 14.6	125		FL00100-2-1,80	1.80	2,800	44	124	160	5.2	0.3	58	A5
	180					44	123	160	5.2	0.3	58	A5
	4	500	FN00080-4-0,22	0.22	1,400	6.4	14	60	1.36	–	12	A2
	5.6					6.4	16	60	1.36	–	12	A2
	8		FN00090-4-0,45	0.45	1,400	10	29	84	1.8	0.7	19	A4
	11					10	32	84	1.8	0.7	19	A4
	16		FN00090-2-0,80	0.80	2,800	24	48	100	1.8	0.5	35	A4
	22					24	55	100	1.8	0.5	35	A4
	32	2,000	FL00112-4-1,60	1.60	1,400	40	77	108	4.0	0.3	59	A4
	45					40	90	108	4.0	0.3	59	A4
SA 16.2	4	1,000	FL00100-4-0,40	0.40	1,400	10	27	80	4.8	0.6	17	A4
	5.6					10	29	80	4.8	0.6	17	A4
	8		FL00100-4-0,80	0.80	1,400	19	51	80	4.8	0.4	30	A4
	11					19	56	80	4.8	0.4	30	A4
	16		FL00100-2-1,50	1.50	2,800	32	92	160	5.2	0.3	59	A5
	22					32	106	160	5.2	0.3	59	A5

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	0.4	0.8	5.9	0.5	–	0.8	A2
	5.6					0.4	0.8	5.9	0.5	–	0.8	A2
	8		FN00063-4-0,04	0.04	1,400	0.7	1.3	5.9	0.5	–	1.3	A2
	11					0.7	1.4	5.9	0.5	–	1.4	A2
	16		FN00063-2-0,06	0.06	2,800	1.2	2.6	17	0.5	–	2.6	A2
	22					1.2	2.8	17	0.5	–	2.8	A2
	32		FN00071-4-0,10	0.10	1,400	1.5	3.5	15	0.6	–	3.4	A2
	45					1.5	4.2	15	0.6	–	3.4	A2
	63		FN00071-2-0,20	0.20	2,800	2.6	5.7	37	0.8	–	5.5	A2
	90					2.6	6.6	37	0.8	–	5.5	A2
SA 07.6	125	25	FN00071-2-0,30	0.30	2,800	3.8	8.3	37	0.8	–	5.5	A2
	180					3.8	9.2	37	0.8	–	5.5	A2
	4		FN00063-4-0,03	0.03	1,400	0.6	1.1	5.9	0.5	–	1.1	A2
	5.6					0.6	1.1	5.9	0.5	–	1.1	A2
	8		FN00063-4-0,07	0.07	1,400	1.3	2.2	5.9	0.5	–	2.2	A2
	11					1.3	2.4	5.9	0.5	–	2.4	A2
	16		FN00063-2-0,12	0.12	2,800	2.0	4.2	17	0.5	–	3.9	A2
	22					2.0	4.8	17	0.5	–	3.9	A2
	32		FN00080-4-0,20	0.20	1,400	2.8	6.1	33	0.7	–	6.1	A2
	45					2.8	7.6	33	0.7	–	6.4	A2
SA 10.2	63	60	FN00080-2-0,40	0.40	2,800	5.5	11	52	0.7	–	10	A2
	90					5.5	14	52	0.7	–	10	A2
	125		FN00080-2-0,50	0.50	2,800	6.6	17	52	0.7	–	10	A2
	180					6.6	20	52	0.7	–	10	A2
	4		FN00063-4-0,06	0.06	1,400	0.9	1.8	5.9	0.5	–	1.8	A2
	5.6					0.9	2.4	5.9	0.5	–	2.2	A2
	8		FN00071-4-0,12	0.12	1,400	1.8	3.5	15	0.6	–	3.4	A2
	11					1.8	4.4	15	0.6	–	3.4	A2
	16		FN00071-2-0,25	0.25	2,800	3.3	6.1	37	0.8	–	5.5	A2
	22					3.3	8.3	37	0.8	–	5.5	A2
SA 14.2	32	120	FN00090-4-0,40	0.40	1,400	6.1	12	46	0.6	2.5	10	A2 ⁵⁾
	45					6.1	15	46	0.6	2.5	10	A2 ⁵⁾
	63		FN00090-2-0,70	0.70	2,800	12	20	55	0.6	1.7	19	A2 ⁵⁾
	90					12	24	55	0.6	1.7	19	A2 ⁵⁾
	125		FN00090-2-1,00	1.00	2,800	15	31	55	0.6	1.7	19	A2 ⁵⁾
	180					15	32	55	0.6	1.7	19	A2 ⁵⁾
	4		FN00071-4-0,13	0.13	1,400	1.8	3.9	15	0.57	–	3.8	A2
	5.6					1.8	4.4	15	0.57	–	3.8	A2
	8		FN00080-4-0,25	0.25	1,400	3.5	8.7	33	0.7	–	6.4	A2
	11					3.5	10	33	0.7	–	6.4	A2
SA 14.6	16	250	FN00080-2-0,45	0.45	2,800	6.3	15	52	0.7	–	10	A2
	22					6.3	17	52	0.7	–	10	A2
	32		FN00100-4-0,75	0.75	1,400	9.6	23	44	2.8	1.5	17	A2 ⁵⁾
	45					9.6	27	44	2.8	1.5	17	A2 ⁵⁾
	63		FN00100-2-1,40	1.40	2,800	19	44	87	2.8	1.0	32	A4
	90					19	51	87	2.8	1.0	32	A4
	125		FN00100-2-1,80	1.80	2,800	24	68	87	2.8	1.0	32	A4
	180					24	67	87	2.8	1.0	32	A4
	4		FN00080-4-0,22	0.22	1,400	3.5	7.4	33	0.74	–	6.4	A2
	5.6					3.5	8.5	33	0.74	–	6.4	A2
SA 16.2	8	1000	FN00090-4-0,45	0.45	1,400	5.7	16	46	1.0	2.5	10	A2 ⁵⁾
	11					5.7	18	46	1.0	2.5	10	A2 ⁵⁾
	16		FN00090-2-0,80	0.80	2,800	13	26	55	1.0	1.7	19	A2 ⁵⁾
	22					13	30	55	1.0	1.7	19	A2 ⁵⁾
	32		FN00112-4-1,60	1.60	1,400	22	42	59	2.2	0.7	32	A4
	45					22	49	59	2.2	0.7	32	A4
	4		FN00100-4-0,40	0.40	1,400	5.5	15	44	2.6	2.0	9.2	A2 ⁵⁾
	5.6					5.5	16	44	2.6	2.0	9.2	A2 ⁵⁾
	8		FN00100-4-0,80	0.80	1,400	10	28	44	2.6	1.5	17	A2 ⁵⁾
	11					10	31	44	2.6	1.5	17	A2 ⁵⁾
SA 16.2	16		FN00100-2-1,50	1.50	2,800	17	50	87	2.8	1.0	32	A4
	22					17	58	87	2.8	1.0	32	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ^{4/5)} R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	0.4	0.7	5.2	0.5	–	0.7	A2
	5.6					0.4	0.7	5.2	0.5	–	0.7	A2
	8		FN00063-4-0,04	0.04	1,400	0.6	1.2	5.2	0.5	–	1.2	A2
	11					0.6	1.3	5.2	0.5	–	1.3	A2
	16		FN00063-2-0,06	0.06	2,800	1.1	2.3	15	0.5	–	2.3	A2
	22					1.1	2.5	15	0.5	–	2.5	A2
	32	25	FN00071-4-0,10	0.10	1,400	1.3	3.1	13	0.5	–	3.1	A2
	45					1.3	3.7	13	0.5	–	3.7	A2
	63		FN00071-2-0,20	0.20	2,800	2.3	5.0	33	0.7	–	5.0	A2
	90					2.3	5.8	33	0.7	–	5.8	A2
SA 07.6	125	50	FN00071-2-0,30	0.30	2,800	3.4	7.3	33	0.7	–	6.3	A2
	180					3.4	8.1	33	0.7	–	6.3	A2
	4	60	FN00063-4-0,03	0.03	1,400	0.5	1.0	5.2	0.5	–	1.0	A2
	5.6					0.5	1.0	5.2	0.5	–	1.0	A2
	8		FN00063-4-0,07	0.07	1,400	1.2	1.9	5.2	0.5	–	1.9	A2
	11					1.2	2.1	5.2	0.5	–	2.1	A2
	16		FN00063-2-0,12	0.12	2,800	1.7	3.7	15	0.5	–	3.7	A2
	22					1.7	4.2	15	0.5	–	4.2	A2
	32	50	FN00080-4-0,20	0.20	1,400	2.5	5.4	29	0.7	–	5.4	A2
	45					2.5	6.7	29	0.7	–	6.7	A2
	63		FN00080-2-0,40	0.40	2,800	4.8	9.6	46	0.7	–	9.6	A2
	90					4.8	12	46	0.7	–	11	A2
SA 10.2	125	100	FN00080-2-0,50	0.50	2,800	5.8	15	46	0.7	–	11	A2
	180					5.8	17	46	0.7	–	11	A2
	4	120	FN00063-4-0,06	0.06	1,400	0.8	1.5	5.2	0.5	–	1.5	A2
	5.6					0.8	2.1	5.2	0.5	–	2.1	A2
	8		FN00071-4-0,12	0.12	1,400	1.5	3.1	13	0.5	–	3.1	A2
	11					1.5	3.8	13	0.5	–	3.8	A2
	16		FN00071-2-0,25	0.25	2,800	2.9	5.4	33	0.7	–	5.4	A2
	22					2.9	7.3	33	0.7	–	6.3	A2
	32	100	FN00090-4-0,40	0.40	1,400	5.4	11	40	0.5	2.8	11	A2 ⁵⁾
	45					5.4	13	40	0.5	2.8	11	A2 ⁵⁾
	63		FN00090-2-0,70	0.70	2,800	11	18	48	0.5	1.9	18	A2 ⁵⁾
	90					11	22	48	0.5	1.9	22	A2 ⁵⁾
SA 14.2	125	200	FN00090-2-1,00	1.00	2,800	13	27	48	0.5	1.9	22	A2 ⁵⁾
	180					13	28	48	0.5	1.9	22	A2 ⁵⁾
	4	250	FN00071-4-0,13	0.13	1,400	1.6	3.5	13	0.5	–	4.2	A2
	5.6					1.6	3.8	13	0.5	–	4.3	A2
	8		FN00080-4-0,25	0.25	1,400	3.1	7.7	29	0.7	–	7.3	A2
	11					3.1	9.2	29	0.7	–	7.3	A2
	16		FN00080-2-0,45	0.45	2,800	5.6	13	46	0.7	–	11	A2
	22					5.6	15	46	0.7	–	11	A2
	32	200	FN00100-4-0,75	0.75	1,400	8.5	21	38	2.5	1.7	19	A2 ⁵⁾
	45					8.5	24	38	2.5	1.7	19	A2 ⁵⁾
	63		FN00100-2-1,40	1.40	2,800	16	39	77	2.5	1.1	36	A4
	90					16	45	77	2.5	1.1	36	A4
SA 14.6	125	500	FN00100-2-1,80	1.80	2,800	21	60	77	2.5	1.1	36	A4
	180					21	59	77	2.5	1.1	36	A4
	4	500	FN00080-4-0,22	0.22	1,400	3.1	6.5	29	0.65	–	7.3	A2
	5.6					3.1	7.5	29	0.65	–	7.3	A2
	8		FN00090-4-0,45	0.45	1,400	5.0	14	40	0.9	2.8	11	A2 ⁵⁾
	11					5.0	16	40	0.9	2.8	11	A2 ⁵⁾
	16		FN00090-2-0,80	0.80	2,800	12	23	48	0.9	1.9	22	A2 ⁵⁾
	22					12	26	48	0.9	1.9	22	A2 ⁵⁾
SA 16.2	32	1 000	FN00112-4-1,60	1.60	1,400	19	37	52	1.9	0.8	36	A4
	45					19	43	52	1.9	0.8	36	A4
	4		FN00100-4-0,40	0.40	1,400	4.8	13	38	2.3	2.3	11	A2 ⁵⁾
	5.6					4.8	14	38	2.3	2.3	11	A2 ⁵⁾
	8		FN00100-4-0,80	0.80	1,400	9.2	25	38	2.3	1.7	19	A2 ⁵⁾
	11					9.2	27	38	2.3	1.7	19	A2 ⁵⁾
SA 16.2	16		FN00100-2-1,50	1.50	2,800	15	44	77	2.5	1.1	36	A4
	22					15	51	77	2.5	1.1	36	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

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Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ^{4/5)} R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactors
SA 07.2	4	30	FN00063-4-0,02	0.02	1,400	0.2	0.4	3.0	0.3	–	0.4	A2
	5.6					0.2	0.4	3.0	0.3	–	0.4	A2
	8		FN00063-4-0,04	0.04	1,400	0.4	0.7	3.0	0.3	–	0.7	A2
	11					0.4	0.7	3.0	0.3	–	0.7	A2
	16		FN00063-2-0,06	0.06	2,800	0.6	1.3	8.7	0.3	–	1.3	A2
	22					0.6	1.4	8.7	0.3	–	1.4	A2
	32	25	FN00071-4-0,10	0.10	1,400	0.8	1.8	7.3	0.3	–	1.7	A2
	45					0.8	2.1	7.3	0.3	–	1.7	A2
	63		FN00071-2-0,20	0.20	2,800	1.3	2.8	19	0.4	–	2.8	A2
	90					1.3	3.3	19	0.4	–	2.8	A2
SA 07.6	125	60	FN00071-2-0,30	0.30	2,800	1.9	4.2	19	0.4	–	2.8	A2
	180					1.9	4.6	19	0.4	–	2.8	A2
	4		FN00063-4-0,03	0.03	1,400	0.3	0.6	3.0	0.3	–	0.6	A2
	5.6					0.3	0.6	3.0	0.3	–	0.6	A2
	8		FN00063-4-0,07	0.07	1,400	0.7	1.1	3.0	0.3	–	1.1	A2
	11					0.7	1.2	3.0	0.3	–	1.2	A2
	16	50	FN00063-2-0,12	0.12	2,800	1.0	2.1	8.7	0.3	–	1.9	A2
	22					1.0	2.4	8.7	0.3	–	1.9	A2
	32		FN00080-4-0,20	0.20	1,400	1.4	3.1	16	0.4	–	3.1	A2
	45					1.4	3.8	16	0.4	–	3.2	A2
SA 10.2	63	120	FN00080-2-0,40	0.40	2,800	2.7	5.5	26	0.4	–	5.2	A2
	90					2.7	6.8	26	0.4	–	5.2	A2
	125		FN00080-2-0,50	0.50	2,800	3.3	8.7	26	0.4	–	5.2	A2
	180					3.3	9.8	26	0.4	–	5.2	A2
	4	100	FN00063-4-0,06	0.06	1,400	0.4	0.9	3.0	0.3	–	0.9	A2
	5.6					0.4	1.2	3.0	0.3	–	1.1	A2
	8		FN00071-4-0,12	0.12	1,400	0.9	1.8	7.3	0.3	–	1.7	A2
	11					0.9	2.2	7.3	0.3	–	1.7	A2
	16	250	FN00071-2-0,25	0.25	2,800	1.6	3.1	19	0.4	–	2.8	A2
	22					1.6	4.2	19	0.4	–	2.8	A2
SA 14.2	32		FN00090-4-0,40	0.40	1,400	3.1	6.0	23	0.3	9.8	5.1	A2 ⁵⁾
	45					3.1	7.6	23	0.3	9.8	5.1	A2 ⁵⁾
	63	200	FN00090-2-0,70	0.70	2,800	6.0	10	27	0.3	6.5	9.5	A2 ⁵⁾
	90					6.0	12	27	0.3	6.5	9.5	A2 ⁵⁾
	125		FN00090-2-1,00	1.00	2,800	7.4	15	27	0.3	6.5	9.5	A2 ⁵⁾
	180					7.4	16	27	0.3	6.5	9.5	A2 ⁵⁾
	4	500	FN00071-4-0,13	0.13	1,400	0.9	2.0	7.3	0.28	–	1.9	A2
	5.6					0.9	2.2	7.3	0.28	–	1.9	A2
	8		FN00080-4-0,25	0.25	1,400	1.8	4.4	16	0.4	–	3.2	A2
	11					1.8	5.2	16	0.4	–	3.2	A2
SA 14.6	16	1,000	FN00080-2-0,45	0.45	2,800	3.2	7.6	26	0.4	–	5.2	A2
	22					3.2	8.4	26	0.4	–	5.2	A2
	32		FN00100-4-0,75	0.75	1,400	4.8	12	22	1.4	5.9	8.2	A2 ⁵⁾
	45					4.8	14	22	1.4	5.9	8.2	A2 ⁵⁾
	63	200	FN00100-2-1,40	1.40	2,800	9.3	22	44	1.4	4.1	16	A2 ⁵⁾
	90					9.3	26	44	1.4	4.1	16	A2 ⁵⁾
	125		FN00100-2-1,80	1.80	2,800	12	34	44	1.4	4.1	16	A2 ⁵⁾
	180					12	34	44	1.4	4.1	16	A2 ⁵⁾
SA 16.2	4	500	FN00080-4-0,22	0.22	1,400	1.7	3.7	16	0.37	–	3.2	A2
	5.6					1.7	4.3	16	0.37	–	3.2	A2
	8		FN00090-4-0,45	0.45	1,400	2.8	7.9	23	0.5	9.8	5.1	A2 ⁵⁾
	11					2.8	8.8	23	0.5	9.8	5.1	A2 ⁵⁾
	16	1,000	FN00090-2-0,80	0.80	2,800	6.6	13	27	0.5	6.5	9.5	A2 ⁵⁾
	22					6.6	15	27	0.5	6.5	9.5	A2 ⁵⁾
	32		FN00112-4-1,60	1.60	1,400	11	21	29	1.1	2.7	16	A2 ⁵⁾
	45					11	25	29	1.1	2.7	16	A2 ⁵⁾
SA 16.2	4	1,000	FN00100-4-0,40	0.40	1,400	2.7	7.4	22	1.3	7.9	4.6	A2 ⁵⁾
	5.6					2.7	7.9	22	1.3	7.9	4.6	A2 ⁵⁾
	8		FN00100-4-0,80	0.80	1,400	5.2	14	22	1.3	5.9	8.2	A2 ⁵⁾
	11					5.2	15	22	1.3	5.9	8.2	A2 ⁵⁾
	16		FN00100-2-1,50	1.50	2,800	8.7	25	44	1.4	4.1	16	A2 ⁵⁾
	22					8.7	29	44	1.4	4.1	16	A2 ⁵⁾

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 24 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1 400	2.0	3.5	27	2.4	—	3.5	A2
	5.6					2.0	3.8	27	2.4	—	3.8	A2
	8		FN0R063-4-0,04	0.04	1,400	3.3	6.0	27	2.4	—	6.0	A2
	11					3.3	6.5	27	2.4	—	6.5	A2
	16		FN0R063-2-0,06	0.06	2 800	5.5	12	80	2.4	—	12	A4
	22					5.5	13	80	2.4	—	13	A4
	32		FN0R071-4-0,10	0.10	1,400	7.0	16	67	2.6	—	16	A2
	45					7.0	19	67	2.6	—	16	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	2.8	5.0	27	2.4	—	5.0	A2
	5.6					2.8	5.0	27	2.4	—	5.0	A2
	8		FN0R063-4-0,07	0.07	1,400	6.0	10	27	2.4	—	10	A2
	11					6.0	11	27	2.4	—	11	A2
	16		FN0R063-2-0,12	0.12	2 800	9.0	19	80	2.4	—	18	A4
	22					9.0	22	80	2.4	—	18	A4
	32		FN0R080-4-0,20	0.20	1,400	13	28	150	3.4	—	28	A4
	45					13	35	150	3.4	—	29	A4
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	4.0	8.0	27	2.4	—	8.0	A2
	5.6					4.0	11	27	2.4	—	11	A2
	8		FN0R071-4-0,12	0.12	1,400	8.0	16	67	2.6	—	16	A2
	11					8.0	20	67	2.6	—	16	A2
	16		FN0R071-2-0,25	0.25	2,800	15	28	170	3.6	—	25	A5
	22					15	38	170	3.6	—	25	A5
	32		FN0R090-4-0,40	0.40	1,400	28	55	210	2.6	—	47	A5
	45					28	70	210	2.6	—	47	A5
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	8.2	18	67	2.6	—	17	A2
	5.6					8.2	20	67	2.6	—	17	A2
	8		FN0R080-4-0,25	0.25	1,400	16	40	150	3.4	—	29	A4
	11					16	48	150	3.4	—	29	A4
	16		FN0R080-2-0,45	0.45	2,800	29	70	240	3.4	—	47	A5
	22					29	77	240	3.4	—	47	A5
	32		FL0R100-4-0,75	0.75	1,400	44	107	200	13	—	86	A5
	45					44	124	200	13	—	86	A5
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	16	34	150	3.4	—	29	A4
	5.6					16	39	150	3.4	—	29	A4
	8		FN0R090-4-0,45	0.45	1,400	26	72	210	4.6	—	47	A5
	11					26	81	210	4.6	—	47	A5
	16		FN0R090-2-0,80	0.80	2,800	60	120	250	4.6	—	85	A5
	22					60	138	250	4.6	—	85	A5
	32		FL0R112-4-1,60	1.60	1,400	100	193	270	10	—	170	A6
	45					100	226	270	10	—	170	A6
SAR 16.2	4	1,000	FL0R100-4-0,40	0.40	1,400	25	68	200	12	—	48	A5
	5.6					25	72	200	12	—	48	A5
	8		FL0R100-4-0,80	0.80	1,400	48	128	200	12	—	86	A5
	11					48	140	200	12	—	86	A5
	16		FL0R100-2-1,50	1.50	2,800	80	230	400	13	—	170	A6
	22					80	264	400	13	—	170	A6

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

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SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 48 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear Contactor
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1 400	1.0	1.8	14	1.2	–	1.8	A2
	5.6					1.0	1.9	14	1.2	–	1.9	A2
	8		FN0R063-4-0,04	0.04	1,400	1.7	3.0	14	1.2	–	3.0	A2
	11					1.7	3.3	14	1.2	–	3.3	A2
	16		FN0R063-2-0,06	0.06	2,800	2.8	6.0	40	1.2	–	6.0	A2
	22					2.8	6.5	40	1.2	–	6.5	A2
	32		FN0R071-4-0,10	0.10	1,400	3.5	8.0	34	1.3	–	7.8	A2
	45					3.5	9.5	34	1.3	–	7.8	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	1.4	2.5	14	1.2	–	2.5	A2
	5.6					1.4	2.5	14	1.2	–	2.5	A2
	8		FN0R063-4-0,07	0.07	1,400	3.0	5.0	14	1.2	–	5.0	A2
	11					3.0	5.5	14	1.2	–	5.4	A2
	16		FN0R063-2-0,12	0.12	2,800	4.5	9.5	40	1.2	–	8.8	A2
	22					4.5	11	40	1.2	–	8.8	A2
	32		FN0R080-4-0,20	0.20	1,400	6.5	14	75	1.7	–	14	A4
	45					6.5	18	75	1.7	–	15	A4
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	2.0	4.0	14	1.2	–	4.0	A2
	5.6					2.0	5.5	14	1.2	–	4.9	A2
	8		FN0R071-4-0,12	0.12	1,400	4.0	8.0	34	1.3	–	7.8	A2
	11					4.0	10	34	1.3	–	7.8	A2
	16		FN0R071-2-0,25	0.25	2,800	7.5	14	85	1.8	–	13	A4
	22					7.5	19	85	1.8	–	13	A4
	32		FN0R090-4-0,40	0.40	1,400	14	28	105	1.3	–	23	A4
	45					14	35	105	1.3	–	23	A4
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	4.1	9.0	34	1.3	–	8.7	A2
	5.6					4.1	10	34	1.3	–	8.7	A2
	8		FN0R080-4-0,25	0.25	1,400	8.0	20	75	1.7	–	15	A4
	11					8.0	24	75	1.7	–	15	A4
	16		FN0R080-2-0,45	0.45	2,800	15	35	120	1.7	–	24	A4
	22					15	39	120	1.7	–	24	A4
	32		FL0R100-4-0,75	0.75	1,400	22	54	100	6.5	–	37	A4
	45					22	62	100	6.5	–	37	A4
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	8.0	17	75	1.7	–	15	A4
	5.6					8.0	20	75	1.7	–	15	A4
	8		FN0R090-4-0,45	0.45	1,400	13	36	105	2.3	–	23	A4
	11					13	41	105	2.3	–	23	A4
	16		FN0R090-2-0,80	0.80	2,800	30	60	125	2.3	–	47	A4
	22					30	69	125	2.3	–	47	A4
	32		FL0R112-4-1,60	1.60	1,400	50	97	135	5.0	–	73	A5
	45					50	113	135	5.0	–	73	A5
SAR 16.2	4	1,000	FL0R100-4-0,40	0.40	1,400	13	34	100	6.0	–	21	A4
	5.6					13	36	100	6.0	–	21	A4
	8		FL0R100-4-0,80	0.80	1,400	24	64	100	6.0	–	37	A4
	11					24	70	100	6.0	–	37	A4
	16		FL0R100-2-1,50	1.50	2,800	40	115	200	6.5	–	73	A5
	22					40	132	200	6.5	–	73	A5

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 60 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1,400	0.8	1.4	11	1.0	–	1.4	A2
	5.6					0.8	1.5	11	1.0	–	1.5	A2
	8		FN0R063-4-0,04	0.04	1,400	1.3	2.4	11	1.0	–	2.4	A2
	11					1.3	2.6	11	1.0	–	2.6	A2
	16		FN0R063-2-0,06	0.06	2,800	2.2	4.8	32	1.0	–	4.8	A2
	22					2.2	5.2	32	1.0	–	5.2	A2
	32		FN0R071-4-0,10	0.10	1,400	2.8	6.4	27	1.0	–	6.2	A2
	45					2.8	7.6	27	1.0	–	6.2	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	1.1	2.0	11	1.0	–	2.0	A2
	5.6					1.1	2.0	11	1.0	–	2.0	A2
	8		FN0R063-4-0,07	0.07	1,400	2.4	4.0	11	1.0	–	4.0	A2
	11					2.4	4.4	11	1.0	–	4.4	A2
	16		FN0R063-2-0,12	0.12	2,800	3.6	7.6	32	1.0	–	7.1	A2
	22					3.6	8.8	32	1.0	–	7.1	A2
	32		FN0R080-4-0,20	0.20	1,400	5.2	11	60	1.4	–	11	A2
	45					5.2	14	60	1.4	–	12	A2
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	1.6	3.2	11	1.0	–	3.2	A2
	5.6					1.6	4.4	11	1.0	–	4.0	A2
	8		FN0R071-4-0,12	0.12	1,400	3.2	6.4	27	1.0	–	6.2	A2
	11					3.2	8.0	27	1.0	–	6.2	A2
	16		FN0R071-2-0,25	0.25	2,800	6.0	11	68	1.4	–	10	A4
	22					6.0	15	68	1.4	–	10	A4
	32		FN0R090-4-0,40	0.40	1,400	11	22	84	1.0	0.7	19	A4
	45					11	28	84	1.0	0.7	19	A4
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	3.3	7.2	27	1.04	–	6.9	A2
	5.6					3.3	8.0	27	1.04	–	6.9	A2
	8		FN0R080-4-0,25	0.25	1,400	6.4	16	60	1.4	–	12	A2
	11					6.4	19	60	1.4	–	12	A2
	16		FN0R080-2-0,45	0.45	2,800	12	28	96	1.4	–	19	A4
	22					12	31	96	1.4	–	19	A4
	32		FL0R100-4-0,75	0.75	1,400	18	43	80	5.2	0.4	30	A4
	45					18	50	80	5.2	0.4	30	A4
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	6.4	14	60	1.36	–	12	A2
	5.6					6.4	16	60	1.36	–	12	A2
	8		FN0R090-4-0,45	0.45	1,400	10	29	84	1.8	0.7	19	A4
	11					10	32	84	1.8	0.7	19	A4
	16		FN0R090-2-0,80	0.80	2,800	24	48	100	1.8	0.5	35	A4
	22					24	55	100	1.8	0.5	35	A4
	32		FL0R112-4-1,60	1.60	1,400	40	77	108	4.0	0.3	59	A4
	45					40	90	108	4.0	0.3	59	A4
SAR 16.2	4	1,000	FL0R100-4-0,40	0.40	1,400	10	27	80	4.8	0.6	17	A4
	5.6					10	29	80	4.8	0.6	17	A4
	8		FL0R100-4-0,80	0.80	1,400	19	51	80	4.8	0.4	30	A4
	11					19	56	80	4.8	0.4	30	A4
	16		FL0R100-2-1,50	1.50	2,800	32	92	160	5.2	0.3	59	A5
	22					32	106	160	5.2	0.3	59	A5

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 110 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1,400	0.4	0.8	5.9	0.5	—	0.8	A2
	5.6					0.4	0.8	5.9	0.5	—	0.8	A2
	8		FN0R063-4-0,04	0.04	1,400	0.7	1.3	5.9	0.5	—	1.3	A2
	11					0.7	1.4	5.9	0.5	—	1.4	A2
	16		FN0R063-2-0,06	0.06	2,800	1.2	2.6	17	0.5	—	2.6	A2
	22					1.2	2.8	17	0.5	—	2.8	A2
	32		FN0R071-4-0,10	0.10	1,400	1.5	3.5	15	0.6	—	3.4	A2
	45					1.5	4.2	15	0.6	—	3.4	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	0.6	1.1	5.9	0.5	—	1.1	A2
	5.6					0.6	1.1	5.9	0.5	—	1.1	A2
	8		FN0R063-4-0,07	0.07	1,400	1.3	2.2	5.9	0.5	—	2.2	A2
	11					1.3	2.4	5.9	0.5	—	2.4	A2
	16		FN0R063-2-0,12	0.12	2,800	2.0	4.2	17	0.5	—	3.9	A2
	22					2.0	4.8	17	0.5	—	3.9	A2
	32		FN0R080-4-0,20	0.20	1,400	2.8	6.1	33	0.7	—	6.1	A2
	45					2.8	7.6	33	0.7	—	6.4	A2
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	0.9	1.8	5.9	0.5	—	1.8	A2
	5.6					0.9	2.4	5.9	0.5	—	2.2	A2
	8		FN0R071-4-0,12	0.12	1,400	1.8	3.5	15	0.6	—	3.4	A2
	11					1.8	4.4	15	0.6	—	3.4	A2
	16		FN0R071-2-0,25	0.25	2,800	3.3	6.1	37	0.8	—	5.5	A2
	22					3.3	8.3	37	0.8	—	5.5	A2
	32		FN0R090-4-0,40	0.40	1,400	6.1	12	46	0.6	2.5	10	A2 ⁵⁾
	45					6.1	15	46	0.6	2.5	10	A2 ⁵⁾
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	1.8	3.9	15	0.57	—	3.8	A2
	5.6					1.8	4.4	15	0.57	—	3.8	A2
	8		FN0R080-4-0,25	0.25	1,400	3.5	8.7	33	0.7	—	6.4	A2
	11					3.5	10	33	0.7	—	6.4	A2
	16		FN0R080-2-0,45	0.45	2,800	6.3	15	52	0.7	—	10	A2
	22					6.3	17	52	0.7	—	10	A2
	32		FN0R100-4-0,75	0.75	1,400	9.6	23	44	2.8	1.5	17	A4
	45					9.6	27	44	2.8	1.5	17	A4
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	3.5	7.4	33	0.74	—	6.4	A2
	5.6					3.5	8.5	33	0.74	—	6.4	A2
	8		FN0R090-4-0,45	0.45	1,400	5.7	16	46	1.0	2.5	10	A2 ⁵⁾
	11					5.7	18	46	1.0	2.5	10	A2 ⁵⁾
	16		FN0R090-2-0,80	0.80	2,800	13	26	55	1.0	1.7	19	A4
	22					13	30	55	1.0	1.7	19	A4
	32		FN0R112-4-1,60	1.60	1,400	22	42	59	2.2	0.7	32	A4
	45					22	49	59	2.2	0.7	32	A4
SAR 16.2	4	1,000	FN0R100-4-0,40	0.40	1,400	5.5	15	44	2.6	2.0	9.2	A2 ⁵⁾
	5.6					5.5	16	44	2.6	2.0	9.2	A2 ⁵⁾
	8		FN0R100-4-0,80	0.80	1,400	10	28	44	2.6	1.5	17	A4
	11					10	31	44	2.6	1.5	17	A4
	16		FN0R100-2-1,50	1.50	2,800	17	50	87	2.8	1.0	32	A4
	22					17	58	87	2.8	1.0	32	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 125 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ⁴⁾⁵⁾ R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactors
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1,400	0.4	0.7	5.2	0.5	—	0.7	A2
	5.6					0.4	0.7	5.2	0.5	—	0.7	A2
	8		FN0R063-4-0,04	0.04	1,400	0.6	1.2	5.2	0.5	—	1.2	A2
	11					0.6	1.3	5.2	0.5	—	1.3	A2
	16		FN0R063-2-0,06	0.06	2,800	1.1	2.3	15	0.5	—	2.3	A2
	22					1.1	2.5	15	0.5	—	2.5	A2
	32		FN0R071-4-0,10	0.10	1,400	1.3	3.1	13	0.5	—	3.1	A2
	45					1.3	3.7	13	0.5	—	3.7	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	0.5	1.0	5.2	0.5	—	1.0	A2
	5.6					0.5	1.0	5.2	0.5	—	1.0	A2
	8		FN0R063-4-0,07	0.07	1,400	1.2	1.9	5.2	0.5	—	1.9	A2
	11					1.2	2.1	5.2	0.5	—	2.1	A2
	16		FN0R063-2-0,12	0.12	2,800	1.7	3.7	15	0.5	—	3.7	A2
	22					1.7	4.2	15	0.5	—	4.2	A2
	32		FN0R080-4-0,20	0.20	1,400	2.5	5.4	29	0.7	—	5.4	A2
	45					2.5	6.7	29	0.7	—	6.7	A2
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	0.8	1.5	5.2	0.5	—	1.5	A2
	5.6					0.8	2.1	5.2	0.5	—	2.1	A2
	8		FN0R071-4-0,12	0.12	1,400	1.5	3.1	13	0.5	—	3.1	A2
	11					1.5	3.8	13	0.5	—	3.8	A2
	16		FN0R071-2-0,25	0.25	2,800	2.9	5.4	33	0.7	—	5.4	A2
	22					2.9	7.3	33	0.7	—	6.3	A2
	32		FN0R090-4-0,40	0.40	1,400	5.4	11	40	0.5	2.8	11	A2 ⁵⁾
	45					5.4	13	40	0.5	2.8	11	A2 ⁵⁾
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	1.6	3.5	13	0.5	—	4.2	A2
	5.6					1.6	3.8	13	0.5	—	4.3	A2
	8		FN0R080-4-0,25	0.25	1,400	3.1	7.7	29	0.7	—	7.3	A2
	11					3.1	9.2	29	0.7	—	7.3	A2
	16		FN0R080-2-0,45	0.45	2,800	5.6	13	46	0.7	—	11	A2
	22					5.6	15	46	0.7	—	11	A2
	32		FN0R100-4-0,75	0.75	1,400	8.5	21	38	2.5	1.7	19	A4
	45					8.5	24	38	2.5	1.7	19	A4
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	3.1	6.5	29	0.65	—	7.3	A2
	5.6					3.1	7.5	29	0.65	—	7.3	A2
	8		FN0R090-4-0,45	0.45	1,400	5.0	14	40	0.9	2.8	11	A2 ⁵⁾
	11					5.0	16	40	0.9	2.8	11	A2 ⁵⁾
	16		FN0R090-2-0,80	0.80	2,800	12	23	48	0.9	1.9	22	A4
	22					12	26	48	0.9	1.9	22	A4
	32		FN0R112-4-1,60	1.60	1,400	19	37	52	1.9	0.8	36	A4
	45					19	43	52	1.9	0.8	36	A4
SAR 16.2	4	1,000	FN0R100-4-0,40	0.40	1,400	4.8	13	38	2.3	2.3	11	A2 ⁵⁾
	5.6					4.8	14	38	2.3	2.3	11	A2 ⁵⁾
	8		FN0R100-4-0,80	0.80	1,400	9.2	25	38	2.3	1.7	19	A4
	11					9.2	27	38	2.3	1.7	19	A4
	16		FN0R100-2-1,50	1.50	2,800	15	44	77	2.5	1.1	36	A4
	22					15	51	77	2.5	1.1	36	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

SAR 07.2 – SAR 16.2

Electrical data Multi-turn actuators for modulating duty with DC motors

Intermittent duty S4 - 25 %, 220 V DC

Multi-turn actuator			Motor									
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	Field current I _F [A]	Starting resistance ^{4/5)} R _A [Ω]	Overcurrent protection device setting [A]	AUMA power class switchgear
												Contactor
SAR 07.2	4	30	FN0R063-4-0,02	0.02	1,400	0.2	0.4	3.0	0.3	—	0.4	A2
	5.6					0.2	0.4	3.0	0.3	—	0.4	A2
	8		FN0R063-4-0,04	0.04	1,400	0.4	0.7	3.0	0.3	—	0.7	A2
	11					0.4	0.7	3.0	0.3	—	0.7	A2
	16		FN0R063-2-0,06	0.06	2,800	0.6	1.3	8.7	0.3	—	1.3	A2
	22					0.6	1.4	8.7	0.3	—	1.4	A2
	32		FN0R071-4-0,10	0.10	1,400	0.8	1.8	7.3	0.3	—	1.7	A2
	45					0.8	2.1	7.3	0.3	—	1.7	A2
SAR 07.6	4	60	FN0R063-4-0,03	0.03	1,400	0.3	0.6	3.0	0.3	—	0.6	A2
	5.6					0.3	0.6	3.0	0.3	—	0.6	A2
	8		FN0R063-4-0,07	0.07	1,400	0.7	1.1	3.0	0.3	—	1.1	A2
	11					0.7	1.2	3.0	0.3	—	1.2	A2
	16		FN0R063-2-0,12	0.12	2,800	1.0	2.1	8.7	0.3	—	1.9	A2
	22					1.0	2.4	8.7	0.3	—	1.9	A2
	32		FN0R080-4-0,20	0.20	1,400	1.4	3.1	16	0.4	—	3.1	A2
	45					1.4	3.8	16	0.4	—	3.2	A2
SAR 10.2	4	120	FN0R063-4-0,06	0.06	1,400	0.4	0.9	3.0	0.3	—	0.9	A2
	5.6					0.4	1.2	3.0	0.3	—	1.1	A2
	8		FN0R071-4-0,12	0.12	1,400	0.9	1.8	7.3	0.3	—	1.7	A2
	11					0.9	2.2	7.3	0.3	—	1.7	A2
	16		FN0R071-2-0,25	0.25	2,800	1.6	3.1	19	0.4	—	2.8	A2
	22					1.6	4.2	19	0.4	—	2.8	A2
	32		FN0R090-4-0,40	0.40	1,400	3.1	6.0	23	0.3	9.8	5.1	A2 ⁵⁾
	45					3.1	7.6	23	0.3	9.8	5.1	A2 ⁵⁾
SAR 14.2	4	250	FN0R071-4-0,13	0.13	1,400	0.9	2.0	7.3	0.28	—	1.9	A2
	5.6					0.9	2.2	7.3	0.28	—	1.9	A2
	8		FN0R080-4-0,25	0.25	1,400	1.8	4.4	16	0.4	—	3.2	A2
	11					1.8	5.2	16	0.4	—	3.2	A2
	16		FN0R080-2-0,45	0.45	2,800	3.2	7.6	26	0.4	—	5.2	A2
	22					3.2	8.4	26	0.4	—	5.2	A2
	32		FN0R100-4-0,75	0.75	1,400	4.8	12	22	1.4	5.9	8.2	A2 ⁵⁾
	45					4.8	14	22	1.4	5.9	8.2	A2 ⁵⁾
SAR 14.6	4	500	FN0R080-4-0,22	0.22	1,400	1.7	3.7	16	0.37	—	3.2	A2
	5.6					1.7	4.3	16	0.37	—	3.2	A2
	8		FN0R090-4-0,45	0.45	1,400	2.8	7.9	23	0.5	9.8	5.1	A2 ⁵⁾
	11					2.8	8.8	23	0.5	9.8	5.1	A2 ⁵⁾
	16		FN0R090-2-0,80	0.80	2,800	6.6	13	27	0.5	6.5	9.5	A2 ⁵⁾
	22					6.6	15	27	0.5	6.5	9.5	A2 ⁵⁾
	32		FN0R112-4-1,60	1.60	1,400	11	21	29	1.1	2.7	16	A4
	45					11	25	29	1.1	2.7	16	A4
SAR 16.2	4	1,000	FN0R100-4-0,40	0.40	1,400	2.7	7.4	22	1.3	7.9	4.6	A2 ⁵⁾
	5.6					2.7	7.9	22	1.3	7.9	4.6	A2 ⁵⁾
	8		FN0R100-4-0,80	0.80	1,400	5.2	14	22	1.3	5.9	8.2	A2 ⁵⁾
	11					5.2	15	22	1.3	5.9	8.2	A2 ⁵⁾
	16		FN0R100-2-1,50	1.50	2,800	8.7	25	44	1.4	4.1	16	A4
	22					8.7	29	44	1.4	4.1	16	A4

1) – 5) Refer to Notes on Electrical data SA .2/SAR .2 multi-turn actuators with DC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	30	ADV0063-4-0,10	0.5	2.0	2.7	6
	12 – 120		ADV0063-2-0,20	0.6	2.3	4.0	6
	24 – 240	25	ADV0063-2-0,30	0.7	2.9	5.6	10
SAV 07.6	6 – 60	60	ADV0063-4-0,20	0.7	2.8	4.0	6
	12 – 120		ADV0063-2-0,40	1.0	3.8	6.2	10
	24 – 240	50	ADV0063-2-0,50	1.1	4.4	6.8	10
SAV 10.2	6 – 60	120	ADV0071-4-0,40	1.1	4.1	6.9	10
	12 – 120		ADV0071-2-0,70	1.6	6.3	9.8	16
	24 – 240	100	ADV0071-2-1,00	2.1	6.7	12	16
SAV 14.2	6 – 60	250	ADV0090-4-0,75	1.5	4.8	7.8	10
	12 – 120		ADV0090-2-1,40	2.8	8.7	14	16
	24 – 240	200	ADV0090-2-1,80	3.6	11	19	25
SAV 14.6	6 – 60	500	ADV0090-4-1,60	3.0	9.4	14	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	30	ADV0063-4-0,10	0.6	1.3	1.8	6
	12 – 120		ADV0063-2-0,20	0.6	1.4	2.5	6
	24 – 240	25	ADV0063-2-0,30	0.8	1.7	3.5	6
SAV 07.6	6 – 60	60	ADV0063-4-0,20	0.9	2.0	2.8	6
	12 – 120		ADV0063-2-0,40	1.2	2.6	4.3	6
	24 – 240	50	ADV0063-2-0,50	1.3	3.0	4.8	6
SAV 10.2	6 – 60	120	ADV0071-4-0,40	1.3	2.8	4.4	6
	12 – 120		ADV0071-2-0,70	1.8	4.0	6.9	10
	24 – 240	100	ADV0071-2-1,00	2.0	4.5	7.4	10
SAV 14.2	6 – 60	250	ADV0090-4-0,75	1.7	3.8	6.1	10
	12 – 120		ADV0090-2-1,40	3.1	6.8	11	16
	24 – 240	200	ADV0090-2-1,80	3.9	8.7	15	20
SAV 14.6	6 – 60	500	ADV0090-4-1,60	2.9	6.5	9.9	16
	12 – 120		ADV0090-2-3,00	5.0	11	18	20
	24 – 240	400	ADV0090-2-3,30	6.2	14	23	25
SAV 16.2	6 – 60	1,000	ADV0112-4-3,00	5.3	11	17	20

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 400 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	20	ADVL063-4-0,07	0.4	1.6	2.0	6
	12 – 120		ADVL063-2-0,14	0.5	1.8	3.0	6
	24 – 240		ADVL063-2-0,21	0.6	2.3	4.2	6
SAV 07.6	6 – 60	40	ADVL063-4-0,14	0.6	2.4	2.9	6
	12 – 120		ADVL063-2-0,28	0.8	3.2	3.9	6
	24 – 240	30	ADVL063-2-0,35	0.9	3.3	4.0	6
SAV 10.2	6 – 60	90	ADVL071-4-0,28	0.8	2.9	5.0	6
	12 – 120		ADVL071-2-0,50	1.2	4.7	8.0	10
	24 – 240	70	ADVL071-2-0,70	1.8	5.5	8.2	10
SAV 14.2	6 – 60	180	ADVL090-4-0,50	1.3	4.0	6.4	10
	12 – 120		ADVL090-2-1,00	2.3	7.3	12	16
	24 – 240	140	ADVL090-2-1,30	3.0	9.3	16	20
SAV 14.6	6 – 60	360	ADVL090-4-1,00	2.5	7.8	11	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	20	ADVL063-4-0,07	0.5	1.1	1.4	6
	12 – 120		ADVL063-2-0,14	0.5	1.2	2.1	6
	24 – 240		ADVL063-2-0,21	0.6	1.4	2.9	6
SAV 07.6	6 – 60	40	ADVL063-4-0,14	0.8	1.7	2.2	6
	12 – 120		ADVL063-2-0,28	1.0	2.2	2.9	6
	24 – 240		ADVL063-2-0,35	1.0	2.2	2.9	6
SAV 10.2	6 – 60	90	ADVL071-4-0,28	0.9	2.0	3.3	6
	12 – 120		ADVL071-2-0,50	1.3	3.0	5.2	10
	24 – 240		ADVL071-2-0,70	1.8	4.1	6.0	10
SAV 14.2	6 – 60	180	ADVL090-4-0,50	1.5	3.3	4.9	6
	12 – 120		ADVL090-2-1,00	2.7	6.0	8.8	10
	24 – 240		ADVL090-2-1,30	3.5	7.7	12	16
SAV 14.6	6 – 60	360	ADVL090-4-1,00	2.2	4.8	7.4	10
	12 – 120		ADVL090-2-2,00	3.7	8.2	13	16
	24 – 240		ADVL090-2-2,30	4.4	9.8	17	20
SAV 16.2	6 – 60	710	ADVL112-4-2,00	4.1	8.4	13	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 400 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	30	ADVR063-4-0,10	0.5	2.0	2.7	6
	12 – 120		ADVR063-2-0,20	0.6	2.3	4.0	6
	24 – 240	25	ADVR063-2-0,30	0.7	2.9	5.6	10
SARV 07.6	6 – 60	60	ADVR063-4-0,20	0.7	2.8	4.0	6
	12 – 120		ADVR063-2-0,40	1.0	3.8	6.2	10
	24 – 240	50	ADVR063-2-0,50	1.1	4.4	6.8	10
SARV 10.2	6 – 60	120	ADVR071-4-0,40	1.1	4.1	6.9	10
	12 – 120		ADVR071-2-0,70	1.6	6.3	9.8	16
	24 – 240	100	ADVR071-2-1,00	2.1	6.7	12	16
SARV 14.2	6 – 60	250	ADVR090-4-0,75	1.5	4.8	7.8	10
	12 – 120		ADVR090-2-1,40	2.8	8.7	14	16
	24 – 240	200	ADVR090-2-1,80	3.6	11	19	25
SARV 14.6	6 – 60	500	ADVR090-4-1,60	3.0	9.4	14	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermostats or PTC thermistors are embedded in the motor windings. Evaluation of thermostats or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	30	ADVR063-4-0,10	0.6	1.3	1.8	6
	12 – 120		ADVR063-2-0,20	0.6	1.4	2.5	6
	24 – 240	25	ADVR063-2-0,30	0.8	1.7	3.5	6
SARV 07.6	6 – 60	60	ADVR063-4-0,20	0.9	2.0	2.8	6
	12 – 120		ADVR063-2-0,40	1.2	2.6	4.3	6
	24 – 240	50	ADVR063-2-0,50	1.3	3.0	4.8	6
SARV 10.2	6 – 60	120	ADVR071-4-0,40	1.3	2.8	4.4	6
	12 – 120		ADVR071-2-0,70	1.8	4.0	6.9	10
	24 – 240	100	ADVR071-2-1,00	2.0	4.5	7.4	10
SARV 14.2	6 – 60	250	ADVR090-4-0,75	1.7	3.8	6.1	10
	12 – 120		ADVR090-2-1,40	3.1	6.8	11	16
	24 – 240	200	ADVR090-2-1,80	3.9	8.7	15	20
SARV 14.6	6 – 60	500	ADVR090-4-1,60	2.9	6.5	9.9	16
	12 – 120		ADVR090-2-3,00	5.0	11	18	20
	24 – 240	400	ADVR090-2-3,30	6.2	14	23	25
SARV 16.2	6 – 60	1 000	ADVR112-4-3,00	5.3	11	17	20

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 400 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	20	ADVQ063-4-0,07	0.4	1.6	2.0	6
	12 – 120		ADVQ063-2-0,14	0.5	1.8	3.0	6
SARV 07.6	6 – 60	40	ADVQ063-4-0,14	0.6	2.4	2.9	6
	12 – 120		ADVQ063-2-0,28	0.8	3.2	3.9	6
SARV 10.2	6 – 60	90	ADVQ071-4-0,28	0.8	2.9	5.0	6
	12 – 120		ADVQ071-2-0,50	1.2	4.7	8.0	10
SARV 14.2	6 – 60	180	ADVQ090-4-0,50	1.3	4.0	6.4	10
	12 – 120		ADVQ090-2-1,00	2.3	7.3	12	16
SARV 14.6	6 – 60	360	ADVQ090-4-1,00	2.5	7.8	11	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	20	ADVQ063-4-0,07	0.5	1.1	1.4	6
	12 – 120		ADVQ063-2-0,14	0.5	1.2	2.1	6
SARV 07.6	6 – 60	40	ADVQ063-4-0,14	0.8	1.7	2.2	6
	12 – 120		ADVQ063-2-0,28	1.0	2.2	2.9	6
SARV 10.2	6 – 60	90	ADVQ071-4-0,28	0.9	2.0	3.3	6
	12 – 120		ADVQ071-2-0,50	1.3	3.0	5.2	10
SARV 14.2	6 – 60	180	ADVQ090-4-0,50	1.5	3.3	4.9	6
	12 – 120		ADVQ090-2-1,00	2.7	6.0	8.8	10
SARV 14.6	6 – 60	360	ADVQ090-4-1,00	2.2	4.8	7.4	10
	12 – 120		ADVQ090-2-2,00	3.7	8.2	13	16
SARV 16.2	6 – 60	710	ADVQ112-4-2,00	4.1	8.4	13	16

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 400 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 400 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	30	ASV0063-4-0,10	0,4	5,2	7,2	10
	12 – 120		ASV0063-2-0,20	0,5	6,6	10	16
	24 – 240	25	ASV0063-2-0,30	0,6	8,1	15	16
SAV 07.6	6 – 60	60	ASV0063-4-0,20	0,6	7,3	13	16
	12 – 120		ASV0063-2-0,40	0,9	11	18	20
	24 – 240	50	ASV0063-2-0,50	1,1	14	22	25
SAV 10.2	6 – 60	120	ASV0071-4-0,40	1,0	13	22	25

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 115 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	30	ASV0063-4-0,10	0.6	4.0	5.0	6
	12 – 120		ASV0063-2-0,20	0.6	4.3	7.2	10
	24 – 240	25	ASV0063-2-0,30	0.8	5.4	10	16
SAV 07.6	6 – 60	60	ASV0063-4-0,20	0.7	4.6	7.0	10
	12 – 120		ASV0063-2-0,40	1.0	6.5	11	16
	24 – 240	50	ASV0063-2-0,50	1.1	7.6	13	16
SAV 10.2	6 – 60	120	ASV0071-4-0,40	1.1	7.6	14	16
	12 – 120		ASV0071-2-0,70	1.8	12	20	25
	24 – 240	100	ASV0071-2-1,00	2.2	13	22	25
SAV 14.2	6 – 60	250	ASV0090-4-0,75	1.5	8.9	15	16
	12 – 120		ASV0090-2-1,40	2.8	16	27	32

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	20	ASVL063-4-0,07	0.4	4.4	5.5	10
	12 – 120		ASVL063-2-0,14	0.4	5.1	8.1	10
	24 – 240		ASVL063-2-0,21	0.5	6.3	11	16
SAV 07.6	6 – 60	40	ASVL063-4-0,14	0.5	6.4	9.7	16
	12 – 120		ASVL063-2-0,28	0.8	9.6	13	16
	24 – 240	30	ASVL063-2-0,35	0.9	12	14	16
SAV 10.2	6 – 60	90	ASVL071-4-0,28	0.8	9.8	17	20

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 115 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SAV 07.2	6 – 60	20	ASVL063-4-0,07	0.5	3.1	4.0	6
	12 – 120		ASVL063-2-0,14	0.5	3.4	5.8	10
	24 – 240		ASVL063-2-0,21	0.6	4.3	6.7	10
SAV 07.6	6 – 60	40	ASVL063-4-0,14	0.6	4.0	5.3	10
	12 – 120		ASVL063-2-0,28	0.8	5.3	6.9	10
	24 – 240	30	ASVL063-2-0,35	0.9	5.8	7.1	10
SAV 10.2	6 – 60	90	ASVL071-4-0,28	0.9	5.8	9.5	16
	12 – 120		ASVL071-2-0,50	1.4	9.1	14	16
	24 – 240	70	ASVL071-2-0,70	1.7	10	16	20
SAV 14.2	6 – 60	180	ASVL090-4-0,50	1.3	7.6	12	16
	12 – 120		ASVL090-2-1,00	2.4	14	21	25

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	30	ASVR063-4-0.10	0.4	5.2	7.2	10
	12 – 120		ASVR063-2-0.20	0.5	6.6	10	16
	24 – 240	25	ASVR063-2-0.30	0.6	8.1	15	16
SARV 07.6	6 – 60	60	ASVR063-4-0.20	0.6	7.3	13	16
	12 – 120		ASVR063-2-0.40	0.9	11	18	20
	24 – 240	50	ASVR063-2-0.50	1.1	14	22	25
SARV 10.2	6 – 60	120	ASVR071-4-0.40	1.0	13	22	25

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 115 V rated voltage at maximum torque and approx. 50 % output speed Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	30	ASVR063-4-0,10	0.6	4.0	5.0	6
	12 – 120		ASVR063-2-0,20	0.6	4.3	7.2	10
	24 – 240	25	ASVR063-2-0,30	0.8	5.4	10	16
SARV 07.6	6 – 60	60	ASVR063-4-0,20	0.7	4.6	7.0	10
	12 – 120		ASVR063-2-0,40	1.0	6.5	11	16
	24 – 240	50	ASVR063-2-0,50	1.1	7.6	13	16
SARV 10.2	6 – 60	120	ASVR071-4-0,40	1.1	7.6	14	16
	12 – 120		ASVR071-2-0,70	1.8	12	20	25
	24 – 240	100	ASVR071-2-1,00	2.2	13	22	25
SARV 14.2	6 – 60	250	ASVR090-4-0,75	1.5	8.9	15	16
	12 – 120		ASVR090-2-1,40	2.8	16	27	32

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5.000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains short circuit current of 5.000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	20	ASVQ063-4-0,07	0.4	4.4	5.5	10
	12 – 120		ASVQ063-2-0,14	0.4	5.1	8.1	10
SARV 07.6	6 – 60	40	ASVQ063-4-0,14	0.5	6.4	9.7	16
	12 – 120		ASVQ063-2-0,28	0.8	9.6	13	16
SARV 10.2	6 – 60	90	ASVQ071-4-0,28	0.8	9.8	17	20

Notes on table

1) Protection on site	For short-circuit protection of the actuator, fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5,000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5,000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 115 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 115 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage, the frequency converter generates a variable 3-phase AC voltage, adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage, mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Multi-turn actuator			Motor				Fuse ¹⁾
Type	Output speed [rpm]	Max. torque [Nm]	Motor type	Consumed nominal power ²⁾ P_{IN} [kW]	Nominal current ³⁾ I_N [A]	Max. current ⁴⁾ I_{max} [A]	Blow characteristics: Time-delay (gG) [A]
SARV 07.2	6 – 60	20	ASVQ063-4-0,07	0.5	3.1	4.0	6
	12 – 120		ASVQ063-2-0,14	0.5	3.4	5.8	10
SARV 07.6	6 – 60	40	ASVQ063-4-0,14	0.6	4.0	5.3	10
	12 – 120		ASVQ063-2-0,28	0.8	5.3	6.9	10
SARV 10.2	6 – 60	90	ASVQ071-4-0,28	0.9	5.8	9.5	16
	12 – 120		ASVQ071-2-0,50	1.4	9.1	14	16
SARV 14.2	6 – 60	180	ASVQ090-4-0,50	1.3	7.6	12	16
	12 – 120		ASVQ090-2-1,00	2.4	14	21	25

Notes on table

1) Protection on site	For short-circuit protection of the actuator. fuses have to be provided by the customer. The actuators are suitable for use in current circuits with a maximum short-circuit 1-phase AC current value of 5.000 A root-mean-square (R.M.S). The output data of the fuses to be provided on site must not exceed the following values: 32 A/600 V at a maximum mains mains short circuit current of 5.000 A AC.
2) Consumed nominal power P_{IN}	Mains power consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
3) Nominal current I_N	Mains current consumption for 230 V rated voltage V at multi-turn actuator run torque (approx. 35 % of the maximum torque) and maximum output speed.
4) Max. current I_{max}	Mains current consumption for 230 V rated voltage at maximum torque and approx. 50 % output speed. Starting current $I_A \leq I_{max}$

Notes on installation and sizing

Electrical data	Current and power data are approximate. Due to usual manufacturing tolerances. there may be deviations from the values given.
Rated voltage	Mains voltage for defining current and power data
Motor operation	On the basis of the supplied 1-phase or 3-phase AC mains voltage. the frequency converter generates a variable 3-phase AC voltage. adjustable in terms of frequency and amplitude. Motor speed and thus actuator speed is internally set via the frequency.
Motor protection	To protect against overheating. thermoswitches or PTC thermistors are embedded in the motor windings. Evaluation of thermoswitches or PTC thermistors is integrated in the ACV controls.
Mains voltage. mains frequency	Permissible variation of mains voltage: ± 10 % Permissible variation of mains frequency: ± 5 %

Installation and sizing																					
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																				
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Actuators without integral actuator controls (AUMA NORM): Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan). Note: Failure to connect thermoswitches or PTC thermistors shall void the warranty for the motor. Rating of the thermoswitches <table><tr><th colspan="2">AC current</th><th colspan="2">DC current</th></tr><tr><td colspan="2">250 V, 50 – 60 Hz</td><td>60 V</td><td>1.0 A</td></tr><tr><td>cos φ = 1</td><td>2.5 A</td><td>42 V</td><td>1.2 A</td></tr><tr><td>cos φ = 0.6</td><td>1.6 A</td><td>24 V</td><td>1.5 A</td></tr></table> Actuators with AM or AC integral actuator controls: Thermal motor protection is already integrated.			AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A		
AC current		DC current																			
250 V, 50 – 60 Hz		60 V	1.0 A																		
cos φ = 1	2.5 A	42 V	1.2 A																		
cos φ = 0.6	1.6 A	24 V	1.5 A																		
Mains voltage, mains frequency	Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %																				
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: <table><tr><th>AUMA power class</th><th>Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3</th><th colspan="2">Reversing contactor Motor power according to UL/CSA at</th></tr><tr><td></td><td>400 V AC</td><td>480 V AC</td><td>600 V AC</td></tr><tr><td>A1</td><td>4.0 kW</td><td>5.0 hp</td><td>5.0 hp</td></tr></table> <table><tr><th>AUMA power class</th><th>Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a</th></tr><tr><td></td><td>400 V AC</td></tr><tr><td>B1</td><td>6 A</td></tr></table> Actuators with AM or AC integral actuator controls: Required switchgear in power classes A1 or B1 are directly integrated in AM or AC actuator controls.			AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at			400 V AC	480 V AC	600 V AC	A1	4.0 kW	5.0 hp	5.0 hp	AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a		400 V AC	B1	6 A
AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at																			
	400 V AC	480 V AC	600 V AC																		
A1	4.0 kW	5.0 hp	5.0 hp																		
AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a																				
	400 V AC																				
B1	6 A																				

Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors	
1) Nominal power P_N	Mechanical power output at motor shaft at run torque of part-turn actuator (corresponds to approx. 35 % of maximum torque). The consumed electrical power can be calculated using the following formula: $P = U \times I \times \cos \varphi \times \sqrt{3}$
2) Nominal current I_N	Current at run torque
3) Max. current I_{max}	Current at maximum torque

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 220 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	1.3	1.3	4.1	0.42	1.3	A1	B1
	4.5					1.3	1.3	4.1	0.42	1.3	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.9	0.9	2.2	0.50	0.9	A1	B1
	9					0.9	0.9	2.2	0.50	0.9	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.9	0.9	2.2	0.40	0.9	A1	B1
	17					0.9	0.9	2.2	0.40	0.9	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.7	0.7	1.5	0.38	0.7	A1	B1
50	SD00063-8-0,01	840	0.9		0.9	1.1	0.61	0.9	A1	B1		
SQ 07.2	3	300	VD00063-2-0,12	0.12	3,360	1.5	2.0	6.5	0.52	2.0	A1	B1
	4.5					1.5	2.0	6.5	0.52	2.0	A1	B1
	6		VD00063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	9					1.3	1.5	3.5	0.38	1.5	A1	B1
	12		VD00063-4-0,03	0.03	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	17					0.9	1.1	2.2	0.43	1.1	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.7	0.7	1.5	0.39	0.7	A1	B1
50	SD00063-8-0,01	840	0.9		0.9	1.1	0.61	0.9	A1	B1		
SQ 10.2	6	450	VD00063-4-0,10	0.10	1,680	1.7	2.2	4.4	0.48	2.2	A1	B1
	9					1.7	2.0	4.4	0.48	2.0	A1	B1
	12	600	SD00063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	17					1.3	1.5	3.5	0.38	1.5	A1	B1
	25		SD00063-4-0,04	0.04	1,680	1.1	1.1	2.2	0.48	1.1	A1	B1
	35					1.1	1.1	2.2	0.48	1.1	A1	B1
	50	SD00063-4-0,02	0.02	1,680	0.7	0.7	1.5	0.43	0.7	A1	B1	
SQ 12.2	9	900	VD00063-2-0,19	0.19	3,360	2.2	2.6	7.6	0.53	2.6	A1	B1
	12					1.7	2.2	4.4	0.48	2.2	A1	B1
	17	1,200	VD00063-4-0,10	0.10	1,680	1.7	2.0	4.4	0.48	2.0	A1	B1
	25					1.3	1.5	3.5	0.38	1.5	A1	B1
	35		SD00063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	50					1.1	1.1	2.2	0.48	1.1	A1	B1
	75	SD00063-4-0,04	0.04	1,680	1.1	1.1	2.2	0.48	1.1	A1	B1	
108	VD00063-4-0,02	0.02	1,680	0.7	0.7	1.5	0.43	0.7	A1	B1		
SQ 14.2	20	1,800	VD00063-2-0,19	0.19	3,360	2.2	2.6	7.6	0.53	2.6	A1	B1
	30					1.7	2.0	4.4	0.48	2.0	A1	B1
	40	2 400	VD00063-4-0,10	0.10	1,680	1.7	2.0	4.4	0.48	2.0	A1	B1
	60					1.3	1.5	3.5	0.38	1.5	A1	B1
	85		SD00063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 230 V/50 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear		
											Contact- tor	Thyristor	
SQ 05.2	4	150	VD00063-2-0,06	0,06	2 800	1.0	1.0	3.3	0.42	1.0	A1	B1	
	5.6					1.0	1.0	3.3	0.42	1.0	A1	B1	
	8		VD00063-4-0,04	0.04	1,400	0.7	0.7	1.7	0.50	0.7	A1	B1	
	11					0.7	0.7	1.7	0.50	0.7	A1	B1	
	16		VD00063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.40	0.7	A1	B1	
	22					0.7	0.7	1.7	0.40	0.7	A1	B1	
	32		SD00063-4-0,01 SD00063-8-0,01	0.01	1,400	0.5	0.5	1.2	0.38	0.5	A1	B1	
63	700	0.7			0.7	0.9	0.61	0.7	A1	B1			
SQ 07.2	4	300	VD00063-2-0,12	0.12	2,800	1.2	1.6	5.2	0.52	1.6	A1	B1	
	5.6					1.2	1.6	5.2	0.52	1.6	A1	B1	
	8		VD00063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1	
	11					1.0	1.2	2.8	0.38	1.2	A1	B1	
	16		VD00063-4-0,03	0.03	1,400	0.7	0.9	1.7	0.43	0.9	A1	B1	
	22					0.7	0.9	1.7	0.43	0.9	A1	B1	
	32		SD00063-4-0,01 SD00063-8-0,01	0.01	1,400	0.5	0.5	1.2	0.38	0.5	A1	B1	
63	700	0.7			0.7	0.9	0.61	0.7	A1	B1			
SQ 10.2	8	450	VD00063-4-0,10	0.10	1,400	1.4	1.7	3.5	0.48	1.7	A1	B1	
	11					1.4	1.6	3.5	0.48	1.6	A1	B1	
	16		600	SD00063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1
	22	1.0					1.2	2.8	0.38	1.2	A1	B1	
	32	SD00063-4-0,04		0.04	1,400	0.9	0.9	1.7	0.48	0.9	A1	B1	
	45					0.9	0.9	1.7	0.48	0.9	A1	B1	
	63	SD00063-4-0,02	0.02	1,400	0.5	0.5	1.2	0.43	0.5	A1	B1		
SQ 12.2	11	900	VD00063-2-0,19	0.19	2,800	1.7	2.1	6.1	0.53	2.1	A1	B1	
	16		1,200	VD00063-4-0,10	0.10	1,400	1.4	1.7	3.5	0.48	1.7	A1	B1
	22						1.4	1.6	3.5	0.48	1.6	A1	B1
	32	SD00063-4-0,06		0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1	
	45					1.0	1.2	2.8	0.38	1.2	A1	B1	
	63	SD00063-4-0,04	0.04	1,400	0.9	0.9	1.7	0.48	0.9	A1	B1		
	90				0.9	0.9	1.7	0.48	0.9	A1	B1		
SQ 14.2	125	SD00063-4-0,02	0.02	1,400	0.5	0.5	1.2	0.43	0.5	A1	B1		
	24	1,800	VD00063-2-0,19	0.19	2,800	1.7	2.1	6.1	0.53	2.1	A1	B1	
	36		2,400	VD00063-4-0,10	0.10	1,400	1.4	1.6	3.5	0.48	1.6	A1	B1
	48	1.4					1.6	3.5	0.48	1.6	A1	B1	
	72	SD00063-4-0,06		0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1	
100						1.0	1.2	2.8	0.38	1.2	A1	B1	

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 380 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	4	150	VD00063-2-0,06	0,06	2 800	0.6	0.6	2.0	0.42	0.6	A1	B1
	5.6					0.6	0.6	2.0	0.42	0.6	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.1	0.50	0.4	A1	B1
	11					0.4	0.4	1.1	0.50	0.4	A1	B1
	16		VD00063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.40	0.4	A1	B1
	22					0.4	0.4	1.1	0.40	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
63	SD00063-8-0,01	700				0.4	0.4	0.5	0.61	0.4	A1	B1
SQ 07.2	4	300	VD00063-2-0,12	0.12	2,800	0.7	0.9	3.2	0.52	0.9	A1	B1
	5.6					0.7	0.9	3.2	0.52	0.9	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	11					0.6	0.7	1.7	0.38	0.7	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.4	0.5	1.1	0.43	0.5	A1	B1
	22					0.4	0.5	1.1	0.43	0.5	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
63	SD00063-8-0,01	700				0.4	0.4	0.5	0.61	0.4	A1	B1
SQ 10.2	8	450	VD00063-4-0,10	0.10	1,400	0.8	1.1	2.1	0.48	1.1	A1	B1
	11					0.8	0.9	2.1	0.48	0.9	A1	B1
	16	600	SD00063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	22					0.6	0.7	1.7	0.38	0.7	A1	B1
	32		SD00063-4-0,04	0.04	1,400	0.5	0.5	1.1	0.48	0.5	A1	B1
	45					0.5	0.5	1.1	0.48	0.5	A1	B1
	63	SD00063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1	
SQ 12.2	11	900	VD00063-2-0,19	0.19	2,800	1.1	1.3	3.7	0.53	1.3	A1	B1
	16					0.8	1.1	2.1	0.48	1.1	A1	B1
	22	1,200	VD00063-4-0,10	0.10	1,400	0.8	0.9	2.1	0.48	0.9	A1	B1
	32					0.6	0.7	1.7	0.38	0.7	A1	B1
	45		SD00063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	63					0.5	0.5	1.1	0.48	0.5	A1	B1
	90	SD00063-4-0,04	0.04	1,400	0.5	0.5	1.1	0.48	0.5	A1	B1	
125	SD00063-4-0,02				0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1
SQ 14.2	24	1,800	VD00063-2-0,19	0.19	2,800	1.1	1.3	3.7	0.53	1.3	A1	B1
	36					0.8	0.9	2.1	0.48	0.9	A1	B1
	48	2,400	VD00063-4-0,10	0.10	1,400	0.8	0.9	2.1	0.48	0.9	A1	B1
	72					0.6	0.7	1.7	0.38	0.7	A1	B1
	100					0.6	0.7	1.7	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 380 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	0.8	0.8	2.4	0.42	0.8	A1	B1
	4.5					0.8	0.8	2.4	0.42	0.8	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.5	0.5	1.3	0.50	0.5	A1	B1
	9					0.5	0.5	1.3	0.50	0.5	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.5	0.5	1.3	0.40	0.5	A1	B1
	17					0.5	0.5	1.3	0.40	0.5	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.4	0.4	0.9	0.38	0.4	A1	B1
SQ 07.2	3	300	SD00063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	4.5		VD00063-2-0,12	0.12	3,360	0.9	1.1	3.8	0.52	1.1	A1	B1
	6					0.9	1.1	3.8	0.52	1.1	A1	B1
	9		VD00063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	12					0.8	0.9	2.0	0.38	0.9	A1	B1
	17		VD00063-4-0,03	0.03	1,680	0.5	0.6	1.3	0.43	0.6	A1	B1
	25					0.5	0.6	1.3	0.43	0.6	A1	B1
SQ 10.2	3	450	SD00063-4-0,01	0.01	1,680	0.4	0.4	0.9	0.39	0.4	A1	B1
	4.5					0.5	0.5	0.6	0.61	0.5	A1	B1
	6		VD00063-4-0,10	0.10	1,680	1.0	1.3	2.5	0.48	1.3	A1	B1
	9					1.0	1.1	2.5	0.48	1.1	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	17					0.8	0.9	2.0	0.38	0.9	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.6	0.6	1.3	0.48	0.6	A1	B1
SQ 12.2	3	900	SD00063-4-0,02	0.02	1,680	0.6	0.6	1.3	0.48	0.6	A1	B1
	4.5		VD00063-2-0,19	0.19	3,360	1.3	1.5	4.4	0.53	1.5	A1	B1
	6					1.3	1.5	4.4	0.53	1.5	A1	B1
	9		VD00063-4-0,10	0.10	1,680	1.0	1.3	2.5	0.48	1.3	A1	B1
	12					1.0	1.1	2.5	0.48	1.1	A1	B1
	17		SD00063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	25					0.8	0.9	2.0	0.38	0.9	A1	B1
SQ 14.2	3	1,200	SD00063-4-0,04	0.04	1,680	0.6	0.6	1.3	0.48	0.6	A1	B1
	4.5		VD00063-4-0,02	0.02	1,680	0.6	0.6	1.3	0.48	0.6	A1	B1
	6		VD00063-2-0,19	0.19	3,360	1.3	1.5	4.4	0.53	1.5	A1	B1
	9					1.3	1.5	4.4	0.53	1.5	A1	B1
	12		VD00063-4-0,10	0.10	1,680	1.0	1.1	2.5	0.48	1.1	A1	B1
	17					1.0	1.1	2.5	0.48	1.1	A1	B1
	25		SD00063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
SQ 14.2	30	1,800				0.8	0.9	2.0	0.38	0.9	A1	B1
	40		SD00063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	60					0.8	0.9	2.0	0.38	0.9	A1	B1
	85					0.8	0.9	2.0	0.38	0.9	A1	B1
						0.8	0.9	2.0	0.38	0.9	A1	B1

1) – 3) Siehe Hinweise zu den Elektrischen Daten Schwenkantriebe SQ .2/SQR .2 mit Drehstrommotoren

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 400 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	4	150	VD00063-2-0,06	0.06	2,800	0.6	0.6	1.9	0.42	0.6	A1	B1
	5.6					0.6	0.6	1.9	0.42	0.6	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.4	1.0	0.50	0.4	A1	B1
	16		VD00063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	22					0.4	0.4	1.0	0.40	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
SQ 07.2	4	300	SD00063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
	5.6		VD00063-2-0,12	0.12	2,800	0.7	0.9	3.0	0.52	0.9	A1	B1
	8					0.7	0.9	3.0	0.52	0.9	A1	B1
	11		VD00063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	16					0.6	0.7	1.6	0.38	0.7	A1	B1
	22		VD00063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	32					0.4	0.5	1.0	0.43	0.5	A1	B1
SQ 10.2	4	450	SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	5.6		SD00063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
	8		VD00063-4-0,10	0.10	1,400	0.8	1.0	2.0	0.48	1.0	A1	B1
	11					0.8	0.9	2.0	0.48	0.9	A1	B1
	16		SD00063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	22					0.6	0.7	1.6	0.38	0.7	A1	B1
	32		SD00063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
SQ 12.2	4	900	SD00063-4-0,02	0.02	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
	5.6		VD00063-2-0,19	0.19	2,800	1.0	1.2	3.5	0.53	1.2	A1	B1
	8					1.0	1.2	3.5	0.53	1.2	A1	B1
	11		VD00063-4-0,10	0.10	1,400	0.8	1.0	2.0	0.48	1.0	A1	B1
	16					0.8	0.9	2.0	0.48	0.9	A1	B1
	22		SD00063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	32					0.6	0.7	1.6	0.38	0.7	A1	B1
SQ 14.2	4	1,200	SD00063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
	5.6		SD00063-4-0,02	0.02	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
	8		VD00063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
	11		VD00063-2-0,19	0.19	2,800	1.0	1.2	3.5	0.53	1.2	A1	B1
	16					1.0	1.2	3.5	0.53	1.2	A1	B1
	22		VD00063-4-0,10	0.10	1,400	0.8	0.9	2.0	0.48	0.9	A1	B1
	32					0.8	0.9	2.0	0.48	0.9	A1	B1
SQ 14.2	4	2 400	SD00063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	5.6					0.6	0.7	1.6	0.38	0.7	A1	B1
	8					0.6	0.7	1.6	0.38	0.7	A1	B1
	11					0.6	0.7	1.6	0.38	0.7	A1	B1
	16					0.6	0.7	1.6	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 400 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	0.7	0.7	2.3	0.42	0.7	A1	B1
	4.5					0.7	0.7	2.3	0.42	0.7	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.5	0.5	1.2	0.50	0.5	A1	B1
	9					0.5	0.5	1.2	0.50	0.5	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.5	0.5	1.2	0.40	0.5	A1	B1
	17					0.5	0.5	1.2	0.40	0.5	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.4	0.4	0.8	0.38	0.4	A1	B1
SQ 07.2	3	300	SD00063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	4.5		VD00063-2-0,12	0.12	3,360	0.8	1.1	3.6	0.52	1.1	A1	B1
	6					0.8	1.1	3.6	0.52	1.1	A1	B1
	9		VD00063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	12					0.7	0.8	1.9	0.38	0.8	A1	B1
	17		VD00063-4-0,03	0.03	1,680	0.5	0.6	1.2	0.43	0.6	A1	B1
	25					0.5	0.6	1.2	0.43	0.6	A1	B1
SQ 10.2	3	450	SD00063-4-0,01	0.01	1,680	0.4	0.4	0.8	0.39	0.4	A1	B1
	4.5		SD00063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	6		VD00063-4-0,10	0.10	1,680	1.0	1.2	2.4	0.48	1.2	A1	B1
	9					1.0	1.1	2.4	0.48	1.1	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	17					0.7	0.8	1.9	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1
SQ 12.2	3	900	SD00063-4-0,02	0.02	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1
	4.5		SD00063-2-0,19	0.19	3,360	1.2	1.4	4.2	0.53	1.4	A1	B1
	6		VD00063-4-0,10	0.10	1,680	1.0	1.2	2.4	0.48	1.2	A1	B1
	9					1.0	1.1	2.4	0.48	1.1	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	17					0.7	0.8	1.9	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1
SQ 14.2	3	1,800	SD00063-4-0,02	0.02	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1
	4.5		VD00063-2-0,19	0.19	3,360	1.2	1.4	4.2	0.53	1.4	A1	B1
	6		VD00063-4-0,10	0.10	1,680	1.0	1.1	2.4	0.48	1.1	A1	B1
	9					1.0	1.1	2.4	0.48	1.1	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	17					0.7	0.8	1.9	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 415 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	4	150	VD00063-2-0,06	0.06	2,800	0.6	0.6	1.8	0.42	0.6	A1	B1
	5.6					0.6	0.6	1.8	0.42	0.6	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.4	1.0	0.50	0.4	A1	B1
	16		VD00063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	22					0.4	0.4	1.0	0.40	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
SQ 07.2	63	300	SD00063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
	4		VD00063-2-0,12	0.12	2,800	0.7	0.9	2.9	0.52	0.9	A1	B1
	5.6					0.7	0.9	2.9	0.52	0.9	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	11					0.6	0.7	1.5	0.38	0.7	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	22					0.4	0.5	1.0	0.43	0.5	A1	B1
SQ 10.2	32	450	SD00063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	63		SD00063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
	8		VD00063-4-0,10	0.10	1,400	0.8	1.0	1.9	0.48	1.0	A1	B1
	11					0.8	0.9	1.9	0.48	0.9	A1	B1
	16		SD00063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	22					0.6	0.7	1.5	0.38	0.7	A1	B1
	32		SD00063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
SQ 12.2	45	900	SD00063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
	63		VD00063-2-0,19	0.19	2,800	1.0	1.2	3.4	0.53	1.2	A1	B1
	90		VD00063-4-0,10	0.10	1,400	0.8	1.0	1.9	0.48	1.0	A1	B1
	125					0.8	0.9	1.9	0.48	0.9	A1	B1
	16		SD00063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	22					0.6	0.7	1.5	0.38	0.7	A1	B1
	32		SD00063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
SQ 14.2	48	1 800	SD00063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
	72		VD00063-2-0,19	0.19	2,800	1.0	1.2	3.4	0.53	1.2	A1	B1
	100		VD00063-4-0,10	0.10	1,400	0.8	0.9	1.9	0.48	0.9	A1	B1
						0.8	0.9	1.9	0.48	0.9	A1	B1
			SD00063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 440 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	0.7	0.7	2.1	0.42	0.7	A1	B1
	4.5					0.7	0.7	2.1	0.42	0.7	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.1	0.50	0.4	A1	B1
	9					0.4	0.4	1.1	0.50	0.4	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.4	0.4	1.1	0.40	0.4	A1	B1
	17					0.4	0.4	1.1	0.40	0.4	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.3	0.3	0.8	0.38	0.3	A1	B1
SQ 07.2	3	300	SD00063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	4.5		VD00063-2-0,12	0.12	3,360	0.8	1.0	3.3	0.52	1.0	A1	B1
	6					0.8	1.0	3.3	0.52	1.0	A1	B1
	9		VD00063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	12					0.7	0.8	1.7	0.38	0.8	A1	B1
	17		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.1	0.43	0.5	A1	B1
	25					0.4	0.5	1.1	0.43	0.5	A1	B1
SQ 10.2	3	450	SD00063-4-0,01	0.01	1,680	0.3	0.3	0.8	0.39	0.3	A1	B1
	4.5		SD00063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	6		VD00063-4-0,10	0.10	1,680	0.9	1.1	2.2	0.48	1.1	A1	B1
	9					0.9	1.0	2.2	0.48	1.0	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	17					0.7	0.8	1.7	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
SQ 12.2	3	900	SD00063-4-0,02	0.02	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
	4.5		SD00063-2-0,19	0.19	3,360	1.1	1.3	3.8	0.53	1.3	A1	B1
	6		VD00063-4-0,10	0.10	1,680	0.9	1.1	2.2	0.48	1.1	A1	B1
	9					0.9	1.0	2.2	0.48	1.0	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	17					0.7	0.8	1.7	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
SQ 14.2	3	1,800	SD00063-4-0,02	0.02	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
	4.5		VD00063-2-0,19	0.19	3,360	1.1	1.3	3.8	0.53	1.3	A1	B1
	6		VD00063-4-0,10	0.10	1,680	0.9	1.0	2.2	0.48	1.0	A1	B1
	9					0.9	1.0	2.2	0.48	1.0	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	17					0.7	0.8	1.7	0.38	0.8	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 460 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	0.6	0.6	2.0	0.42	0.6	A1	B1
	4.5					0.6	0.6	2.0	0.42	0.6	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	9					0.4	0.4	1.0	0.50	0.4	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	17					0.4	0.4	1.0	0.40	0.4	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
SQ 07.2	3	300	SD00063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	4.5		VD00063-2-0,12	0.12	3,360	0.7	0.9	3.1	0.52	0.9	A1	B1
	6					0.7	0.9	3.1	0.52	0.9	A1	B1
	9		VD00063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	12					0.6	0.7	1.7	0.38	0.7	A1	B1
	17		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	25					0.4	0.5	1.0	0.43	0.5	A1	B1
SQ 10.2	3	450	SD00063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.39	0.3	A1	B1
	4.5		SD00063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	6		VD00063-4-0,10	0.10	1,680	0.8	1.0	2.1	0.48	1.0	A1	B1
	9					0.8	0.9	2.1	0.48	0.9	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	17					0.6	0.7	1.7	0.38	0.7	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
SQ 12.2	3	900	SD00063-4-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1
	4.5		SD00063-8-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1
	6		1,800	0.19	3,360	1.0	1.3	3.7	0.53	1.3	A1	B1
	9		VD00063-4-0,10	0.10	1,680	0.8	1.0	2.1	0.48	1.0	A1	B1
	12					0.8	0.9	2.1	0.48	0.9	A1	B1
	17		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	25					0.6	0.7	1.7	0.38	0.7	A1	B1
SQ 14.2	3	1,800	SD00063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	4.5		SD00063-4-0,02	0.02	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	6		VD00063-4-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1
	9		VD00063-2-0,19	0.19	3,360	1.0	1.3	3.7	0.53	1.3	A1	B1
	12					1.0	1.3	3.7	0.53	1.3	A1	B1
	17		VD00063-4-0,10	0.10	1,680	0.8	0.9	2.1	0.48	0.9	A1	B1
	25					0.8	0.9	2.1	0.48	0.9	A1	B1
SQ 14.2	30	2,400	SD00063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	40					0.6	0.7	1.7	0.38	0.7	A1	B1
	85					0.6	0.7	1.7	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 480 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	3	150	VD00063-2-0,06	0.06	3,360	0.6	0.6	1.9	0.42	0.6	A1	B1
	4.5					0.6	0.6	1.9	0.42	0.6	A1	B1
	6		VD00063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	9					0.4	0.4	1.0	0.50	0.4	A1	B1
	12		VD00063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	17					0.4	0.4	1.0	0.40	0.4	A1	B1
	25		SD00063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
SQ 07.2	3	300	SD00063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	4.5		VD00063-2-0,12	0.12	3,360	0.7	0.9	3.0	0.52	0.9	A1	B1
	6					0.7	0.9	3.0	0.52	0.9	A1	B1
	9		VD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	12					0.6	0.7	1.6	0.38	0.7	A1	B1
	17		VD00063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	25					0.4	0.5	1.0	0.43	0.5	A1	B1
SQ 10.2	3	450	SD00063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.39	0.3	A1	B1
	4.5					0.4	0.4	0.5	0.61	0.4	A1	B1
	6		VD00063-4-0,10	0.10	1,680	0.8	1.0	2.0	0.48	1.0	A1	B1
	9					0.8	0.9	2.0	0.48	0.9	A1	B1
	12		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	17					0.6	0.7	1.6	0.38	0.7	A1	B1
	25		SD00063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
SQ 12.2	3	900	SD00063-4-0,02	0.02	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	4.5		VD00063-2-0,19	0.19	3,360	1.0	1.2	3.5	0.53	1.2	A1	B1
	6					1.0	1.2	3.5	0.53	1.2	A1	B1
	9		VD00063-4-0,10	0.10	1,680	0.8	1.0	2.0	0.48	1.0	A1	B1
	12					0.8	0.9	2.0	0.48	0.9	A1	B1
	17		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	25					0.6	0.7	1.6	0.38	0.7	A1	B1
SQ 14.2	3	1,200	SD00063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	4.5		VD00063-4-0,02	0.02	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	6		VD00063-2-0,19	0.19	3,360	1.0	1.2	3.5	0.53	1.2	A1	B1
	9					1.0	1.2	3.5	0.53	1.2	A1	B1
	12		VD00063-4-0,10	0.10	1,680	0.8	0.9	2.0	0.48	0.9	A1	B1
	17					0.8	0.9	2.0	0.48	0.9	A1	B1
	25		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
SQ 14.2	30	1,800				0.6	0.7	1.6	0.38	0.7	A1	B1
	40		SD00063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	60					0.6	0.7	1.6	0.38	0.7	A1	B1
	85					0.6	0.7	1.6	0.38	0.7	A1	B1
						0.6	0.7	1.6	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 3-phase AC motors

Short-time duty S2 - 15 min, 500 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQ 05.2	4	150	VD00063-2-0,06	0,06	2,800	0.5	0.5	1.5	0.42	0.5	A1	B1
	5.6					0.5	0.5	1.5	0.42	0.5	A1	B1
	8		VD00063-4-0,04	0.04	1,400	0.3	0.3	0.8	0.50	0.3	A1	B1
	11					0.3	0.3	0.8	0.50	0.3	A1	B1
	16		VD00063-4-0,02	0.02	1,400	0.3	0.3	0.8	0.40	0.3	A1	B1
	22					0.3	0.3	0.8	0.40	0.3	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
SQ 07.2	4	300	VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	5.6					0.6	0.7	2.4	0.52	0.7	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
SQ 10.2	4	450	VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	5.6					0.6	0.7	2.4	0.52	0.7	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
SQ 12.2	4	900	VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	5.6					0.6	0.7	2.4	0.52	0.7	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
SQ 14.2	4	1,800	VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	5.6					0.6	0.7	2.4	0.52	0.7	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
SQ 14.2	4	2,400	VD00063-2-0,12	0.12	2,800	0.6	0.7	2.4	0.52	0.7	A1	B1
	5.6					0.6	0.7	2.4	0.52	0.7	A1	B1
	8		VD00063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD00063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD00063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 220 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1,680	0.9	0.9	2.2	0.50	0.9	A1	B1
	9					0.9	0.9	2.2	0.50	0.9	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.9	0.9	2.2	0.40	0.9	A1	B1
	17					0.9	0.9	2.2	0.40	0.9	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.7	0.7	1.5	0.38	0.7	A1	B1
	50					SD0R063-8-0,01	840	0.9	0.9	1.1	0.61	0.9
SQR 07.2	6	300	VD0R063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	9					1.3	1.5	3.5	0.38	1.5	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.9	1.1	2.2	0.43	1.1	A1	B1
	17					0.9	1.1	2.2	0.43	1.1	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.7	0.7	1.5	0.38	0.7	A1	B1
	50					SD0R063-8-0,01	840	0.9	0.9	1.1	0.61	0.9
SQR 10.2	9	600	VD0R063-4-0,10	0.10	1,680	1.7	2.0	4.4	0.48	2.0	A1	B1
	12		SD0R063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	17					1.3	1.5	3.5	0.38	1.5	A1	B1
	25		SD0R063-4-0,04	0.04	1,680	1.1	1.1	2.2	0.48	1.1	A1	B1
	35					1.1	1.1	2.2	0.48	1.1	A1	B1
	50		SD0R063-4-0,02	0.02	1,680	0.7	0.7	1.5	0.43	0.7	A1	B1
SQR 12.2	12	900	VD0R063-4-0,10	0.10	1,680	1.7	2.2	4.4	0.48	2.2	A1	B1
	17					1.7	2.0	4.4	0.48	2.0	A1	B1
	25	1,200	SD0R063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1
	35					1.3	1.5	3.5	0.38	1.5	A1	B1
	50		SD0R063-4-0,04	0.04	1,680	1.1	1.1	2.2	0.48	1.1	A1	B1
	75					1.1	1.1	2.2	0.48	1.1	A1	B1
108	SD0R063-4-0,02	0.02	1,680	0.7	0.7	1.5	0.43	0.7	A1	B1		
SQR 14.2	30	1,800	VD0R063-4-0,10	0.10	1,680	1.7	2.0	4.4	0.48	2.0	A1	B1
	40	2,400				1.7	2.0	4.4	0.48	2.0	A1	B1
	60	SD0R063-4-0,06	0.06	1,680	1.3	1.5	3.5	0.38	1.5	A1	B1	
	85				1.3	1.5	3.5	0.38	1.5	A1	B1	

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 230 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQR 05.2	8	150	VD0R063-4-0,04	0.04	1,400	0.7	0.7	1.7	0.50	0.7	A1	B1
	11					0.7	0.7	1.7	0.50	0.7	A1	B1
	16		VD0R063-4-0,02	0.02	1,400	0.7	0.7	1.7	0.40	0.7	A1	B1
	22					0.7	0.7	1.7	0.40	0.7	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.5	0.5	1.2	0.38	0.5	A1	B1
	63					SD0R063-8-0,01	700	0.7	0.7	0.9	0.61	0.7
SQR 07.2	8	300	VD0R063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1
	11					1.0	1.2	2.8	0.38	1.2	A1	B1
	16		VD0R063-4-0,03	0.03	1,400	0.7	0.9	1.7	0.43	0.9	A1	B1
	22					0.7	0.9	1.7	0.43	0.9	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.5	0.5	1.2	0.38	0.5	A1	B1
	63					SD0R063-8-0,01	700	0.7	0.7	0.9	0.61	0.7
SQR 10.2	11	600	VD0R063-4-0,10	0.10	1,400	1.4	1.6	3.5	0.48	1.6	A1	B1
	16		SD0R063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1
	22					1.0	1.2	2.8	0.38	1.2	A1	B1
	32		SD0R063-4-0,04	0.04	1,400	0.9	0.9	1.7	0.48	0.9	A1	B1
	45					0.9	0.9	1.7	0.48	0.9	A1	B1
	63		SD0R063-4-0,02	0.02	1,400	0.5	0.5	1.2	0.43	0.5	A1	B1
SQR 12.2	16	900	VD0R063-4-0,10	0.10	1,400	1.4	1.7	3.5	0.48	1.7	A1	B1
	22	1,200				1.4	1.6	3.5	0.48	1.6	A1	B1
	32	SD0R063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1	
	45				1.0	1.2	2.8	0.38	1.2	A1	B1	
	63	SD0R063-4-0,04	0.04	1,400	0.9	0.9	1.7	0.48	0.9	A1	B1	
	90				0.9	0.9	1.7	0.48	0.9	A1	B1	
SQR 14.2	125	SD0R063-4-0,02	0.02	1,400	0.5	0.5	1.2	0.43	0.5	A1	B1	
	36	1,800	VD0R063-4-0,10	0.10	1,400	1.4	1.6	3.5	0.48	1.6	A1	B1
	48	2,400				1.4	1.6	3.5	0.48	1.6	A1	B1
	72	SD0R063-4-0,06	0.06	1,400	1.0	1.2	2.8	0.38	1.2	A1	B1	
	100				1.0	1.2	2.8	0.38	1.2	A1	B1	

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 380 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-tor	Thyristor
SQR 05.2	8	150	VD0R063-4-0,04	0.04	1 400	0.4	0.4	1.1	0.50	0.4	A1	B1
	11					0.4	0.4	1.1	0.50	0.4	A1	B1
	16		VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.1	0.40	0.4	A1	B1
	22					0.4	0.4	1.1	0.40	0.4	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	63		SD0R063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 07.2	8	300	VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	11					0.6	0.7	1.7	0.38	0.7	A1	B1
	16		VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.1	0.43	0.5	A1	B1
	22					0.4	0.5	1.1	0.43	0.5	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	63		SD0R063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 10.2	11	600	VD0R063-4-0,10	0.10	1,400	0.8	0.9	2.1	0.48	0.9	A1	B1
	16					0.6	0.7	1.7	0.38	0.7	A1	B1
	22		SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	32					0.5	0.5	1.1	0.48	0.5	A1	B1
	45		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.1	0.48	0.5	A1	B1
	63					0.3	0.3	0.7	0.43	0.3	A1	B1
SQR 12.2	16	900	VD0R063-4-0,10	0.10	1,400	0.8	1.1	2.1	0.48	1.1	A1	B1
	22					0.8	0.9	2.1	0.48	0.9	A1	B1
	32	1,200	SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	45					0.6	0.7	1.7	0.38	0.7	A1	B1
	63		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.1	0.48	0.5	A1	B1
	90					0.5	0.5	1.1	0.48	0.5	A1	B1
SQR 14.2	125	2,400	SD0R063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
	36		VD0R063-4-0,10	0.10	1,400	0.8	0.9	2.1	0.48	0.9	A1	B1
	48					0.8	0.9	2.1	0.48	0.9	A1	B1
	72		SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.7	0.38	0.7	A1	B1
	100					0.6	0.7	1.7	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 380 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N [A]	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1,680	0.5	0.5	1.3	0.50	0.5	A1	B1
	9					0.5	0.5	1.3	0.50	0.5	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.5	0.5	1.3	0.40	0.5	A1	B1
	17					0.5	0.5	1.3	0.40	0.5	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.4	0.4	0.9	0.38	0.4	A1	B1
SQR 07.2	50	300	SD0R063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	6		VD0R063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	9					0.8	0.9	2.0	0.38	0.9	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.5	0.6	1.3	0.43	0.6	A1	B1
	17					0.5	0.6	1.3	0.43	0.6	A1	B1
SQR 10.2	25	600	SD0R063-4-0,01	0.01	1,680	0.4	0.4	0.9	0.38	0.4	A1	B1
	50		SD0R063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	9		VD0R063-4-0,10	0.10	1,680	1.0	1.1	2.5	0.48	1.1	A1	B1
	12		SD0R063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	17					0.8	0.9	2.0	0.38	0.9	A1	B1
SQR 12.2	25	900	SD0R063-4-0,04	0.04	1,680	0.6	0.6	1.3	0.48	0.6	A1	B1
	35		SD0R063-4-0,02		1,680	0.4	0.4	0.9	0.43	0.4	A1	B1
	50		VD0R063-4-0,10	0.10	1,680	1.0	1.3	2.5	0.48	1.3	A1	B1
	75		SD0R063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	108					0.8	0.9	2.0	0.38	0.9	A1	B1
SQR 14.2	30	1,800	VD0R063-4-0,10	0.10	1,680	1.0	1.1	2.5	0.48	1.1	A1	B1
	40					1.0	1.1	2.5	0.48	1.1	A1	B1
	60	2,400	SD0R063-4-0,06	0.06	1,680	0.8	0.9	2.0	0.38	0.9	A1	B1
	85					0.8	0.9	2.0	0.38	0.9	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 400 V/50 Hz

Part-turn actuator			Motor											
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear			
											Contact-tor	Thyristor		
SQR 05.2	8	150	VD0R063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1		
	11					0.4	0.4	1.0	0.50	0.4	A1	B1		
	16		VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1		
	22					0.4	0.4	1.0	0.40	0.4	A1	B1		
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1		
	63					SD0R063-8-0,01	700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 07.2	8	300	VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1		
	11					0.6	0.7	1.6	0.38	0.7	A1	B1		
	16		VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1		
	22					0.4	0.5	1.0	0.43	0.5	A1	B1		
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1		
	63					SD0R063-8-0,01	700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 10.2	11	600	VD0R063-4-0,10	0.10	1,400	0.8	0.9	2.0	0.48	0.9	A1	B1		
	16					0.6	0.7	1.6	0.38	0.7	A1	B1		
	22		SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1		
	32					0.5	0.5	1.0	0.48	0.5	A1	B1		
	45		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1		
	63					SD0R063-4-0,02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
SQR 12.2	16	900	VD0R063-4-0,10	0.10	1,400	0.8	1.0	2.0	0.48	1.0	A1	B1		
	22					0.8	0.9	2.0	0.48	0.9	A1	B1		
	32	1,200	SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1		
	45					0.6	0.7	1.6	0.38	0.7	A1	B1		
	63		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1		
	90					0.5	0.5	1.0	0.48	0.5	A1	B1		
SQR 14.2	125	2,400	SD0R063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1		
	36		VD0R063-4-0,10			0.10	1,400	0.8	0.9	2.0	0.48	0.9	A1	B1
	48							0.8	0.9	2.0	0.48	0.9	A1	B1
	72		SD0R063-4-0,06			0.06	1,400	0.6	0.7	1.6	0.38	0.7	A1	B1
	100							0.6	0.7	1.6	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 400 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1 680	0.5	0.5	1.2	0.50	0.5	A1	B1
	9					0.5	0.5	1.2	0.50	0.5	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.5	0.5	1.2	0.40	0.5	A1	B1
	17					0.5	0.5	1.2	0.40	0.5	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.4	0.4	0.8	0.38	0.4	A1	B1
SQR 07.2	50	300	SD0R063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	6		VD0R063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	9					0.7	0.8	1.9	0.38	0.8	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.5	0.6	1.2	0.43	0.6	A1	B1
	17					0.5	0.6	1.2	0.43	0.6	A1	B1
SQR 10.2	25	600	SD0R063-4-0,01	0.01	1,680	0.4	0.4	0.8	0.38	0.4	A1	B1
	50		SD0R063-8-0,01		840	0.5	0.5	0.6	0.61	0.5	A1	B1
	9		VD0R063-4-0,10	0.10	1,680	1.0	1.1	2.4	0.48	1.1	A1	B1
	12		SD0R063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	17					0.7	0.8	1.9	0.38	0.8	A1	B1
SQR 12.2	25	900	SD0R063-4-0,04	0.04	1,680	0.6	0.6	1.2	0.48	0.6	A1	B1
	35		SD0R063-4-0,02		1,680	0.4	0.4	0.8	0.43	0.4	A1	B1
	50		VD0R063-4-0,10	0.10	1,680	1.0	1.2	2.4	0.48	1.2	A1	B1
	75		SD0R063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	108					0.7	0.8	1.9	0.38	0.8	A1	B1
SQR 14.2	30	1,800	VD0R063-4-0,10	0.10	1,680	1.0	1.1	2.4	0.48	1.1	A1	B1
	40					1.0	1.1	2.4	0.48	1.1	A1	B1
	60	2,400	SD0R063-4-0,06	0.06	1,680	0.7	0.8	1.9	0.38	0.8	A1	B1
	85					0.7	0.8	1.9	0.38	0.8	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 415 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-tor	Thyristor
SQR 05.2	8	150	VD0R063-4-0,04	0.04	1,400	0.4	0.4	1.0	0.50	0.4	A1	B1
	11					0.4	0.4	1.0	0.50	0.4	A1	B1
	16		VD0R063-4-0,02	0.02	1,400	0.4	0.4	1.0	0.40	0.4	A1	B1
	22					0.4	0.4	1.0	0.40	0.4	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	63		SD0R063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 07.2	8	300	VD0R063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	11					0.6	0.7	1.5	0.38	0.7	A1	B1
	16		VD0R063-4-0,03	0.03	1,400	0.4	0.5	1.0	0.43	0.5	A1	B1
	22					0.4	0.5	1.0	0.43	0.5	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.3	0.3	0.7	0.38	0.3	A1	B1
	63		SD0R063-8-0,01		700	0.4	0.4	0.5	0.61	0.4	A1	B1
SQR 10.2	11	600	VD0R063-4-0,10	0.10	1,400	0.8	0.9	1.9	0.48	0.9	A1	B1
	16					0.6	0.7	1.5	0.38	0.7	A1	B1
	22		SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	32					0.5	0.5	1.0	0.48	0.5	A1	B1
	45		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
	63					0.3	0.3	0.7	0.43	0.3	A1	B1
SQR 12.2	16	900	VD0R063-4-0,10	0.10	1,400	0.8	1.0	1.9	0.48	1.0	A1	B1
	22					0.8	0.9	1.9	0.48	0.9	A1	B1
	32	1,200	SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	45					0.6	0.7	1.5	0.38	0.7	A1	B1
	63		SD0R063-4-0,04	0.04	1,400	0.5	0.5	1.0	0.48	0.5	A1	B1
	90					0.5	0.5	1.0	0.48	0.5	A1	B1
SQR 14.2	125	2,400	SD0R063-4-0,02	0.02	1,400	0.3	0.3	0.7	0.43	0.3	A1	B1
	36		VD0R063-4-0,10	0.10	1,400	0.8	0.9	1.9	0.48	0.9	A1	B1
	48					0.8	0.9	1.9	0.48	0.9	A1	B1
	72		SD0R063-4-0,06	0.06	1,400	0.6	0.7	1.5	0.38	0.7	A1	B1
	100					0.6	0.7	1.5	0.38	0.7	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 440 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1,680	0.4	0.4	1.1	0.50	0.4	A1	B1
	9					0.4	0.4	1.1	0.50	0.4	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.4	0.4	1.1	0.40	0.4	A1	B1
	17					0.4	0.4	1.1	0.40	0.4	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.8	0.38	0.3	A1	B1
SQR 07.2	50	300	SD0R063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	6		VD0R063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	9					0.7	0.8	1.7	0.38	0.8	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.1	0.43	0.5	A1	B1
	17					0.4	0.5	1.1	0.43	0.5	A1	B1
SQR 10.2	25	600	SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.8	0.38	0.3	A1	B1
	50		SD0R063-8-0,01		840	0.4	0.4	0.5	0.61	0.4	A1	B1
	9		VD0R063-4-0,10	0.10	1,680	0.9	1.0	2.2	0.48	1.0	A1	B1
	12		SD0R063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	17					0.7	0.8	1.7	0.38	0.8	A1	B1
SQR 12.2	25	900	SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
	35					0.5	0.5	1.1	0.48	0.5	A1	B1
	50		SD0R063-4-0,02	0.02	1,680	0.3	0.3	0.8	0.43	0.3	A1	B1
	75					0.3	0.3	0.8	0.43	0.3	A1	B1
	108		VD0R063-4-0,10	0.10	1,680	0.9	1.1	2.2	0.48	1.1	A1	B1
SQR 14.2	30	1,800	SD0R063-4-0,06	0.06	1,680	0.7	0.8	1.7	0.38	0.8	A1	B1
	40					0.7	0.8	1.7	0.38	0.8	A1	B1
	60		SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.1	0.48	0.5	A1	B1
	85					0.5	0.5	1.1	0.48	0.5	A1	B1
			SD0R063-4-0,02	0.02	1,680	0.3	0.3	0.8	0.43	0.3	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 460 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1,680	0.4	0.4	1.0	0.50	0.4	A1	B1
	9					0.4	0.4	1.0	0.50	0.4	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	17					0.4	0.4	1.0	0.40	0.4	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
	50					SD0R063-8-0,01	840	0.4	0.4	0.5	0.61	0.4
SQR 07.2	6	300	VD0R063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	9					0.6	0.7	1.7	0.38	0.7	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	17					0.4	0.5	1.0	0.43	0.5	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
	50					SD0R063-8-0,01	840	0.4	0.4	0.5	0.61	0.4
SQR 10.2	9	600	VD0R063-4-0,10	0.10	1,680	0.8	0.9	2.1	0.48	0.9	A1	B1
	12		SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1
	17					0.6	0.7	1.7	0.38	0.7	A1	B1
	25		SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
	35					0.5	0.5	1.0	0.48	0.5	A1	B1
	50		SD0R063-4-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1
SQR 12.2	12	900	VD0R063-4-0,10	0.10	1,680	0.8	1.0	2.1	0.48	1.0	A1	B1
	17	1,200				0.8	0.9	2.1	0.48	0.9	A1	B1
	25	SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1	
	35				0.6	0.7	1.7	0.38	0.7	A1	B1	
	50	SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1	
	75				0.5	0.5	1.0	0.48	0.5	A1	B1	
SQR 14.2	108	SD0R063-4-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1	
	30	1,800	VD0R063-4-0,10	0.10	1,680	0.8	0.9	2.1	0.48	0.9	A1	B1
	40	2,400				0.8	0.9	2.1	0.48	0.9	A1	B1
	60	SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.7	0.38	0.7	A1	B1	
	85				0.6	0.7	1.7	0.38	0.7	A1	B1	

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 480 V/60 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact- tor	Thyristor
SQR 05.2	6	150	VD0R063-4-0,04	0.04	1 680	0.4	0.4	1.0	0.50	0.4	A1	B1
	9					0.4	0.4	1.0	0.50	0.4	A1	B1
	12		VD0R063-4-0,02	0.02	1,680	0.4	0.4	1.0	0.40	0.4	A1	B1
	17					0.4	0.4	1.0	0.40	0.4	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
50	SD0R063-8-0,01	840	0.4		0.4	0.5	0.61	0.4	A1	B1		
SQR 07.2	6	300	VD0R063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	9					0.6	0.7	1.6	0.38	0.7	A1	B1
	12		VD0R063-4-0,03	0.03	1,680	0.4	0.5	1.0	0.43	0.5	A1	B1
	17					0.4	0.5	1.0	0.43	0.5	A1	B1
	25		SD0R063-4-0,01	0.01	1,680	0.3	0.3	0.7	0.38	0.3	A1	B1
50	SD0R063-8-0,01	840	0.4		0.4	0.5	0.61	0.4	A1	B1		
SQR 10.2	9	600	VD0R063-4-0,10	0.10	1,680	0.8	0.9	2.0	0.48	0.9	A1	B1
	12					0.6	0.7	1.6	0.38	0.7	A1	B1
	17		SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1
	25					0.5	0.5	1.0	0.48	0.5	A1	B1
	35		SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1
50	SD0R063-4-0,02	1,680	0.3		0.3	0.7	0.43	0.3	A1	B1		
SQR 12.2	12	900	VD0R063-4-0,10	0.10	1,680	0.8	1.0	2.0	0.48	1.0	A1	B1
	17	1,200				0.8	0.9	2.0	0.48	0.9	A1	B1
	25	SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1	
	35				0.6	0.7	1.6	0.38	0.7	A1	B1	
	50	SD0R063-4-0,04	0.04	1,680	0.5	0.5	1.0	0.48	0.5	A1	B1	
75	SD0R063-4-0,02	1,680		0.5	0.5	1.0	0.48	0.5	A1	B1		
SQR 14.2	108	SD0R063-4-0,02	0.02	1,680	0.3	0.3	0.7	0.43	0.3	A1	B1	
	30	1,800	VD0R063-4-0,10	0.10	1,680	0.8	0.9	2.0	0.48	0.9	A1	B1
	40					2,400				0.8	0.9	2.0
	60	SD0R063-4-0,06	0.06	1,680	0.6	0.7	1.6	0.38	0.7	A1	B1	
	85				0.6	0.7	1.6	0.38	0.7	A1	B1	

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 3-phase AC motors

Intermittent duty S4 - 25 %, 500 V/50 Hz

Part-turn actuator			Motor									
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Nominal current ²⁾ I _N (A)	Max. current ³⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Overcurrent protection device setting [A]	AUMA power class for switch-gear	
											Contact-tor	Thyristor
SQR 05.2	8	150	VD0R063-4-0,04	0.04	1,400	0.3	0.3	0.8	0.50	0.3	A1	B1
	11					0.3	0.3	0.8	0.50	0.3	A1	B1
	16		VD0R063-4-0,02	0.02	1,400	0.3	0.3	0.8	0.40	0.3	A1	B1
	22					0.3	0.3	0.8	0.40	0.3	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
	63					SD0R063-8-0,01	700	0.3	0.3	0.4	0.61	0.3
SQR 07.2	8	300	VD0R063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	11					0.5	0.6	1.3	0.38	0.6	A1	B1
	16		VD0R063-4-0,03	0.03	1,400	0.3	0.4	0.8	0.43	0.4	A1	B1
	22					0.3	0.4	0.8	0.43	0.4	A1	B1
	32		SD0R063-4-0,01	0.01	1,400	0.2	0.2	0.6	0.38	0.2	A1	B1
	63					SD0R063-8-0,01	700	0.3	0.3	0.4	0.61	0.3
SQR 10.2	11	600	VD0R063-4-0,10	0.10	1,400	0.6	0.7	1.6	0.48	0.7	A1	B1
	16		SD0R063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	22					0.5	0.6	1.3	0.38	0.6	A1	B1
	32		SD0R063-4-0,04	0.04	1,400	0.4	0.4	0.8	0.48	0.4	A1	B1
	45					0.4	0.4	0.8	0.48	0.4	A1	B1
	63		SD0R063-4-0,02	0.02	1,400	0.2	0.2	0.6	0.43	0.2	A1	B1
SQR 12.2	16	900	VD0R063-4-0,10	0.10	1,400	0.6	0.8	1.6	0.48	0.8	A1	B1
	22					0.6	0.7	1.6	0.48	0.7	A1	B1
	32		SD0R063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	45					0.5	0.6	1.3	0.38	0.6	A1	B1
	63		SD0R063-4-0,04	0.04	1,400	0.4	0.4	0.8	0.48	0.4	A1	B1
	90					0.4	0.4	0.8	0.48	0.4	A1	B1
SQR 14.2	125	SD0R063-4-0,02	0.02	1,400	0.2	0.2	0.6	0.43	0.2	A1	B1	
	36	1,800	VD0R063-4-0,10	0.10	1,400	0.6	0.7	1.6	0.48	0.7	A1	B1
	48					0.6	0.7	1.6	0.48	0.7	A1	B1
	72	2,400	SD0R063-4-0,06	0.06	1,400	0.5	0.6	1.3	0.38	0.6	A1	B1
	100					0.5	0.6	1.3	0.38	0.6	A1	B1

1) – 3) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 3-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Installation and sizing																					
Motor data	Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.																				
Motor protection	To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings. Actuators without integral actuator controls (AUMA NORM): Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan). Note: Failure to connect thermoswitches or PTC thermistors shall void the warranty for the motor. Rating of the thermoswitches <table><tr><th colspan="2">AC current</th><th colspan="2">DC current</th></tr><tr><td colspan="2">250 V, 50 – 60 Hz</td><td>60 V</td><td>1.0 A</td></tr><tr><td>cos φ = 1</td><td>2.5 A</td><td>42 V</td><td>1.2 A</td></tr><tr><td>cos φ = 0.6</td><td>1.6 A</td><td>24 V</td><td>1.5 A</td></tr></table> Actuators with AM or AC integral actuator controls: Thermal motor protection is already integrated.			AC current		DC current		250 V, 50 – 60 Hz		60 V	1.0 A	cos φ = 1	2.5 A	42 V	1.2 A	cos φ = 0.6	1.6 A	24 V	1.5 A		
AC current		DC current																			
250 V, 50 – 60 Hz		60 V	1.0 A																		
cos φ = 1	2.5 A	42 V	1.2 A																		
cos φ = 0.6	1.6 A	24 V	1.5 A																		
Mains voltage, mains frequency	Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %																				
Terminal plan	<table><tr><th>Part-turn actuators</th><th>Motor (type)</th><th>Terminal plan</th></tr><tr><td>SQ 05.2 – SQ 14.2</td><td>VW.../SW...</td><td>TPA01R1AA-101-000</td></tr><tr><td>SQR 05.2 – SQR 14.2</td><td>VW.../SW...</td><td>TPA01R1AA-001-000</td></tr></table> For further information refer to "Technical data Part-turn actuators SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with 1-phase AC motors"			Part-turn actuators	Motor (type)	Terminal plan	SQ 05.2 – SQ 14.2	VW.../SW...	TPA01R1AA-101-000	SQR 05.2 – SQR 14.2	VW.../SW...	TPA01R1AA-001-000									
Part-turn actuators	Motor (type)	Terminal plan																			
SQ 05.2 – SQ 14.2	VW.../SW...	TPA01R1AA-101-000																			
SQR 05.2 – SQR 14.2	VW.../SW...	TPA01R1AA-001-000																			
Switchgear sizing	For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used. Actuators without integral actuator controls (AUMA NORM): Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class. Switchgear assignment to AUMA power classes: <table><tr><th>AUMA power class</th><th>Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3</th><th colspan="2">Reversing contactor Motor power according to UL/CSA at</th></tr><tr><td></td><td>400 V AC</td><td>480 V AC</td><td>600 V AC</td></tr><tr><td>A1</td><td>4.0 kW</td><td>5.0 hp</td><td>5.0 hp</td></tr></table> <table><tr><th>AUMA power class</th><th>Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a</th></tr><tr><td></td><td>400 V AC</td></tr><tr><td>B1</td><td>6 A</td></tr></table> Actuators with AM or AC integral actuator controls: Required switchgear in power classes A1 or B1 are directly integrated in AM or AC actuator controls.			AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at			400 V AC	480 V AC	600 V AC	A1	4.0 kW	5.0 hp	5.0 hp	AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a		400 V AC	B1	6 A
AUMA power class	Reversing contactor Rated operating power acc. to EN 60947-4-1 Utilization category AC-3	Reversing contactor Motor power according to UL/CSA at																			
	400 V AC	480 V AC	600 V AC																		
A1	4.0 kW	5.0 hp	5.0 hp																		
AUMA power class	Thyristor Rated operating current acc. to EN 60947-4-2 Utilization category AC-53a																				
	400 V AC																				
B1	6 A																				

Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

1) Nominal power P_N	Mechanical power output at motor shaft at run torque of part-turn actuator (corresponds to approx. 35 % of maximum torque). The consumed electrical power can be calculated using the following formula: $P = U \times I \times \cos \varphi$
2) Permanent split/starting capacitor	For VW/SW motors, permanent split capacitors are integrated within the motor.
3) Nominal current I_N	Current at run torque
4) Max. current I_{max}	Current at maximum torque

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 1-phase AC motors

Short-time duty S2 - 10 min, 110 V – 120 V/50 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQ 05.2	4	150	VW00063-2-0,06	0.06	2,800	70	2.6	3.4	12	0.85	3.4	A1	B1
	5.6						2.6	3.2	12	0.85	3.2	A1	B1
	8		VW00063-4-0,04	0.04	1,400	50	2.3	2.7	4.6	0.97	2.7	A1	B1
	11						2.3	2.6	4.6	0.97	2.6	A1	B1
	16		VW00063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1
	22						1.8	1.8	4.1	0.84	1.8	A1	B1
	32		SW00063-4-0,01	0.01	1,400	35	1.8	1.8	4.1	0.81	1.8	A1	B1
63	SW00063-8-0,01	700	25		1.5	1.5	1.8	0.99	1.5	A1	B1		
SQ 07.2	4	300	VW00063-2-0,12	0.12	2,800	100	3.7	5.4	12	0.98	5.4	A1	B1
	5.6						3.7	5.0	12	0.98	5.0	A1	B1
	8		VW00063-4-0,06	0.06	1,400	70	3.5	4.0	7.0	0.88	4.0	A1	B1
	11						3.5	3.8	7.0	0.88	3.8	A1	B1
	16		VW00063-4-0,03	0.03	1,400	50	2.3	2.6	4.6	0.96	2.6	A1	B1
	22						2.3	2.6	4.6	0.96	2.6	A1	B1
	32		SW00063-4-0,01	0.01	1,400	35	1.8	1.9	4.1	0.81	1.9	A1	B1
63	SW00063-8-0,01	700	25		1.5	1.6	1.8	0.99	1.6	A1	B1		
SQ 10.2	8	450	VW00063-4-0,10	0.10	1,400	80	3.9	4.5	7.4	0.94	4.5	A1	B1
	11						3.9	4.6	7.4	0.94	4.6	A1	B1
	16	600	SW00063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1
	22						3.1	3.4	6.8	0.84	3.4	A1	B1
	32		SW00063-4-0,04	0.04	1,400	50	2.3	2.7	4.6	0.97	2.7	A1	B1
	45						2.3	2.6	4.6	0.97	2.6	A1	B1
63	SW00063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1		
SQ 12.2	11	900	VW00063-2-0,19	0.19	2,800	110	4.5	6.0	12	0.98	6.0	A1	B1
	16		VW00063-4-0,10	0.10	1,400	80	3.9	4.5	7.4	0.94	4.5	A1	B1
	22	1 200					3.9	4.3	7.4	0.94	4.3	A1	B1
	32	SW00063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1	
	45					3.1	3.4	6.8	0.84	3.4	A1	B1	
	63	SW00063-4-0,04	0.04	1,400	50	2.3	2.7	4.6	0.97	2.7	A1	B1	
	90					2.3	2.7	4.6	0.97	2.7	A1	B1	
125	SW00063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1		
SQ 14.2	24	1,800	VW00063-2-0,19	0.19	2,800	110	4.5	6.0	12	0.98	6.0	A1	B1
	36		VW00063-4-0,10	0.10	1,400	80	3.9	4.5	7.4	0.94	4.5	A1	B1
	48	2,400					3.9	4.6	7.4	0.94	4.6	A1	B1
	72	SW00063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1	
100	3.1					3.4	6.8	0.84	3.4	A1	B1		

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 1-phase AC motors

Short-time duty S2 - 10 min, 110 V – 120 V/60Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQ 05.2	3	150	VW00063-2-0,06	0.06	3,360	70	2.6	4.0	14	0.96	4.0	A1	B1
	4.5						2.6	3.7	14	0.96	3.7	A1	B1
	6		VW00063-4-0,04	0.04	1,680	50	2.7	3.2	5.4	0.98	3.2	A1	B1
	9						2.7	3.1	5.4	0.98	3.1	A1	B1
	12		VW00063-4-0,02	0.02	1,680	35	1.7	1.8	4.9	0.84	1.8	A1	B1
	17						1.7	1.8	4.9	0.84	1.8	A1	B1
	25		SW00063-4-0,01	0.01	1,680	35	1.6	1.7	4.9	0.82	1.7	A1	B1
SQ 07.2	3	300	VW00063-2-0,12	0.12	3,360	100	4.7	7.0	14	0.91	7.0	A1	B1
	4.5						4.7	6.5	14	0.91	6.5	A1	B1
	6		VW00063-4-0,06	0.06	1,680	70	3.5	4.4	8.5	0.98	4.4	A1	B1
	9						3.5	4.2	8.5	0.98	4.2	A1	B1
	12		VW00063-4-0,03	0.03	1,680	50	2.6	3.1	5.4	0.98	3.1	A1	B1
	17						2.6	3.0	5.4	0.98	3.0	A1	B1
	25		SW00063-4-0,01	0.01	1,680	35	1.6	1.9	4.9	0.82	1.9	A1	B1
SQ 10.2	3	450	VW00063-2-0,10	0.10	3,360	100	4.7	7.0	14	0.91	7.0	A1	B1
	4.5						4.7	6.5	14	0.91	6.5	A1	B1
	6		VW00063-4-0,10	0.10	1,680	80	4.3	5.6	8.8	0.98	5.6	A1	B1
	9						4.3	5.7	8.8	0.98	5.7	A1	B1
	12		SW00063-4-0,06	0.06	1,680	60	2.9	3.9	7.7	0.96	3.9	A1	B1
	17						2.9	3.5	7.7	0.96	3.5	A1	B1
	25		SW00063-4-0,04	0.04	1,680	50	2.7	3.2	5.4	0.98	3.2	A1	B1
SQ 12.2	3	900	VW00063-2-0,19	0.19	3,360	110	6.0	7.2	14	0.90	7.2	A1	B1
	4.5						6.0	6.5	14	0.90	6.5	A1	B1
	6		VW00063-4-0,10	0.10	1,680	80	4.3	5.6	8.8	0.98	5.6	A1	B1
	9						4.3	5.7	8.8	0.98	5.7	A1	B1
	12		SW00063-4-0,06	0.06	1,680	60	2.9	3.9	7.7	0.96	3.9	A1	B1
	17						2.9	3.5	7.7	0.96	3.5	A1	B1
	25		SW00063-4-0,04	0.04	1,680	50	2.7	3.2	5.4	0.98	3.2	A1	B1
SQ 14.2	3	1,800	VW00063-2-0,19	0.19	3,360	110	6.0	7.2	14	0.90	7.2	A1	B1
	4.5						6.0	6.5	14	0.90	6.5	A1	B1
	6		VW00063-4-0,10	0.10	1,680	80	4.3	5.6	8.8	0.98	5.6	A1	B1
	9						4.3	5.7	8.8	0.98	5.7	A1	B1
	12		SW00063-4-0,06	0.06	1,680	60	2.9	3.9	7.7	0.96	3.9	A1	B1
	17						2.9	3.5	7.7	0.96	3.5	A1	B1
	25		SW00063-4-0,04	0.04	1,680	50	2.7	3.2	5.4	0.98	3.2	A1	B1

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 1-phase AC motors

Short-time duty S2 - 10 min, 220 V – 240 V/50 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQ 05.2	4	150	VW00063-2-0,06	0.06	2,800	16	1.7	1.9	6.3	0.69	1.9	A1	B1
	5.6						1.7	1.8	6.3	0.69	1.8	A1	B1
	8		VW00063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	11						1.1	1.3	2.3	0.96	1.3	A1	B1
	16		VW00063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
	22						1.0	1.0	2.1	0.76	1.0	A1	B1
	32		SW00063-4-0,01	0.01	1,400	8.0	1.0	1.0	2.1	0.74	1.0	A1	B1
	63		SW00063-8-0,01	0.01	700	6.3	0.9	0.9	1.0	0.99	0.9	A1	B1
SQ 07.2	4	300	VW00063-2-0,12	0.12	2,800	25	1.8	2.7	6.4	0.98	2.7	A1	B1
	5.6						1.8	2.5	6.4	0.98	2.5	A1	B1
	8		VW00063-4-0,06	0.06	1,400	20	1.8	2.1	3.6	0.98	2.1	A1	B1
	11						1.8	2.0	3.6	0.98	2.0	A1	B1
	16		VW00063-4-0,03	0.03	1,400	12	1.1	1.2	2.3	0.96	1.2	A1	B1
	22						1.1	1.2	2.3	0.96	1.2	A1	B1
	32		SW00063-4-0,01	0.01	1,400	8.0	1.0	1.0	2.1	0.74	1.0	A1	B1
	63		SW00063-8-0,01	0.01	700	6.3	0.9	0.9	1.0	0.99	0.9	A1	B1
SQ 10.2	8	450	VW00063-4-0,10	0.10	1,400	20	1.9	2.2	3.6	0.99	2.2	A1	B1
	11						1.9	2.3	3.6	0.99	2.3	A1	B1
	16	600	SW00063-4-0,06	0.06	1,400	16	1.6	1.8	3.5	0.88	1.8	A1	B1
	22						1.6	1.7	3.5	0.88	1.7	A1	B1
	32		SW00063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	45						1.1	1.3	2.3	0.96	1.3	A1	B1
	63		SW00063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
SQ 12.2	11	900	VW00063-2-0,19	0.19	2,800	25	2.0	2.6	6.4	0.99	2.6	A1	B1
	16						1.9	2.2	3.6	0.99	2.2	A1	B1
	22	1,200	VW00063-4-0,10	0.10	1,400	20	1.9	2.3	3.6	0.99	2.3	A1	B1
	32						1.6	1.8	3.5	0.88	1.8	A1	B1
	45		SW00063-4-0,06	0.06	1,400	16	1.6	1.7	3.5	0.88	1.7	A1	B1
	63						1.1	1.3	2.3	0.96	1.3	A1	B1
	90		SW00063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	125		SW00063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
SQ 14.2	24	1,800	VW00063-2-0,19	0.19	2,800	25	2.0	2.6	6.4	0.99	2.6	A1	B1
	36						1.9	2.2	3.6	0.99	2.2	A1	B1
	48	2,400	VW00063-4-0,10	0.10	1,400	20	1.9	2.3	3.6	0.99	2.3	A1	B1
	72						1.6	1.8	3.5	0.88	1.8	A1	B1
	100		SW00063-4-0,06	0.06	1,400	16	1.6	1.7	3.5	0.88	1.7	A1	B1

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQ 05.2 – SQ 14.2

Electrical data Part-turn actuators for open-close duty with 1-phase AC motors

Short-time duty S2 - 10 min, 220 V – 240 V/60Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQ 05.2	3	150	VW00063-2-0,06	0.06	3 360	16	1.3	1.9	7.4	0.94	1.9	A1	B1
	4.5						1.3	1.7	7.4	0.94	1.7	A1	B1
	6		VW00063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
	9						1.3	1.5	2.7	0.98	1.5	A1	B1
	12		VW00063-4-0,02	0.02	1,680	8.0	1.0	1.1	2.5	0.80	1.1	A1	B1
	17						1.0	1.1	2.5	0.80	1.1	A1	B1
	25		SW00063-4-0,01	0.01	1,680	8.0	1.0	1.0	2.5	0.76	1.0	A1	B1
SQ 07.2	3	300	VW00063-2-0,12	0.12	3,360	25	2.4	3.4	7.6	0.91	3.4	A1	B1
	4.5						2.4	3.0	7.6	0.91	3.0	A1	B1
	6		VW00063-4-0,06	0.06	1,680	20	1.9	2.4	4.6	0.98	2.4	A1	B1
	9						1.9	2.3	4.6	0.98	2.3	A1	B1
	12		VW00063-4-0,03	0.03	1,680	12	1.2	1.4	2.7	0.98	1.4	A1	B1
	17						1.2	1.4	2.7	0.98	1.4	A1	B1
	25		SW00063-4-0,01	0.01	1,680	8.0	1.0	1.1	2.5	0.76	1.1	A1	B1
SQ 10.2	3	450	VW00063-2-0,19	0.19	3,360	25	2.7	3.6	7.6	0.92	3.6	A1	B1
	4.5						2.7	3.6	7.6	0.92	3.6	A1	B1
	6		VW00063-4-0,10	0.10	1,680	20	2.0	2.7	4.6	0.98	2.7	A1	B1
	9						2.0	2.8	4.6	0.98	2.8	A1	B1
	12		SW00063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1
	17						1.5	1.8	4.3	0.96	1.8	A1	B1
	25		SW00063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
SQ 12.2	3	900	VW00063-2-0,19	0.19	3,360	25	2.7	3.6	7.6	0.92	3.6	A1	B1
	4.5						2.7	3.6	7.6	0.92	3.6	A1	B1
	6		VW00063-4-0,10	0.10	1,680	20	2.0	2.7	4.6	0.98	2.7	A1	B1
	9						2.0	2.8	4.6	0.98	2.8	A1	B1
	12		SW00063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1
	17						1.5	2.0	4.3	0.96	2.0	A1	B1
	25		SW00063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
SQ 14.2	3	1,800	VW00063-2-0,19	0.19	3,360	25	2.7	3.6	7.6	0.92	3.6	A1	B1
	4.5						2.7	3.6	7.6	0.92	3.6	A1	B1
	6		VW00063-4-0,10	0.10	1,680	20	2.0	2.7	4.6	0.98	2.7	A1	B1
	9						2.0	2.8	4.6	0.98	2.8	A1	B1
	12		SW00063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1
	17						1.5	2.0	4.3	0.96	2.0	A1	B1
	25		SW00063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 20 %, 110 V – 120 V/50 Hz

Part-turn actuator			Motor											
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear		
												Contact- tor	Thyristor	
SQR 05.2	8	150	VW0R063-4-0,04	0.04	1 400	50	2.3	2.7	4.6	0.97	2.7	A1	B1	
	11													
	16		VW0R063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1	
	22													
	32		SW0R063-4-0,01	0.01	1,400	35	1.8	1.8	4.1	0.81	1.8	A1	B1	
SQR 07.2	63	SW0R063-8-0,01		700	25	1.5	1.5	1.8	0.99	1.5	A1	B1		
	8	300	VW0R063-4-0,06	0.06	1,400	70	3.5	4.0	7.0	0.88	4.0	A1	B1	
	11													
	16													
	22		VW0R063-4-0,03	0.03	1,400	50	2.3	2.6	4.6	0.96	2.6	A1	B1	
32														
SQR 10.2	45	SW0R063-4-0,01	0.01	1,400	35	1.8	1.9	4.1	0.81	1.9	A1	B1		
	63	SW0R063-8-0,01		700	25	1.5	1.6	1.8	0.99	1.6	A1	B1		
	11	600	VW0R063-4-0,10	0.10	1,400	80	3.9	4.6	7.4	0.94	4.6	A1	B1	
	16													
	22		SW0R063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1	
32														
45	SW0R063-4-0,04		0.04	1,400	50	2.3	2.7	4.6	0.97	2.7	A1	B1		
SQR 12.2	63	SW0R063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1		
	90	900	VW0R063-4-0,10	0.10	1,400	80	3.9	4.5	7.4	0.94	4.5	A1	B1	
	125													
	16													
	22													
32	1,200		SW0R063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1	
45														
63		SW0R063-4-0,04	0.04	1,400	50	2.3	2.7	4.6	0.97	2.7	A1	B1		
90														
125		SW0R063-4-0,02	0.02	1,400	35	1.8	1.9	4.1	0.84	1.9	A1	B1		
SQR 14.2	36	1,800	VW0R063-4-0,10	0.10	1,400	80	3.9	4.5	7.4	0.94	4.5	A1	B1	
	48													
	72		2,400	SW0R063-4-0,06	0.06	1,400	60	3.1	3.5	6.8	0.84	3.5	A1	B1
	100													

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 20 %, 110 V – 120 V/60 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N (A)	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact-	Thyristor
SQR 05.2	6	150	VW0R063-4-0,04	0.04	1,680	50	2.7	3.2	5.4	0.98	3.2	A1	B1
	9						2.7	3.1	5.4	0.98	3.1	A1	B1
	12		VW0R063-4-0,02	0.02	1,680	35	1.7	1.8	4.9	0.84	1.8	A1	B1
	17						1.7	1.8	4.9	0.84	1.8	A1	B1
	25		SW0R063-4-0,01	0.01	1,680	35	1.6	1.7	4.9	0.82	1.7	A1	B1
SQR 07.2	50	300	SW0R063-8-0,01		840	25	1.8	1.8	2.1	0.99	1.8	A1	B1
	6		VW0R063-4-0,06	0.06	1,680	90	3.5	4.4	8.5	0.98	4.4	A1	B1
	9						3.5	4.2	8.5	0.98	4.2	A1	B1
	12		VW0R063-4-0,03	0.03	1,680	50	2.6	3.1	5.4	0.98	3.1	A1	B1
	17						2.6	3.0	5.4	0.98	3.0	A1	B1
SQR 10.2	25	600	SW0R063-4-0,01	0.01	1,680	35	1.6	1.9	4.9	0.82	1.9	A1	B1
	35		SW0R063-8-0,01		840	25	1.8	1.9	2.1	0.99	1.9	A1	B1
	50		VW0R063-4-0,10	0.10	1,680	90	4.3	5.7	8.8	0.98	5.7	A1	B1
	12						2.9	3.9	7.7	0.96	3.9	A1	B1
	17		SW0R063-4-0,06	0.06	1,680	70	2.9	3.5	7.7	0.96	3.5	A1	B1
SQR 12.2	25	900					2.7	3.2	5.4	0.98	3.2	A1	B1
	35		SW0R063-4-0,04	0.04	1,680	50	2.7	3.0	5.4	0.98	3.0	A1	B1
	50		SW0R063-4-0,02	0.02	1,680	35	1.7	1.8	4.9	0.84	1.8	A1	B1
	75		VW0R063-4-0,10	0.10	1,680	90	4.3	5.6	8.8	0.98	5.6	A1	B1
	108						4.3	5.7	8.8	0.98	5.7	A1	B1
SQR 14.2	30	1,800	SW0R063-4-0,06	0.06	1,680	70	2.9	3.5	7.7	0.96	3.5	A1	B1
	40						2.9	3.5	7.7	0.96	3.5	A1	B1
	60		VW0R063-4-0,10	0.10	1,680	90	4.3	5.6	8.8	0.98	5.6	A1	B1
	85						4.3	5.7	8.8	0.98	5.7	A1	B1
			SW0R063-4-0,06	0.06	1,680	70	2.9	3.9	7.7	0.96	3.9	A1	B1

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 20 %, 220 V – 240 V/50 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nominal current ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over-current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQR 05.2	8	150	VW0R063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	11						1.1	1.3	2.3	0.96	1.3	A1	B1
	16		VW0R063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
	22						1.0	1.0	2.1	0.76	1.0	A1	B1
	32		SW0R063-4-0,01	0.01	1,400	8.0	1.0	1.0	2.1	0.74	1.0	A1	B1
SQR 07.2	63	300	SW0R063-8-0,01	0.01	700	6.3	0.9	0.9	1.0	0.99	0.9	A1	B1
	8		VW0R063-4-0,06	0.06	1,400	20	1.8	2.1	3.6	0.98	2.1	A1	B1
	11						1.8	2.0	3.6	0.98	2.0	A1	B1
	16		VW0R063-4-0,03	0.03	1,400	12	1.1	1.2	2.3	0.96	1.2	A1	B1
	22						1.1	1.2	2.3	0.96	1.2	A1	B1
SQR 10.2	32	600	SW0R063-4-0,01	0.01	1,400	8.0	1.0	1.0	2.1	0.74	1.0	A1	B1
	45		SW0R063-8-0,01	0.01	700	6.3	0.9	0.9	1.0	0.99	0.9	A1	B1
	63		SW0R063-4-0,10	0.10	1,400	20	1.9	2.3	3.6	0.99	2.3	A1	B1
	11		SW0R063-4-0,06	0.06	1,400	16	1.6	1.8	3.5	0.88	1.8	A1	B1
	16						1.6	1.7	3.5	0.88	1.7	A1	B1
SQR 12.2	22	900	SW0R063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	32						1.1	1.3	2.3	0.96	1.3	A1	B1
	45		SW0R063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
	63						1.0	1.0	2.1	0.76	1.0	A1	B1
	90		SW0R063-4-0,10	0.10	1,400	20	1.9	2.2	3.6	0.99	2.2	A1	B1
SQR 14.2	125	1,200	VW0R063-4-0,06	0.06	1,400	16	1.6	1.8	3.5	0.88	1.8	A1	B1
	16						1.6	1.7	3.5	0.88	1.7	A1	B1
	22		SW0R063-4-0,04	0.04	1,400	12	1.1	1.3	2.3	0.96	1.3	A1	B1
	32						1.1	1.3	2.3	0.96	1.3	A1	B1
	45		SW0R063-4-0,02	0.02	1,400	8.0	1.0	1.0	2.1	0.76	1.0	A1	B1
SQR 14.2	63	2,400	VW0R063-4-0,10	0.10	1,400	20	1.9	2.2	3.6	0.99	2.2	A1	B1
	90						1.9	2.3	3.6	0.99	2.3	A1	B1
	125		SW0R063-4-0,06	0.06	1,400	16	1.6	1.8	3.5	0.88	1.8	A1	B1
	16						1.6	1.7	3.5	0.88	1.7	A1	B1
	22		SW0R063-4-0,10	0.10	1,400	20	1.9	2.2	3.6	0.99	2.2	A1	B1

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

SQR 05.2 – SQR 14.2

Electrical data Part-turn actuators for modulating duty with 1-phase AC motors

Intermittent duty S4 - 20 %, 220 V – 240 V/60 Hz

Part-turn actuator			Motor										
Type	Operating time for 90° in seconds	Max. torque [Nm]	Motor type	Nominal power ¹⁾ P _N [kW]	Speed [rpm]	Operating capacitor ²⁾ [μF]	Nomi- nal cur- rent ³⁾ I _N [A]	Max. current ⁴⁾ I _{max} [A]	Starting current I _A [A]	cos φ	Over- current protection device setting [A]	AUMA power class switchgear	
												Contact- tor	Thyristor
SQR 05.2	6	150	VW0R063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
	9						1.3	1.5	2.7	0.98	1.5	A1	B1
	12		VW0R063-4-0,02	0.02	1,680	8.0	1.0	1.1	2.5	0.80	1.1	A1	B1
	17						1.0	1.1	2.5	0.80	1.1	A1	B1
	25		SW0R063-4-0,01	0.01	1,680	8.0	1.0	1.0	2.5	0.76	1.0	A1	B1
50	SW0R063-8-0,01	0.01	840	6.3	1.0	1.0	1.1	0.99	1.0	A1	B1		
SQR 07.2	6	300	VW0R063-4-0,06	0.06	1,680	20	1.9	2.4	4.6	0.98	2.4	A1	B1
	9						1.9	2.3	4.6	0.98	2.3	A1	B1
	12		VW0R063-4-0,03	0.03	1,680	12	1.2	1.4	2.7	0.98	1.4	A1	B1
	17						1.2	1.4	2.7	0.98	1.4	A1	B1
	25		SW0R063-4-0,01	0.01	1,680	8.0	1.0	1.1	2.5	0.76	1.1	A1	B1
50	SW0R063-8-0,01	840	6.3		1.0	1.0	1.1	0.99	1.1	A1	B1		
SQR 10.2	9	600	VW0R063-4-0,10	0.10	1,680	20	2.0	2.8	4.6	0.98	2.8	A1	B1
	12		SW0R063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1
	17						1.5	1.8	4.3	0.96	1.8	A1	B1
	25		SW0R063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
	35		1.3				1.5	2.7	0.98	1.5	A1	B1	
50	SW0R063-4-0,02	0.02	1,680	8.0	1.0	1.1	2.5	0.80	1.1	A1	B1		
SQR 12.2	12	900	VW0R063-4-0,10	0.10	1,680	20	2.0	2.7	4.6	0.98	2.7	A1	B1
	17	2.0					2.8	4.6	0.98	2.8	A1	B1	
	25	1 200	SW0R063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1
	35						1.5	2.0	4.3	0.96	2.0	A1	B1
	50		SW0R063-4-0,04	0.04	1,680	12	1.3	1.5	2.7	0.98	1.5	A1	B1
75	1.3	1.5	2.7				0.98	1.5	A1	B1			
108	SW0R063-4-0,02	0.02	1,680	8.0	1.0	1.1	2.5	0.80	1.1	A1	B1		
SQR 14.2	30	1,800	VW0R063-4-0,10	0.10	1,680	20	2.0	2.7	4.6	0.98	2.7	A1	B1
	40	2,400					2.0	2.8	4.6	0.98	2.8	A1	B1
	60	SW0R063-4-0,06	0.06	1,680	16	1.5	2.0	4.3	0.96	2.0	A1	B1	
	85					1.5	2.0	4.3	0.96	2.0	A1	B1	

1) – 4) Refer to Notes on Electrical data SQ .2/SQR .2 part-turn actuators with 1-phase AC motors

Electrical data Part-turn actuators for open-close duty with DC motors Short-time duty S2 - 15 min, 24 V DC	SG 05.1 – SG 12.1

Supply voltage 24 V DC

Part-turn actuator			Motor					
Type	Operating time for 90° in seconds ¹⁾	Torque max. Nm	Type	Power P _N (kW)	Speed rpm.	Nominal current ²⁾ I _N (A)	Current ³⁾ approx. I _{max} (A)	Starting current I _A (A)
SG 05.1	5 – 10	150	SK0050-2/60A-G	0,14	2 500	10	12	40
	8 – 15		SK0050-4/60B-G	0,07	1 400	8,0	10	25
SG 07.1	10 – 15	300	SK0050-2/60A-G	0,14	2 500	10	12	40
	15 – 25		SK0050-4/60B-G	0,07	1 400	8,0	10	25
SG 10.1	20 – 25	600	SK0050-2/60A-G	0,14	2 500	10	13	40
	30 – 45		SK0050-4/60B-G	0,07	1 400	8,0	10	25
SG 12.1	30 – 45	1,200	SK0050-2/60A-G	0,14	2 500	10	19	40
	45 – 65	840	SK0050-4/60B-G	0,07	1 400	8,0	10	25

All DC motors are manufactured as shunt motors.

Motor data are approximate. Due to usual manufacturing tolerances there may be deviations from the values given.

The permissible fluctuation of the nominal voltage is $\pm 10\%$. If the voltage drops below, there is a reduction of the nominal output torque.

For further details refer to “Technical data Part-turn actuators for open-close duty with DC motors SG 05.1 – SG 12.1”.

1) depending on the torque demanded from the actuator

2) Current at running torque according to Technical data SG 05.1 – SG 12.1 with DC motors

3) Current at max. torque. We recommend to select switchgear and cables according to these values.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical data Part-turn actuators for open-close duty with DC motors Short-time duty S2 - 15 min, 110 V DC	SG 05.1 – SG 12.1

Supply voltage 110 V DC

Part-turn actuator			Motor					
Type	Operating time for 90° in seconds ¹⁾	Torque max. Nm	Type	Power P _N (kW)	Speed rpm	Nominal current ²⁾ I _N (A)	Current ³⁾ approx. I _{max} (A)	Starting current I _A (A)
SG 05.1	5 – 10	150	SK0050-2/60A-G	0,14	2 500	2,8	3,0	13
	8 – 15		SK0050-4/60B-G	0,07	1 400	1,8	2,8	5,5
SG 07.1	10 – 15	300	SK0050-2/60A-G	0,14	2 500	2,8	3,0	13
	15 – 25		SK0050-4/60B-G	0,07	1 400	1,8	2,8	5,5
SG 10.1	20 – 25	600	SK0050-2/60A-G	0,14	2 500	2,8	3,0	13
	30 – 45		SK0050-4/60B-G	0,07	1 400	1,8	2,8	5,5
SG 12.1	30 – 45	1,200	SK0050-2/60A-G	0,14	2 500	2,8	7,0	13
	45 – 65	840	SK0050-4/60B-G	0,07	1 400	1,8	2,8	5,5

All DC motors are manufactured as shunt motors.

Motor data are approximate. Due to usual manufacturing tolerances there may be deviations from the values given.

The permissible fluctuation of the nominal voltage is $\pm 10\%$. If the voltage drops below, there is a reduction of the nominal output torque.

For further details refer to “Technical data Part-turn actuators for open-close duty with DC motors SG 05.1 – SG 12.1”.

1) depending on the torque demanded from the actuator

2) Current at running torque according to Technical data SG 05.1 – SG 12.1 with DC motors

3) Current at max. torque. We recommend to select switchgear and cables according to these values.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical data Part-turn actuators for open-close duty with DC motors Short-time duty S2 - 15 min, 220 V DC	SG 05.1 – SG 12.1

Supply voltage 220 V DC

Part-turn actuator			Motor					
Type	Operating time for 90° in seconds ¹⁾	Torque max. Nm	Type	Power P _N (kW)	Speed rpm	Nominal current ²⁾ I _N (A)	Current ³⁾ approx. I _{max} (A)	Starting current I _A (A)
SG 05.1	5 – 10	150	SK0050-2/60A-G	0,14	2 500	1,4	1,4	6,5
	8 – 15		SK0050-4/60B-G	0,07	1 400	1,0	1,3	3,0
SG 07.1	10 – 15	300	SK0050-2/60A-G	0,14	2 500	1,4	1,4	6,5
	15 – 25		SK0050-4/60B-G	0,07	1 400	1,0	1,3	3,0
SG 10.1	20 – 25	600	SK0050-2/60A-G	0,14	2 500	1,4	1,5	6,5
	30 – 45		SK0050-4/60B-G	0,07	1 400	1,0	1,4	3,0
SG 12.1	30 – 45	1,200	SK0050-2/60A-G	0,14	2 500	1,4	2,4	6,5
	45 – 65	840	SK0050-4/60B-G	0,07	1 400	1,0	1,4	3,0

All DC motors are manufactured as shunt motors.

Motor data are approximate. Due to usual manufacturing tolerances there may be deviations from the values given. The permissible fluctuation of the nominal voltage is $\pm 10\%$. If the voltage drops below, there is a reduction of the nominal output torque.

For further details refer to "Technical data Part-turn actuators for open-close duty with DC motors SG 05.1 – SG 12.1".

1) depending on the torque demanded from the actuator

2) Current at running torque according to Technical data SG 05.1 – SG 12.1 with DC motors

3) Current at max. torque. We recommend to select switchgear and cables according to these values.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

5 Dimensions Actuators/Actuator controls

Multi-turn actuators

SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 with 3-phase AC motors	340
SA 07.2-UW – SA 16.2-UW / SAR 07.2-UW – SAR 16.2-UW / SAV 07.2-UW – SAV 16.2-UW / SARV 07.2-UW – SARV 16.2-UW with 3-phase AC motors for continuous underwater use	341
SA 07.2 – SA 14.6 / SAR 07.2 – SAR 14.6 with 1-phase AC motors VE/AE/VC/AC	342
SA 07.2 – SA 14.6 / SAR 07.2 – SAR 14.6 with 1-phase AC motors VB 63	343

Multi-turn actuators with actuator controls AM / AC

SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 mit AM 01.1 – AM 02.1	344
SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 mit AC 01.2	345
SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2 mit AC 01.2 – Feldbus	346

Multi-turn actuators with actuator controls ACV

SAV 07.2 – SAV 16.2 / SARV 07.2 – SARV 16.2 mit ACV 01.2	347
SAV 07.2 – SAV 16.2 / SARV 07.2 – SARV 16.2 mit ACV 01.2 - Feldbus	348

Valve attachments

SA/SAR/SAV/SARV 07.2 – 16.2, SAEx/SAREx/SAVEx/SARVEx 07.2 – 16.2	349
SA/SAR/SAV/SARV 07.2-UW – 16.2-UW, SAEx/SAREx/SAVEx/SARVEx 07.2-UW – 16.2-UW	350

Part-turn actuators

SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with 3-phase AC motors	351
SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with 1-phase AC motors	352

Part-turn actuators with actuator controls AM / AC

SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with AM 01.1	353
SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with AC 01.2	354
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Couplings

SQ/SQR 05.2 – 14.2, SQEx/SQREx 05.2 – 14.1	356

Part-turn actuators with base and lever

SQ 05.2 – SQ 14.2 / SQR 05.2 – SQR 14.2 with base and lever	357

Fail-Safe-Unit

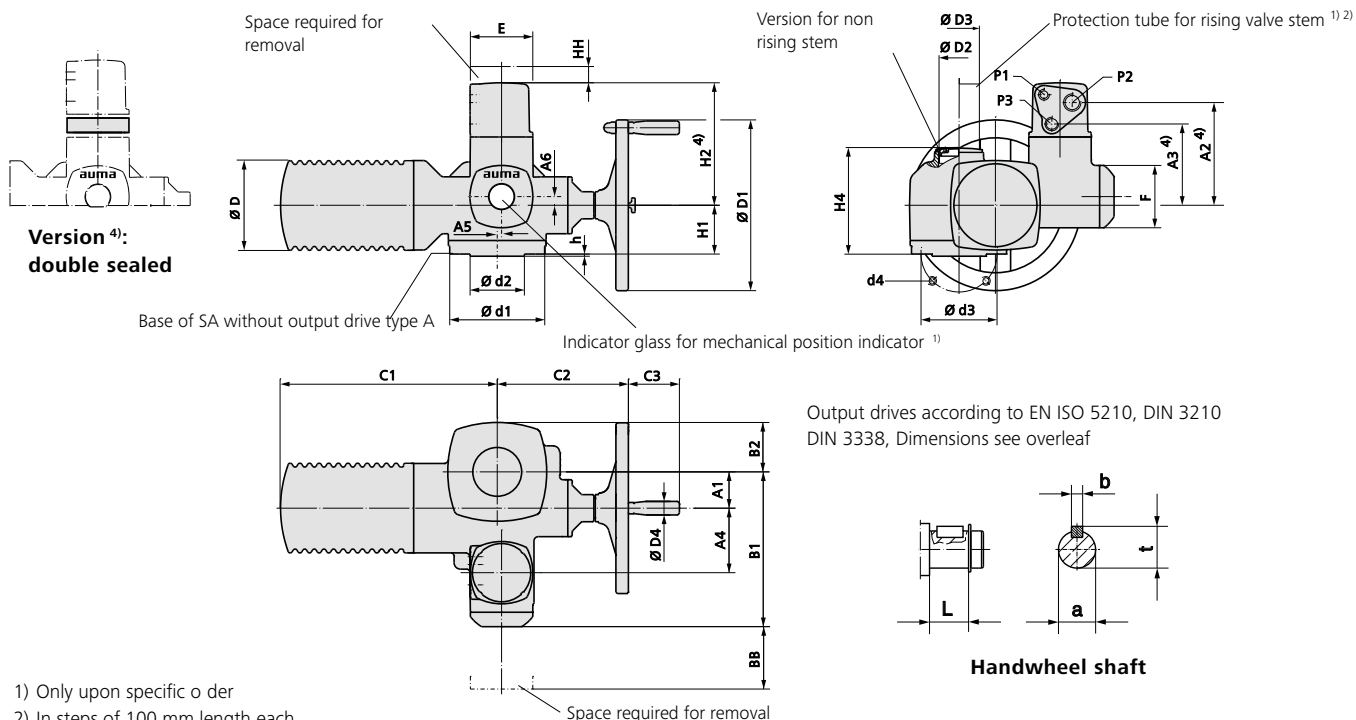
FQM 05.1 – FQM 12.1 / SQ 05.2 – SQ 12.2 with AC 01.2	358

Accessories

AM 01.1/AM 02.1 Wall bracket	360
AC 01.2 Wall bracket	361
CB 01.1 Control box	362
Electrical connection	363
Handwheels	367
Floor pedestals	371
LMS 07.1 – LMS 16.1 Anti-backdrive device	372
DMF 10.1 – DMF 16.1 Torque measurement flange	373

Dimensions Multi-turn actuators with 3-phase AC motors

with AUMA plug/socket connector



1) Only upon specific order

2) In steps of 100 mm length each

3) Standard, other threads on request

4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Dimensions	SA 07.2/SAR 07.2		SA 07.6/SAR 07.6		SA 10.2/SAR 10.2	SA 14.2/SAR 14.2	SA 14.6/SAR 14.6	SA 16.2/SAR 16.2
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁴⁾	174 (201 ⁴⁾)		174 (201 ⁴⁾)		174 (201 ⁴⁾)	190 (217 ⁴⁾)	190 (217 ⁴⁾)	194 (221 ⁴⁾)
A3 ⁴⁾	134 (161 ⁴⁾)		134 (161 ⁴⁾)		134 (161 ⁴⁾)	150 (177 ⁴⁾)	150 (177 ⁴⁾)	154 (181 ⁴⁾)
A4	103		103		103	119	119	123.5
A5	–		–		–	8	8	15
A6	–		–		–	16	16	20
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1¼"		G 1¼"		G 2"	G 2½"	G 2½"	G 3"
Ø D3	42 x 3.3		42 x 3.3		60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
Ø D4	20		20		20	25	25	25
E	115		115		115	115	115	115
F	115		115		115	115	115	115
H1	78		78		80	90	90	110
H2 ⁴⁾	210 (237 ⁴⁾)		210 (237 ⁴⁾)		210 (237 ⁴⁾)	226 (253 ⁴⁾)	226 (253 ⁴⁾)	230 (257 ⁴⁾)
H4	160		160		170	196	196	235
L	20		20		24	38.8	45.8	45.8
P1 ³⁾	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ³⁾	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ³⁾	M25 x 1.5		M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5	M25 x 1.5
BB min.	180		180		180	180	180	180
HH min.	30		30		30	30	30	30
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

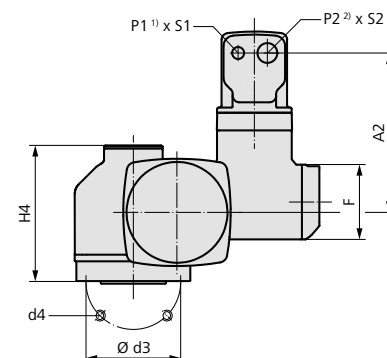
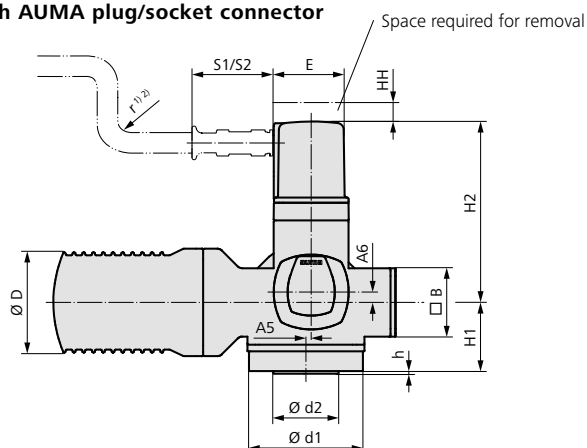
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA 07.2-UW – SA 16.2-UW/SAR 07.2-UW – SAR 16.2-UW
SAV 07.2-UW – SAV 16.2-UW/SARV 07.2-UW – SARV 16.2-UW

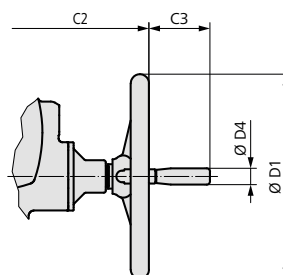
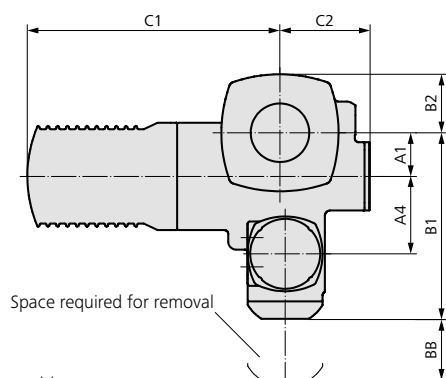
auma®

Dimensions Multi-turn actuators with 3-phase AC motor for continuous underwater use

with AUMA plug/socket connector



3) Version with handwheel (Option)



1) Motor cable:

Outer diameter approx. 12.1 mm, minimum bending radius r , fixed installation: 90 mm

2) Hybrid cable with control cables and CAN cables:

Outer diameter approx. 17.2 mm, minimum bending radius r , fixed installation: 105 mm

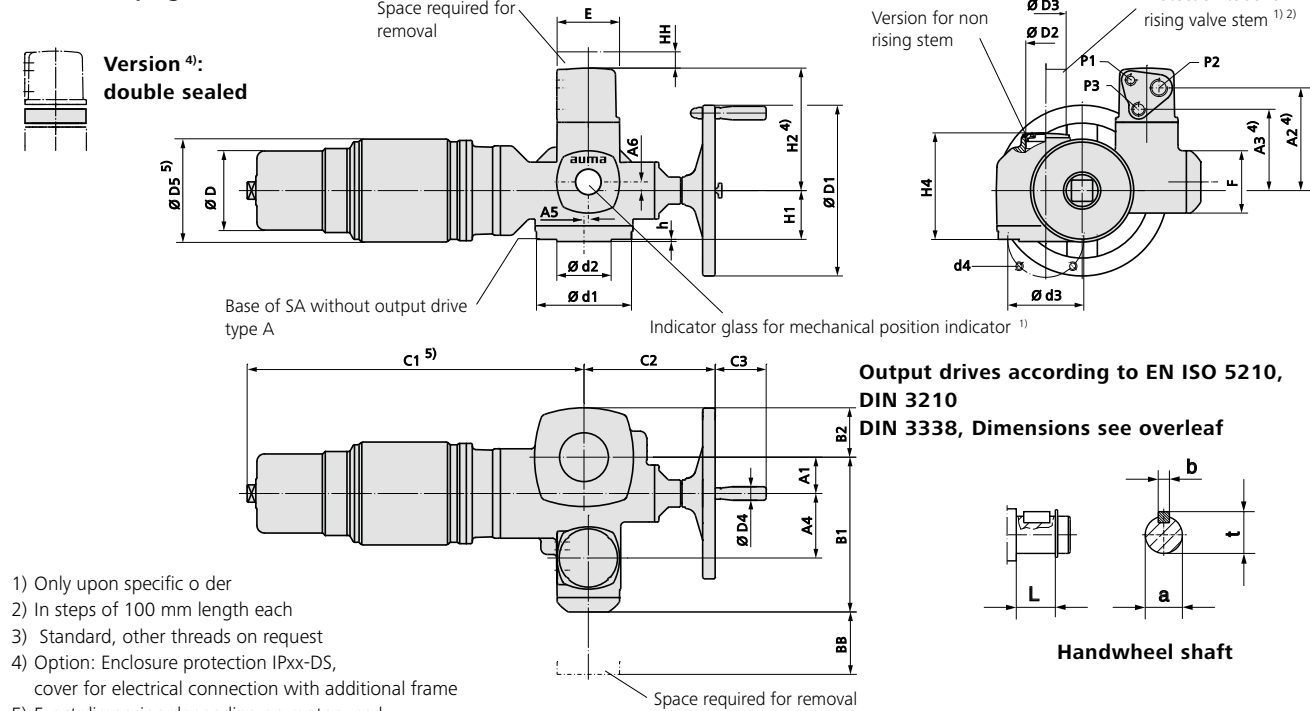
Output drives according to EN ISO 5210, DIN 3210
For dimensions see overleaf

Dimensions	SA 07.2		SA 07.6		SA 10.2	SA14.2	SA 14.6	SA 16.2
EN ISO 5210	F07	F10	F07	F10	F10	F14	F14	F16
A1	40		40		50	67	67	80
A2	229		229		229	245	245	249
A4	103		103		103	119	119	123.5
A5	–		–		–	8	8	15
A6	–		–		–	16	16	20
□ B	70		70		70	105	105	105
B1	238		238		248	286	286	303
B2	62		62		65	90	90	115
C1	268		268		283	389	389	437
C2	112 (196 ³⁾)		112 (196 ³⁾)		112 (197 ³⁾)	138 (254 ³⁾)	138 (256 ³⁾)	156 (276 ³⁾)
C3	63		63		63	94	94	94
Ø D	104		104		124	155	155	192
Ø D1	160		160		200	315	400	500
Ø D4	20		20		20	25	25	25
E	115		115		115	115	115	115
F	115		115		115	115	115	115
H1	96	100	96	100	101	106	106	122
H2	262		262		262	278	278	282
H4	176	180	176	180	188	209	209	244
P1 1)	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 2)	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5	M32 x 1.5
S1	71		71		71	71	71	71
S2	98		98		98	98	98	98
BB min.	180		180		180	180	180	180
HH min.	30		30		30	30	30	30
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70	55	70	70	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Multi-turn actuators with 1-phase AC motor of VE/AE/VC/AC type range

with AUMA plug/socket connector



Output drives according to EN ISO 5210,
DIN 3210
DIN 3338, Dimensions see overleaf

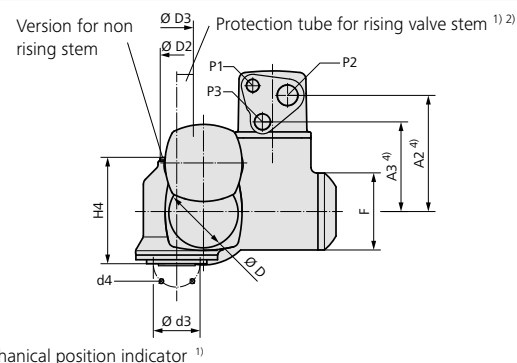
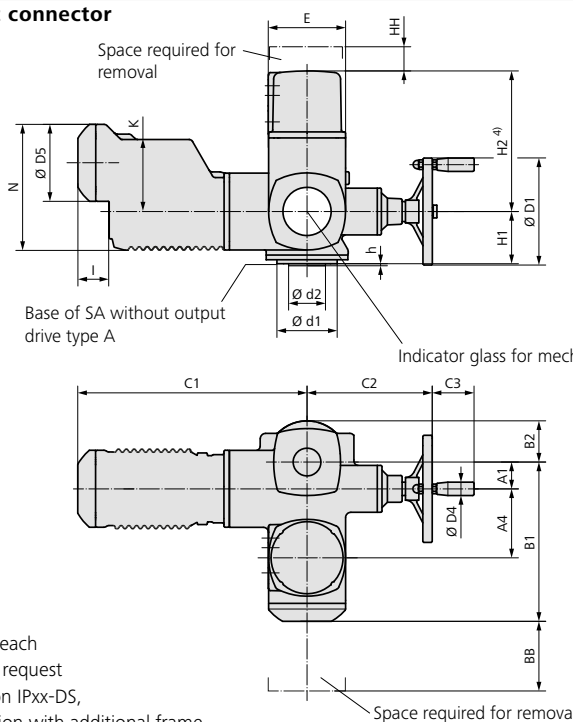
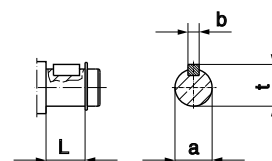
- 1) Only upon specific order
2) In steps of 100 mm length each
3) Standard, other threads on request
4) Option: Enclosure protection IPxx-DS,
cover for electrical connection with additional frame
5) Exact dimension depending on motor used

Dimensions	SA 07.2/SAR 07.2		SA 07.6/SAR 07.6		SA 10.2/SAR 10.2	SA 14.2/SAR 14.2	SA 14.6/SAR 14.6
Output speed rpm	32 – 216 / 32 – 54		32 – 216 / 32 – 54		4 – 216 / 4 – 26	4 – 54 / 4 – 13	4 – 26 / 4 – 6,7
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)
A1	40		40		50	67	67
A2 ⁴⁾	174 (201 ⁴⁾)		174 (201 ⁴⁾)		174 (201 ⁴⁾)	190 (217 ⁴⁾)	190 (217 ⁴⁾)
A3 ⁴⁾	134 (161 ⁴⁾)		134 (161 ⁴⁾)		134 (161 ⁴⁾)	150 (177 ⁴⁾)	150 (177 ⁴⁾)
A4	103		103		103	119	119
A5	–		–		–	8	8
A6	–		–		–	16	16
B1	238		238		248	286	286
B2	62		62		65	90	90
C1 ⁵⁾	565		565		576 (571)	622	622
C2	186		186		191	242	245
C3	63		63		63	94	94
Ø D	146		146		146	146	146
Ø D1	160		160		200	315	400
Ø D2	G 1 1/4"		G 1 1/4"		G 2"	G 2 1/2"	G 2 1/2"
Ø D3	42 x 3.3		42 x 3.3		60 x 3.7	76 x 3.7	76 x 3.7
Ø D4	20		20		20	25	25
Ø D5 ⁵⁾	170		170		190 (170)	190	190
E	115		115		115	115	115
F	115		115		115	115	115
H1	78		78		80	90	90
H2 ⁴⁾	210 (237 ⁴⁾)		210 (237 ⁴⁾)		210 (237 ⁴⁾)	226 (253 ⁴⁾)	226 (253 ⁴⁾)
H4	160		160		170	196	196
L	20		20		24	38.8	45.8
P1 ³⁾	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ³⁾	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ³⁾	M25 x 1.5		M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5
BB min.	180		180		180	180	180
HH min.	30		30		30	30	30
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7
b	6		6		6	8	8
Ø d1	90	125	90	125	125	175	175
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100
Ø d3	70	102	70	102	102	140	140
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16
h	3		3		3	4	4
t	22.5		22.5		22.5	33	33

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Multi-turn actuators with 1-phase AC motor of VB 63 type range

with AUMA plug/socket connector

Version 4):
double sealedOutput drives according to EN ISO 5210, DIN 3210
DIN 3338, Dimensions see overleaf

Handwheel shaft

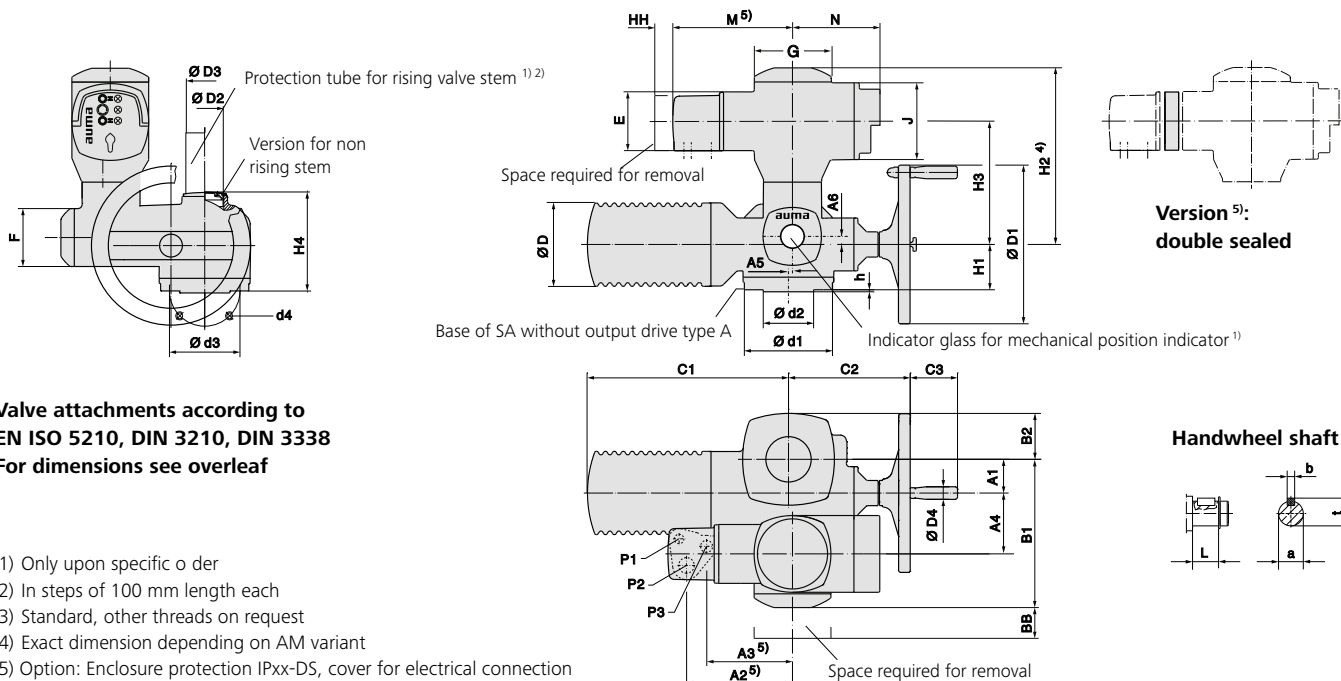
- 1) Only upon specific order
 2) In steps of 100 mm length each
 3) Standard, other threads on request
 4) Option: Enclosure protection IPxx-DS,
 cover for electrical connection with additional frame

Dimensions	SA 07.2/SAR 07.2		SA 07.6/SAR 07.6	
Output speed rpm	4 – 26		4 – 26	
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)
A1	40		40	
A2 4)	174 (201 4)		174 (201 4)	
A3 4)	134 (161 4)		134 (161 4)	
A4	103		103	
B1	238		238	
B2	62		62	
C1	343		343	
C2	186		186	
C3	63		63	
Ø D	107		107	
Ø D1	160		160	
Ø D2	G 1 1/4"		G 1 1/4"	
Ø D3	42 x 3.3		42 x 3.3	
Ø D4	20		20	
Ø D5	115		115	
E	115		115	
F	115		115	
H1	78		78	
H2 4)	210 (237 4)		210 (237 4)	
H4	160		160	
I	46		46	
K	108		108	
L	20		20	
N	188		188	
P1 3)	M20 x 1.5		M20 x 1.5	
P2 3)	M32 x 1.5		M32 x 1.5	
P3 3)	M25 x 1.5		M25 x 1.5	
BB min.	180		180	
HH min.	30		30	
Ø a	20 d7		20 d7	
b	6		6	
Ø d1	90	125	90	125
Ø d2 f12	55	70 (60)	55	70 (60)
Ø d3	70	102	70	102
d4	4 x M8	4 x M10	4 x M8	4 x M10
h	3		3	
t	22.5		22.5	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Multi-turn actuators with 3-phase AC motor and AM integral controls

with AUMA plug/socket connector



Valve attachments according to
EN ISO 5210, DIN 3210, DIN 3338
For dimensions see overleaf

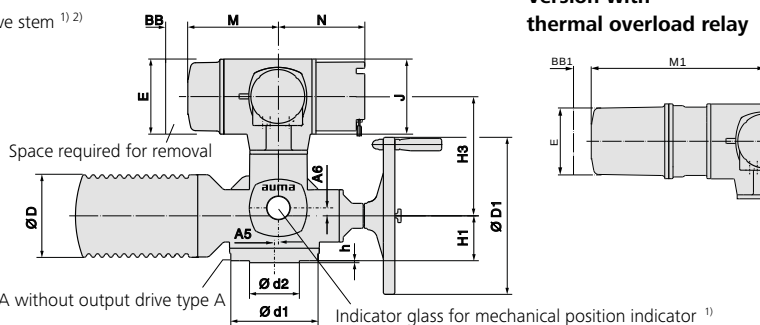
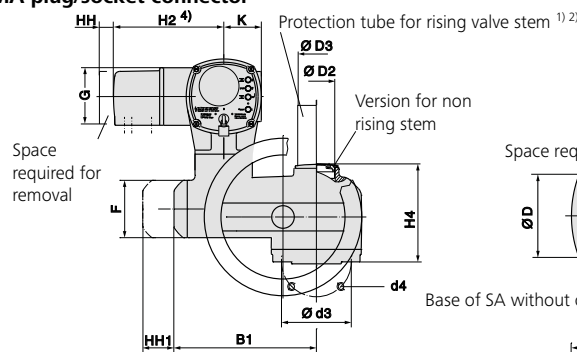
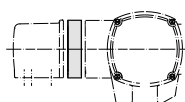
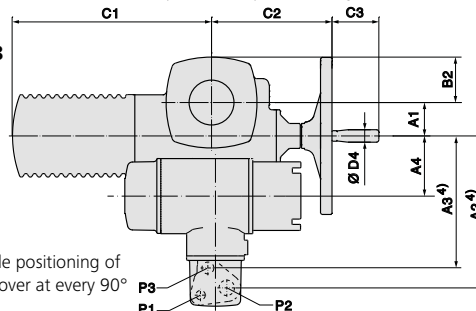
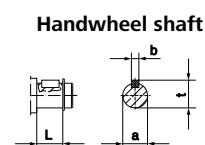
- 1) Only upon specific order
- 2) In steps of 100 mm length each
- 3) Standard, other threads on request
- 4) Exact dimension depending on AM variant
- 5) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Dimensions	SA 07.2/AM 01.1 SAR 07.2/AM 01.1		SA 07.6/AM 01.1 SAR 07.6/AM 01.1		SA 10.2/AM 01.1 SAR 10.2/AM 01.1	SA 14.2/AM 02.1 SAR 14.2/AM 02.1	SA 14.6/AM 02.1 SAR 14.6/AM 02.1	SA 16.2/AM 02.1 SAR 16.2/AM 02.1
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁵⁾	199 (226 ⁵⁾)		199 (226 ⁵⁾)		199 (226 ⁵⁾)	209 (236 ⁵⁾)	209 (236 ⁵⁾)	209 (236 ⁵⁾)
A3 ⁵⁾	159 (186 ⁵⁾)		159 (186 ⁵⁾)		159 (186 ⁵⁾)	169 (196 ⁵⁾)	169 (196 ⁵⁾)	169 (196 ⁵⁾)
A4	103		103		103	119	119	123.5
A5	—		—		—	8	8	15
A6	—		—		—	16	16	20
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1 1/4"		G 1 1/4"		G 2"	G 2 1/2"	G 2 1/2"	G 3"
Ø D3	42 x 3.3		42 x 3.3		60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
Ø D4	20		20		20	25	25	25
E	115		115		115	115	115	115
F	115		115		115	115	115	115
G	150		150		150	150	150	150
H1	78		78		80	90	90	110
H2 ⁴⁾	337		337		337	408	408	412
H3	232		232		232	248	248	252
H4	160		160		170	196	196	235
J	150		150		150	150	150	150
L	20		20		24	38.8	45.8	45.8
M ⁵⁾	235 (262 ⁵⁾)		235 (262 ⁵⁾)		235 (262 ⁵⁾)	235 (262 ⁵⁾)	235 (262 ⁵⁾)	235 (262 ⁵⁾)
N	171		171		171	171	171	171
P1 ³⁾	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ³⁾	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ³⁾	M25 x 1.5		M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5	M25 x 1.5
BB min.	180		180		180	180	180	180
HH min.	30		30		30	30	30	30
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Multi-turn actuators with 3-phase AC motor and AC integral controls (also for HART)

with AUMA plug/socket connector

Valve attachments according to EN ISO 5210, DIN 3210, DIN 3338
For dimensions see overleafVersion⁴⁾: double sealedPossible positioning of
plug cover at every 90°

Handwheel shaft

1) Only upon specific order

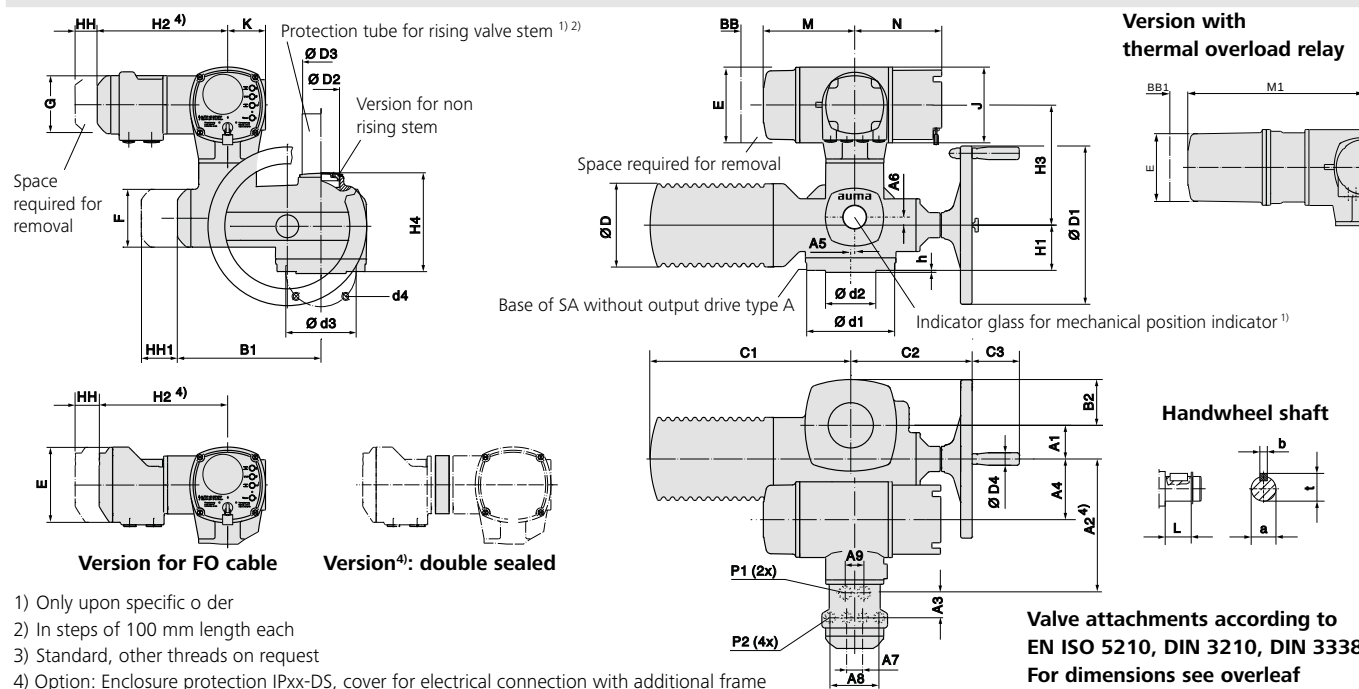
2) In steps of 100 mm length each

3) Standard, other threads on request

4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Dimensions	SA 07.2/AC 01.2 SAR 07.2/AC 01.2		SA 07.6/AC 01.2 SAR 07.6/AC 01.2		SA 10.2/AC 01.2 SAR 10.2/AC 01.2	SA 14.2/AC 01.2 SAR 14.2/AC 01.2	SA 14.6/AC 01.2 SAR 14.6/AC 01.2	SA 16.2/AC 01.2 SAR 16.2/AC 01.2
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁴⁾	287 (314 ⁴⁾)		287 (314 ⁴⁾)		287 (314 ⁴⁾)	303 (330 ⁴⁾)	303 (330 ⁴⁾)	303 (330 ⁴⁾)
A3 ⁴⁾	247 (274 ⁴⁾)		247 (274 ⁴⁾)		247 (274 ⁴⁾)	263 (290 ⁴⁾)	263 (290 ⁴⁾)	263 (290 ⁴⁾)
A4	103		103		103	119	119	123.5
A5	–		–		–	8	8	15
A6	–		–		–	16	16	20
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1¼"		G 1¼"		G 2"	G 2½"	G 2½"	G 3"
Ø D3	42 x 3.3		42 x 3.3		60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
Ø D4	20		20		20	25	25	25
E	150		150		150	150	150	150
F	115		115		115	115	115	115
G	115		115		115	115	115	115
H1	78		78		80	90	90	110
H2 ⁴⁾	220 (247 ⁴⁾)		220 (247 ⁴⁾)		220 (247 ⁴⁾)	220 (247 ⁴⁾)	220 (247 ⁴⁾)	220 (247 ⁴⁾)
H3	225		225		225	241	241	245
H4	160		160		170	196	196	235
J	150		150		150	150	150	150
K	75		75		75	75	75	75
L	20		20		24	38.8	45.8	45.8
M max.	265		265		265	265	265	265
M1	349		349		349	349	349	349
N	173		173		173	173	173	173
P1 ³⁾	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ³⁾	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ³⁾	M25 x 1.5		M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5	M25 x 1.5
BB min.	70		70		70	70	70	70
BB1 min.	90		90		90	90	90	90
HH min.	30		30		30	30	30	30
HH1 min.	180		180		180	180	180	180
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.



1) Only upon specific order

2) In steps of 100 mm length each

3) Standard, other threads on request

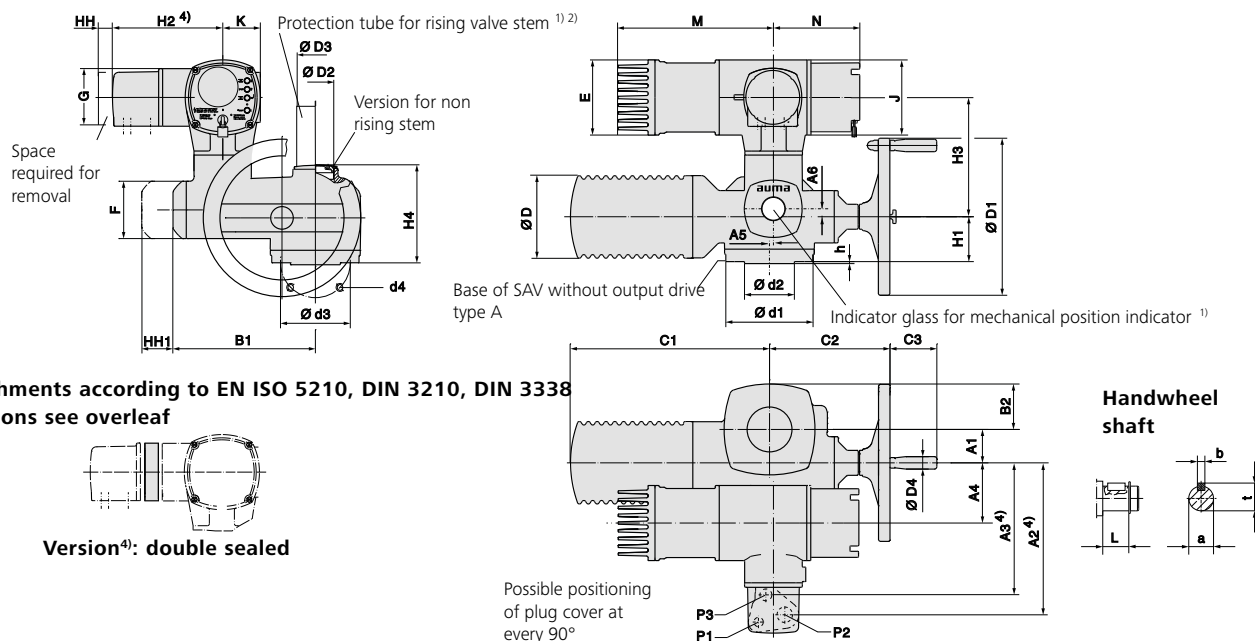
4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Dimensions	SA 07.2/AC 01.2 SAR 07.2/AC 01.2		SA 07.6/AC 01.2 SAR 07.6/AC 01.2		SA 10.2/AC 01.2 SAR 10.2/AC 01.2	SA 14.2/AC 01.2 SAR 14.2/AC 01.2	SA 14.6/AC 01.2 SAR 14.6/AC 01.2	SA 16.2/AC 01.2 SAR 16.2/AC 01.2
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁴⁾	251 (278 ⁴⁾)		251 (278 ⁴⁾)		251 (278 ⁴⁾)	267 (294 ⁴⁾)	267 (294 ⁴⁾)	267 (294 ⁴⁾)
A3	48		48		48	48	48	48
A4	103		103		103	119	119	123.5
A5	—		—		—	8	8	15
A6	—		—		—	16	16	20
A7	32		32		32	32	32	32
A8	96		96		96	96	96	96
A9	35		35		35	35	35	35
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1 1/4"		G 1 1/4"		G 2"	G 2 1/2"	G 2 1/2"	G 3"
Ø D3	42 x 3.3		42 x 3.3		60 x 3.7	76 x 3.7	76 x 3.7	89 x 4.1
Ø D4	20		20		20	25	25	25
E	150		150		150	150	150	150
F	115		115		115	115	115	115
G	115		115		115	115	115	115
H1	78		78		80	90	90	110
H2 ⁴⁾	257 (284 ⁴⁾)		257 (284 ⁴⁾)		257 (284 ⁴⁾)	257 (284 ⁴⁾)	257 (284 ⁴⁾)	257 (284 ⁴⁾)
H3	225		225		225	241	241	245
H4	160		160		170	196	196	235
J	150		150		150	150	150	150
K	75		75		75	75	75	75
L	20		20		24	38.8	45.8	45.8
M max.	265		265		265	265	265	265
M1	349		349		349	349	349	349
N	173		173		173	173	173	173
P1 ³⁾	2x M25 x 1,5		2x M25 x 1,5		2x M25 x 1,5	2x M25 x 1,5	2x M25 x 1,5	2x M25 x 1,5
P2 ³⁾	4x M20 x 1,5		4x M20 x 1,5		4x M20 x 1,5	4x M20 x 1,5	4x M20 x 1,5	4x M20 x 1,5
BB min.	70		70		70	70	70	70
BB1 min.	90		90		90	90	90	90
HH min.	30		30		30	30	30	30
HH1 min.	180		180		180	180	180	180
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

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Dimensions Variable speed multi-turn actuators with integrated actuator controls (also for HART)

with AUMA plug/socket connector



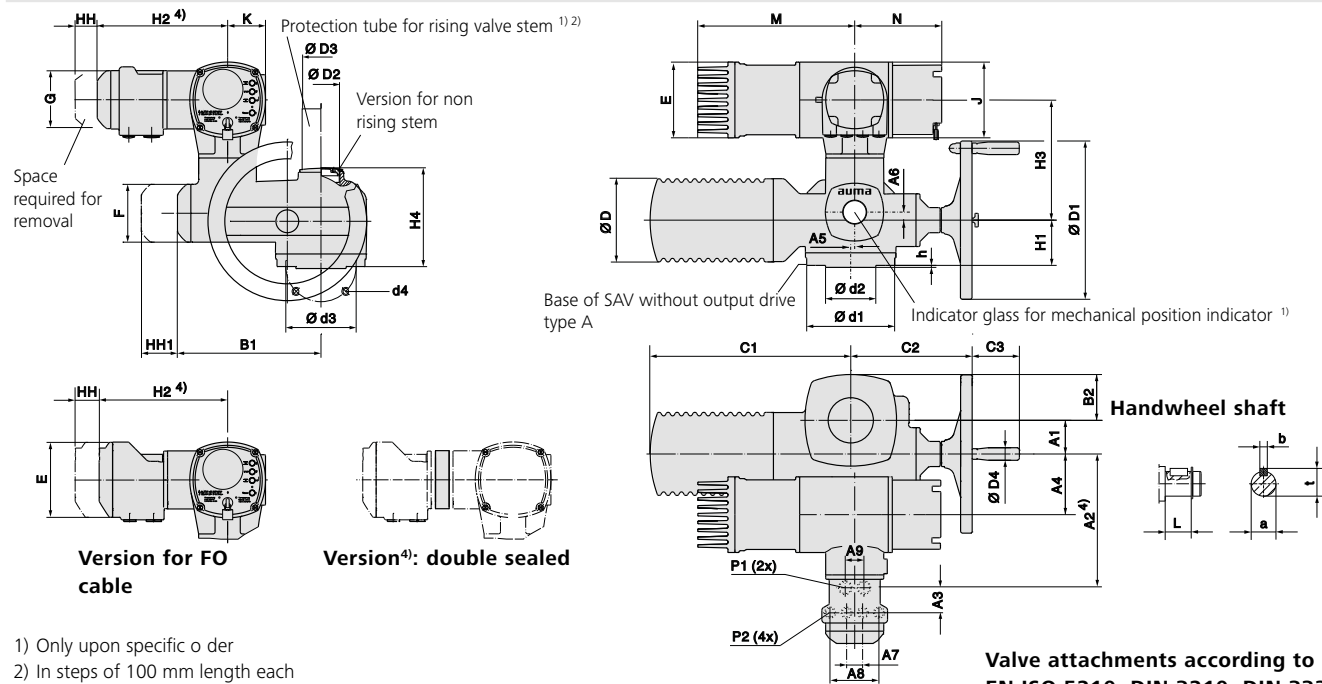
Valve attachments according to EN ISO 5210, DIN 3210, DIN 3338
For dimensions see overleaf

Version⁴⁾: double sealed

- 1) Only upon specific order
 2) In steps of 100 mm length each
 3) Standard, other threads on request
 4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Dimensions	SAV/SARV 07.2 ACV 01.2		SAV/SARV 07.6 ACV 01.2		SAV/SARV 10.2 ACV 01.2	SAV/SARV 14.2 ACV 01.2	SAV/SARV 14.6 ACV 01.2	SAV/SARV 16.2 ACV 01.2
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁴⁾	287 (314 ⁴⁾)		287 (314 ⁴⁾)		287 (314 ⁴⁾)	303 (330 ⁴⁾)	303 (330 ⁴⁾)	303 (330 ⁴⁾)
A3 ⁴⁾	247 (274 ⁴⁾)		247 (274 ⁴⁾)		247 (274 ⁴⁾)	263 (290 ⁴⁾)	263 (290 ⁴⁾)	263 (290 ⁴⁾)
A4	103		103		103	119	119	123.5
A5	–		–		–	8	8	15
A6	–		–		–	16	16	20
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1 1/4"		G 1 1/4"		G 2"	G 2 1/2"	G 2 1/2"	G 3"
Ø D3	42 x 3,3		42 x 3,3		60 x 3,7	76 x 3,7	76 x 3,7	89 x 4,1
Ø D4	20		20		20	25	25	25
E	150		150		150	150	150	150
F	115		115		115	115	115	115
G	115		115		115	115	115	115
H1	78		78		80	90	90	110
H2 ⁴⁾	220 (247 ⁴⁾)		220 (247 ⁴⁾)		220 (247 ⁴⁾)	220 (247 ⁴⁾)	220 (247 ⁴⁾)	220 (247 ⁴⁾)
H3	225		225		225	241	241	245
H4	160		160		170	196	196	235
J	150		150		150	150	150	150
K	75		75		75	75	75	75
L	20		20		24	38.8	45.8	45.8
M	313		313		313	313	313	313
N	173		173		173	173	173	173
P1 ³⁾	M20 x 1.5		M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ³⁾	M32 x 1.5		M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ³⁾	M25 x 1.5		M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5	M25 x 1.5
HH min.	30		30		30	30	30	30
HH1 min.	180		180		180	180	180	180
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

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1) Only upon specific order

2) In steps of 100 mm length each

3) Standard, other threads on request

4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

Valve attachments according to
EN ISO 5210, DIN 3210, DIN 3338,
for dimensions see overleaf

Dimensions	SA 07.2/AC 01.2		SA 07.6/AC 01.2		SA 10.2/AC 01.2	SA 14.2/AC 01.2	SA 14.6/AC 01.2	SA 16.2/AC 01.2
	SAR 07.2/AC 01.2		SAR 07.6/AC 01.2		SAR 10.2/AC 01.2	SAR 14.2/AC 01.2	SAR 14.6/AC 01.2	SAR 16.2/AC 01.2
EN ISO 5210 (DIN3210)	F07	F10 (G0)	F07	F10 (G0)	F10 (G0)	F14 (G1/2)	F14 (G1/2)	F16 (G3)
A1	40		40		50	67	67	80
A2 ⁴⁾	251 (278 ⁴⁾)		251 (278 ⁴⁾)		251 (278 ⁴⁾)	267 (294 ⁴⁾)	267 (294 ⁴⁾)	267 (294 ⁴⁾)
A3	48		48		48	48	48	48
A4	103		103		103	119	119	123.5
A5	—		—		—	8	8	15
A6	—		—		—	16	16	20
A7	32		32		32	32	32	32
A8	96		96		96	96	96	96
A9	35		35		35	35	35	35
B1	238		238		248	286	286	303
B2	62		62		65	90	90	117
C1	265		265		283	389	389	430
C2	186		186		191	242	245	271
C3	63		63		63	94	94	94
Ø D	101		101		121	153	153	190
Ø D1	160		160		200	315	400	500
Ø D2	G 1¼"		G 1¼"		G 2"	G 2½"	G 2½"	G 3"
Ø D3	42 x 3,3		42 x 3,3		60 x 3,7	76 x 3,7	76 x 3,7	89 x 4,1
Ø D4	20		20		20	25	25	25
E	150		150		150	150	150	150
F	115		115		115	115	115	115
G	115		115		115	115	115	115
H1	78		78		80	90	90	110
H2 ⁴⁾	257 (284 ⁴⁾)		257 (284 ⁴⁾)		257 (284 ⁴⁾)	257 (284 ⁴⁾)	257 (284 ⁴⁾)	257 (284 ⁴⁾)
H3	225		225		225	241	241	245
H4	160		160		170	196	196	235
J	150		150		150	150	150	150
K	75		75		75	75	75	75
L	20		20		24	38.8	45.8	45.8
M	313		313		313	313	313	313
M1	349		349		349	349	349	349
N	173		173		173	173	173	173
P1 ³⁾	2x M25 x 1.5		2x M25 x 1.5		2x M25 x 1.5	2x M25 x 1.5	2x M25 x 1.5	2x M25 x 1.5
P2 ³⁾	4x M20 x 1.5		4x M20 x 1.5		4x M20 x 1.5	4x M20 x 1.5	4x M20 x 1.5	4x M20 x 1.5
HH min.	30		30		30	30	30	30
HH1 min.	180		180		180	180	180	180
Ø a	20 d7		20 d7		20 d7	30 d7	30 d7	30 d7
b	6		6		6	8	8	8
Ø d1	90	125	90	125	125	175	175	210
Ø d2 f12	55	70 (60)	55	70 (60)	70 (60)	100	100	130
Ø d3	70	102	70	102	102	140	140	165
d4	4 x M8	4 x M10	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16	4 x M20
h	3		3		3	4	4	5
t	22.5		22.5		22.5	33	33	33

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SA/SAR/SAV/SARV 07.2 – 16.2

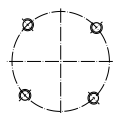
SAEx/SAREx/SAVEx/SARVEx 07.2 – 16.2

Dimensions Valve attachments according to EN ISO 5210, DIN 3338, DIN 3210

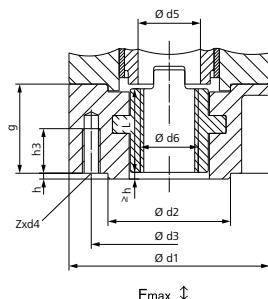
Stem nut

Type

EN ISO 5210 **A**
DIN 3210 **A**



Arrangement of
holes d4



SA.../SAR...		07.2/07.6			10.2		14.2/14.6		16.2	
EN ISO 5210	DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
F max. kN		40	70		70		160		250	
Ø d1		90	125		125		175		210	
Ø d2		55	70	60	70	60	100		130	
Ø d3		70	102		102		140		165	
d4		M8	M10		M10		M16		M20	
Ø d5			36		44		62		80	
Ø d6 max. 5)		Tr 26 ACME 1"	Tr 32 6) ACME 1 1/4"		Tr 40 ACME 1 1/2"		Tr 55 ACME 2 1/4"		Tr 75 ACME 3"	
g		40	50		50		65		80	
h			3		3		4		5	
h3		12	15		15		25		35	
L		37.5	47.5		47.5		61.5		76.5	
Z			4		4		4		4	
Weight kg		1.1	2.8		2.8		6.8		11.7	
Bore with keyway according to DIN 6885-1		Ø d6 H9 max.	22	38	38		57		70	
Square		SW max.	20	32	32		42		on request	
Hexagon		SW max.	22	32	32		48		on request	

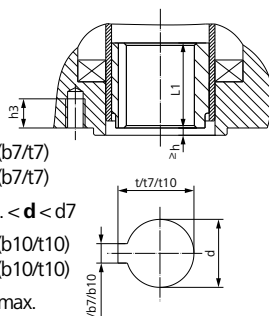
Special bores

Output drive sleeve 3)

Type

EN ISO 5210 **B1** d = d7 (b7/t7)
DIN 3210 **B** d = d7 (b7/t7)
EN ISO 5210 **B2** 1) d10 max. < d < d7
EN ISO 5210 **B3** d = d10 (b10/t10)
DIN 3210 **E** d = d10 (b10/t10)
EN ISO 5210 **B4** 1) d ≤ d10 max.

For missing dimensions, refer to type A



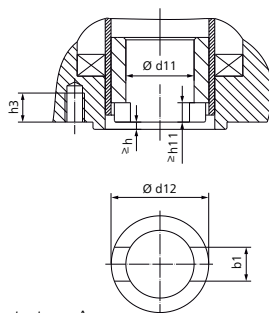
SA.../SAR...		07.2/07.6			10.2		14.2/14.6		16.2	
EN ISO 5210	DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
Ø d7 H9		28	42		42		60		80	
b7 J59		8	12		12		18		22	
t7		31.3	45.3		45.3		64.4		85.4	
Ø d10 H9		16	20		20		30		40	
b10 J59		5	6		6		8		12	
t10		18.3	22.8		22.8		33.3		43.3	
Ø d10 max.		25	35		35		45		60	
h3		12	13		15		25		30	
L1		35	45		45		65		80	
Square		SW max.	22	30	30		45		60	
Hexagon		SW max.	24	32	32		50		on request	

Special bores

Dog coupling 3)

Type

EN ISO 5210 **C** = d11
DIN 3338 **C** = d11



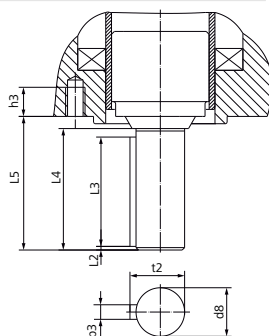
For missing dimensions, refer to type A

SA.../SAR...		07.2/07.6			10.2		14.2/14.6		16.2	
EN ISO 5210	DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
b1 H11		14 4)	14		14		20		24	
Ø d11 H11		28 4)	28		28		38		47	
Ø d11 min.		—	20		20		30		40	
Ø d11 max.		—	42 2) 6)		42		60		80	
Ø d12		36.8	51.8		51.8		73.8		98	
h3		12	13		15		25		30	
h11		7 4)	7		7		8		10	

Shaft end

Type

EN ISO 5210 **D**
DIN 3210 **D**



For missing dimensions,
refer to type A

SA.../SAR...		07.2/07.6			10.2		14.2/14.6		16.2	
EN ISO 5210	DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
Ø d8 g6			20		20		30		40	
b3 h9			6		6		8		12	
h3		12	13		15		25		30	
L2			1.5		1.5		2		3	
L3			45		45		63		80	
L4			50		50		70		90	
L5			55		55		76		97	
t2			22.5		22.5		33		43	
Weight kg			0.4		0.7		2		4.3	

1) Dimensions b, t depend on Ø d, refer to DIN 6885-1

2) For rising valve stem Ø d11 max. = Ø d5 of type A

3) Weight included in actuator

4) Dimensions neither complying with EN ISO 5210 nor with DIN 3338

5) Nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

6) For stem protection tube made of PMMA max. Tr 30 or ACME 1fi

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SA/SAR/SAV/SARV 07.2 – 16.2-UW

SAEx/SAREx/SAVEx/SARVEx 07.2 – 16.2-UW

Dimensions Output drives according to EN ISO 5210, DIN 3210

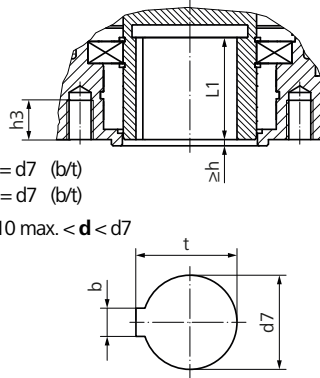
Bore with keyway

Type

EN ISO 5210 **B1** $d = d7$ (b/t)

DIN 3210 **B** $d = d7$ (b/t)

EN ISO 5210 **B2**¹⁾ $d10 \text{ max.} < d < d7$



For missing dimensions, refer to actuator

SA.../SAR...	07.2/07.6		10.2	14.2/14.6	16.2
EN ISO 5210	F07	F10	F10	F14	F16
Ø d7 H9	28	42	42	60	80
b JS9	8	12	12	18	22
t	31.3	45.3	45.3	64.4	85.4
Ø d10 max.	20	30	30	45	60
h3	12	15	15	25	30
L1	35	45	45	65	80

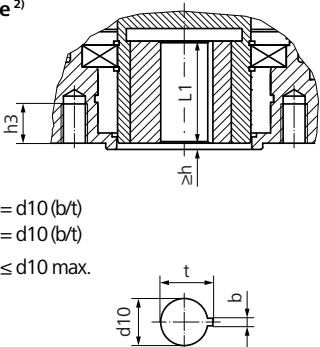
Output drive sleeve²⁾

Type

EN ISO 5210 **B3** $d = d10$ (b/t)

DIN 3210 **E** $d = d10$ (b/t)

EN ISO 5210 **B4**¹⁾ $d \leq d10 \text{ max.}$



For missing dimensions, refer to actuator

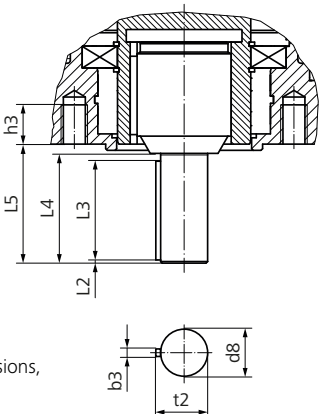
SA.../SAR...	07.2/07.6		10.2	14.2/14.6	16.2
EN ISO 5210	F07	F10	F10	F14	F16
Ø d10 H9	16	20	20	30	40
b JS9	5	6	6	8	12
t	18.3	22.8	22.8	33.3	43.3
Ø d10 max.	20	30	30	45	60
h3	12	15	15	25	30
L1	35	45	45	65	80

Shaft end

Type

EN ISO 5210 **D**

DIN 3210 **D**



For missing dimensions,
refer to actuator

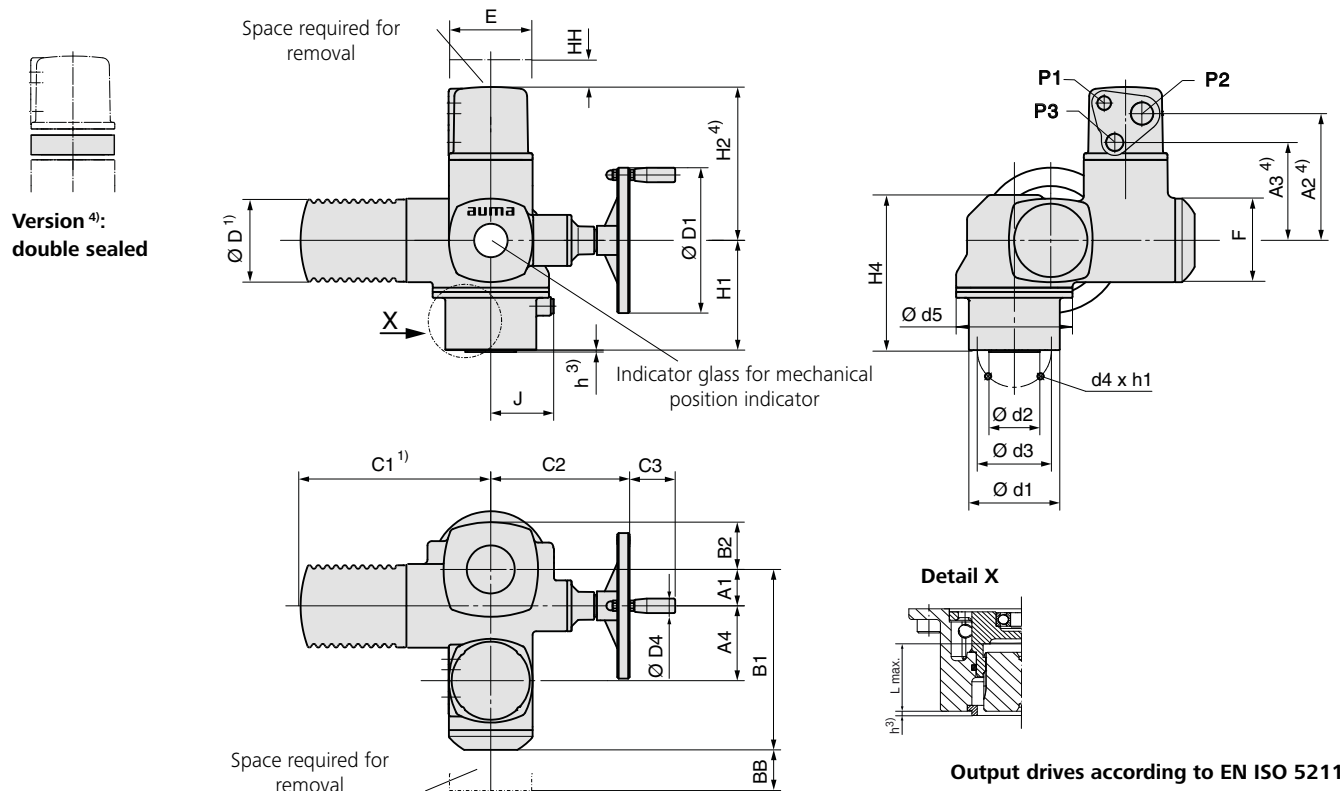
SA.../SAR...	07.2/07.6		10.2	14.2/14.6	16.2
EN ISO 5210	F07	F10	F10	F14	F16
Ø d8 g6	20		20	30	40
b3 h9	6		6	8	12
h3	12	15	15	25	30
L2	1.5		1.5	2	3
L3	45		45	63	80
L4	50		50	70	90
L5	55		55	76	97
t2	22.5		22.5	33	43
Weight kg	0.4		0.7	2	4.3

1) Dimensions b, t depend on Ø dy, refer to DIN 6885-1

2) Weight included in actuator

Dimensions Part-turn actuators

With AUMA plug/socket connector and 3-phase AC motor



Output drives according to EN ISO 5211
For dimensions see overleaf

1) Exact dimension depending on motor used

2) Standard, other threads on request

3) Allowance for spigot is not available as standard. The spigot ring is a separate component, available as option.

4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

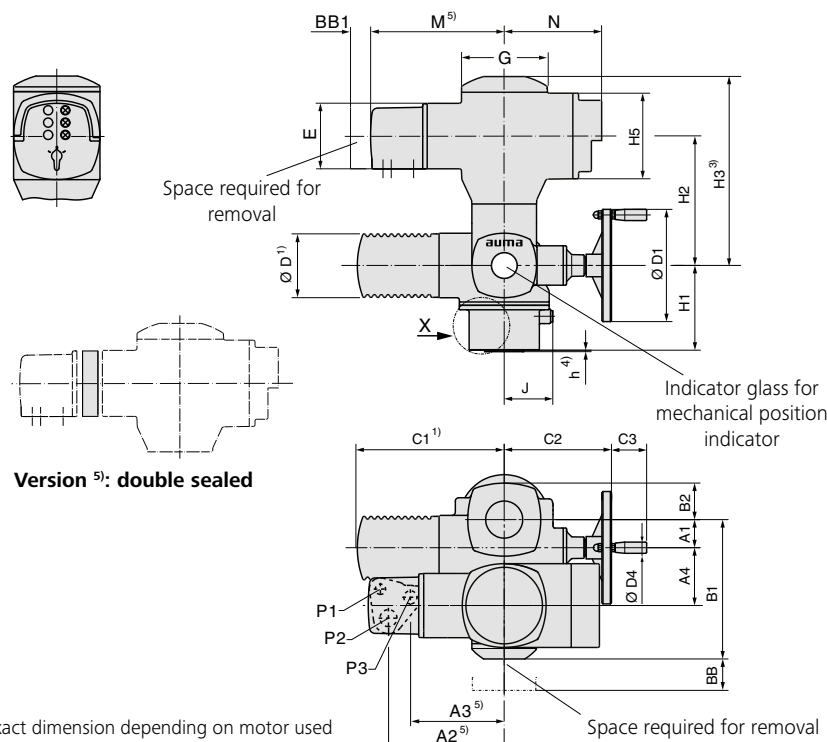
5) Combined flange F05/F07 without spigot (standa d). As an alternative an individual flange F07 can be ordered with/without spigot

Dimensions	SQ 05.2		SQ 07.2		SQ 10.2		SQ 12.2		SQ 14.2	
EN ISO 5211	F05 5)	F07 5)	F05 5)	F07 5)	F10	F10	F12	F12	F14	F16
A1		40				50		50		50
A2 4)		174 (201 4)				174 (201 4)		174 (201 4)		174 (201 4)
A3 4)		134 (161 4)				134 (161 4)		134 (161 4)		134 (161 4)
A4		103				103		103		103
B1		238				248		248		248
B2		50				65		65		65
C1 1)		265				265		265		265
C2		186				191		191		191
C3		63				63		63		63
Ø D 1)		101				101		101		101
Ø D1		160				200		200		200
Ø D4		20				20		20		20
E		115				115		115		115
F		115				115		115		115
H1	134		134		160	151	183	175	215	210 260
H2 4)		210 (237 4)				210 (237 4)		210 (237 4)		210 (237 4)
H4	193		193		217	214	246	238	278	273 323
J		69				86		109		128
L max.	40		40		66	50	82	61	101	75 125
P1 2)		M20 x 1.5				M20 x 1.5		M20 x 1.5		M20 x 1.5
P2 2)		M32 x 1.5				M32 x 1.5		M32 x 1.5		M32 x 1.5
P3 2)		M25 x 1.5				M25 x 1.5		M25 x 1.5		M25 x 1.5
BB min.		180				180		180		180
HH min.		30				30		30		30
Ø d1	90		90		125	125	150	150	175	175 210
Ø d2	–		–		70	70	85	85	100	100 130
Ø d3	50	70	50	70	102	102	125	125	140	140 165
d4	4 x M6	4 x M8	4 x M6	4 x M8	4 x M10	4 x M10	4 x M12	4 x M12	4 x M16	4 x M16 4 x M20
Ø d5		125				160		210		225
h 3)	–		–		2.5	2.5		2.5	3.5	3.5 4.5
h1	12	15	12	15	16	18	19	22	25	29 32

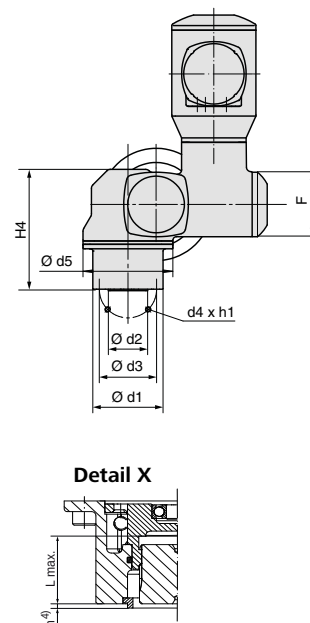
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Part-turn actuators with integral controls AUMA MATIC

With AUMA plug/socket connector and 3-phase AC motor



Version 5): double sealed

Output drives according to EN ISO 5211
For dimensions see overleaf

- 1) Exact dimension depending on motor used
- 2) Standard, other threads on request
- 3) Exact dimension depending on AM equipment
- 4) Allowance for spigot is not available as standard

The spigot ring is a separate component, available as option.

- 5) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

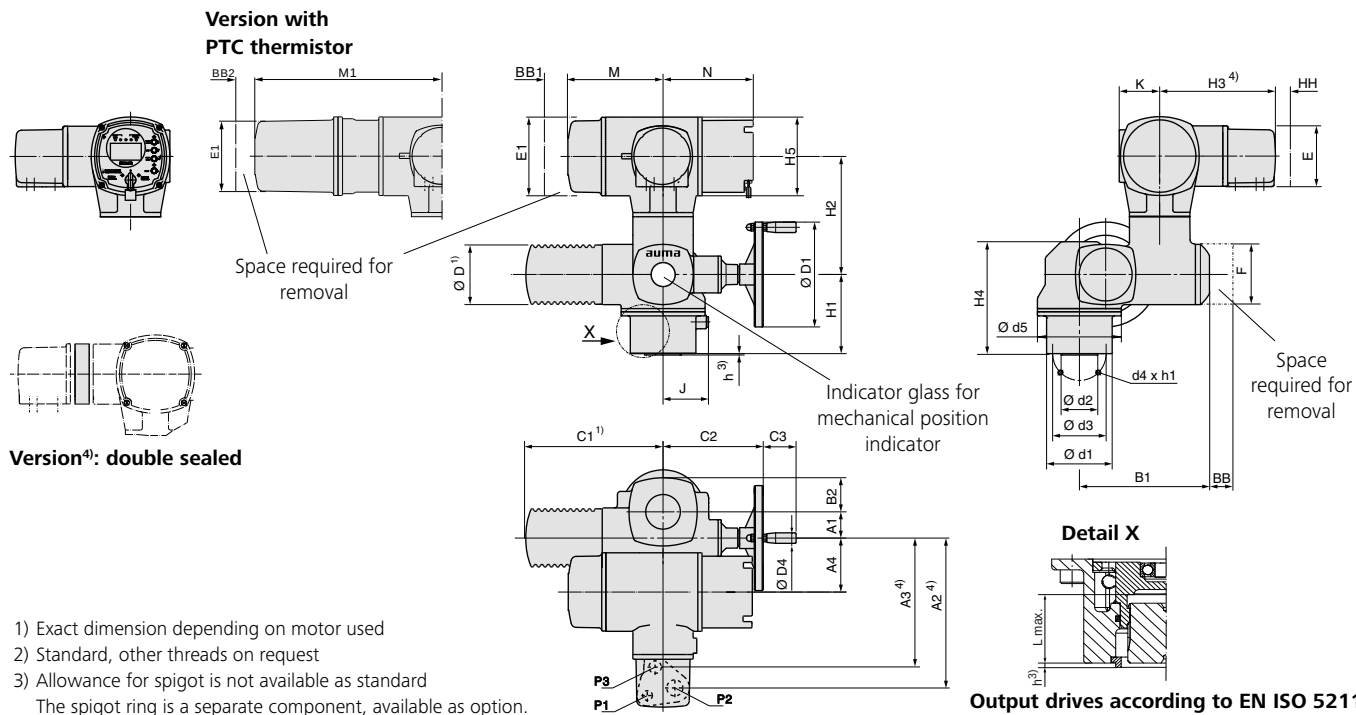
- 6) Combined flange F05/F07 without spigot (standa d). As an alternative an individual flange F07 can be ordered with/without spigot

Dimensions	SQ 05.2/AM 01.1		SQ 07.2/AM 01.1			SQ 10.2/AM 01.1		SQ 12.2/AM 01.1		SQ 14.2/AM 01.1	
EN ISO 5211	F05 ⁶⁾	F07 ⁶⁾	F05 ⁶⁾	F07 ⁶⁾	F10	F10	F12	F12	F14	F14	F16
A1	40					50		50		50	
A2 ⁵⁾	199 (226 ⁵⁾)					199 (226 ⁵⁾)		199 (226 ⁵⁾)		199 (226 ⁵⁾)	
A3 ⁵⁾	159 (186 ⁵⁾)					159 (186 ⁵⁾)		159 (186 ⁵⁾)		159 (186 ⁵⁾)	
A4	103					103		103		103	
B1	238					248		248		248	
B2	50					65		65		65	
C1 ¹⁾	265					265		265		265	
C2	186					191		191		191	
C3	63					63		63		63	
Ø D ¹⁾	101					101		101		101	
Ø D1	160					200		200		200	
Ø D4	20					20		20		20	
E	115					115		115		115	
F	115					115		115		115	
G	150					150		150		150	
H1	134		134		160	151	183	175	215	210	260
H2			232			232		232		232	
H3 ³⁾			337			337		337		337	
H4	193			193	217	214	246	238	278	273	323
H5			150			150		150		150	
J			69			86		109		128	
L max.	40			40	66	50	82	61	101	75	125
M ⁵⁾			235 (262 ⁵⁾)			235 (262 ⁵⁾)		235 (262 ⁵⁾)		235 (262 ⁵⁾)	
N			171			171		171		171	
P1 ²⁾			M20 x 1.5			M20 x 1.5		M20 x 1.5		M20 x 1.5	
P2 ²⁾			M32 x 1.5			M32 x 1.5		M32 x 1.5		M32 x 1.5	
P3 ²⁾			M25 x 1.5			M25 x 1.5		M25 x 1.5		M25 x 1.5	
BB min.			180			180		180		180	
BB1 min.			30			30		30		30	
Ø d1	90			90	125	125	150	150	175	175	210
Ø d2	—			—	70	70	85	85	100	100	130
Ø d3	50	70	50	70	102	102	125	125	140	140	165
d4	4 x M6	4 x M8	4 x M6	4 x M8	4 x M10	4 x M10	4 x M12	4 x M12	4 x M16	4 x M16	4 x M20
Ø d5	125					160		210		225	
h ⁴⁾	—		—		2.5	2.5		2.5	3.5	3.5	4.5
h1	12	15	15		16	18	19	22	25	29	32

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Dimensions Part-turn actuators with AC integral controls (also for HART)

With AUMA plug/socket connector and 3-phase AC motor



1) Exact dimension depending on motor used

2) Standard, other threads on request

3) Allowance for spigot is not available as standard

The spigot ring is a separate component, available as option.

4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

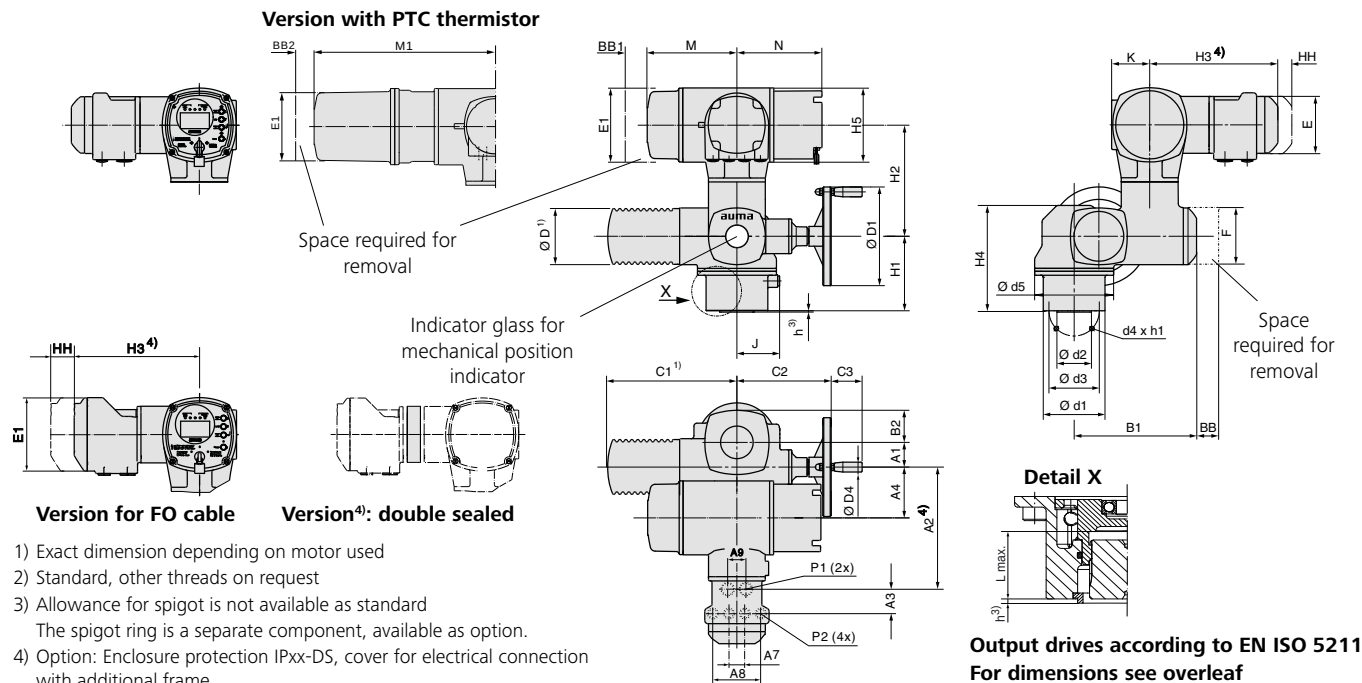
5) Combined flange F05/F07 without spigot (standa d). As an alternative an individual flange F07 can be ordered with/without spigot

Output drives according to EN ISO 5211
For dimensions see overleaf

Dimensions	SQ 05.2/AC 01.2		SQ 07.2/AC 01.2			SQ 10.2/AC 01.2		SQ 12.2/AC 01.2		SQ 14.2/AC 01.2	
EN ISO 5211	F05 ⁵⁾	F07 ⁵⁾	F05 ⁵⁾	F07 ⁵⁾	F10	F10	F12	F12	F14	F14	F16
A1		40					50		50		50
A2 ⁴⁾		287 (314 ⁴⁾)					287 (314 ⁴⁾)		287 (314 ⁴⁾)		287 (314 ⁴⁾)
A3 ⁴⁾		247 (274 ⁴⁾)					247 (274 ⁴⁾)		247 (274 ⁴⁾)		247 (274 ⁴⁾)
A4		103					103		103		103
B1		238					248		248		248
B2		50					65		65		65
C1 ¹⁾		265					265		265		265
C2		186					191		191		191
C3		63					63		63		63
Ø D ¹⁾		101					101		101		101
Ø D1		160					200		200		200
Ø D4		20					20		20		20
E		115					115		115		115
E1		150					150		150		150
F		115					115		115		115
H1	134		134		160	151	183	175	215	210	260
H2		225					225		225		225
H3 ⁴⁾		220 (247 ⁴⁾)					220 (247 ⁴⁾)		220 (247 ⁴⁾)		220 (247 ⁴⁾)
H4	193		193		217	214	246	238	278	273	323
H5		150					150		150		150
J		69					86		109		128
K		75					75		75		75
L max.	40		40		66	50	82	61	101	75	125
M		265					265		265		265
M1		349					349		349		349
N		173					173		173		173
P1 ²⁾		M20 x 1.5					M20 x 1.5		M20 x 1.5		M20 x 1.5
P2 ²⁾		M32 x 1.5					M32 x 1.5		M32 x 1.5		M32 x 1.5
P3 ²⁾		M25 x 1.5					M25 x 1.5		M25 x 1.5		M25 x 1.5
BB min.		180					180		180		180
BB1 min.		70					70		70		70
BB2 min.		90					90		90		90
HH min.		30					30		30		30
Ø d1	90		90		125	125	150	150	175	175	210
Ø d2	—		—		70	70	85	85	100	100	130
Ø d3	50	70	50	70	102	102	125	125	140	140	165
d4	4 x M6	4 x M8	4 x M6	4 x M8	4 x M10	4 x M10	4 x M12	4 x M12	4 x M16	4 x M16	4 x M20
Ø d5		125					160		210		225
h ³⁾	—		—		2.5		2.5	2.5	3.5	3.5	4.5
h1	12	15	15		16	18	19	22	25	29	32

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With AUMA plug/socket connector and 3-phase AC motor



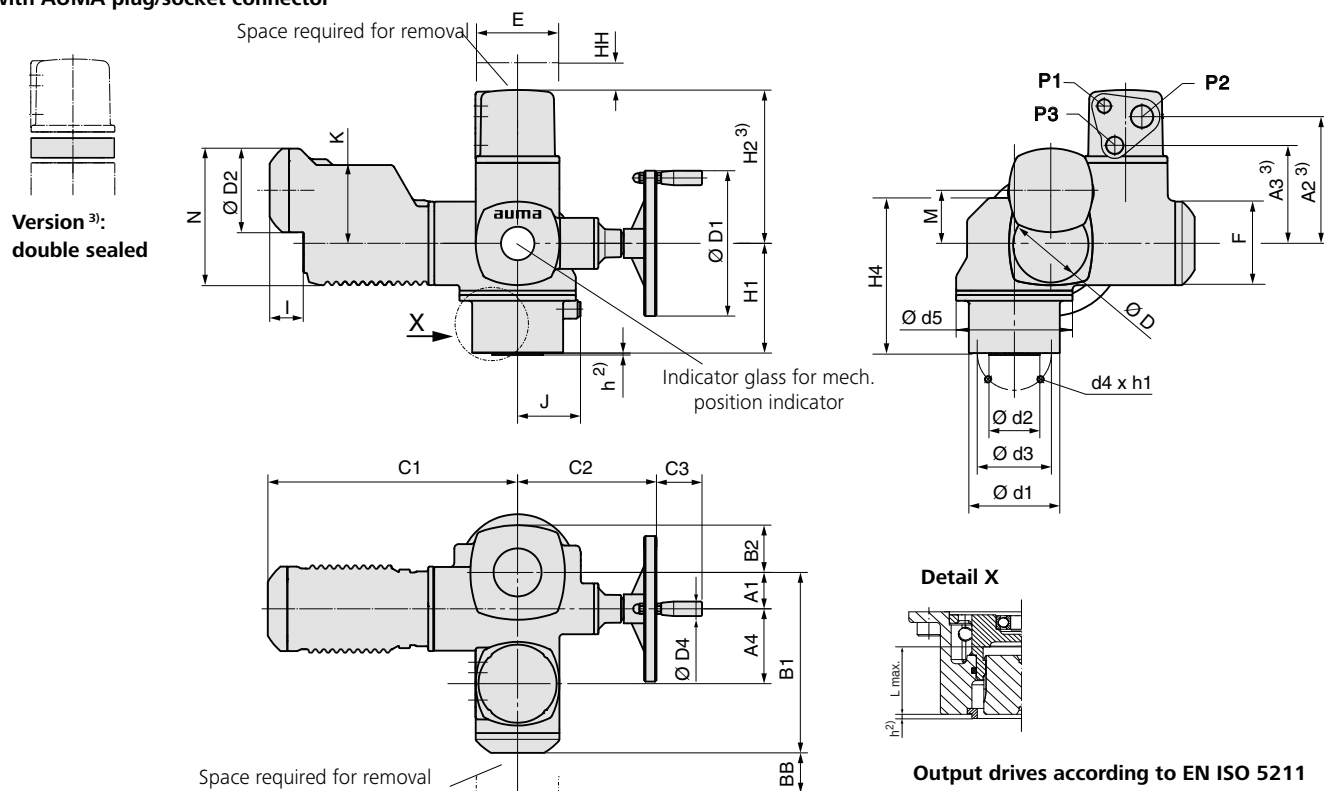
- 1) Exact dimension depending on motor used
- 2) Standard, other threads on request
- 3) Allowance for spigot is not available as standard
The spigot ring is a separate component, available as option.
- 4) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame
- 5) Combined flange F05/F07 without spigot (standa d). As an alternative an individual flange F07 can be ordered with/without spigot

Dimensions	SQ 05.2/AC 01.2			SQ 07.2/AC 01.2			SQ 10.2/AC 01.2			SQ 12.2/AC 01.2			SQ 14.2/AC 01.2		
EN ISO 5211	F05 ⁵⁾	F07 ⁵⁾		F05 ⁵⁾	F07 ⁵⁾	F10	F10	F12		F12	F14		F14	F16	
A1			40					50			50				50
A2 ⁴⁾			251 (278 ⁴⁾)					251 (278 ⁴⁾)			251 (278 ⁴⁾)				251 (278 ⁴⁾)
A3			48					48			48				48
A4			103					103			103				103
A7			32					32			32				32
A8			96					96			96				96
A9			35					35			35				35
B1			238					248			248				248
B2			50					65			65				65
C1 ¹⁾			265					265			265				265
C2			186					191			191				191
C3			63					63			63				63
Ø D ¹⁾			101					101			101				101
Ø D1			160					200			200				200
Ø D4			20					20			20				20
E			115					115			115				115
E1			150					150			150				150
F			115					115			115				115
H1		134		134		160	151	183		175	215		210	260	
H2			225					225			225				225
H3 ⁴⁾			257 (284 ⁴⁾)					257 (284 ⁴⁾)			257 (284 ⁴⁾)				257 (284 ⁴⁾)
H4		193		193		217	214	246		238	278		273	323	
H5			150					150			150				150
J			69					86			109				128
K			75					75			75				75
L max.		40		40		66	50	82		61	101		75	125	
M			265					265			265				265
M1			349					349			349				349
N			173					173			173				173
P1 ²⁾			2x M25 x 1,5					2x M25 x 1,5			2x M25 x 1,5				2x M25 x 1,5
P2 ²⁾			4x M20 x 1,5					4x M20 x 1,5			4x M20 x 1,5				4x M20 x 1,5
BB min.			180					180			180				180
BB1 min.			70					70			70				70
BB2 min.			90					90			90				90
HH min.			30					30			30				30
Ø d1		90		90		125	125	150		150	175		175	210	
Ø d2		—		—		70	70	85		85	100		100	130	
Ø d3		50	70	50	70	102	102	125		125	140		140	165	
d4		4 x M6	4 x M8	4 x M6	4 x M8	4 x M10	4 x M10	4 x M12		4 x M12	4 x M16		4 x M16	4 x M20	
Ø d5			125					160			210			225	
h ³⁾		—		—		2.5	2.5			2.5	3.5		3.5	4.5	
h1		12	15	12	15	16	18	19		22	25		29	32	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Part-turn actuators with 1-ph AC motor

with AUMA plug/socket connector



1) Standard, other threads on request

2) Allowance for spigot is not available as standard The spigot ring is a separate component, available as option.

3) Option: Enclosure protection IPxx-DS, cover for electrical connection with additional frame

4) Combined flange F05/F07 without spigot (standa d). As an alternative an individual flange F07 can be ordered with/without spigot

Dimensions	SQ 05.2		SQ 07.2		SQ 10.2		SQ 12.2		SQ 14.2		
EN ISO 5211	F05 ⁴⁾	F07 ⁴⁾	F05 ⁴⁾	F07 ⁴⁾	F10	F10	F12	F12	F14	F14	F16
A1	40				50		50		50		
A2 ³⁾	174 (201 ³⁾)				174 (201 ³⁾)		174 (201 ³⁾)		174 (201 ³⁾)		
A3 ³⁾	134 (161 ³⁾)				134 (161 ³⁾)		134 (161 ³⁾)		134 (161 ³⁾)		
A4	103				103		103		103		
B1	238				248		248		248		
B2	50				65		65		65		
C1	343				343		343		343		
C2	186				191		191		191		
C3	63				63		63		63		
Ø D	107				107		107		107		
Ø D1	160				200		200		200		
Ø D2	115				115		115		115		
Ø D4	20				20		20		20		
E	115				115		115		115		
F	115				115		115		115		
H1	134		134		160	151	183	175	215	210	260
H2 ³⁾	210 (237 ³⁾)				210 (237 ³⁾)		210 (237 ³⁾)		210 (237 ³⁾)		
H4	193		193		217	214	246	238	278	273	323
I	46				46		46		46		
J	69				86		109		128		
K	108				108		108		108		
L max.	40		40		66	50	82	61	101	75	125
M	73				73		73		73		
N	188				188		188		188		
P1 ¹⁾	M20 x 1.5				M20 x 1.5		M20 x 1.5		M20 x 1.5		
P2 ¹⁾	M32 x 1.5				M32 x 1.5		M32 x 1.5		M32 x 1.5		
P3 ¹⁾	M25 x 1.5				M25 x 1.5		M25 x 1.5		M25 x 1.5		
BB min.	180				180		180		180		
HH min.	30				30		30		30		
Ø d1	90		90		125	125	150	150	175	175	210
Ø d2	—		—		70	70	85	85	100	100	130
Ø d3	50	70	50	70	102	102	125	125	140	140	165
d4	4 x M6	4 x M8	4 x M6	4 x M8	4 x M10	4 x M10	4 x M12	4 x M12	4 x M16	4 x M16	4 x M20
Ø d5	125				160		210		225		
h ²⁾	—		—		2.5	2.5		2.5	3.5	3.5	4.5
h1	12	15	12	15	16	18	19	22	25	29	32

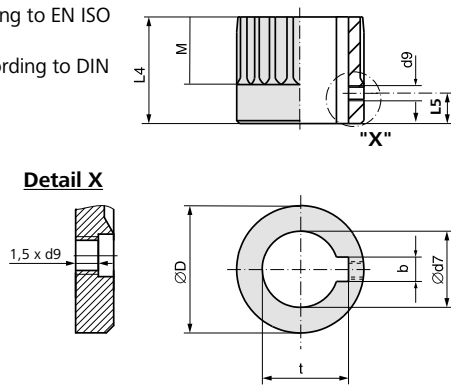
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

SQ/SQR 05.2 – 14.2

SQEx/SQREx 05.2 – 14.2

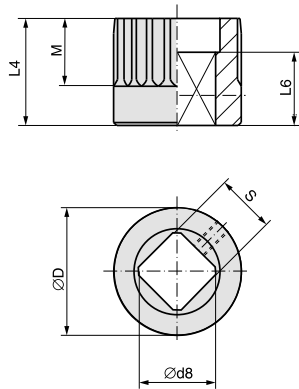
Dimensions Couplings according to EN ISO 5211

Bore according to EN ISO 5211 with keyway according to DIN 6885-1



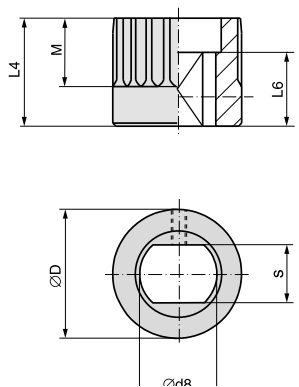
SQ../SQR..	05.2		07.2		10.2		12.2		14.2	
EN ISO 5211	F05	F07	F07	F10	F10	F12	F12	F14	F14	F16
Ø D	41.75		41.75		51.75		67.6		81.6	
b JS9 ¹⁾	6		6		8		10		14	
Ø d7 H8 ²⁾	18		22		28		36		48	
Ø d7 max.	25.4		25.4		38		50		60	
d9 ³⁾	M5		M5		M6		M6		M6	
L4	35		35		45		55		65	
L5 ³⁾	8		8		10		10		10	
M	20		20		30		40		47	
t ¹⁾	20.8		24.8		31.3		39.3		51.8	

Square bore according to EN ISO 5211



SQ../SQR..	05.2		07.2		10.2		12.2		14.2	
EN ISO 5211	F05	F07	F07	F10	F10	F12	F12	F14	F14	F16
Ø D	41.75		41.75		51.75		67.6		81.6	
Ø d8 min. ²⁾	18.1		22.2		28.2		36.2		48.2	
Ø d8 max.	28.2		28.2		40.2 ⁴⁾		48.2		60.2	
L4	35		35		45		55		65	
L6 min.	30		30		30		30		40	
M	20		20		30		40		47	
s H11 ²⁾	14		17		22		27		36	
s H11 max.	22		22		30 ⁴⁾		36		46	

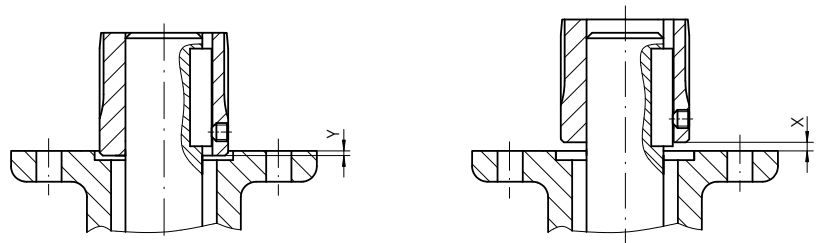
Two-flat according to EN ISO 5211



SQ../SQR..	05.2		07.2		10.2		12.2		14.2	
EN ISO 5211	F05	F07	F07	F10	F10	F12	F12	F14	F14	F16
Ø D	41.75		41.75		51.75		67.6		81.6	
Ø d8 min. ²⁾	18.1		22.2		28.2		36.2		48.2	
Ø d8 max.	28.2		28.2		36.2		48.2 (48 ⁵⁾)		60.2	
L4	35		35		45		55		65	
L6 min.	25		25		25		30		40	
M	20		20		30		40		47	
s H11 ²⁾	14		17		22		27		36	
s H11 max.	22		22		27		36 (41 ⁵⁾)		46	

Mounting position of the coupling within fitting dimensions according to AUMA definition

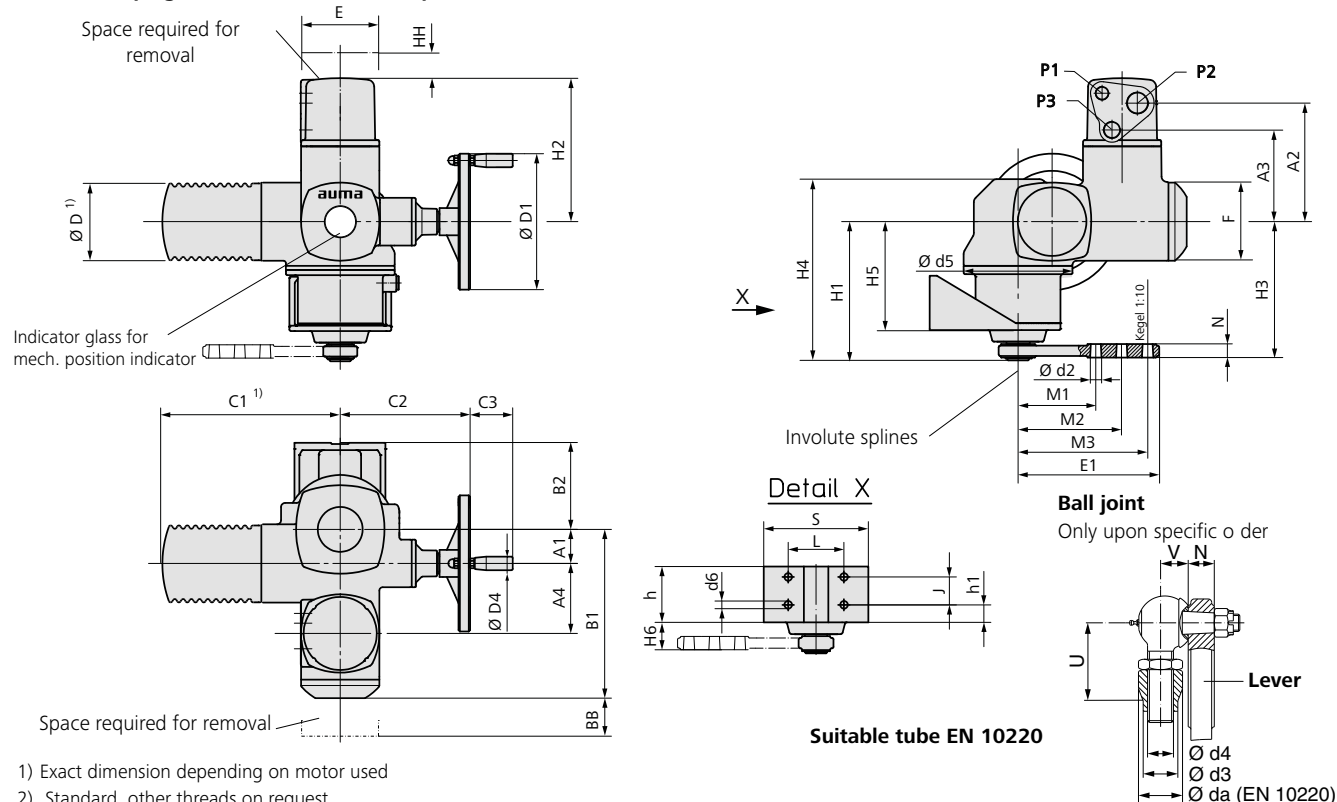
X max.	3		4		5		8	
Y max.	2		5		10		10	



- 1) Dimensions depend on Ø d7, refer to DIN 6885-1
- 2) Recommended size according to EN ISO 5211
- 3) Thread with grub screw
- 4) According to DIN 79
- 5) According to DIN 475

Dimensions SQ part-turn actuators with base and lever

With AUMA plug/socket connector and 3-phase AC motor



1) Exact dimension depending on motor used

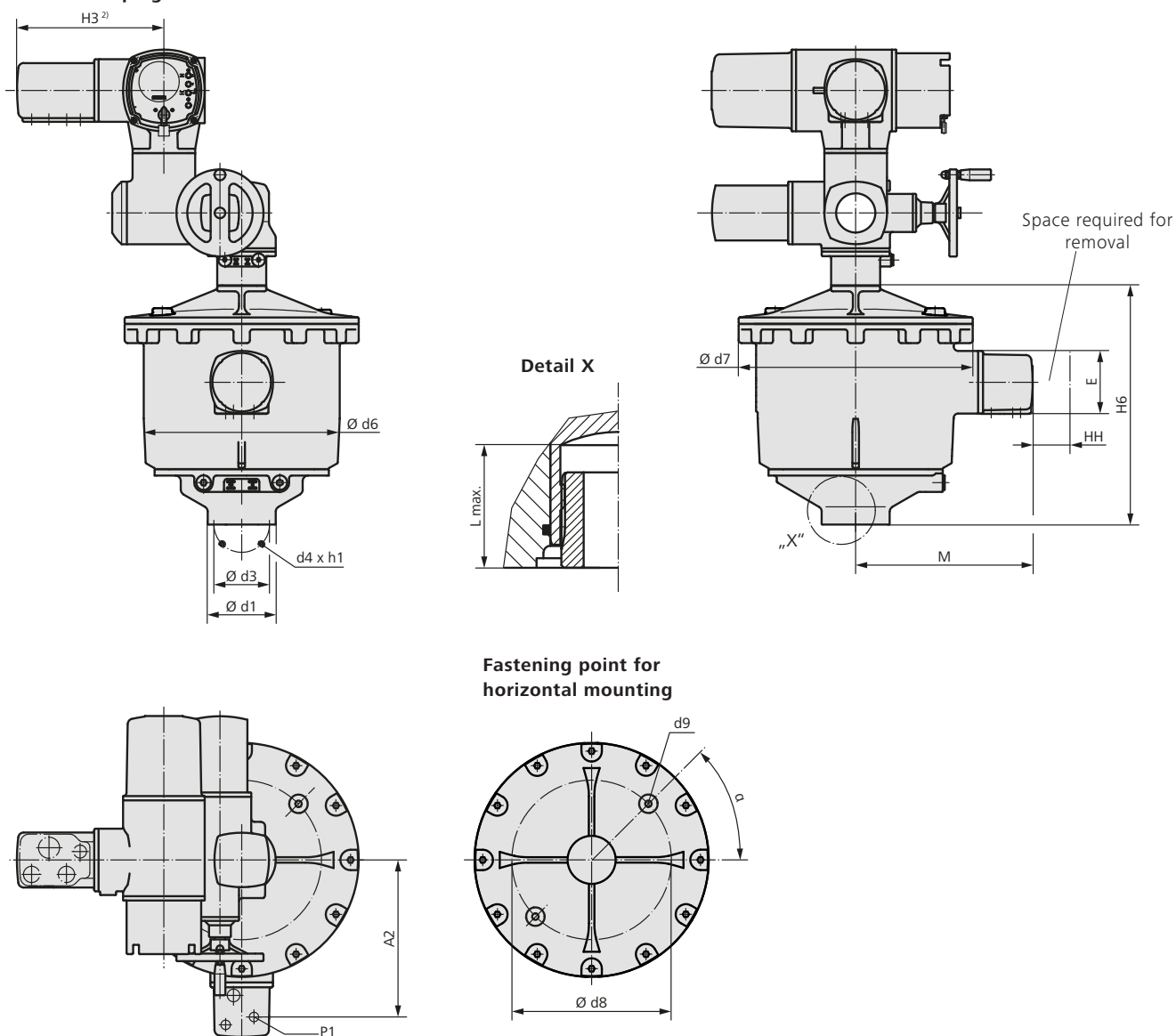
2) Standard, other threads on request

Dimensions	SQ 05.2	SQ 07.2	SQ 10.2	SQ 12.2	SQ 14.2
A1	40		50	50	50
A2	174		174	174	174
A3	134		134	134	134
A4	103		103	103	103
B1	238		248	248	248
B2	110		130	170	180
C1 ¹⁾	265		265	265	265
C2	186		191	191	191
C3	63		63	63	63
Ø D ¹⁾	101		101	101	101
Ø D1	160		200	200	200
Ø D4	20		20	20	20
E	115		115	115	115
E1	218		218	273	273
F	115		115	115	115
H1	214		206	239	281
H2	210		210	210	210
H3	210		201	233	275
H4	273		269	302	344
H5	170		161	188	225
H6	40		40	45	50
J	40		40	45	50
M1	150		150	150	150
M2	200		200	200	200
M3	–		–	250	250
N h11	20		20	26	26
P1 ²⁾	M20 x 1.5		M20 x 1.5	M20 x 1.5	M20 x 1.5
P2 ²⁾	M32 x 1.5		M32 x 1.5	M32 x 1.5	M32 x 1.5
P3 ²⁾	M25 x 1.5		M25 x 1.5	M25 x 1.5	M25 x 1.5
S	150		150	190	225
L	80		80	110	110
U	58		58	75	75
V	23		23	28	28
BB min.	180		180	180	180
HH min.	30		30	30	30
Ø d2 H8	16		16	22	22
Ø d3	27		27	34	34
Ø d4	M16 x 1.5		M16 x 1.5	M28 x 1,5	M28 x 1,5
Ø d5	125		160	210	225
Ø d6	11		11	14	18
Ø da	33.7 x 3.2		33.7 x 3.2	42.4 x 4	42.4 x 4
h	80		80	90	100
h1	25		25	30	35

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

FQM 05.1 – FQM 12.1
SQ 05.2 – SQ 12.2 with AC 01.2
Dimensions Fail safe unit

with AUMA plug/socket connector



1) Flange for mounting part-turn actuator

2) Electrical connection with elevated terminal compartment. Exact dimension depending on electrical connection used

3) Combined flange F07/F1

For all other dimensions, please refer to "Dimensions Part-turn actuators"

Output drives acc. to EN ISO 5211
For dimensions see overleaf

Dimensions	FQM 05.1/FQM 07.1		FQM 10.1		FQM 12.1	
Part-turn actuator	SQ 05.2/SQ 07.2		SQ 10.2		SQ 12.2	
EN ISO 5211	F07 ³⁾	F10 ³⁾	F10	F12	F12	F14
A2	289		304		304	
E	115		115		115	
H3 ²⁾	270		270		270	
H6	439		606	566	566	606
HH min.	30		30		30	
M	325		340		340	
L max.	45		100	60	60	100
P1	M20 x 1.5		M20 x 1.5		M20 x 1.5	
Ø d1	125	125	125	150	150	175
Ø d3	70	102	102	125	125	140
d4	4 x M8	4 x M10	4 x M10	4 x M12	4 x M12	4 x M16
Ø d6	360		474		474	
Ø d7	430		550		550	
Ø d8	260		350		350	
d9	M10		M12		M12	
h1	15	16	18	21	21	25
α	45°		45°		45°	
EN ISO 5211 ¹⁾	F07		F12		F12	

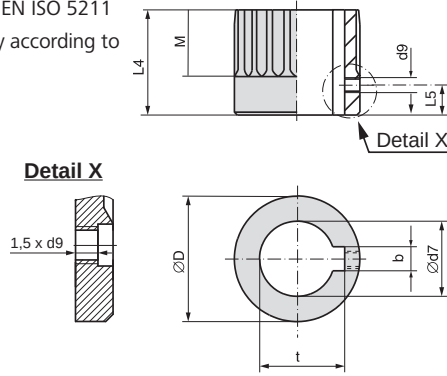
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

FQM 05.1 – FQM 12.1

SQ 05.2 – SQ 12.2 with AC 01.2

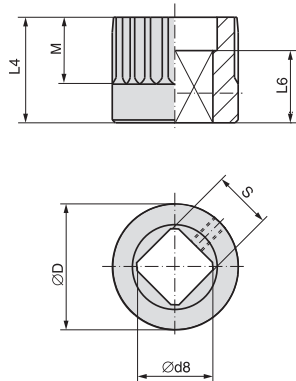
Dimensions Couplings according to EN ISO 5211

Bore acc. to EN ISO 5211
With keyway according to
DIN 6885-1



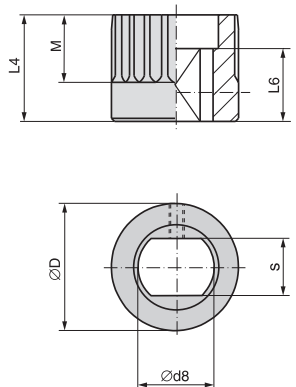
Dimensions	FQM 05.1/FQM 07.1		FQM 10.1		FQM 12.1	
EN ISO 5211	F07	F10	F10	F12	F12	F14
Ø D	41.75		67.6		67.6	
b JS9 ¹⁾	6		10		10	
Ø d7 H8 ²⁾	22		36		36	
Ø d7 max.	25.4		50		50	
d9 ³⁾	M5		M6		M6	
L4	35		95	55	55	95
L5 ³⁾	8		10		10	
M	20		40		40	
t ¹⁾	24.8		39.3		39.3	

Square bore
According to EN ISO 5211



Dimensions	FQM 05.1/FQM 07.1		FQM 10.1		FQM 12.1	
EN ISO 5211	F07	F10	F10	F12	F12	F14
Ø D	41.75		67.6		67.6	
Ø d8 min. ²⁾	22.2		36.2		36.2	
Ø d8 max.	28.2		48.2		48.2	
L4	35		95	55	55	95
L6 min.	30		30		30	
M	20		40		40	
s H11 ²⁾	17		27		27	
s H11 max.	22		36		36	

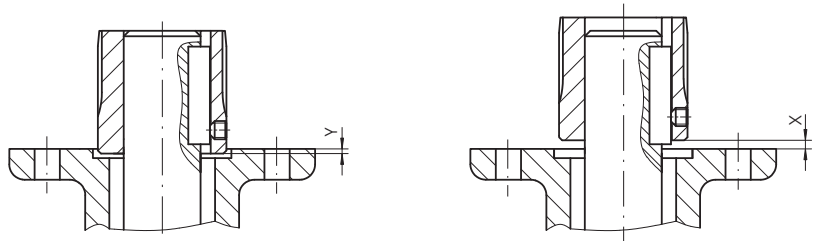
Bore with two-flats
According to EN ISO 5211



Dimensions	FQM 05.1/FQM 07.1		FQM 10.1		FQM 12.1	
EN ISO 5211	F07	F10	F10	F12	F12	F14
Ø D	41.75		67.6		67.6	
Ø d8 min. ²⁾	22.2		36.2		36.2	
Ø d8 max.	28.2		48.2 (48 ⁴⁾)		48.2 (48 ⁴⁾)	
L4	35		95	55	55	95
L6 min.	25		30		30	
M	20		40		40	
s H11 ²⁾	17		27		27	
s H11 max.	22		36 (41 ⁴⁾)		36 (41 ⁴⁾)	

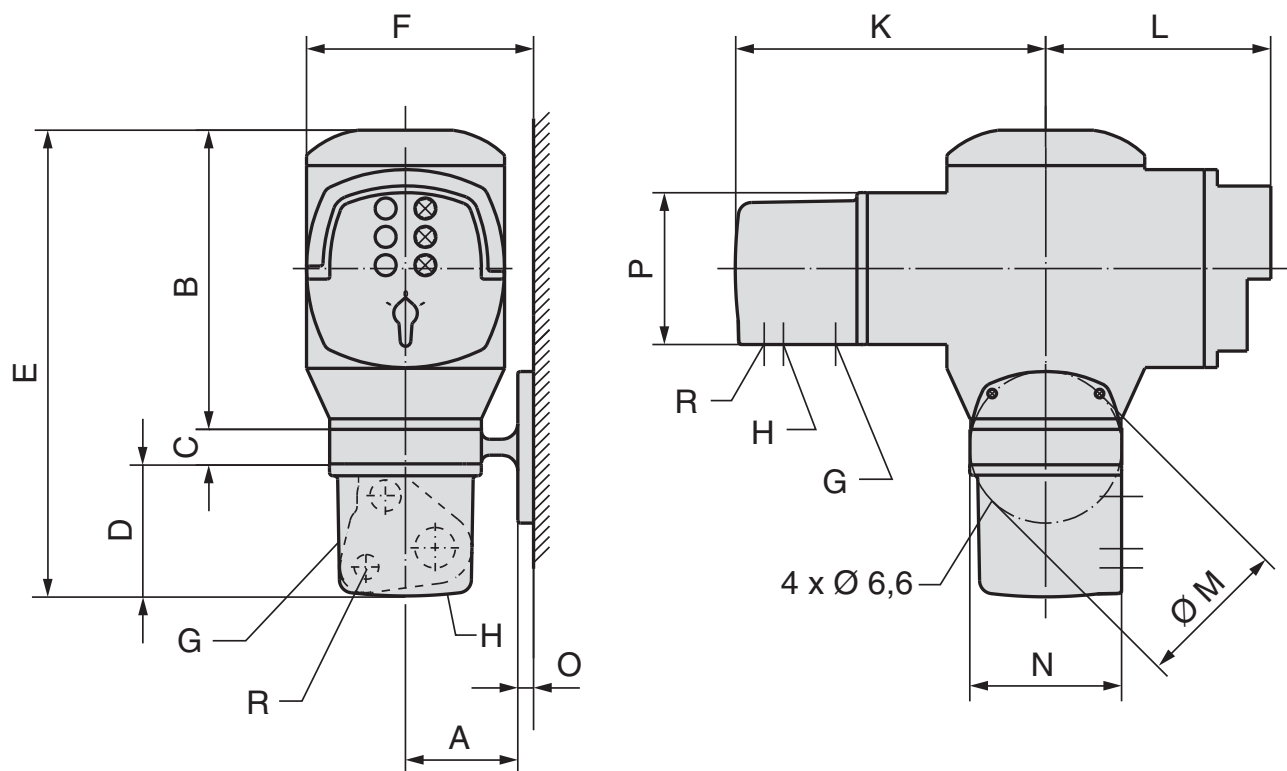
Mounting position of coupling

X max.	5	6	6
Y max.	5	10	10



- 1) Dimensions depend on Ø d7, refer to DIN 6885-1
- 2) Recommended size according to EN ISO 5211
- 3) Thread with grub screw
- 4) According to DIN 475

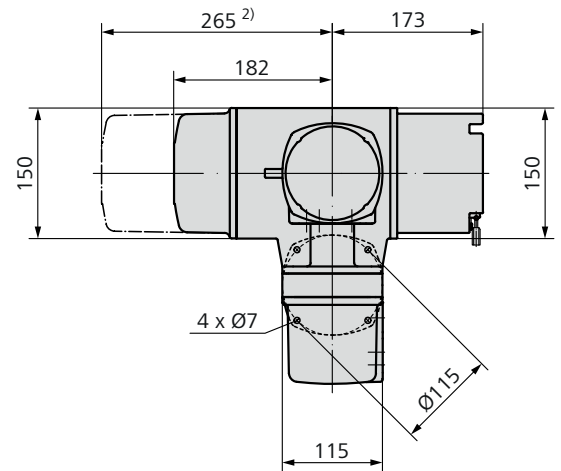
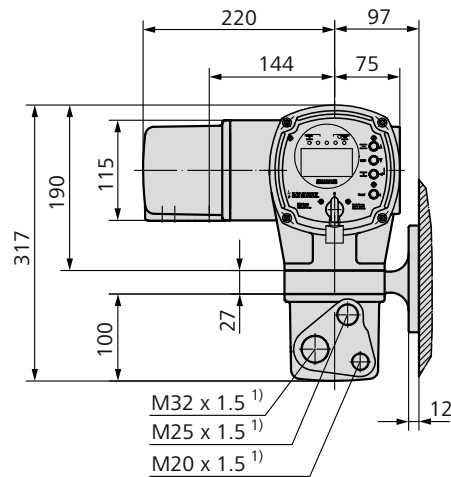
Dimensions AM 01.1/AM 02.1 wall bracket



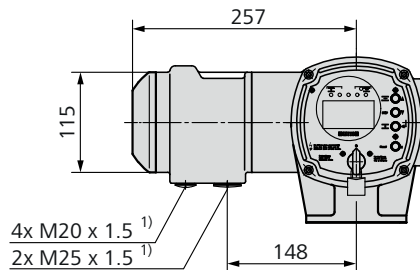
Dimensions	AM 01.1	AM 02.1
A	97	
B	227	282
C	27	
D	100	
E	354	409
F	172	
G	M25 x 1.5	
H	M32 x 1.5	
K	235	
L	171	
M	115	
N	115	
O	12	
P	115	
R	M20 x 1.5	
Weight [kg]	7.5	9

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

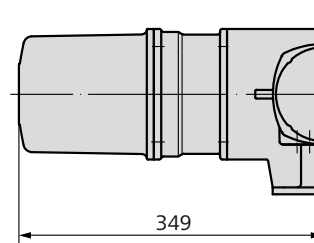
Dimensions AC 01.2 wall bracket



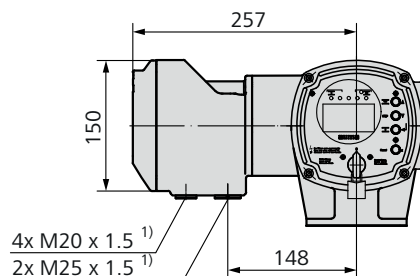
Version with f eldbus



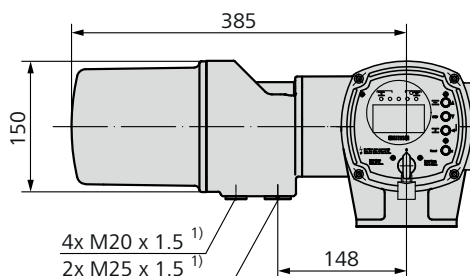
Version with thermal overload relay



Version with f eldbus FOC



Version with Modbus TCP/IP



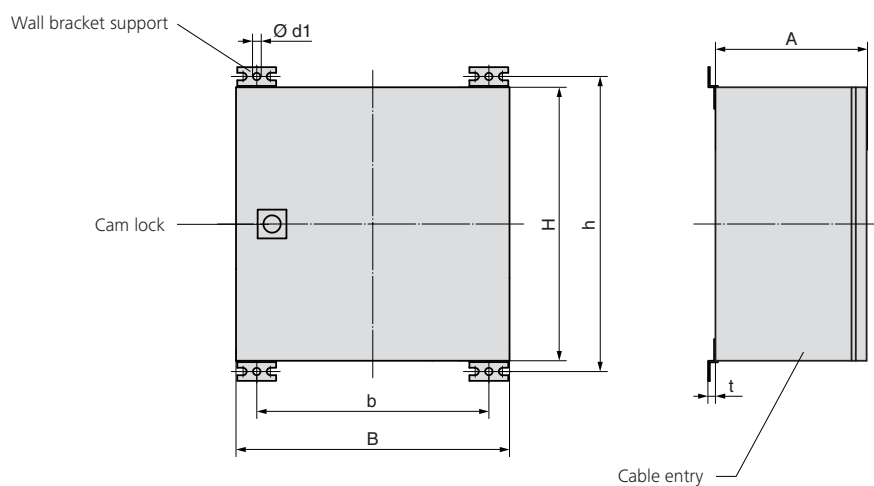
1) Thread for steel conduit subject to explicit order.

2) High housing cover only in combination with the options:

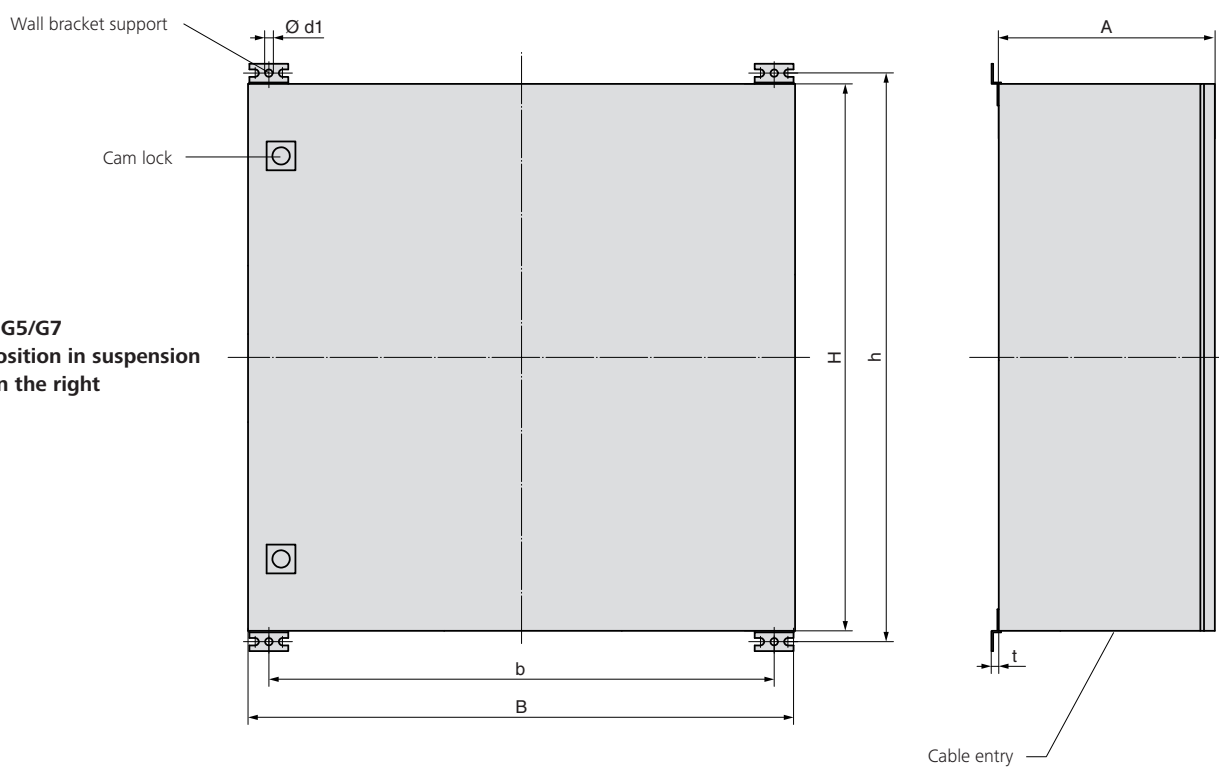
- Switch gear A3
- Low temperature version with heating system
- DC versions 24 V DC to 220 V DC
- Mains voltage tolerance -30 %
- Auxiliary voltage output 115 V AC

Dimensions Control box

Control box G3
Mounting position in suspension
Door stop on the right



Control box G5/G7
Mounting position in suspension
Door stop on the right



Dimensions	G3	G5	G7
A	210	210	300
B	380	500	760
H	380	500	760
b	322	442	702
$\varnothing d1$	4 x 10.2	4 x 10.2	4 x 10.2
h	410	530	790
t	10	10	10

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical connection Standard S and elevated terminal compartment SH

SA 07.2 – SA16.2/SAR 07.2 – SAR 16.2

SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2

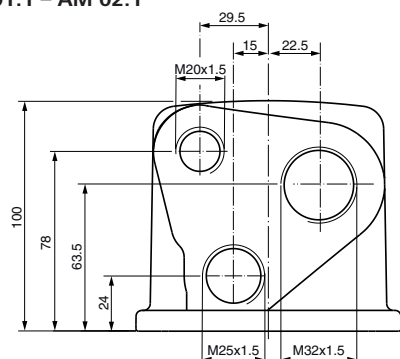
SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1

SG 05.1 – SG 12.1/SGR 05.1 – SGR 12.1

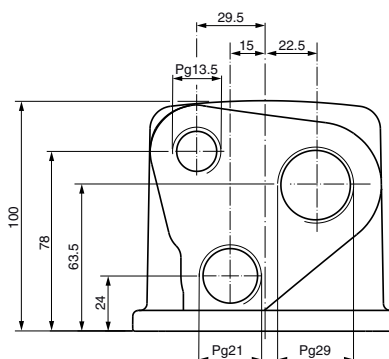
AC 01.2

AC 01.1

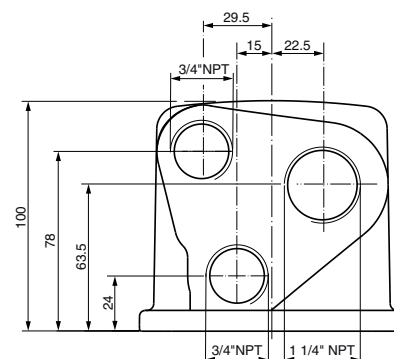
AM 01.1 – AM 02.1



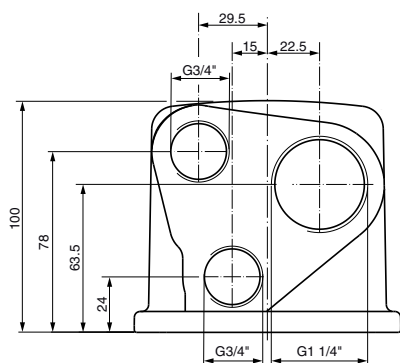
S0-105



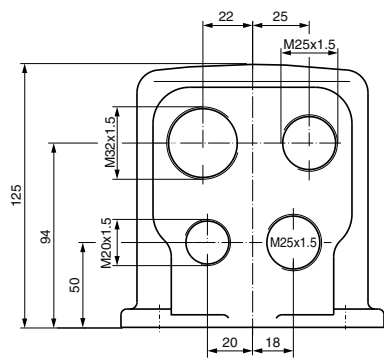
S0-003



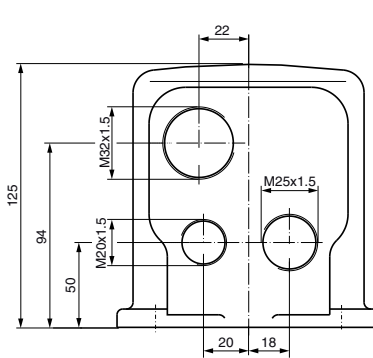
S0-080



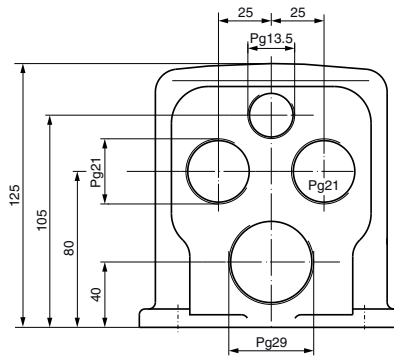
S0-179



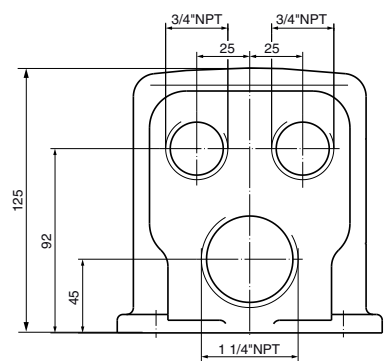
SH-148



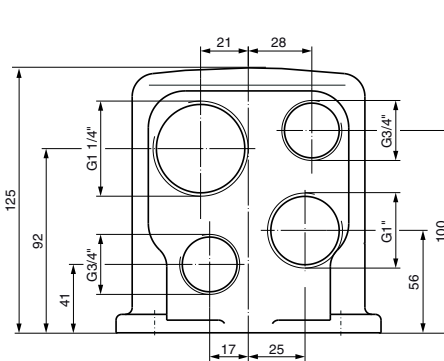
SH-105



SH-026



SH-080



SH-178

Note: AUMA order codes S0 and SH

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical connection with enlarged terminal compartment

SA 07.2 – SA16.2/SAR 07.2 – SAR 16.2

SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2

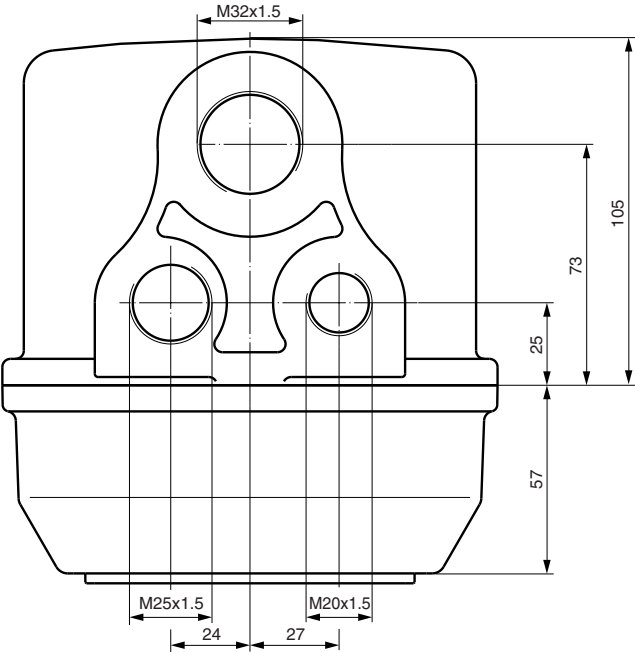
SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1

SG 05.1 – SG 12.1/SGR 05.1 – SGR 12.1

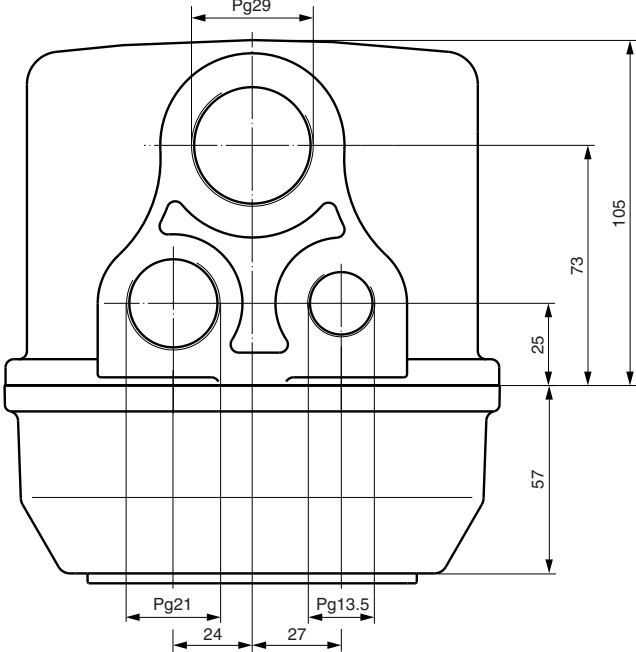
AC 01.2

AC 01.1

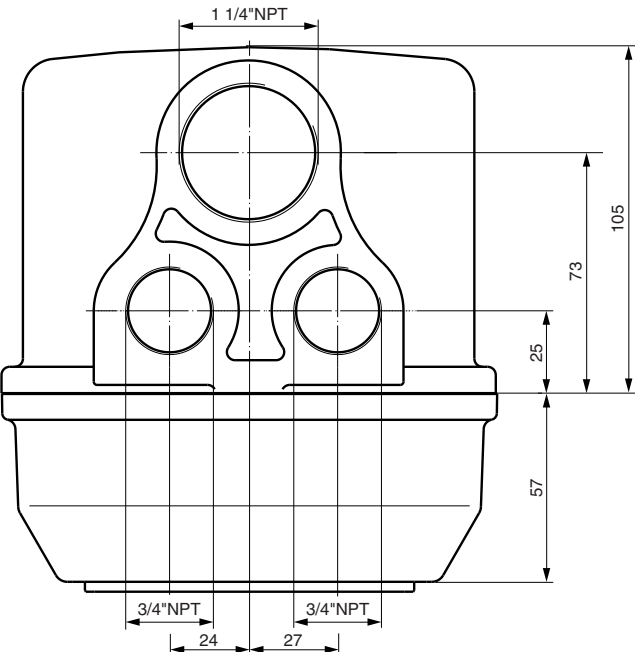
AM 01.1 – AM 02.1



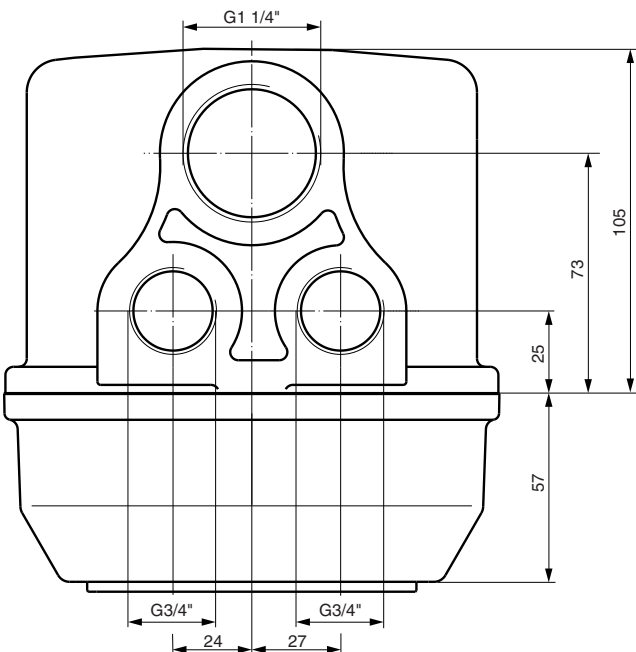
SE-105



SE-003



SE-080



SE-179

Note: AUMA order code SE, further drilling templates on request

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical connection with elevated terminal compartment SB/KB

SA 07.2 – SA16.2/SAR 07.2 – SAR 16.2

SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2

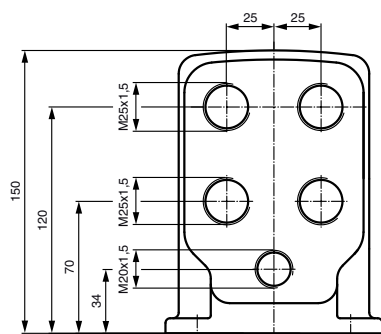
SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1

SG 05.1 – SG 12.1/SGR 05.1 – SGR 12.1

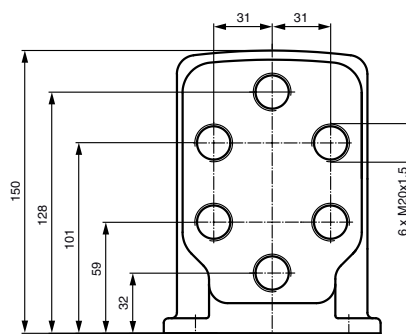
AC 01.2

AC 01.1

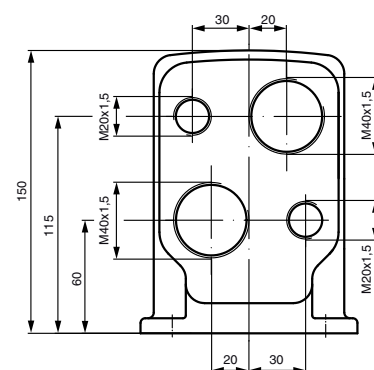
AM 01.1 – AM 02.1



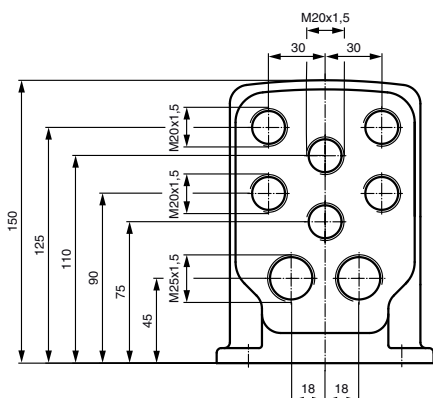
SB-188
KB-188



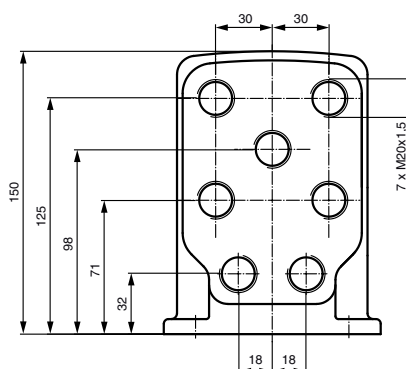
SB-209
KB-209



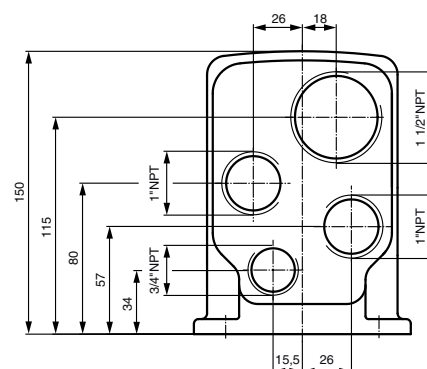
SB-237
KB-237



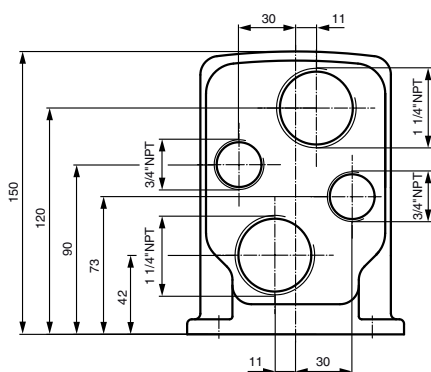
SB-247
KB-247



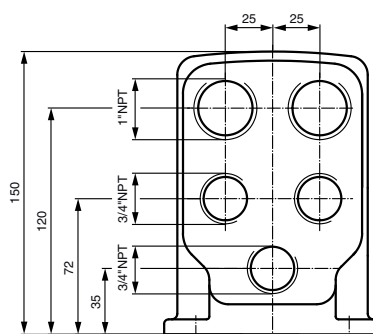
SB-253
KB-253



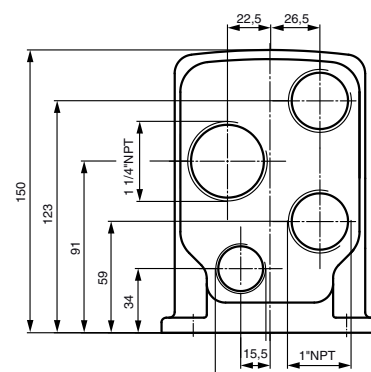
SB-113
KB-113



SB-138
KB-138



SB-224
KB-224



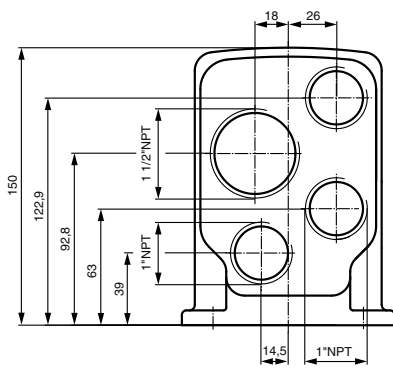
SB-227
KB-227

Note: AUMA order code SB/KB

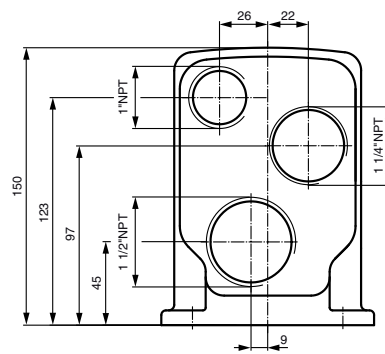
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Electrical connection with elevated terminal compartment SB/KB

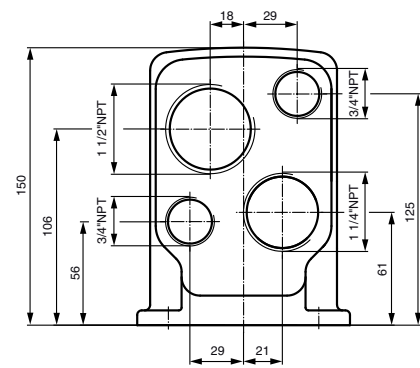
SA 07.2 – SA16.2/SAR 07.2 – SAR 16.2
 SQ 05.2 – SQ 14.2/SQR 05.2 – SQR 14.2
 SA 07.1 – SA 16.1/SAR 07.1 – SAR 16.1
 SG 05.1 – SG 12.1/SGR 05.1 – SGR 12.1
 AC 01.2
 AC 01.1
 AM 01.1 – AM 02.1



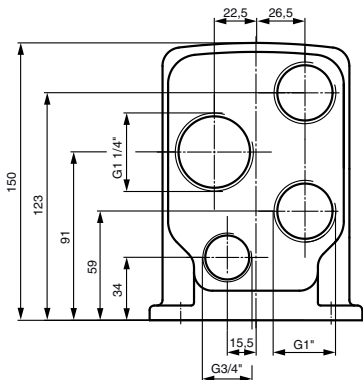
SB-248
KB-248



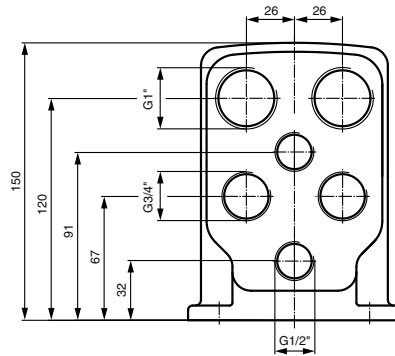
SB-262
KB-262



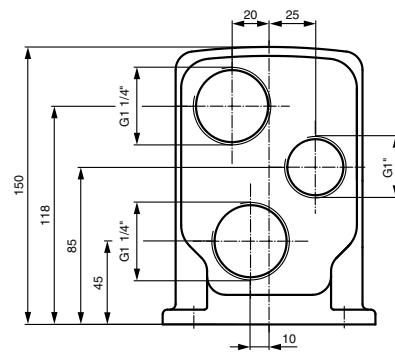
SB-279
KB-279



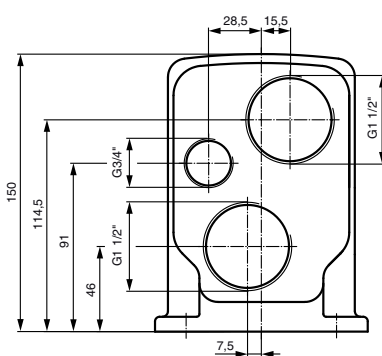
SB-228
KB-228



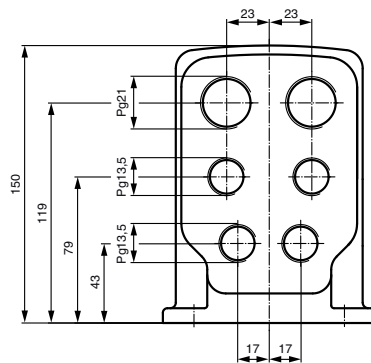
SB-254
KB-254



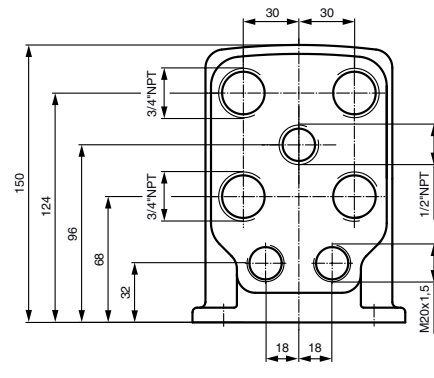
SB-261
KB-261



SB-281
KB-281



SB-102
KB-102

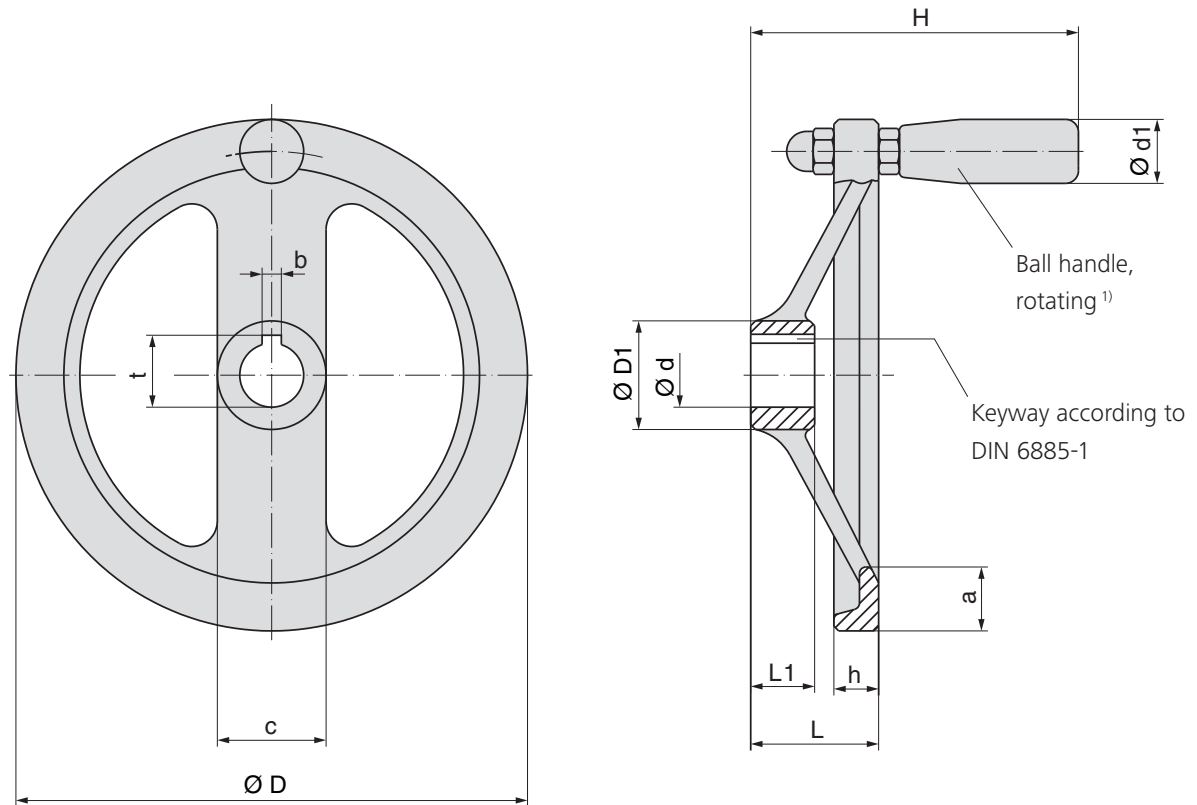


SB-249
KB-249

Note: AUMA order code SB/KB

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Handwheels



AHR types made of cast aluminium alloy; colour: black

1) Ball handle

Material: Polyamide

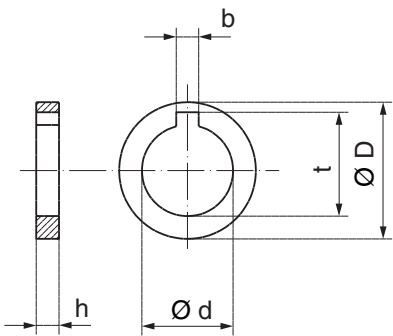
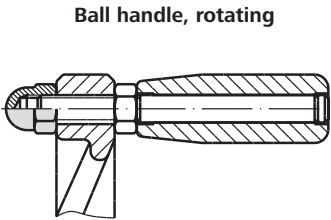
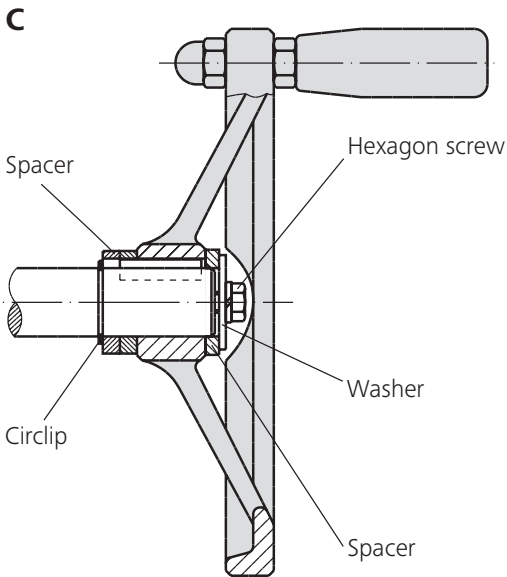
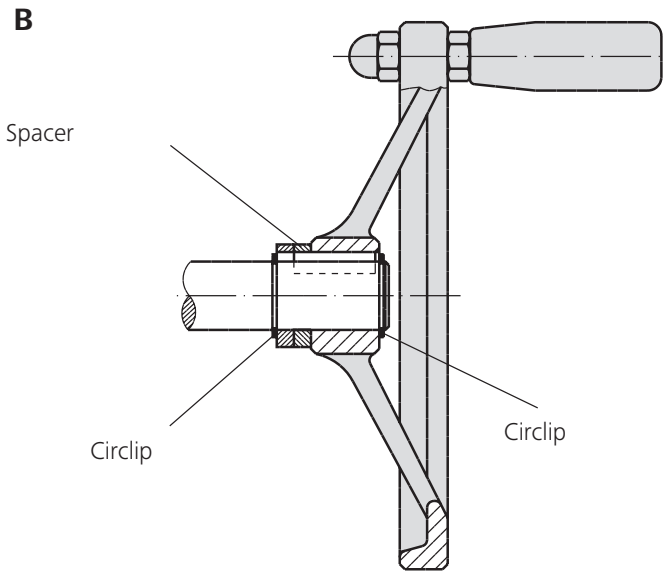
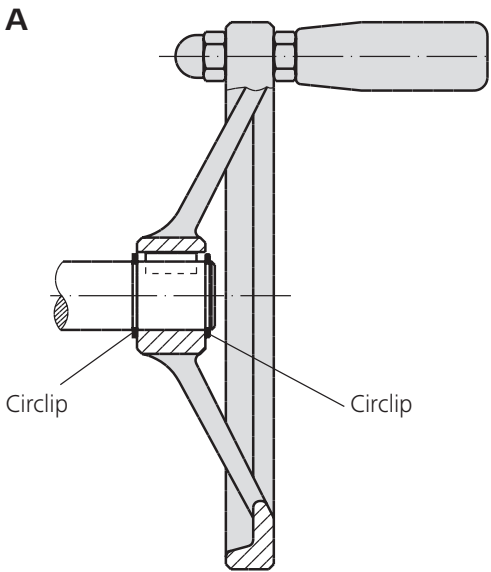
Bearing pin and mounting fixtures made of stainless steel

Dimensions (in mm)													Weight
Ø D		Ø d H9	Ø D1	H	L	L1	a	b	C	Ø d1	h	t	kg
mm	inch												
125	5	12	34	83	36	18	19	4	34	15	13	13.8	0.25
125	5	16	34	83	36	18	19	5	34	15	13	18.3	0.25
160	6	12	34	103	40	20	20	4	34	20	14	13.8	0.40
160	6 ½	16	34	103	40	20	20	5	34	20	14	18.3	0.40
160	6 ½	20	34	103	40	20	20	6	34	20	14	22.8	0.40
200	8	16	40	108	45	24	25	5	40	20	17	18.3	1.1
200	8	20	40	108	45	24	25	6	40	20	17	22.8	1.1
250	10	16	48	113	50	28	30	5	48	20	21	18.3	1.4
250	10	20	48	113	50	28	30	6	48	20	21	22.8	1.4
315	12 ½	20	56	150	56	33	33	6	56	25	23	22.8	1.8
315	12 ½	30	56	150	56	33	33	8	56	25	23	33.3	1.7
400	16	20	70	157	63	38	37	6	70	25	26	22.8	2.9
400	16	30	70	157	63	38	37	8	70	25	26	33.3	2.8
500	20	30	82	166	72	45	40	8	82	25	28	33.3	4.5
500	20	40	82	166	72	45	40	12	82	25	28	43.3	4.5
630	25	30	98	169	75	45	45	8	98	25	31	33.3	7.7
630	25	40	98	169	75	45	45	12	98	25	31	43.3	7.5
800	31 ½	30	98	185	90	55	45	8	130	25	31	33.3	10.5
800	31 ½	40	98	185	90	55	45	12	130	25	31	43.3	10.5

Please state handwheel type and Ø D/d in mm when ordering (e.g. AHR 160-20).

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Mounting proposals



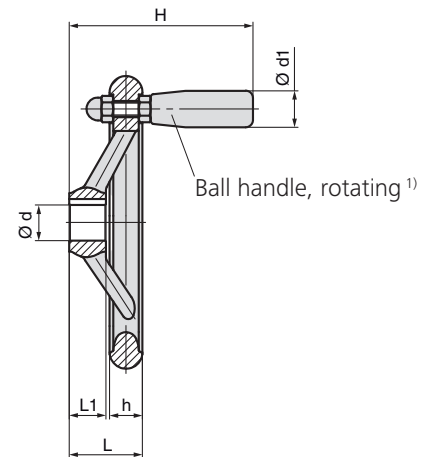
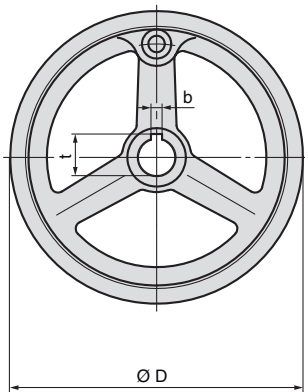
Material: Polyamide Colour: black

Spacer dimensions (in mm)					
Type	Ø D	b	Ø d	h	t
DS	20	4	12	3	13.8
DS	20	4	12	4	13.8
DS	30	5	16	2	18.3
DS	30	5	16	4	18.3
DS	30	6	20	2	22.8
DS	30	6	20	4	22.8
DS	30	6	20	5	22.8
DS	50	8	30	2	33.3
DS	50	8	30	5	33.3
DS	60	12	40	10	43.3

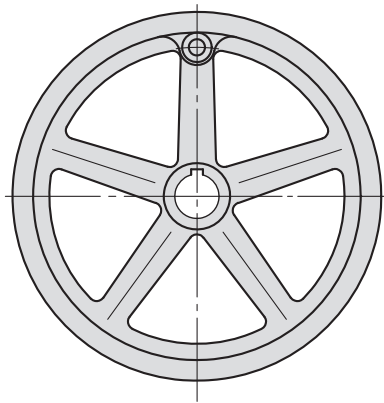
Please state spacer type, Ø d and height h in mm when ordering (e.g. DS 20x5).

Dimensions Handwheels according to DIN 950

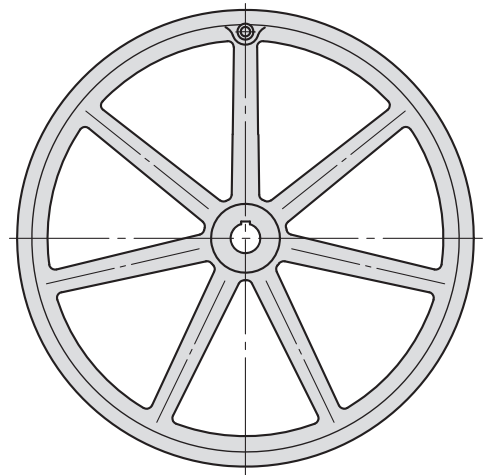
GHR 160 – GHR 200



GHR 250 – GHR 500



GHR 630 – GHR 800



GHR types made of cast iron; colour: black

1) Ball handle

Material: Polyamide

Bearing pin and mounting fixtures made of stainless steel

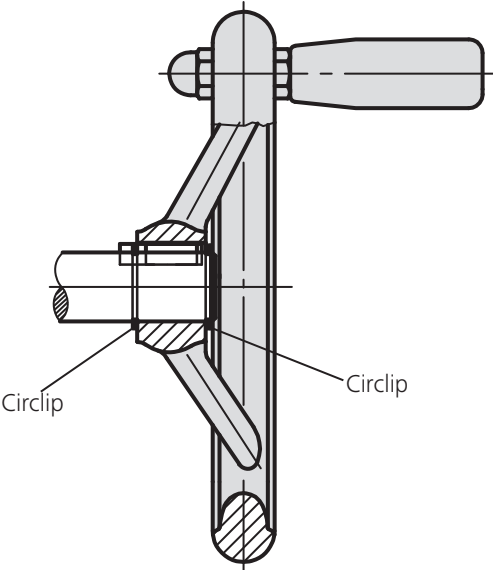
Dimensions (in mm)											Weight [kg]
Ø D		Ø d D9	H	L	L1	b	Ø d1	h	t		
mm	inch										
160	6 ½	16	100	40	20	5	20	18	18.3	1.35	
160	6 ½	20	100	40	20	6	20	18	22.8	1.35	
200	8	20	101	41	20	6	20	22	22.8	2.5	
250	10	20	102	42	20	6	20	26	22.8	3.9	
250	10	30	110	50	28	8	20	26	33.3	3.9	
315	12 ½	20	148	56	33	6	25	28	22.8	6.3	
315	12 ½	30	148	56	33	8	25	28	33.3	6.2	
400	16	30	154	63	38	8	25	32	33.3	9.7	
400	16	40	154	63	38	12	25	32	43.3	9.6	
500	20	30	156	65	38	8	25	34	33.3	15.6	
500	20	40	156	65	38	12	25	34	43.3	15.5	
630	25	30	161	70	38	8	25	36	33.3	21.7	
630	25	40	161	70	38	12	25	36	43.3	21.6	
800	31 ½	30	183	92	55	8	25	36	33.3	29.4	

Please state handwheel type and diameters Ø D/d in mm when ordering (e.g. GHR 160-20).

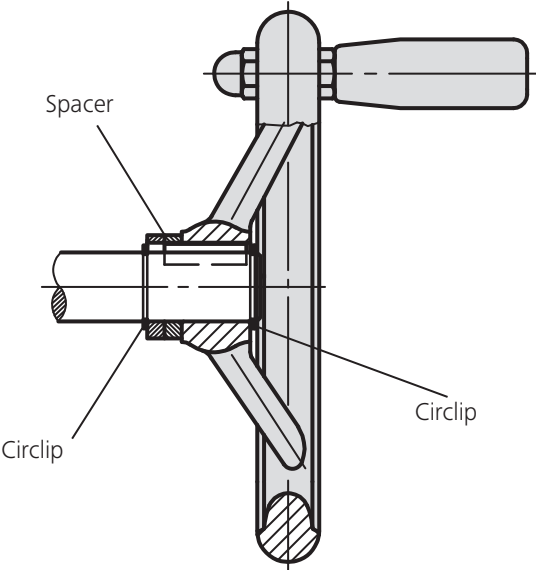
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Mounting proposals

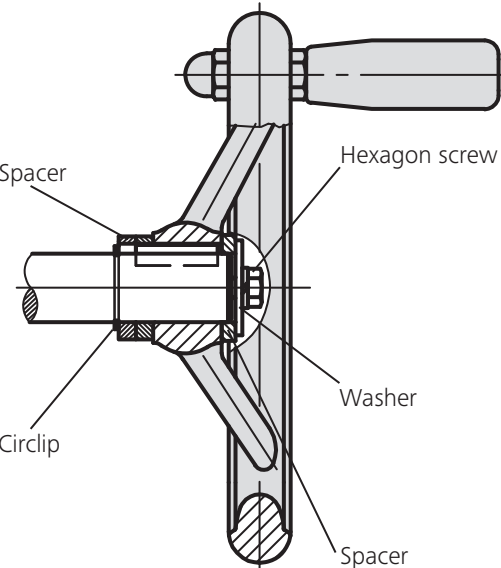
A



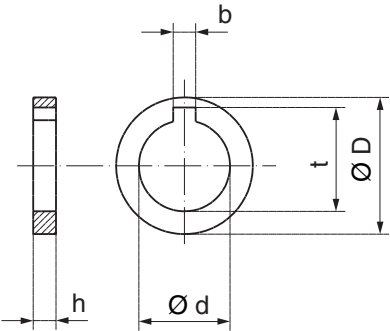
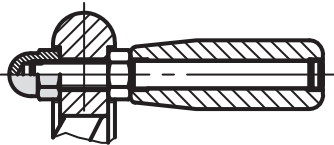
B



C



Ball handle, rotating

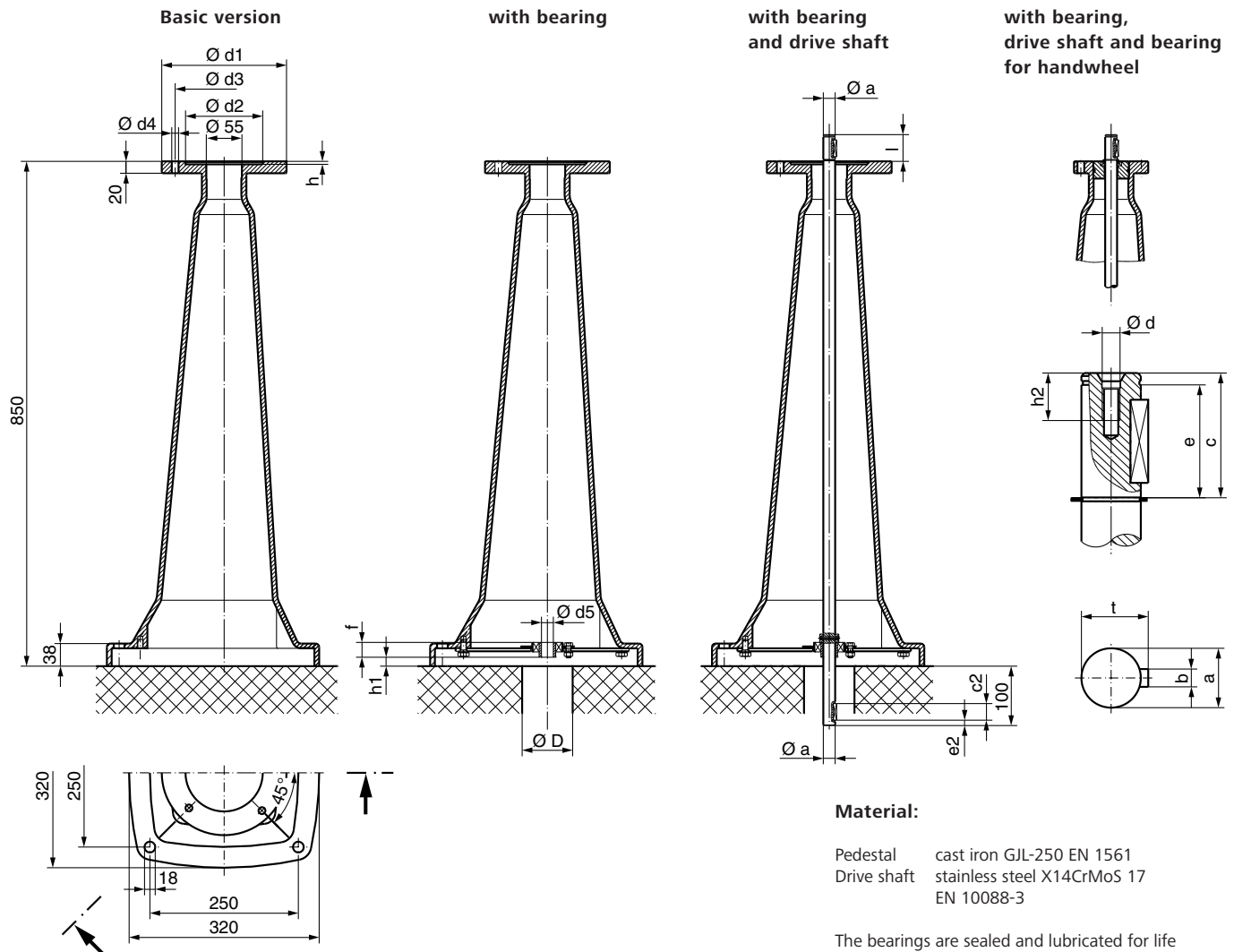


Material: Polyamide Colour: black

Spacer dimensions (in mm)					
Type	Ø D	b	Ø d	h	t
DS	20	4	12	3	13.8
DS	20	4	12	4	13.8
DS	30	5	16	2	18.3
DS	30	5	16	4	18.3
DS	30	6	20	2	22.8
DS	30	6	20	4	22.8
DS	30	6	20	5	22.8
DS	50	8	30	2	33.3
DS	50	8	30	5	33.3
DS	60	12	40	10	43.3

Please state spacer type, Ø d and height h in mm when ordering (e.g. DS 20x5).

Dimensions Floor pedestals



Dimensions EN ISO 5210/DIN 3210	SF 10.2		SF 14.2		SF 16.2	
	F10	G0	F14	G1/2	F16	G3
Ø a h9	20		30		40	
b	6		8		12	
c	41.9		59.9		72.75	
c2	28		45		63	
d	M6		M8		M16	
Ø d1	125		175		210	
Ø d2 H9	70	60	100		130	
Ø d3	102		140		165	
Ø d4	11.5		18		22	
Ø d5	20		30		40	
e	38		55		65	
e2	9		7		9	
Ø f	31		36		44	
Ø h	5		5		5	
Ø h1	8		6		1	
Ø h2	16		16.5		32	
l	45		64		80	
t	22.5		33		43	
Ø D min.	85		100		120	
Weight kg	28 ¹⁾		30 ¹⁾		32 ¹⁾	

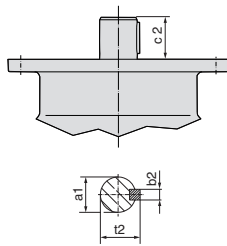
1) Basic version

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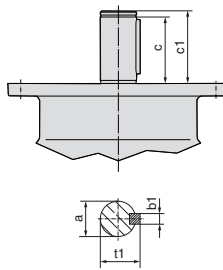
Dimensions Anti-backdrive devices

Variant with shaft

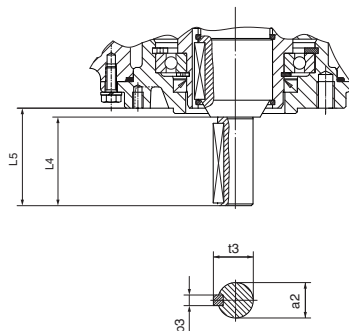
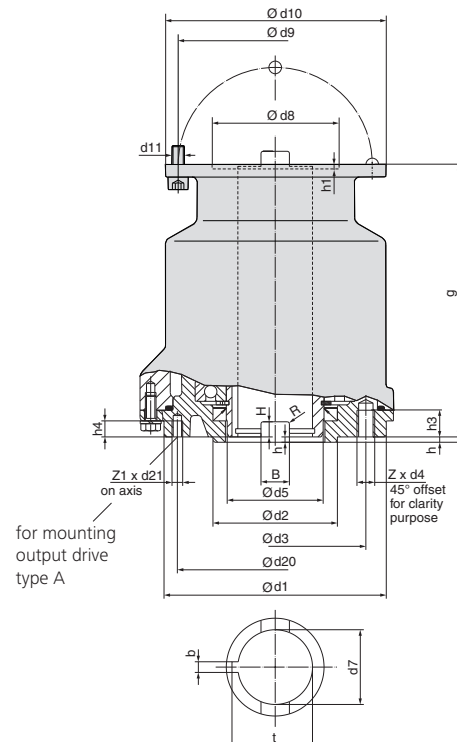
Option: Input shaft for B1
Hollow shaft connection SA.1/GK/
GST



Option: Input shaft for
handwheel assembly



Output drive with shaft end

Standard version with hollow shaft/flange
for mounting to multi-turn actuator

Dimensions	LMS 07.1		LMS 10.1		LMS 14.1			LMS 16.1	
EN ISO 5210	F10		F10		F14			F16	
Torque max. Nm	60		120		500			1000	
B E9	16		16		32			36	
H	8		8.5		17			18.5	
R	1.2		1.2		1.6			1.6	
Ø a	20	30	20	30	30	40	50	40	50
Ø a1	42		42		60			80	
Ø a2 g6	20		20		30			40	
b Js9	12		12		18			22	
b1	6	8	6/8		8	12	14	12	14
b2	12		12		18			22	
b3	6		6		8			12	
c	36	55	36	55	55	72	92	72	92
c1	40	60	40	60	60	80	100	80	100
c2	44		44		64			78	
Ø d1	125		125		175			210	
Ø d2 f8	70		70		100			130	
Ø d3	102		102		140			165	
d4	M10		M10		M16			M20	
Ø d5	54		54		79			99	
Ø d7 H9	42		42		60			80	
Ø d8 H8	70		70		100			130	
Ø d9	110		110		140			165	
Ø d10	125		125		175			210	
d11	4 x M6		4x M6		4 x M16			4 x M20	
Ø d20	110		110		155			185	
d21	M6		M6		M10			M12	
g	145		145		235			304	
h	3		3		4			5	
h1	3.5		3.5		5			6	
h3	15		15		25			25	
h4	9		9		16			20	
L4	50		50		70			90	
L5	55		55		76			97	
t	45.3		45.3		64.4			85.4	
t1	22.8	33.3	22.8	33.3	33.3	43.3	53.8	43.3	53.8
t2	45.3		45.3		64.4			85.4	
t3	22.5		22.5		33			43	
Z	4		4		4			4	
Z1	4		4		4			4	
Weight kg	10		10		30			54	

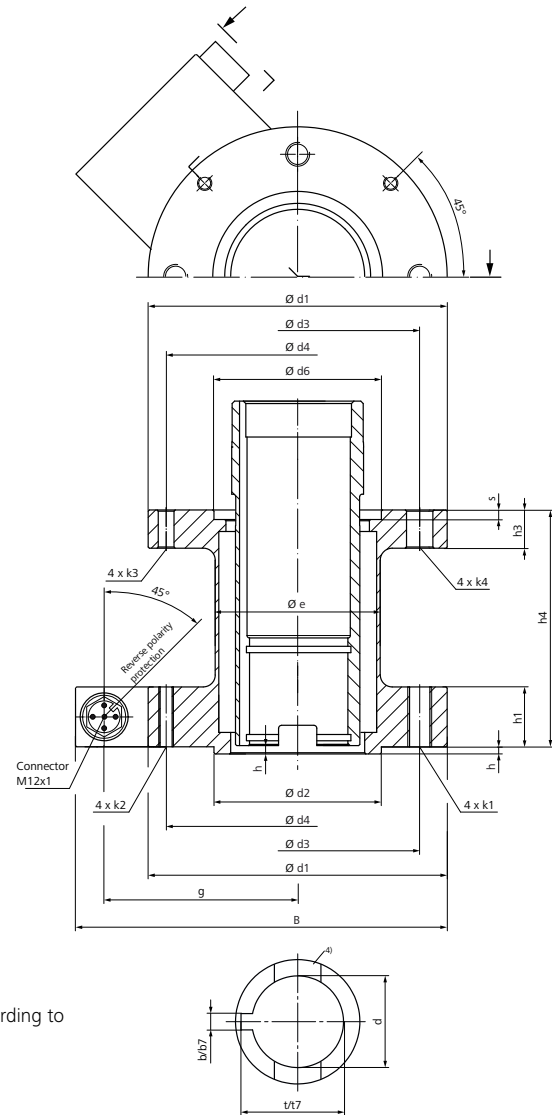
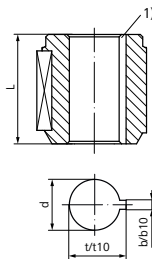
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Torque measurement flange

Output drive type

- EN ISO 5210 B1 $d = d7$ (b7/t7)
 EN ISO 5210 B2²⁾ $d10 \text{ max.} < d < d7$
 EN ISO 5210 B3 $d = d10$ (b10/t10)
 EN ISO 5210 B4²⁾ $d \text{ " } d10 \text{ max.}$

Output drive sleeve B3/B4



1) Bore with keyway according to DIN 6885-1, output drive types B3 and B4 according to EN ISO 5210 with output drive sleeve

2) Dimensions b, t depend on Ø d, refer to DIN 6885-1

3) Dimensions not complying with DIN 6885-1

4) Prepared for fitting output drive types A, A, AG, AK;
 for rising stem valve, refer to Technical data Multi-turn actuators for max. diameter

Dimensions	DMF 10.1		DMF 14.5	DMF 16.1
	SA 07.2/SA 07.6	SA 10.2		
Actuator			SA 14.2/SA 14.6	SA 16.2
EN ISO 5210	F10		F14	F16
Torque max. Nm	120		500	1000
B	157		207	242
Ø d1	125		175	210
Ø d2 f8	70		100	130
Ø d3	102		140	165
Ø d4	110		155	185
Ø d6 H8	70		100	130
Ø d7 H9 ¹⁾	42		60	80
b7 JS9	12		18	22
t7	45.3		62.7 ³⁾	85.4
Ø d10 H9 ¹⁾	20		30	40
b10 JS9	6		8	12
t10	22.8		33.3	43.3
Ø d10 max. ¹⁾	30		45	60
Ø e	69		100	122
g	88		107.5	125
h	3		4	5
h1	25		25	30
h3	16		25	30
h4	99		140	160
k1	M10		M16	M20
k2	M6		M10	M12
Ø k3	6.6		11	13.5
Ø k4	11		17.5	22
L	44		65	80
s	4		5	6

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

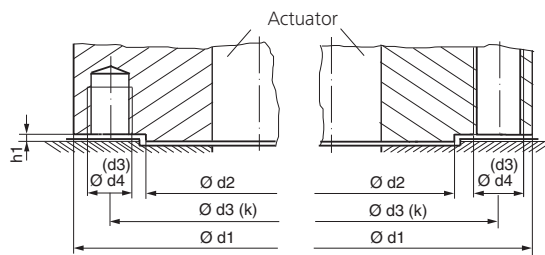
6 Dimensions Output drives

Valve attachments for actuators and gearboxes	376
Multi-turn actuators SA 07.2 – SA 16.2 / SAR 07.2 – SAR 16.2	
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Output drive type A stem nut standard version	383
Output drive type A stem nut stem lubrication	384
Output drive type A stem nut with extension flange	385
Output drive type A stem nut with reduction flange	386
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Output drive type DD shaft end bottom and top	388
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Couplings for SG/SV/SQ/GS/GHE	
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EN ISO 5210/EN ISO 5211/DIN 3210/DIN 3338

Comparison between EN ISO 5210/EN ISO 5211 and DIN 3210/DIN 3338

- EN ISO 5210 Multi-turn valve actuator attachments
- EN ISO 5211 Part-turn valve actuator attachments
- DIN 3210 Output drives of electric actuators for valves (Standard withdrawn)
- DIN 3338 Multi-turn actuator attachments, type C



Designations deviating from EN ISO are indicated in brackets

Flange abbreviation			Dimensions (in mm)										Quantity of screws and bolts	
EN ISO 5210	EN ISO 5211	DIN 3210	EN ISO 5210 5211	DIN 3210	EN ISO 5210 5211	DIN 3210	EN ISO 5210 5211	DIN 3210	EN ISO 5210 5211	DIN 3210	EN ISO 5210 5211	DIN 3210	EN ISO 5210 5211	DIN 3210
DIN 3338			DIN 3338		DIN 3338		DIN 3338		DIN 3338		DIN 3338		DIN 3338	
			Ø d1	Ø d1	Ø d2	Ø d2	Ø d3	(k)	Ø d4	(d3)	h1 max.	h1 max.		
–	F03	–	46	–	25	–	36	–	M5	–	3	–	4	–
–	F04	–	54	–	30	–	42	–	M5	–	3	–	4	–
–	F05	–	65	–	35	–	50	–	M6	–	3	–	4	–
F07	F07	–	90	–	55	–	70	–	M8	–	3	–	4	–
F10	F10	G0	125	125	70 ¹⁾	60 ¹⁾	102	102	M10	M10	3	3	4	4
F12	F12	–	150	–	85	–	125	–	M12	–	3	–	4	–
F14	F14	G1/2	175	175	100	100	140	140	M16	M16	4	4	4	4
F16	F16	G3	210	210	130	130	165	165	M20	M20	5	5	4	4
F25	F25	G4	300	300	200 ¹⁾	160 ¹⁾	254	254	M16	M16	5	5	8	8
F30	F30	G5	350	350	230 ¹⁾	180 ¹⁾	298 ¹⁾	300 ¹⁾	M20	M20	5	5	8	8
F35	F35	G6	415 ¹⁾	410 ¹⁾	260 ¹⁾	220 ¹⁾	356	356	M30	M30	5	5	8	8
F40	F40	G7	475	475	300 ¹⁾	230 ¹⁾	406	406	M36	M36	8	8	8	8
–	F48	–	560	–	370	–	483	–	M36	–	8	–	12	–
–	F60	–	686	–	470	–	603	–	M36	–	8	–	20	–

1) Deviating dimensions between EN ISO 5210/EN ISO 5211/DIN 3338 and DIN 3210

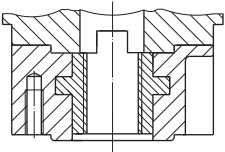
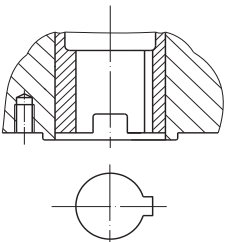
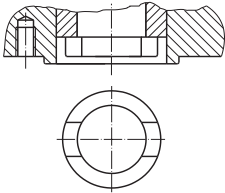
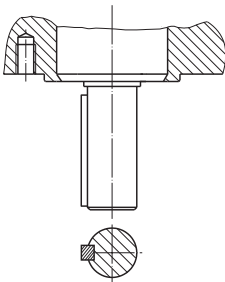
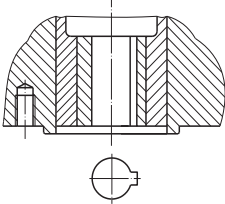
Arrangement of bores for screws Ø d4 (d3)



EN ISO 5210	F07 – F16	F25 – F40	–	–
EN ISO 5211	F03 – F16	F25 – F40	F48	F60
DIN 3210	G0 – G3	G4 – G7	–	–
DIN 3338	F07 – F16	F25 – F40	–	–

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EN ISO 5210/DIN 3210/DIN3338

	Designation			Torque transmission	Thrust possible	Application
	EN ISO 5210	DIN 3210	DIN 3338			
stem nut		A	—	X	X	rising, non-rotating valve stem
Output drive plug sleeve		B 1 B 2	—	X	—	rotating, non-rising valve stem or rising, non-rotating valve stem
Dog coupling		—	C	X	—	rotating, non-rising valve stem or rising, non-rotating valve stem
Shaft end		—	D	X	—	Operation via lever arrangement or coupling
Bore with keyway		B 3 B 4	—	X	—	rotating, non-rising valve stem

Dimension Output drive plug sleeve type B1

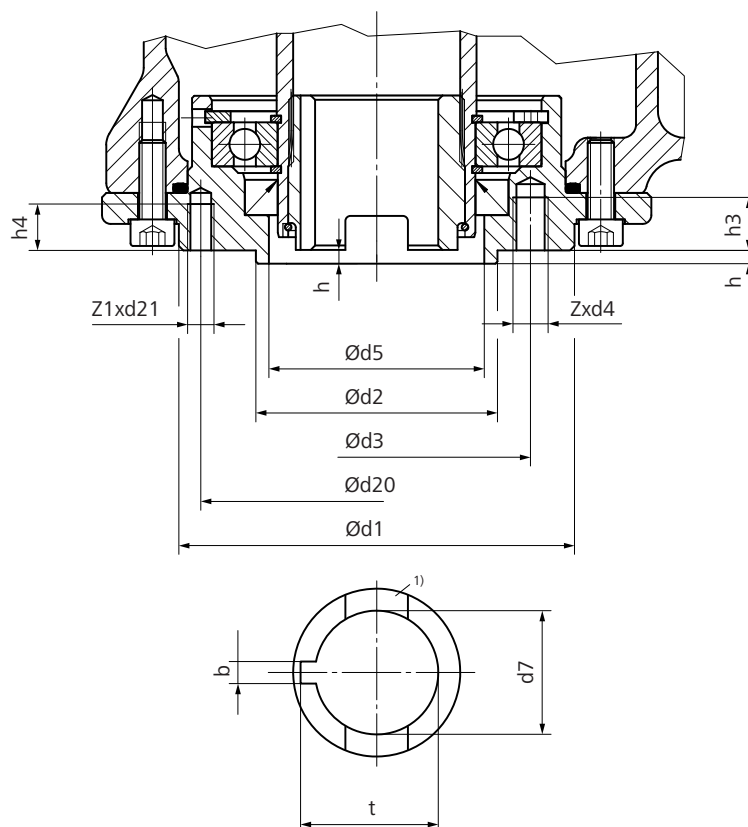
for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

Output drive type

EN ISO 5210 B1

DIN 3210 B



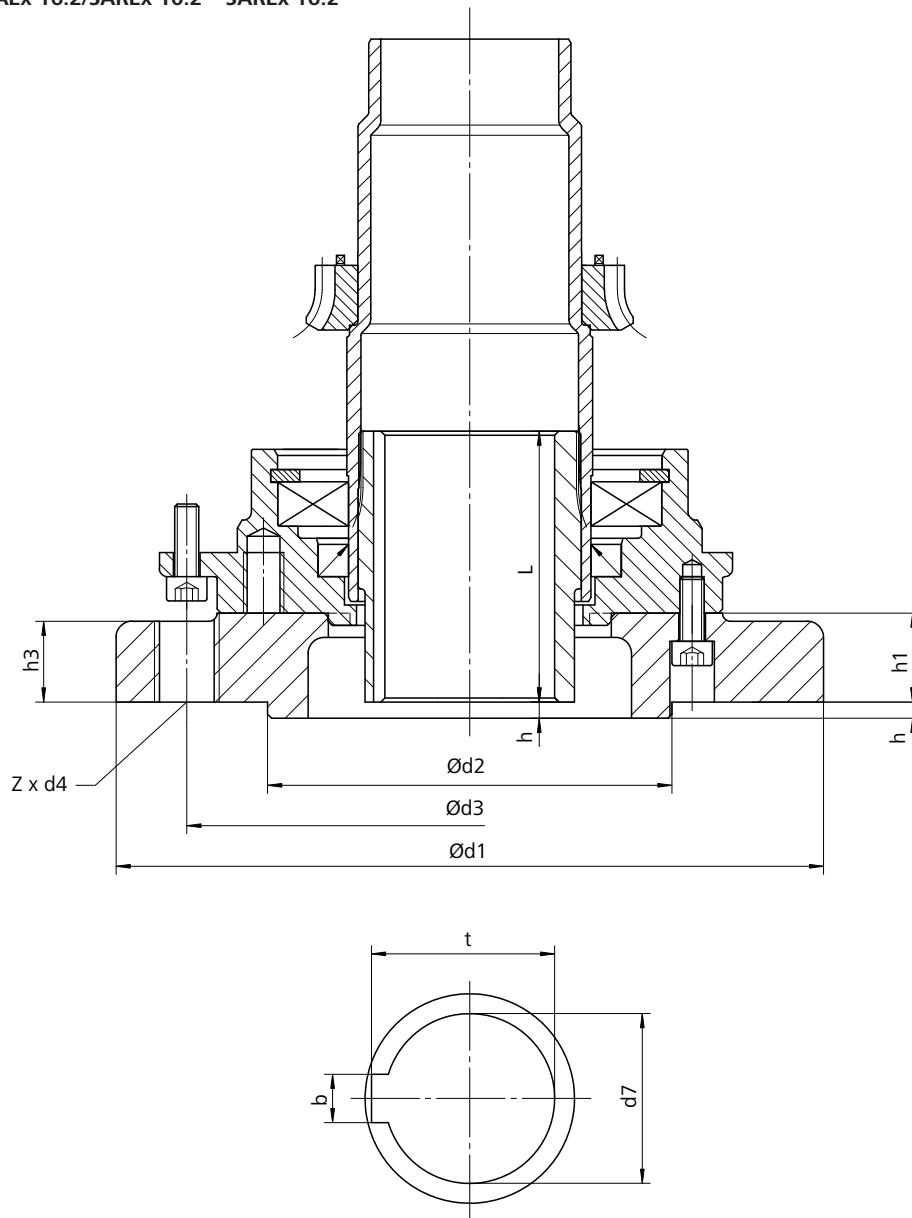
1) Prepared for fitting output drive type A

Dimensions	B1 07.2			B1 10.2		B1 14.2		B1 16.2	
EN ISO 5210/DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
b JS9	8	12		12		18		22	
Ø d1	90	125		125		175		210	
Ø d2 f8	55	70	60	70	60	100		130	
Ø d3	70	102		102		140		165	
d4	M8	M10		M10		M16		M20	
Ø d5	49	64	57	64	57	90		115	
Ø d7 H9 max	28	42		42		60		80	
Ø d20	80	110		110		155		185	
d21	M6			M6		M10		M12	
h	3			3		4		5	
h3	12	13		15		25		30	
h4	10	13		9		16		20	
t	31.3	45.3		45.3		64.4		85.4	
Z	4			4		4		4	
Z1	4			4		4		4	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive type B1/B with extension fange

for SA 10.2 – SA 16.2/SAR 10.2 – SAR 16.2
SAEx 10.2 – SAEx 16.2/SAREx 10.2 – SAREx 16.2



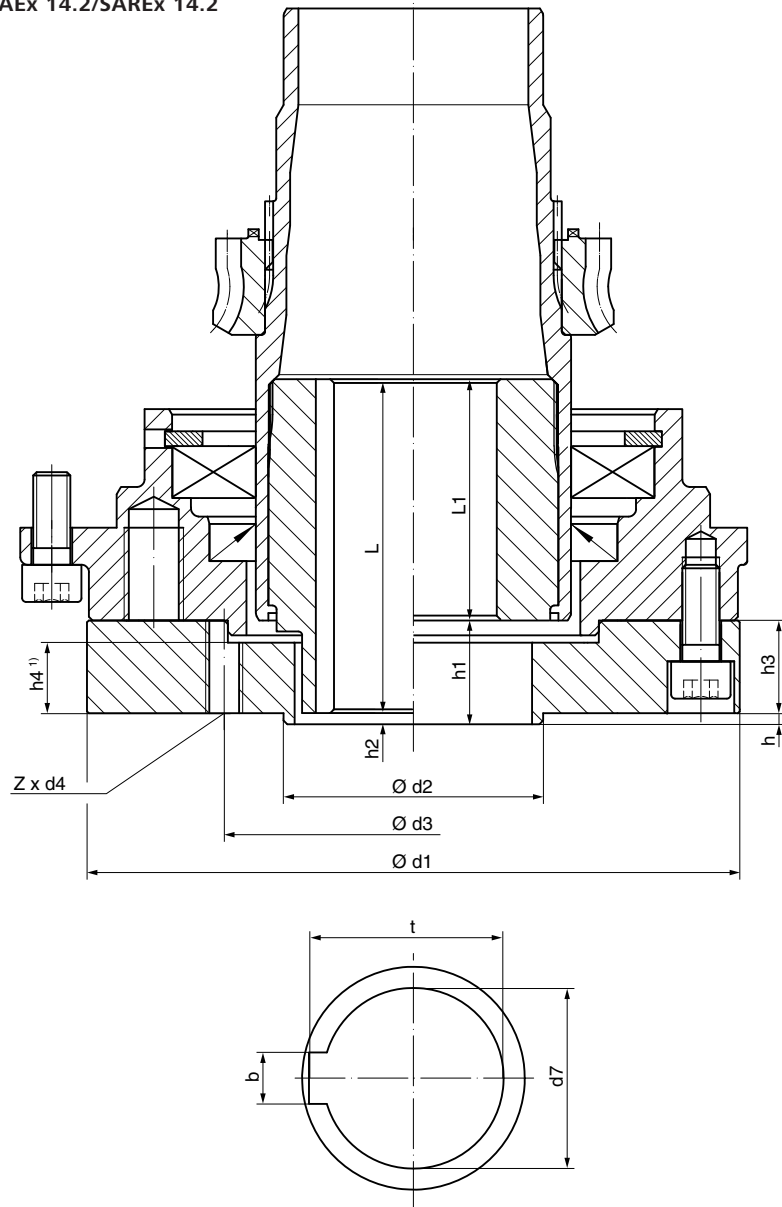
Dimensions	B1 10.2	B1 14.2	B1 16.2
Extension flange EN ISO 5210/DIN 3210	F14 / G1/2	F16 / G3	F25 / G4
b	12	18	22
Ø d1	175	210	300
Ø d2 f8	100	130	200 / 160
Ø d3	140	165	254
d4	M 16	M 20	M 16
Ø d7 max.	42	60	80
h	4	5	5
h1	22	25	28
h3	20	23	20
t	45.3	64.4	85.4
L	67	90	108
Z	4	4	8

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive type B1/B with reduction flange

for SA 14.2/SAR 14.2/SAEx 14.2/SAREx 14.2

Output drive type
EN ISO 5210 B1
DIN 3210 B

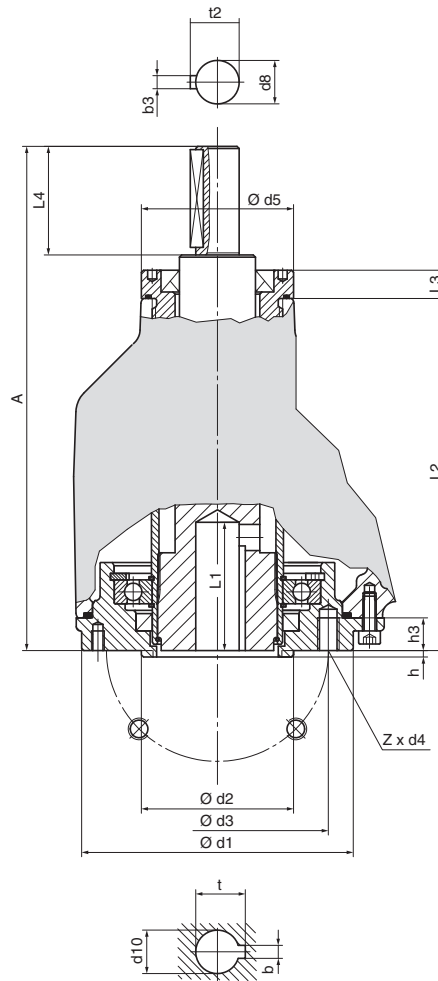


1) Usable thread length

Dimensions	B1 14.2	
Reduction flange EN ISO 5210/DIN 3210	F10	G0
b	14	14
Ø d1	176	
Ø d2 f8	70	60
Ø d3	102	
d4	M10	
Ø d7 max.	45	50
h	3	
h1	–	28
h2	3	–
h3	25	
h4 1)	19	
t	48.8	53.8
L	90	–
L1	–	65
Z	4	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Output drive type
ISO 5210 B3D
DIN 3210 ED



1) Dimensions depend on $\varnothing d_{10}$, refer to DIN 6885-1

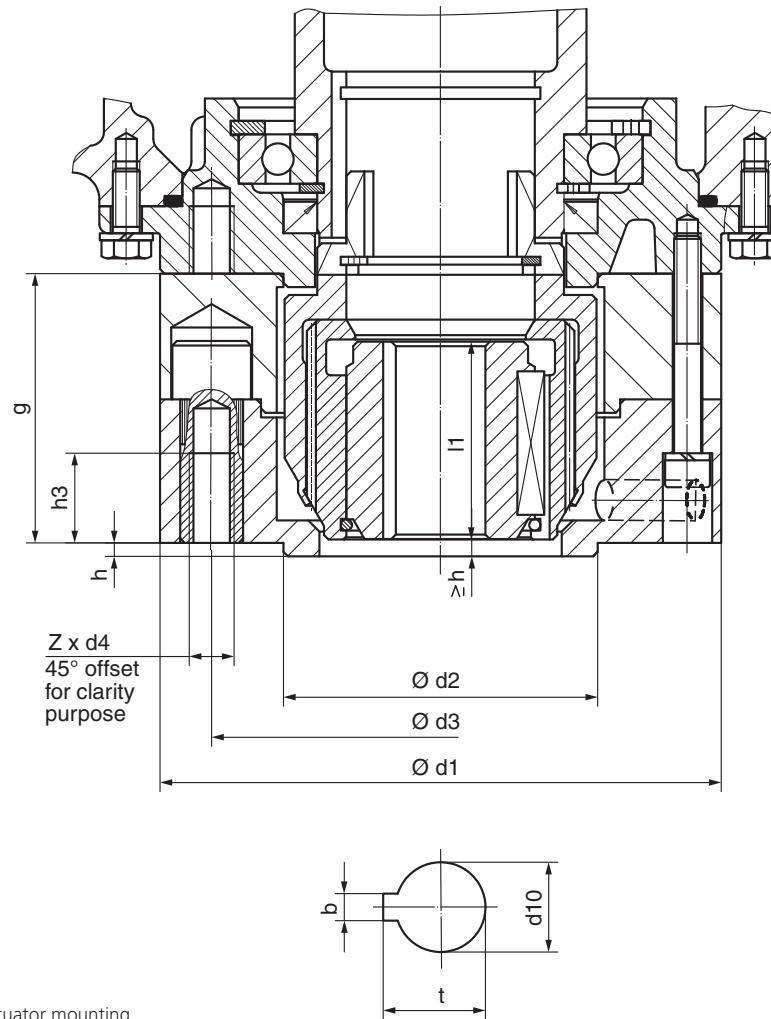
Dimensions	SA 07.2/SA 07.6			SA 10.2		SA 14.2/SA 14.6			SA 16.2	
ISO 5210/DIN 3210	F07		F10/G0	F10/G0		F14/G1/2			F16/G3	
A	210	220	220	232	252	275	295	298	335	355
b JS9 ¹⁾	6		8	8		14			18	
b3	5	6	6	6	8	6	8	12	8	12
Ø d1	90		125	125		175			210	
Ø d2	55		70/60	70/60		100			130	
Ø d3	70		102	102		140			165	
d4	M8		M10	M10		M16			M20	
Ø d5			55	70		90			105	
Ø d8 g6	16	20	20	20	30	20	30	40	30	40
Ø d10 H9 max.	20		30	30		45			60	
h			3	3		4			5	
h3	12		13	15		25			30	
L1	49		58	59		84			105	
L2			153	162		188			227	
L3			13	13		13			15	
L4	40	50	50	50	70	50	70	90	70	90
t ¹⁾	22.8		33.3	33.3		48.8			64.4	
t2	18.0	22.5	22.5	22.5	33	22.5	33	43	33	43
Z			4	4		4			4	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive type IB/IE - insulated output drive

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2
SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

Output drive type
ISO 5210 IB3/IB1
DIN 3210 IE/IB



1) with intermediate flange for actuator mounting

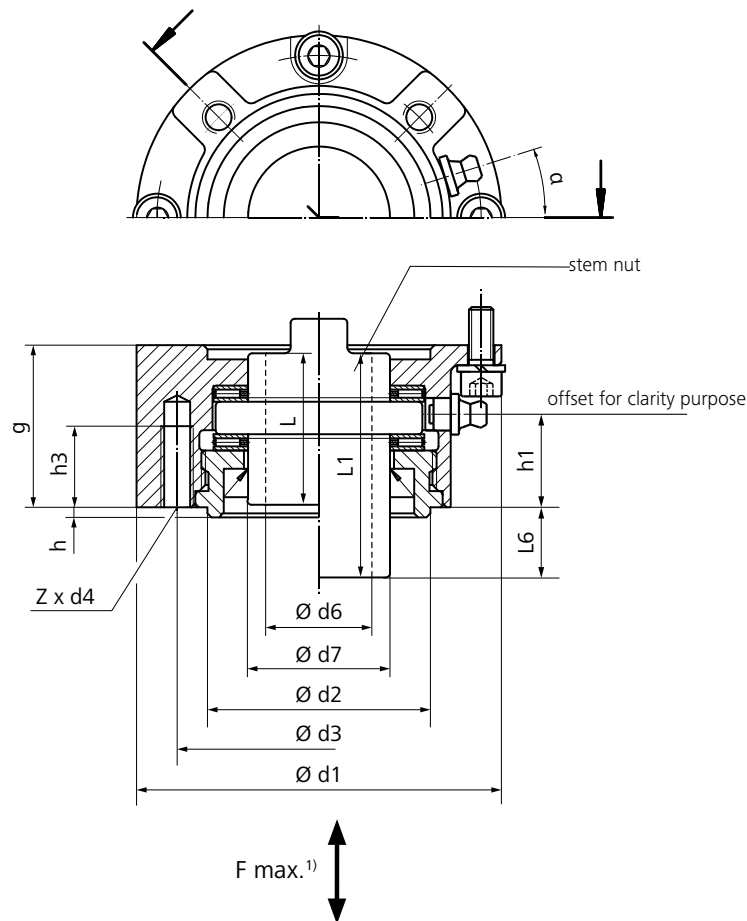
Dimensions	IB3 07.2	IB3 10.2	IE 10.2	IB3 14.2	IE 14.2	IB3 16.2	IE 16.2
ISO 5210/DIN 3210	F07 ¹⁾	F10	G0	F14	G1/2	F16	G3
b JS9	5	6		8		12	
Ø d1	90	125		180		210	
Ø d2 f8	55	70	60	100		130	
Ø d3	70	102		140		165	
d4	M8	M10		M16		M20	
Ø d10 H9	16	20		30		40	
g	60	60		90		110	
h	3	3		4		5	
h3	16	20		30		35	
l1	28	36		55		65	
t	18.3	22.8		33.3		43.3	
Z	4	4		4		4	
Deviating dimensions IB1/IB	IB1 07.2	IB1 10.2	IB 10.2	IB1 14.2	IB 14.2	IB1 16.2	IB 16.2
ISO 5210/DIN 3210	F07 ¹⁾	F10	G0	F14	G1/2	F16	G3
b JS9	8	12		18		22	
Ø d10 H9	28	42		60		80	
t	31.3	45.3		64.4		85.4	

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Dimensions Output drive stem nut type A

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2
 SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2
 GK 10.2 – GK 16.2/GST 10.1 – GST 16.1

Output drive type
 EN ISO 5210 A
 DIN 3210 A



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

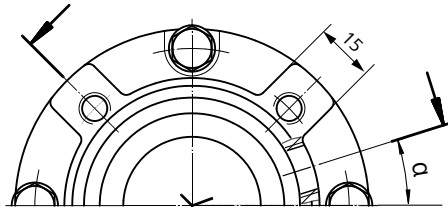
3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

Dimensions	A 07.2	A 10.2	A 14.2	A 16.2
EN ISO 5210/DIN 3210	F07	F10 G0	F14 G1/2	F16 G3
F max. [kN] ¹⁾	40	70	160	250
Ø d1	90	125	175	210
Ø d2 f8	55	70 60	100	130
Ø d3	70	102	140	165
d4	M8	M10	M16	M20
Ø d6 max. ²⁾	Tr 26 ACME 1"	Tr 40 ³⁾ ACME 1½" ³⁾	Tr 55 ACME 2¼"	Tr 75 ACME 3"
Ø d7	35	50	75	99
g	40	50	65	80
h	3	3	4	5
h1	23	30	38	45
h3	12	15	25	35
L	37.5	47.5	61.5	76.5
L1	55.5	70.5	90	112.5
L6	18	23	28.5	36
Z	4	4	4	4
α	17.5°	17.5°	22.5°	22.5°
Weight: Standard Version [kg]	1.1	2.8	6.8	11.7
Weight: Extended Version [kg]	1.3	3.2	7.8	14.2

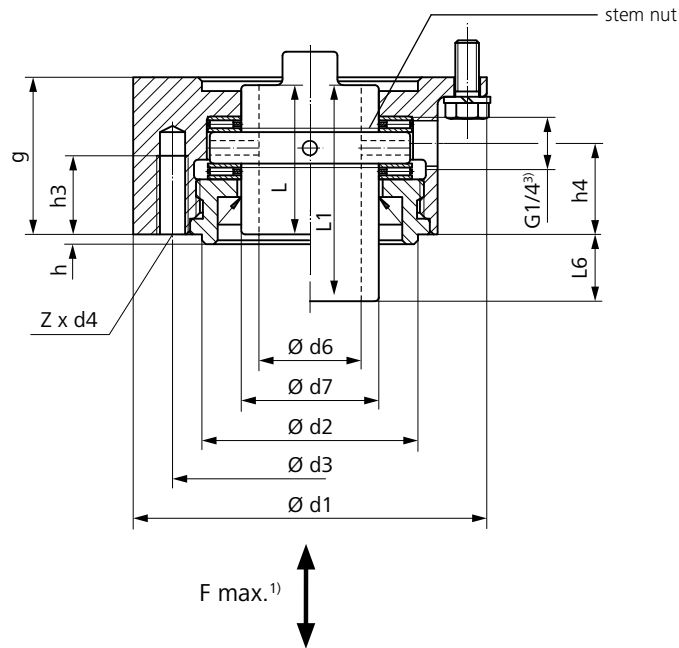
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive stem nut type A for stem lubrication

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2
 SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2
 GK 10.2 – GK 16.2/GST 10.1 – GST 16.1



Output drive type
 EN ISO 5210 A
 DIN 3210 A



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) G 1/4 internal thread for the connection of grease nipple or permanent lubricator.

AUMA recommend: Simalube single point lubricator SL01 (distributed by: Grützner GmbH; www.simalube.de)

4) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

Dimensions	A 07.2	A 10.2	A14.2	A 16.2
EN ISO 5210/DIN 3210	F07	F10 G0	F14 G1/2	F16 G3
F max. [kN] ¹⁾	40	70	160	250
Ø d1	90	125	175	210
Ø d2 f8	55	70 60	100	130
Ø d3	70	102	140	165
d4	M8	M10	M16	M20
Ø d6 max. ²⁾	Tr 26 ACME 1"	Tr 40 ⁴⁾ ACME 1½" ⁴⁾	Tr 55 ACME 2¼"	Tr 75 ACME 3"
Ø d7	35	50	75	99
g	40	50	65	80
h	3	3	4	5
h3	12	15	25	35
h4	23	30	38	45
L	37.5	47.5	61.5	76.5
L1	55.5	70.5	90	112.5
L6	18	23	28.5	36
Z	4	4	4	4
α	17.5°	17.5°	22.5°	22.5°
Weight: Standard version [kg]	1.1	2.8	6.8	11.7
Weight: Extended version [kg]	1.3	3.2	7.8	14.2

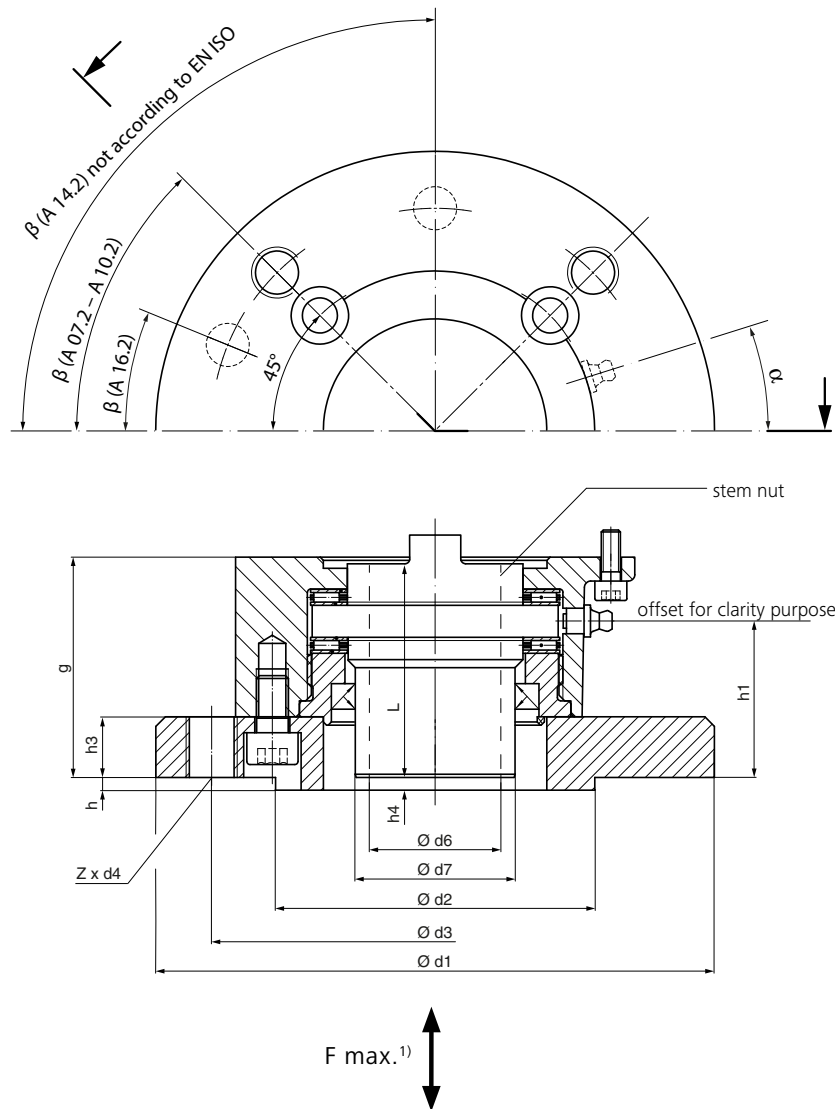
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive stem nut type A with extension flang

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

Output drive type
EN ISO 5210 A
DIN 3210 A



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

Dimensions	A 10.2		A 14.2		A 16.2	
EN ISO 5210/DIN 3210	F14	G1/2	F16	G3	F25	G4
F max. [kN] ¹⁾	70		160		250	
Ø d1	175		210		300	
Ø d2 f8	100		130		200	
Ø d3	140		165		254	
d4	M16		M20		M16	
Ø d6 max. ²⁾	Tr 40 ³⁾		Tr 55		Tr 75	
	ACME 1½" ³⁾		ACME 2¼"		ACME 3"	
Ø d7	50		75		99	
g	69		92.5		118	
h	4		5		5	
h1	49		65.5		83	
h3	19		27.5		36	
h4	0		4		7	
L	70.5		90		112.5	
Z	4		4		8	
α	17.5°		22.5°		22.5°	
β	45°		90°		22.5°	
Weight [kg]	8.7		13.5		31.5	

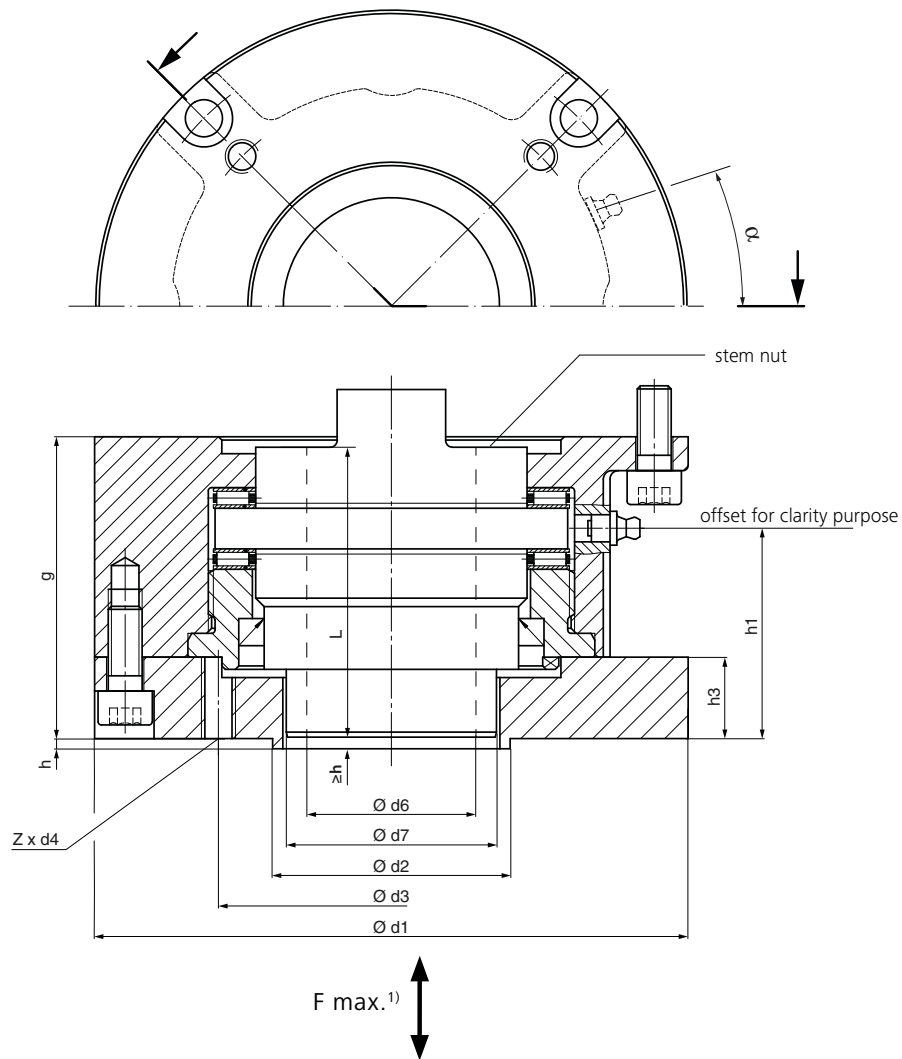
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Output drive stem nut type A with reduction flang

for SA 14.2 – SA 16.2/SAR 14.2 – SAR 16.2

SAEx 14.2 – SAEx 16.2/SAREx 14.2 – SAREx 16.2

Output drive type
EN ISO 5210 A
DIN 3210 A



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

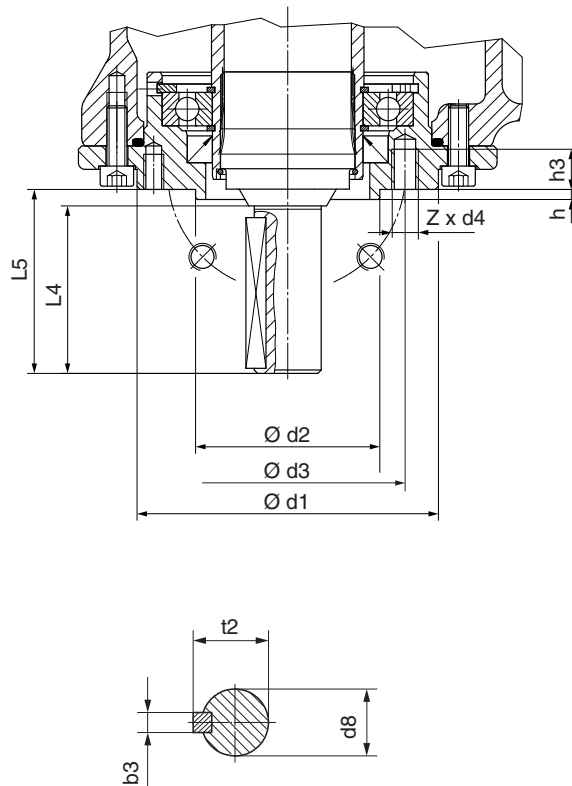
Dimensions	A 14.2			A 16.2
EN ISO 5210/DIN 3210	F10	G0	F12	F14
F max. [kN] ¹⁾		160		250
Ø d1		175		210
Ø d2 f8	70	60	85	100
Ø d3	102		125	140
d4	M10		M12	M16
Ø d6 max. ²⁾	Tr 48 ACME 1 3/4"	Tr 40 ACME 1 1/2"	Tr 48 ACME 1 3/4"	Tr 65 ACME 2 1/2"
Ø d7	62	52	62	88
g		89		111
h		3		4
h1		62		76
h3		24		31
L		85.5		108
Z		4		4
α		22.5°		22.5°
Weight [kg]	12.2	12.2	12.4	14.5

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Dimensions output drive type shaft end D

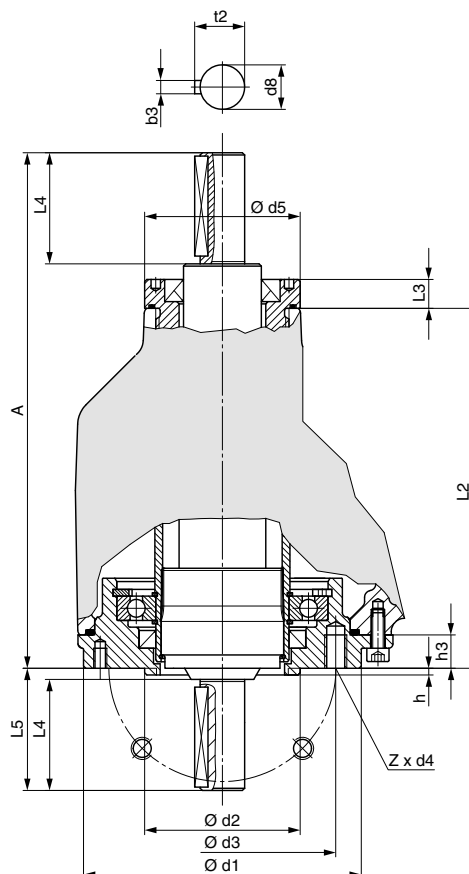
for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

Output drive type
DIN 3210 D

Dimensions	D 07.2			D 10.2		D 14.2		D 16.2	
ISO 5210/DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
b3	6			6		8		12	
Ø d1	90	125		125		175		210	
Ø d2 f8	55	70	60	70	60	100		130	
Ø d3	70	102		102		140		165	
d4	M8	M10		M10		M16		M20	
d8 g6	20			20		30		40	
h	3			3		4		5	
h3	12	13		15		25		30	
L4	50			50		70		90	
L5	55			55		76		97	
t2	22.5			22.5		33		43	
Z	4			4		4		4	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.



Dimensions	SA 07.2/SA 07.6			SA 10.2		SA 14.2/SA 14.6		SA 16.2	
ISO 5210/DIN 3210	F07	F10	G0	F10	G0	F14	G1/2	F16	G3
A	220			232		295		335/355	
b3	6			6		8		8/12	
Ø d1	90	125		125		175		210	
Ø d2	55	70	60	70	60	100		130	
Ø d3	70	102		102		140		165	
d4	M8	M10		M10		M16		M20	
Ø d5	55			70		90		105	
d8 g6	20			20		30		30/40	
h	3			3		4		5	
h3	12	13		15		25		30	
L2	153			162		188		227	
L3	13			13		13		15	
L4	50			50		70		70/90	
L5	55			55		76		77/97	
t2	22.5			22.5		33		33/43	
Z	4			4		4		4	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

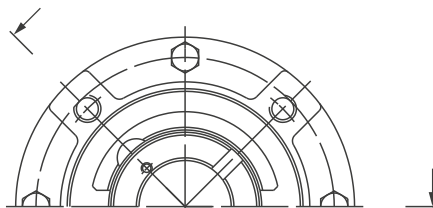
Dimensions Output drive type AF - with spring-loaded stem nut

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

GK 10.2 – GK 16.2

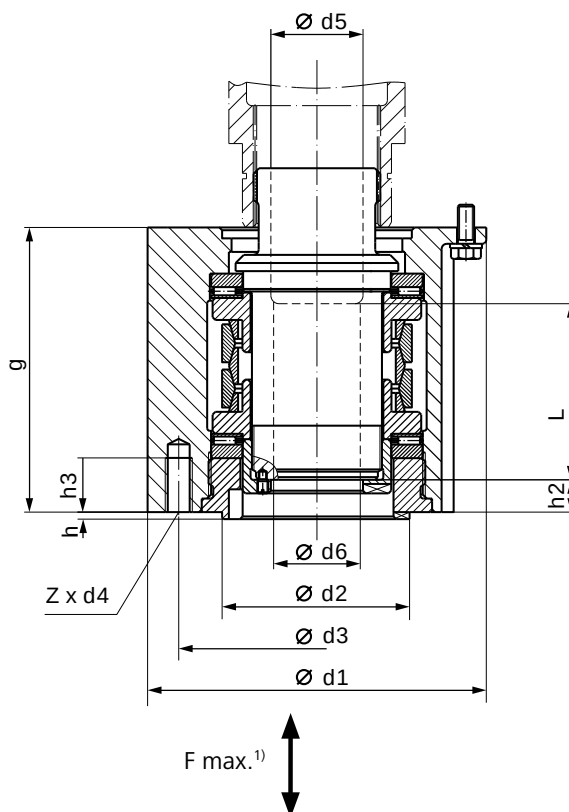
GST 10.1 – GST 16.1



Output drive type

ISO 5210 AF

DIN 3210 AF



1) permissible axial load

2) Only for SA/SAR 07.2, 07.6

3) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

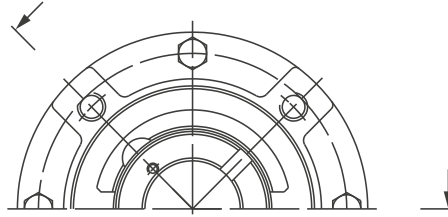
4) For stem protection tube made of PMMA max. Tr 30 or ACME 1fi

Dimensions	AF 07.2 ²⁾		AF 07.6 ²⁾		AF 10.2		AF 14.2		AF 16.2	
ISO 5210/DIN 3210	F10	G0	F10	G0	F10	G0	F14	G1/2	F16	G3
F max. [kN] ¹⁾	16		33		52		100		160	
Ø d1	125				125		175		210	
Ø d2 f8	70	60	70	60	70	60	100		130	
Ø d3	102				102		140		165	
d4	M10				M10		M16		M20	
Ø d5	34				34		53		67	
Ø d6 max. ³⁾	Tr 32 ⁴⁾ ACME 1¼" ⁴⁾				Tr 32 ACME 1¼"		Tr 50 ACME 2"		Tr 65 ACME 2½"	
g	105				105		135		165	
h	3				3		4		4	
h2	12				12		13		15	
h3	20				20		25		35	
L	65				65		90		110	
Z	4				4		4		4	
Weight [kg]	5.2				5.5		13.7		23	

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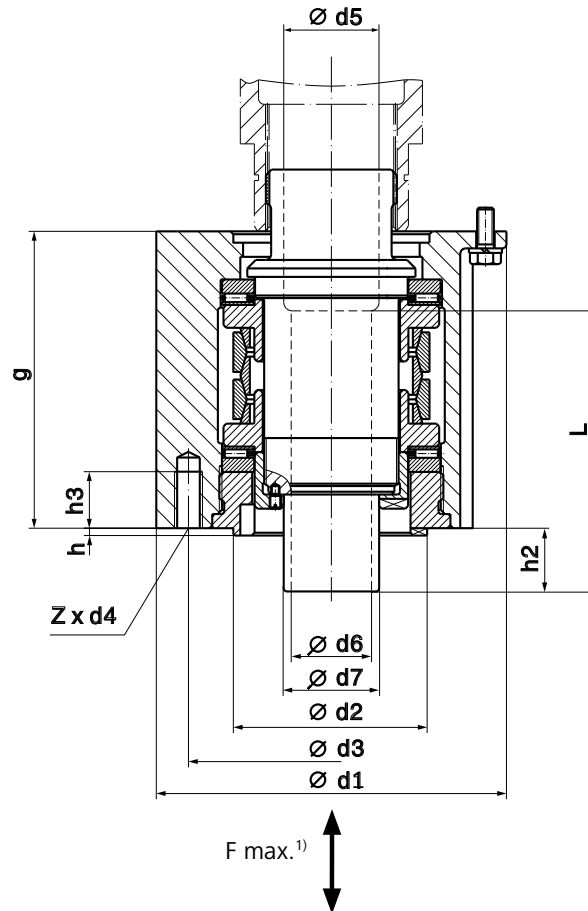
Dimensions Output drive type AF - with extended spring loaded stem nut

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2
SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2



Output drive type

ISO 5210 AF
DIN 3210 AF



1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

Dimensions	AF 07.2		AF 07.6		AF 10.2		AF 16.2	
	F10	G0	F10	G0	F10	G0	F16	G3
ISO 5210/DIN 3210								
F max. [kN] ¹⁾	16		33		52		160	
Ø d1	125		125		125		210	
Ø d2 f8	70	60	70	60	70	60	130	
Ø d3	102		102		102		165	
d4	M10		M10		M10		M20	
Ø d5	34		34		34		67	
Ø d6 max. ²⁾	Tr 26 ACME 1"		Tr 26 ACME 1"		Tr 26 ACME 1"		Tr 52 ACME 2"	
Ø d7	33		33		33		65	
g	105		105		105		165	
h	3		3		3		4	
h2	23.5		23.5		23.5		49	
h3	20		20		20		35	
L	100		100		100		110	
Z	4		4		4		4	
Weight [kg]	5.4		5.7		5.7		25.5	

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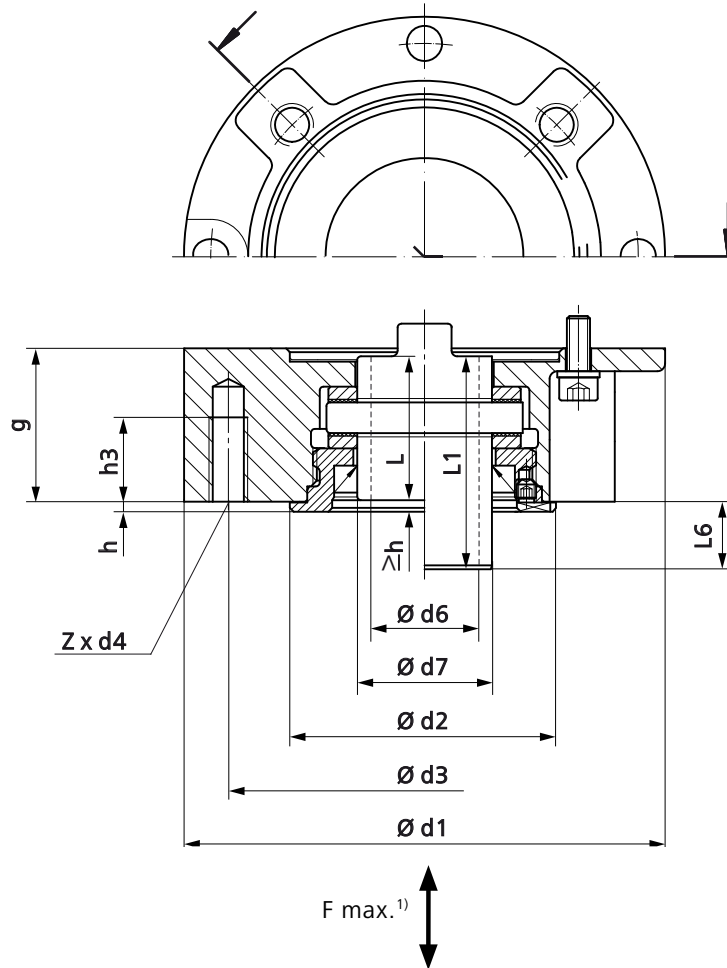
Dimensions Output drive AG stem nut for oxygen application

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

GK 10.2 – GK 16.2

GST 10.1 – GST 16.1

Output drive
EN ISO 5210 AG

1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

Dimensions	AG 10.2	AG 14.2	AG 16.2
EN ISO 5210	F10	F14	F16
F max. [kN] ¹⁾	70	160	250
Ø d1	125	175	210
Ø d2 f8	70	100	130
Ø d3	102	140	165
d4	M10	M16	M20
Ø d6 max. ²⁾	Tr 40 ³⁾	Tr 55	Tr 75
	ACME 1½" ³⁾	ACME 2¼"	ACME 3"
Ø d7	50	75	99
g	50	65	80
h	3	4	5
h3	22	25	35
L	47.5	61.5	76.5
L1	70.5	90	112.5
L6	23	28.5	36
Z	4	4	4
Weight: Standard Version [kg]	2.8	6.8	11.7
Weight: Extended Version [kg]	3.2	7.8	14.2

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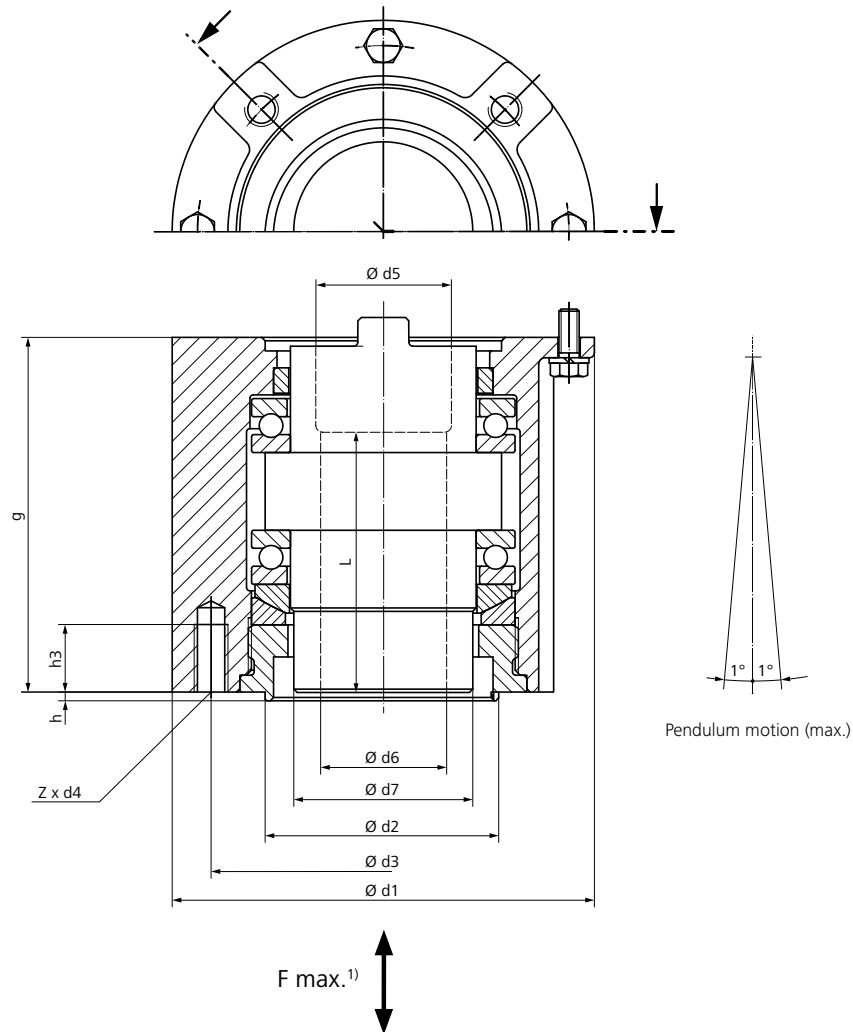
Dimensions Output drive type AK

for SA 07.2 – SA 16.2/SAR 07.2 – SAR 16.2

SAEx 07.2 – SAEx 16.2/SAREx 07.2 – SAREx 16.2

GK 10.2 – GK 16.2

GST 10.1 – GST 16.1

Output drive type
EN ISO 5210 AK

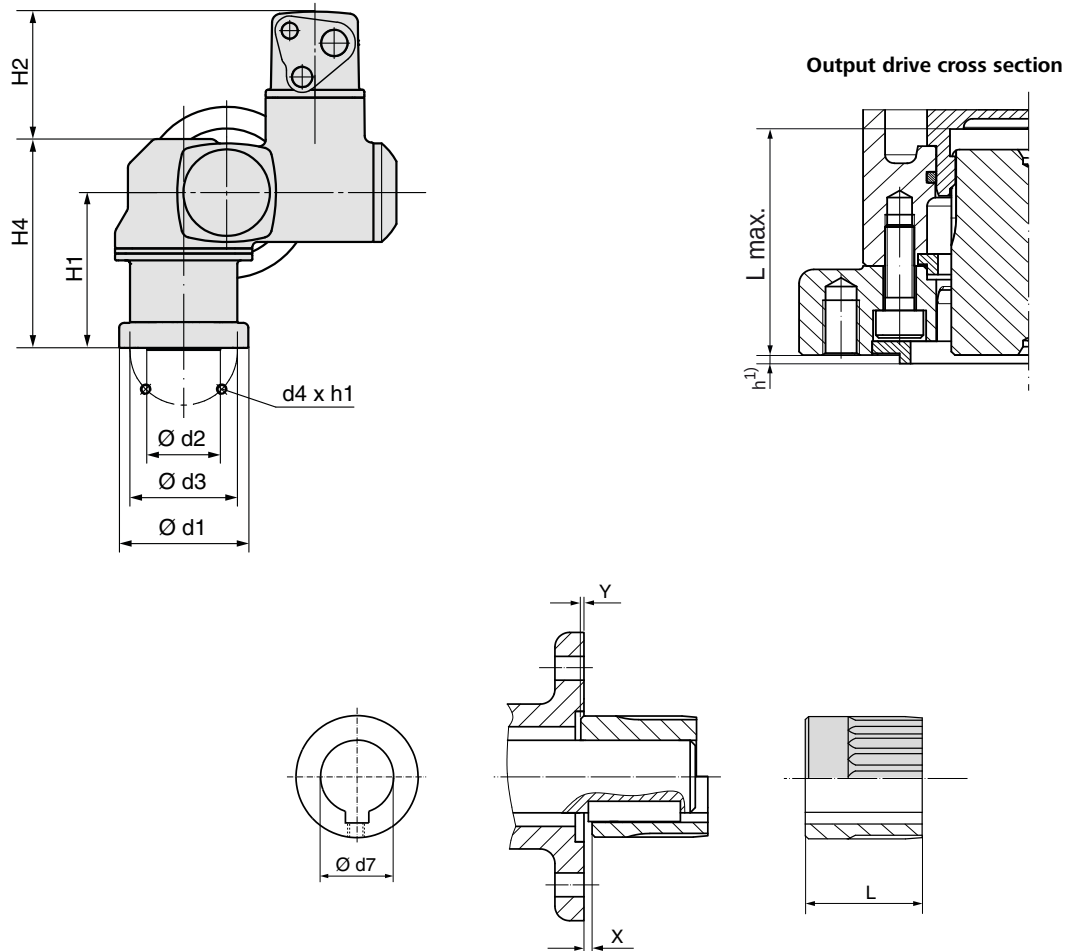
1) permissible axial load

2) nominal diameter for trapezoidal thread Tr according to DIN 103 or ACME according to ANSI/ASME B 1.5

3) when mounting to multi-turn actuator sizes 07.2/07.6, refer to Dimensions Multi-turn actuators for max. nominal diameter

Dimensions	AK 10.2		AK 14.2		AK 16.2	
	F10	G0	F14	G1/2	F16	G3
EN ISO 5210/DIN 3210						
F max. [kN] ¹⁾		70		160		250
Ø d1		125		175		210
Ø d2 f8	70	60	100		130	
Ø d3		102	140		165	
d4		M10	M16		M20	
Ø d5		41	58		76	
Ø d6 max. ²⁾		Tr 40 ³⁾ ACME 1½" ³⁾	Tr 55 ACME 2¼"		Tr 75 ACME 2¾"	
Ø d7		53	78		97	
g		105	135		165	
h		3	4		4	
h3		20	25		35	
L		65	90		110	
Z		4	4		4	
Weight kg		5.5	13.7		23	

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.



Mounting position of the coupling within fitting dimensions according to AUMA definitio

1) Allowance for spigot is not available as standard. Spigot can be ordered as option

2) Bores for screws d4 shifted by 45°

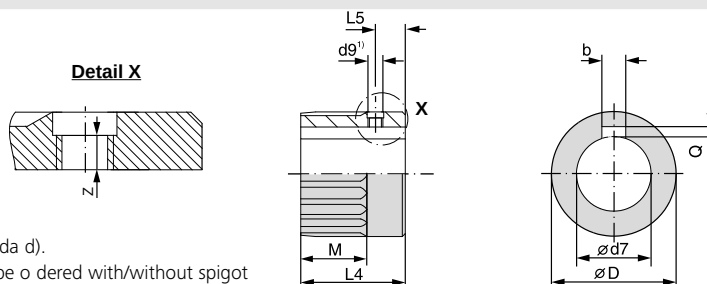
For all other dimensions, refer to standard dimension sheet.

Output drives according to EN ISO 5211

Dimensions	EN ISO 5211	H1	H2	H4	L	L max.	X max.	Y max.	Ø d1	Ø d2 ¹⁾	Ø d3	d4	Ø d7 max.	h	h1 ¹⁾
SQ 05.2	F04	154	210	213	55	60	3	2	54	30	42	4 x M5	15	2.5	10
	F07	134	210	193	35	40	3	2	90	55	70	4 x M8	25.4	2.5	15
SQ 07.2	F07	134	210	193	35	40	3	2	90	55	70	4 x M8	25.4	2.5	15
	F10	160	210	217	60	66	3	2	125	70	102	4 x M10	25.4	2.5	16
	F12	154	210	211	55	60	3	2	150	85	125	4 x M12	25.4	3	19
SQ 10.2	F07	171	210	234	65	70	6	3	125	55	70	4 x M8	38	3	13
	F12 ²⁾	183	210	246	75	82	6	3	150	85	125	4 x M12	38	2.5	19
SQ 12.2	F10 ²⁾	215	210	278	95	101	5	10	125	—	102	4 x M10	50	—	18
	F14 ²⁾	215	210	278	95	101	5	10	175	100	140	4 x M16	50	3.5	25
	F16 ²⁾	225	210	288	105	111	5	10	210	130	165	4 x M20	50	4.5	32
SQ 14.2	F12 ²⁾	240	210	303	95	105	8	10	175	85	125	4 x M12	60	3	19
	F16 ²⁾	260	210	323	115	125	8	10	210	130	165	4 x M20	60	4.5	32

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Couplings (standard), bore with keyway according to DIN 6885-1

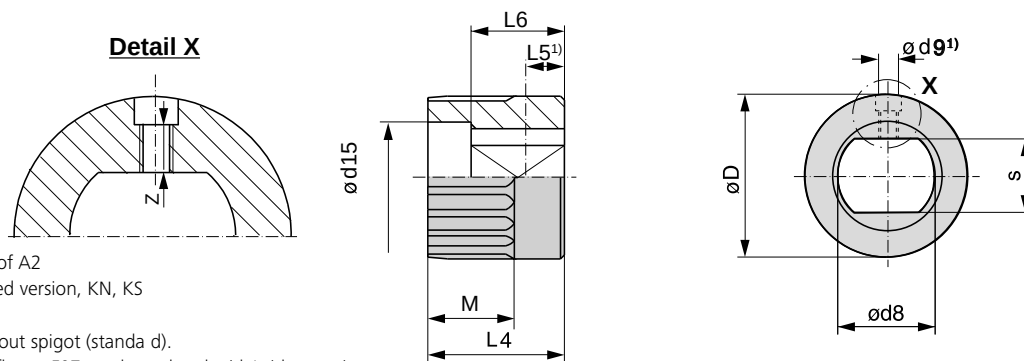


- 1) Thread with grub screw made of A2
 2) Article number refers to unbored version, KN, KS
 3) Combined flange F05/F07 without spigot (standa d).
 As an alternative an individual flange F07 can be ordered with/without spigot

Type	Article no. ²⁾	Ø D	L4	M	Splined coupling DIN 5480	Ø d7 max.	Ø d7 H8 over	to	b JS 9	Q	Parallel key DIN 6885-1	Ø d9 ¹⁾	L5 ¹⁾	Grub screw ¹⁾ ISO 4029	Z
SG 03.3/SG 04.3	2009.977	24.8	25	17	25x1x24	15	12	15	5	2.3 + 0.1	5 x 5 x ..	M4	5	M4 x 4	6
							10	12	4	1.8 + 0.1	4 x 4 x ..				
							8	10	3	1.4 + 0.1	3 x 3 x ..				
SG 04.2	2009.992	24.8	35	17	25x1x24	15	12	15	5	2.3 + 0.1	5 x 5 x ..	M4	8	M4 x 4	6
							10	12	4	1.8 + 0.1	4 x 4 x ..				
							8	10	3	1.4 + 0.1	3 x 3 x ..				
SGC 04.1/05.1 SVC/SVM 05.1 SG 05.2 SG 05.3 GS 50.3 F05 GHE 05.1 SGM 04.1/05.1	2010.132	31.75	35	20	32x1.25x24	20	17	20	6	2.8 + 0.1	6 x 6 x ..	M4	8	M4 x 4	6
							12	17	5	2.3 + 0.1	5 x 5 x ..				
							10	12	4	1.8 + 0.1	4 x 4 x ..				
SGC/SGM 07.1 SQ 05.2 – F05/F07 ³⁾ SQ 07.2 – F05/F07 ³⁾ SG 07.2 GHE 07.1 SVC/SVM 07.1/5 FQM 05.1/07.1	2010.369	41.75	35	20	42x1.25x32	25.4	22	25.4	8	3.3 + 0.2	8 x 7 x ..	M5	8	M5 x 5	7.5
							17	22	6	2.8 + 0.2	6 x 6 x ..				
							12	17	5	2.3 + 0.1	5 x 5 x ..				
SG 05.1/SG 07.1	2010.169	41.75	40	20	42x1.25x32	25.4	22	25.4	8	3.3 + 0.2	8 x 7 x ..	M5	8	M5 x 5	7.5
							17	22	6	2.8 + 0.1	6 x 6 x ..				
							12	17	5	2.3 + 0.1	5 x 5 x ..				
SQ 07.2 – F10	2010.658	41.75	60	20	42x1.25x32	25.4	22	25.4	8	3.3 + 0.2	8 x 7 x ..	M5	8	M5 x 5	7.5
							17	22	6	2.8 + 0.1	6 x 6 x ..				
							12	17	5	2.3 + 0.1	5 x 5 x ..				
SGC/SGM 10.1 SQ 10.2 – F10 GS 50.3 GHE 10.1 SG 10.2	2010.302	51.75	45	30	52x1.25x40	38	30	38	10	3.3 + 0.2	10 x 8 x ..	M6	10	M6 x 6	9
							22	30	8	3.3 + 0.2	8 x 7 x ..				
							17	22	6	2.8 + 0.1	6 x 6 x ..				
SG 10.1	2010.328	51.75	65	35	52x1.25x40	38	30	38	10	3.3 + 0.2	10 x 8 x ..	M6	10	M6 x 6	9
							22	30	8	3.3 + 0.2	8 x 7 x ..				
							17	22	6	2.8 + 0.1	6 x 6 x ..				
SQ 10.2 – F12	Z044.911	51.75	75	30	52x1.25x40	38	30	38	10	3.3 + 0.2	10 x 8 x ..	M6	10	M6 x 6	9
							22	30	8	3.3 + 0.2	8 x 7 x ..				
							17	22	6	2.8 + 0.1	6 x 6 x ..				
SQ 12.2 – F12 GS 63.3 GHE 12.1 FQM 10.1/12.1	2010.368	67.6	55	40	68x2x32	50	44	50	14	3.8 + 0.2	14 x 9 x ..	M6	10	M6 x 6	9
							38	44	12	3.3 + 0.2	12 x 8 x ..				
							30	38	10	3.3 + 0.2	10 x 8 x ..				
SG 12.1	2010.184	67.6	75	40	68x2x32	50	44	50	14	3.8 + 0.2	14 x 9 x ..	M6	10	M6 x 6	9
							38	44	12	3.3 + 0.2	12 x 8 x ..				
							30	38	10	3.3 + 0.2	10 x 8 x ..				
SQ 12.2 – F14	Z006.070	67.6	95	40	68x2x32	50	44	50	14	3.8 + 0.2	14 x 9 x ..	M6	10	M6 x 6	9
							38	44	12	3.3 + 0.2	12 x 8 x ..				
							30	38	10	3.3 + 0.2	10 x 8 x ..				
SQ 12.2 – F16	Z006.071	67.6	105	40	68x2x32	50	44	50	14	3.8 + 0.2	14 x 9 x ..	M6	10	M6 x 6	9
							38	44	12	3.3 + 0.2	12 x 8 x ..				
							30	38	10	3.3 + 0.2	10 x 8 x ..				
SQ 14.2 – F14 GS 80.3	Z010.394	81.6	65	47	82x2x40	60	58	60	18	4.4 + 0.2	18 x 11 x ..	M6	10	M6 x 6	9
							50	58	16	4.3 + 0.2	16 x 10 x ..				
							44	50	14	3.8 + 0.2	14 x 9 x ..				
SQ 14.2 – F16	Z111.676	81.6	115	40	82x2x40	60	58	60	18	4.4 + 0.2	18 x 11 x ..	M6	10	M6 x 6	9
							50	58	16	4.3 + 0.2	16 x 10 x ..				
							44	50	14	3.8 + 0.2	14 x 9 x ..				
GS 100.3	Z015.955	105.8	80	50	106x2x52	80	75	80	22	5.4 + 0.2	22 x 14 x ..	M8	18	M8 x 8	12
							65	75	20	4.9 + 0.2	20 x 12 x ..				
							58	65	18	4.4 + 0.2	18 x 11 x ..				
GS 125.3	Z017.441	119.6	110	70	120x2x60	90	85	90	25	5.4 + 0.2	25 x 14 x ..	M8	18	M8 x 8	12
							75	85	22	5.4 + 0.2	22 x 14 x ..				
							65	75	20	4.9 + 0.2	20 x 12 x ..				

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Dimensions Couplings (standard), two-flat bore according to ISO 5211



1) Thread with grub screw made of A2

2) Article number refers to unbored version, KN, KS

3) DIN 475

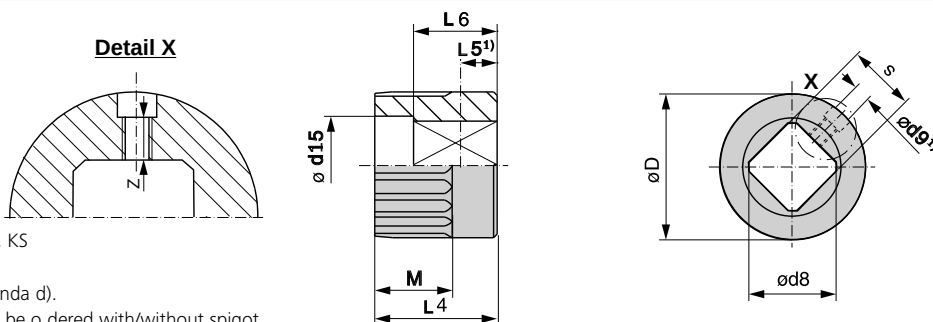
4) Combined flange F05/F07 without spigot (standard).

As an alternative an individual flange F07 can be ordered with/without spigot

Type	Article no. ²⁾	Ø D	L4	M	Splined coupling DIN 5480	S H 11		Ø d8 max.	L6	Ø d9 ¹⁾	Ø d15	L5 ¹⁾	Grub screw ¹⁾ ISO 4029	Z
SG 03.3/SG 04.3	Z009.977	24.8	25	17	25x1x24	11	11	14.1	25	M4	16	5	M4 x 4	6
SG 04.2	Z009.992	24.8	35	17	25x1x24	11	11	14.1	25	M4	16	8	M4 x 4	6
SGC 04.1/05.1 SVC/SVM 05.1 SG 05.2 SG 05.3 GS 50.3 F05 GHE 05.1 SGM 04.1/05.1 SGC/SGM 07.1	Z010.132	31.75	35	20	32x1.25x24	11	16 ³⁾	18 ³⁾	25	M4	22.5	8	M4 x 4	6
SQ 05.2 – F05/F07 ⁴⁾ SQ 07.2 – F05/F07 ⁴⁾ SG 07.2 GHE 07.1 SVC/SVM 07.1/5 FQM 05.1/07.1	Z010.369	41.75	35	20	42x1.25x32	11	16 ³⁾	18 ³⁾	25	M5	22.5	8	M5 x 5	7.5
	Z021.449					16 ³⁾	22	28.2	30		31			
SG 05.1/SG 07.1	Z010.169	41.75	40	20	42x1.25x32	11	16 ³⁾	18 ³⁾	25	M5	22.5	8	M5 x 5	7.5
						16 ³⁾	22	28.2	30		31			
SQ 07.2 – F10	Z010.658	41.75	60	20	42x1.25x32	11	16 ³⁾	18 ³⁾	25	M5	22.5	8	M5 x 5	7.5
						16 ³⁾	22	28.2	30		31			
SGC/SGM 10.1 SQ 10.2 – F10 GS 50.3 GHE 10.1 SG 10.2	Z010.302	51.75	45	30	52x1.25x40	11	16 ³⁾	18 ³⁾	25		22.5			
						16 ³⁾	22	28.2	30	M6	31	10	M6 x 6	9
						22	27	36.2	40		41			
SG 10.1	Z010.328	51.75	65	35	52x1.25x40	11	16 ³⁾	18 ³⁾	25	M6	31	10	M6 x 6	9
						16 ³⁾	22	28.2	30		31			
						22	27	36.2	40		41			
SQ 10.2 – F12	Z044.911	51.75	75	30	52x1.25x40	11	16 ³⁾	18 ³⁾	25		22.5			
						16 ³⁾	22	28.2	30	M6	31	10	M6 x 6	9
						22	27	36.2	40		41			
SQ 12.2 – F12 GS 63.3 GHE 12.1 FQM 10.1/12.1	Z010.368	67.6	55	40	68x2x32	16 ³⁾	22	28.2	30		31			
	Z021.415					22	27	36.2	40	M6	41	10	M6 x 6	9
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45		53			
SG 12.1	Z010.184	67.6	75	40	68x2x32	16 ³⁾	22	28.2	30		31			
						22	27	36.2	40	M6	41	10	M6 x 6	9
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45		53			
SQ 12.2 – F14	Z006.070	67.6	95	40	68x2x32	16 ³⁾	22	28.2	30		31			
						22	27	36.2	40	M6	41	10	M6 x 6	9
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45		53			
SQ 12.2 – F16	Z006.071	67.6	105	40	68x2x32	16 ³⁾	22	28.2	30		31			
						22	27	36.2	40	M6	41	10	M6 x 6	9
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45		53			
SQ 14.2 – F14 GS 80.3	Z010.394	81.6	65	47	82x2x40	22	27	36.2	40		41			
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45	M6	53	10	M6 x 6	9
						36 (41 ³⁾)	46	60.2	59		64			
SQ 14.2 – F16	Z111.676	81.6	115	40	82x2x40	22	27	36.2	40		41			
						27	36 (41 ³⁾)	48.2 (48 ³⁾)	45	M6	53	10	M6 x 6	9
						36 (41 ³⁾)	46	60.2	59		64			
GS 100.3	Z015.955	105.8	80	50	106x2x52	27	36 (41 ³⁾)	48.2 (48 ³⁾)	45		53			
						36 (41 ³⁾)	46	60.2	59	M8	64	18	M8 x 8	12
						46	55	72.2	77		85			
GS 125.3	Z017.441	119.6	110	70	120x2x60	36 (41 ³⁾)	46	60.2	59		64			
						46	55	72.2	77	M8	85	18	M8 x 8	12
						55	75	98.2	94		95			

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Dimensions Couplings (standard), square bore according to ISO 5211



1) Thread with grub screw made of A2

2) Article number refers to unbored version, KN, KS

3) DIN 79

4) Combined flange F05/F07 without spigot (standa d).

As an alternative an individual flange F07 can be ordered with/without spigot

Type	Article no. ²⁾	Ø D	L4	M	Splined coupling DIN 5480	S H11 over	S H11 to	Ø d8 max.	L6	Ø d9 ¹⁾	Ø d15	L5 ¹⁾	Grub screw ¹⁾ ISO 4029	Z
SG 03.3/SG 04.3	Z009.977	24.8	25	17	25x1x24	11	11	14.1	25	M4	16	5	M4 x 4	6
						14	14	18.1						
SG 04.2	Z009.992	24.8	35	17	25x1x24	11	11	14.1	30	M4	16	8	M4 x 4	6
						14	14	18.1						
SGC 04.1/05.1 SVC/SVM 05.1 SG 05.2 SG 05.3 GS 50.3 F05 GHE 05.1 SGM 04.1/05.1	Z010.132	31.75	35	20	32x1.25x24	11	11	14.1	30	M4	16	8	M4 x 4	6
						14	14	18.1			20			
						17	17	22.2			24			
SGC/SGM 07.1 SQ 05.2 – F05/F07 ⁴⁾ SQ 07.2 – F05/F07 ⁴⁾ SG 07.2 GHE 07.1 SVC/SVM 07.1/5 FQM 05.1/07.1	Z010.369	41.75	35	20	42x1.25x32	11	11	14.1	30	M5	20	8	M5 x 5	7.5
						14	14	18.1			24			
						17	17	22.2			31.5			
	Z021.449					22	22	28.2						
SG 05.1/SG 07.1	Z010.169	41.75	40	20	42x1.25x32	11	11	14.1	30	M5	20	8	M5 x 5	7.5
						14	14	18.1			24			
						17	17	22.2			31.5			
						22	22	28.2						
SQ 07.2 – F10	Z010.658	41.75	60	20	42x1.25x32	11	11	14.1	30	M5	20	8	M5 x 5	7.5
						14	14	18.1			24			
						17	17	22.2			31.5			
SGC/SGM 10.1 SQ 10.2 – F10 GS 50.3 GHE 10.1 SG 10.2	Z010.302	51.75	45	30	52x1.25x40	14	14	17	30	M6	24	10	M6 x 6	9
						17	17	22	30	M6	31.5			
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
SG 10.1	Z010.328	51.75	65	35	52x1.25x40	14	14	17	30	M6	24	10	M6 x 6	9
						17	17	22	30	M6	31.5			
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
SQ 10.2 – F12	Z044.911	51.75	75	30	52x1.25x40	14	14	17	30	M6	24	10	M6 x 6	9
						17	17	22	30	M6	31.5			
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
SQ 12.2 – F12 GS 63.3 GHE 12.1 FQM 10.1/12.1	Z010.368	67.6	55	40	68x2x32	17	17	22	30	M6	31.5	10	M6 x 6	9
						22	22	30 ³⁾	40		41.5			
	Z021.415					36	36	48.2	50					
						50	50	60.2	60					
SG 12.1	Z010.184	67.6	75	40	68x2x32	17	17	22	30	M6	31.5	10	M6 x 6	9
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
						50	50	60.2	60					
SQ 12.2 – F14	Z006.070	67.6	95	40	68x2x32	17	17	22	30	M6	31.5	10	M6 x 6	9
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
						50	50	60.2	60					
SQ 12.2 – F16	Z006.071	67.6	105	40	68x2x32	17	17	22	30	M6	31.5	10	M6 x 6	9
						22	22	30 ³⁾	40		41.5			
						36	36	48.2	50					
						50	50	60.2	60					
SQ 14.2 – F14 GS 80.3	Z010.394	81.6	65	47	82x2x40	22	22	30 ³⁾	40	M6	41.5	10	M6 x 6	9
						36	36	48.2	50		50			
						46	46	60.2	60		64			
						75	75	98.2	80					
SQ 14.2 – F16	Z111.676	81.6	115	40	82x2x40	30 ³⁾	30 ³⁾	48.2	50	M6	50	10	M6 x 6	9
						36	36	48.2	50		64			
						46	46	60.2	60		82			
						75	75	98.2	80		95			
GS 100.3	Z015.955	105.8	80	50	106x2x52	36	36	48.2	50	M8	64	18	M8 x 8	12
						46	46	60.2	60		82			
						55	55	72.2	60		95			
GS 125.3	Z017.441	119.6	110	70	120x2x60	36	36	48.2	50	M8	64	18	M8 x 8	12
						46	46	60.2	60		82			
						55	55	72.2	60		95			

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7 Spare parts lists

Multi-turn actuators

SA(V) 07.2 – SA(V) 16.2 / SAR(V) 07.2 – SAR(V) 16.2	398
SA(V) 07.2-UW – SA(V) 16.2-UW / SAR(V) 07.2-UW – SAR(V) 16.2-UW	400

Part-turn actuators

SQ 05.2 – SQ 14.2	402
SQ 05.2 – SQ 14.2 with base and lever	404

Actuator controls

AM 01.1 – AM 02.1	406

AC 01.2	408
AC 01.2 Fieldbus	410
AC 01.2 SIL	412
ACV 01.2	414
ACV 01.2 Fieldbus	416

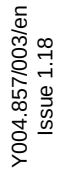
Accessories

SA 07.2 – SA 16.2 handwheel extension	418
SA 07.2 – SA 16.2 power tool emergency operation	420
SA 07.2 – SA 16.2 power tool emergency operation for pit application	422

pure®

SA(V) 07.2 – SA(V) 16.2

AUMA NORM



SA(V) 07.2 – SA(V) 16.2 SAR(V) 07.2 – SAR(V) 16.2



Spare parts list Multi-turn actuators AUMA NORM

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type	Ref. no.	Designation	Type
001.0	Housing	Sub-assembly	542.0	Handwheel with ball handle	Sub-assembly
002.0	Bearing flange	Sub-assembly	549.0	Output drive types B/B1/B2/B3/B4/C/E	Sub-assembly
003.0	Hollow shaft	Sub-assembly	549.1	Output drive sleeve B/B1/B2/B3/B4/C/E	Sub-assembly
005.0	Drive shaft	Sub-assembly	551.1	Parallel key	
005.1	Motor coupling		553.0	Mechanical position indicator	Sub-assembly
005.3	Manual drive coupling		554.0	Socket carrier for motor plug/socket connect- or with cable harness	Sub-assembly
006.0	Worm wheel		556.0	Potentiometer as position transmitter	Sub-assembly
009.0	Manual gearing	Sub-assembly	556.1	Potentiometer without slip clutch	Sub-assembly
017.0	Torque lever	Sub-assembly	557.0	Heater	
018.0	Gear segment		558.0	Blinker transmitter including pins at wires (without impulse disc and insulation plate)	Sub-assembly
019.0	Crown wheel		559.0–1	Electromechanical control unit with switches, including torque switching heads	Sub-assembly
022.0	Drive pinion II for torque switching	Sub-assembly	559.0–2	Electronic control unit with magnetic limit and torque transmitter (MWG)	Sub-assembly
023.0	Output drive wheel for limit switching	Sub-assembly	560.0–1	Switch stack for direction OPEN	Sub-assembly
024.0	Drive wheel for limit switching	Sub-assembly	560.0–2	Switch stack for direction CLOSE	Sub-assembly
025.0	Locking plate	Sub-assembly	560.1	Switch for limit/torque	Sub-assembly
058.0	Cable for protective earth	Sub-assembly	560.2–1	Switch case for direction OPEN	
070.0	Motor (only for V... motors incl. ref. no. 079.0)	Sub-assembly	560.2–2	Switch case for direction CLOSE	
079.0	Planetary gearing for motor drive (only for V... motors)	Sub-assembly	566.0	RWG position transmitter	Sub-assembly
155.0	Reduction gearing	Sub-assembly	566.1	Potentiometer for RWG without slip clutch	Sub-assembly
500.0	Cover	Sub-assembly	566.2	Position transmitter board for RWG	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly	566.3	Cable set for RWG	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly	567.1	Slip clutch for potentiometer	Sub-assembly
503.0	Socket for controls	Sub-assembly	568.1	Stem protection tube (without cap)	
504.0	Socket for motor	Sub-assembly	568.2	Protective cap for stem protection tube	
505.0	Pin for controls	Sub-assembly	568.3	V-seal	
506.0	Pin for motor	Sub-assembly	568.4	Threaded sleeve	
507.0	Cover for electrical connection	Sub-assembly	575.1	Stem nut A (without thread)	
511.0	Threaded plug	Sub-assembly	583.0	Motor coupling on motor shaft	Sub-assembly
514.0	Output drive type A (without stem nut)	Sub-assembly	583.1	Pin for motor coupling	
514.1	Axial needle roller bearing	Sub-assembly	584.0	Retaining spring for motor coupling	Sub-assembly
514.2	Radial seal for output drive type A		614.0	EWG position transmitter	Sub-assembly
516.0	Output drive type D	Sub-assembly	627.0	MWG 05.03 cover	
516.1	Output drive shaft D		S1	Seal kit, small	Set
535.1	Snap ring		S2	Seal kit, large	Set
539.0	Screw plug	Sub-assembly			

pure

SA(V) 07.2-UW – SA(V) 16.2-UW
SAR(V) 07.2-UW – SAR(V) 16.2-UW
AUMA NORM



U

B3 / E / B4

B1 / B2

SA(V) 07.2-UW – SA(V) 16.2-UW
SAR(V) 07.2-UW – SAR(V) 16.2-UW
Spare parts list Multi-turn actuators AUMA NORM



Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type	Ref. no.	Designation	Type
001.0	Housing	Sub-assembly	507.0	Cover for electrical connection	Sub-assembly
002.0	Bearing flange	Sub-assembly	511.0	Threaded plug	Sub-assembly
003.0	Solid shaft B1/B2/DD/B3D	Sub-assembly	516.0	Output drive type D	Sub-assembly
005.0	Drive shaft	Sub-assembly	516.1	Output drive shaft D	
005.1	Motor coupling		535.1	Snap ring	
005.3	Manual drive coupling		539.0	Screw plug	Sub-assembly
006.0	Worm wheel		542.0	Handwheel with ball handle	Sub-assembly
009.0	Manual gearing	Sub-assembly	549.0	Output drive type B3/E/B4	Sub-assembly
017.0	Torque lever	Sub-assembly	549.1	Output drive sleeve B3/E/B4	Sub-assembly
018.0	Gear segment		551.1	Parallel key	
019.0	Crown wheel		554.0	Socket carrier for motor plug/socket connect- or with cable harness	Sub-assembly
022.0	Drive pinion II for torque switching	Sub-assembly	557.0	Heater	
023.0	Output drive wheel for limit switching	Sub-assembly	559.0	Electronic control unit with magnetic limit and torque transmitter (MWG)	Sub-assembly
024.0	Drive wheel for limit switching	Sub-assembly	582.0	Double sealed frame	Sub-assembly
025.0	Locking plate	Sub-assembly	583.0	Motor coupling on motor shaft	Sub-assembly
058.0	Cable for protective earth	Sub-assembly	583.1	Pin for motor coupling	
070.0	Motor (only for V... motors incl. ref. no. 079.0)	Sub-assembly	584.0	Retaining spring for motor coupling	Sub-assembly
079.0	Planetary gearing for motor drive (only for V... motors)	Sub-assembly	627.0	MWG cover 05.3	
500.0	Cover	Sub-assembly	634.0	Shim washer (size 16.2 only)	
501.0	Socket carrier (complete with sockets)	Sub-assembly	635.0	Ball bearing	
502.0	Pin carrier without pins	Sub-assembly	639.0	Retaining ring (size 16.2 only)	
503.0	Socket for controls	Sub-assembly	641.0	Shaft protection assy	
504.0	Socket for motor	Sub-assembly	642.0	Bellows assy	
505.0	Pin for controls	Sub-assembly	S1	Seal kit, small	Set
506.0	Pin for motor	Sub-assembly	S2	Seal kit, large	Set

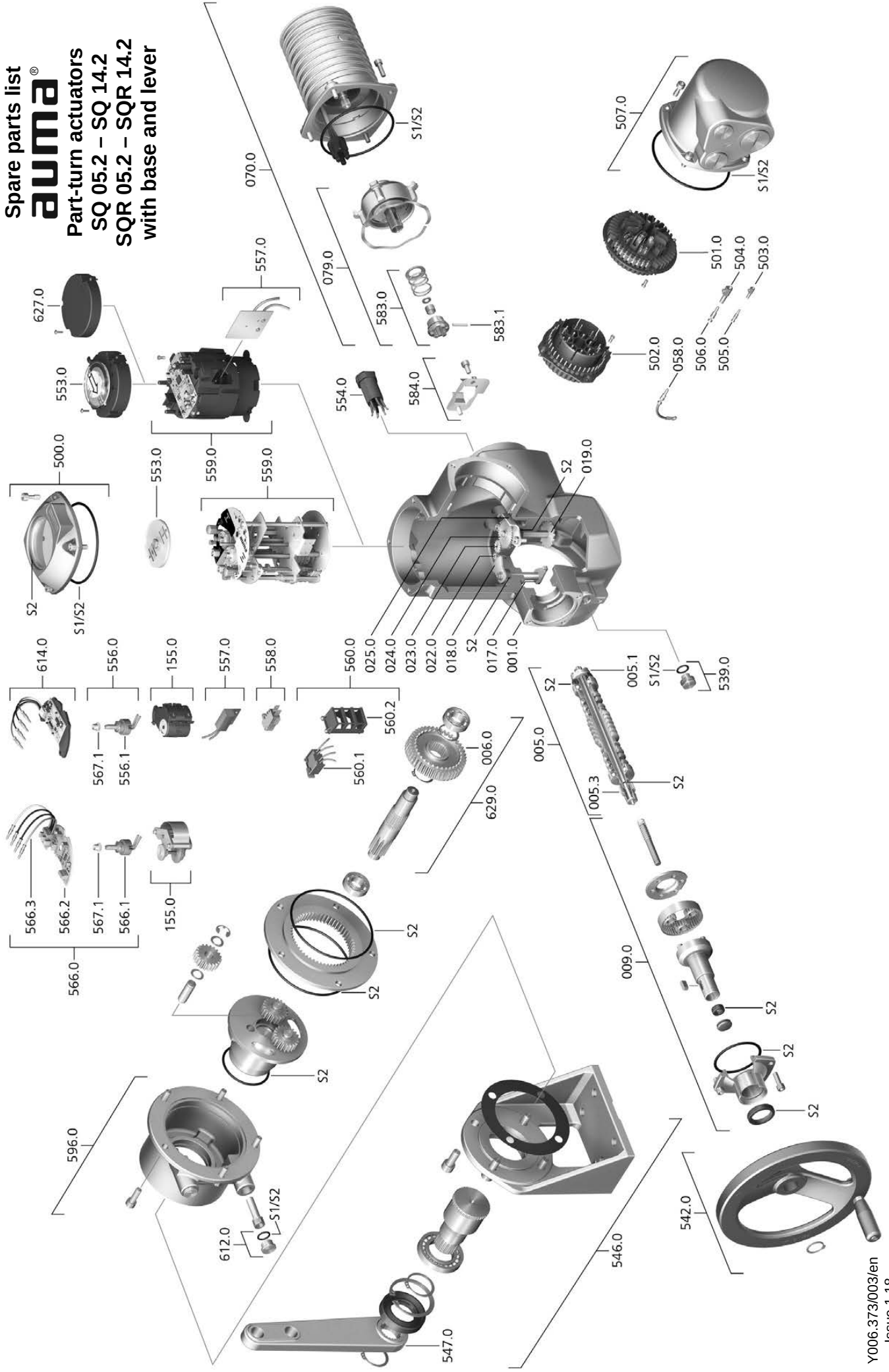
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Spare parts list Part-turn actuators AUMA NORM

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type	Ref. no.	Designation	Type
001.0	Housing	Sub-assembly	553.0	Mechanical position indicator	Sub-assembly
005.0	Drive shaft	Sub-assembly	554.0	Socket carrier for motor plug/socket connect- or with cable harness	Sub-assembly
005.1	Motor coupling	Sub-assembly	556.0	Potentiometer as position transmitter	Sub-assembly
005.3	Manual drive coupling		556.1	Potentiometer without slip clutch	Sub-assembly
006.0	Worm wheel	Sub-assembly	557.0	Heater	Sub-assembly
009.0	Manual gearing	Sub-assembly	558.0	Blinker transmitter including pins at wires (without impulse disc and insulation plate)	Sub-assembly
017.0	Torque lever		559.0–1	Electromechanical control unit with switches, including torque switching heads	Sub-assembly
018.0	Gear segment	Sub-assembly	559.0–2	Electronic control unit with magnetic limit and torque transmitter (MWG)	Sub-assembly
019.0	Crown wheel		560.0–1	Switch stack for direction OPEN	Sub-assembly
022.0	Drive pinion II for torque switching	Sub-assembly	560.0–2	Switch stack for direction CLOSE	Sub-assembly
023.0	Output drive wheel for limit switching	Sub-assembly	560.1	Switch for limit/torque	Sub-assembly
024.0	Drive wheel for limit switching	Sub-assembly	560.2–1	Switch case for direction OPEN	
025.0	Locking plate	Sub-assembly	560.2–2	Switch case for direction CLOSE	
058.0	Cable for protective earth	Sub-assembly	566.0	RWG position transmitter	Sub-assembly
070.0	Motor (incl. ref. no. 079.0)	Sub-assembly	566.1	Potentiometer for RWG without slip clutch	Sub-assembly
079.0	Planetary gearing for motor drive	Sub-assembly	566.2	Position transmitter board for RWG	Sub-assembly
155.0	Reduction gearing	Sub-assembly	566.3	Cable set for RWG	Sub-assembly
500.0	Cover	Sub-assembly	567.1	Slip clutch for potentiometer	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly	583.0	Motor coupling on motor shaft	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly	583.1	Pin for motor coupling	Sub-assembly
503.0	Socket for controls	Sub-assembly	584.0	Retaining spring for motor coupling	
504.0	Socket for motor		596.0	Output drive flange with end stop	Sub-assembly
505.0	Pin for controls	Sub-assembly	612.0	Screw plug for end stop	Sub-assembly
506.0	Pin for motor	Sub-assembly	614.0	EWG position transmitter	Sub-assembly
507.0	Cover for electrical connection	Sub-assembly	627.0	MWG 05.03 cover	
525.0	Coupling	Sub-assembly	629.0	Pinion shaft	Sub-assembly
539.0	Screw plug	Sub-assembly	S1	Seal kit, small	Set
542.0	Handwheel with ball handle		S2	Seal kit, large	Set

Spare parts list
auma®
 Part-turn actuators
 SQ 05.2 – SQ 14.2
 SQR 05.2 – SQR 14.2
 with base and lever

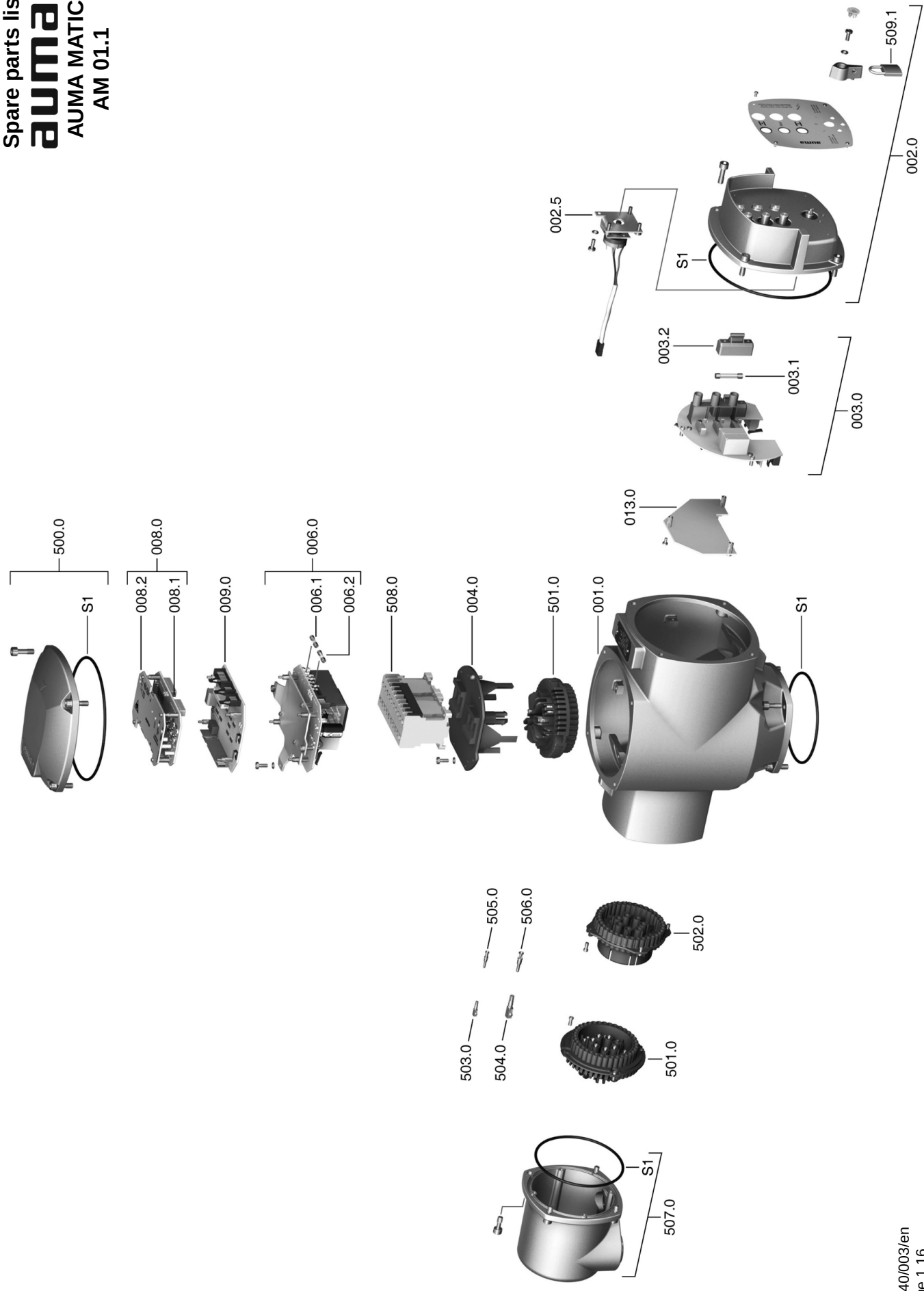


Spare parts list Part-turn actuators with base and lever

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

No.	Designation	Type	No.	Designation	Type
001.0	Housing	Sub-assembly	547.0	Swing lever	Sub-assembly
005.0	Drive shaft	Sub-assembly	553.0	Mechanical position indicator	Sub-assembly
005.1	Motor coupling	Sub-assembly	554.0	Socket carrier and motor plug/socket connector with cable harness	Sub-assembly
005.3	Manual drive coupling		556.0	Potentiometer as position transmitter	Sub-assembly
006.0	Worm wheel	Sub-assembly	556.1	Potentiometer without slip clutch	Sub-assembly
009.0	Manual gearing	Sub-assembly	557.0	Heater	Sub-assembly
017.0	Torque lever		558.0	Blinker transmitter including pins at wires (without impulse disc and insulation plate)	Sub-assembly
018.0	Gear segment	Sub-assembly	559.0–1	Electromechanical control unit with switches, including torque switching heads	Sub-assembly
019.0	Crown wheel		559.0–2	Electronic control unit with magnetic limit and torque transmitter (MWG)	Sub-assembly
022.0	Drive pinion II for torque switching	Sub-assembly	560.0–1	Switch stack for direction OPEN	Sub-assembly
023.0	Output drive wheel for limit switching	Sub-assembly	560.0–2	Switch stack for direction CLOSE	Sub-assembly
024.0	Drive wheel for limit switching	Sub-assembly	560.1	Switch for limit/torque	Sub-assembly
025.0	Locking plate	Sub-assembly	560.2–1	Switch case for direction OPEN	
058.0	Cable for protective earth	Sub-assembly	560.2–2	Switch case for direction CLOSE	
070.0	Motor (incl. ref. no. 079.0)	Sub-assembly	566.0	RWG position transmitter	Sub-assembly
079.0	Planetary gearing for motor drive	Sub-assembly	566.1	Potentiometer for RWG without slip clutch	Sub-assembly
155.0	Reduction gearing	Sub-assembly	566.2	Position transmitter board for RWG	Sub-assembly
500.0	Cover	Sub-assembly	566.3	Cable set for RWG	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly	567.1	Slip clutch for potentiometer	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly	583.0	Motor coupling on motor shaft	Sub-assembly
503.0	Socket for controls	Sub-assembly	583.1	Pin for motor coupling	
504.0	Socket for motor	Sub-assembly	584.0	Retaining spring for motor coupling	Sub-assembly
505.0	Pin for controls	Sub-assembly	596.0	Output drive flange with end stop	Sub-assembly
506.0	Pin for motor	Sub-assembly	627.0	MWG 05.03 cover	
507.0	Cover for electrical connection	Sub-assembly	629.0	Pinion shaft	Sub-assembly
539.0	Screw plug	Sub-assembly	S1	Seal kit, small	Set
542.0	Handwheel with ball handle		S2	Seal kit, large	Set
546.0	Base flange	Sub-assembly			

Spare parts list
suma®
 AUMA MATIC
 AM 01.1

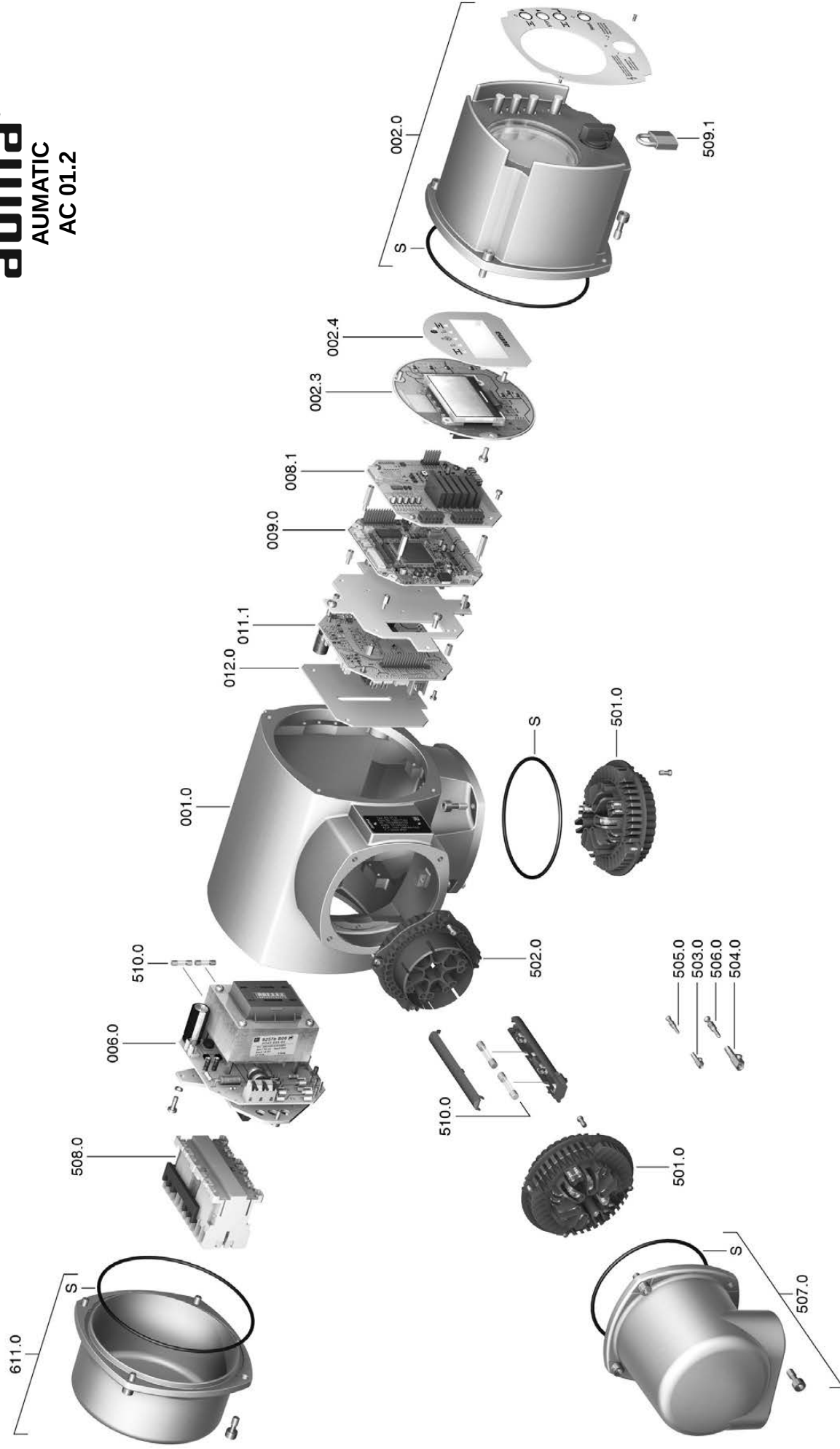


Spare parts list AUMA MATIC

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type
001.0	Housing	
002.0	Local controls	Sub-assembly
002.5	Selector switch	Sub-assembly
003.0	Signal and control board	Sub-assembly
003.1	Primary fuse F1/F2	
003.2	Fuse cover	
004.0	Carrier for contactors	
006.0	Power supply unit	Sub-assembly
006.1	Secondary fuse F3	
006.2	Secondary fuse F4	
008.0	Interface board	Sub-assembly
008.1	Interface board	
008.2	Cover plate for interface board	
009.0	Logic board	Sub-assembly
013.0	Adapter board	Sub-assembly
500.0	Cover	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Cover for electrical connection	Sub-assembly
508.0	Switchgear	Sub-assembly
509.1	Padlock	
S	Seal kit	Set

Spare parts list
auma[®]
 AUMATIC
 AC 01.2

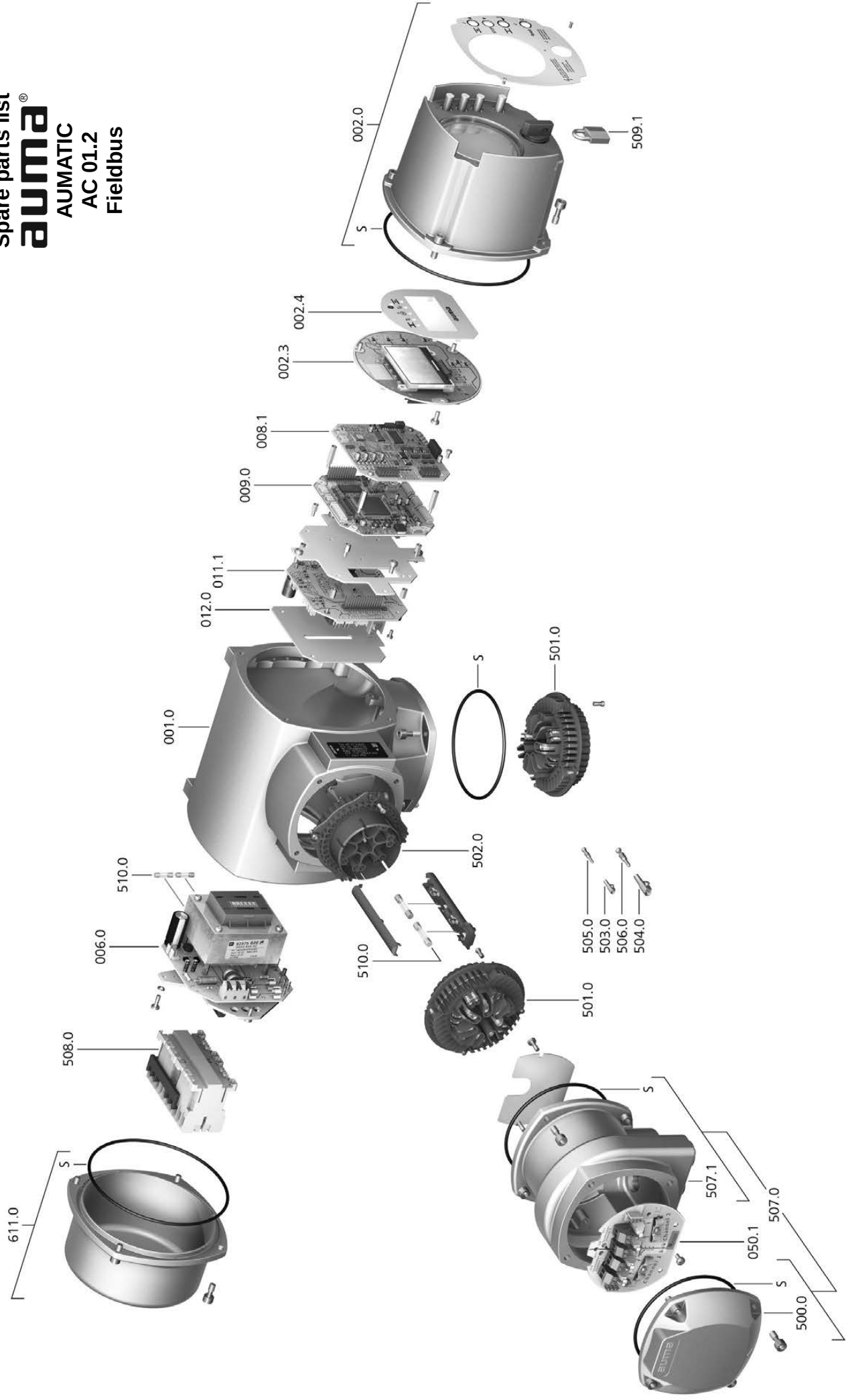


Spare parts list AUMATIC

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type
001.0	Housing	Sub-assembly
002.0	Local controls	Sub-assembly
002.3	Local controls board	Sub-assembly
002.4	Display face plate	
006.0	Power supply	Sub-assembly
008.1	I/O board	Sub-assembly
009.0	Logic board	Sub-assembly
011.1	Relay board	Sub-assembly
012.0	Option board	
501.0	Socket carrier complete with sockets	Sub-assembly
502.0	Pin carrier without pins	
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Cover for electrical connection	Sub-assembly
508.0	Switchgear	Sub-assembly
509.1	Padlock	Sub-assembly
510.0	Fuse kit	Set
611.0	Cover	Sub-assembly
S	Seal kit	Set

Spare parts list
auma[®]
 AUMATIC
 AC 01.2
 Fieldbus



Spare parts list AUMATIC Fieldbus

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

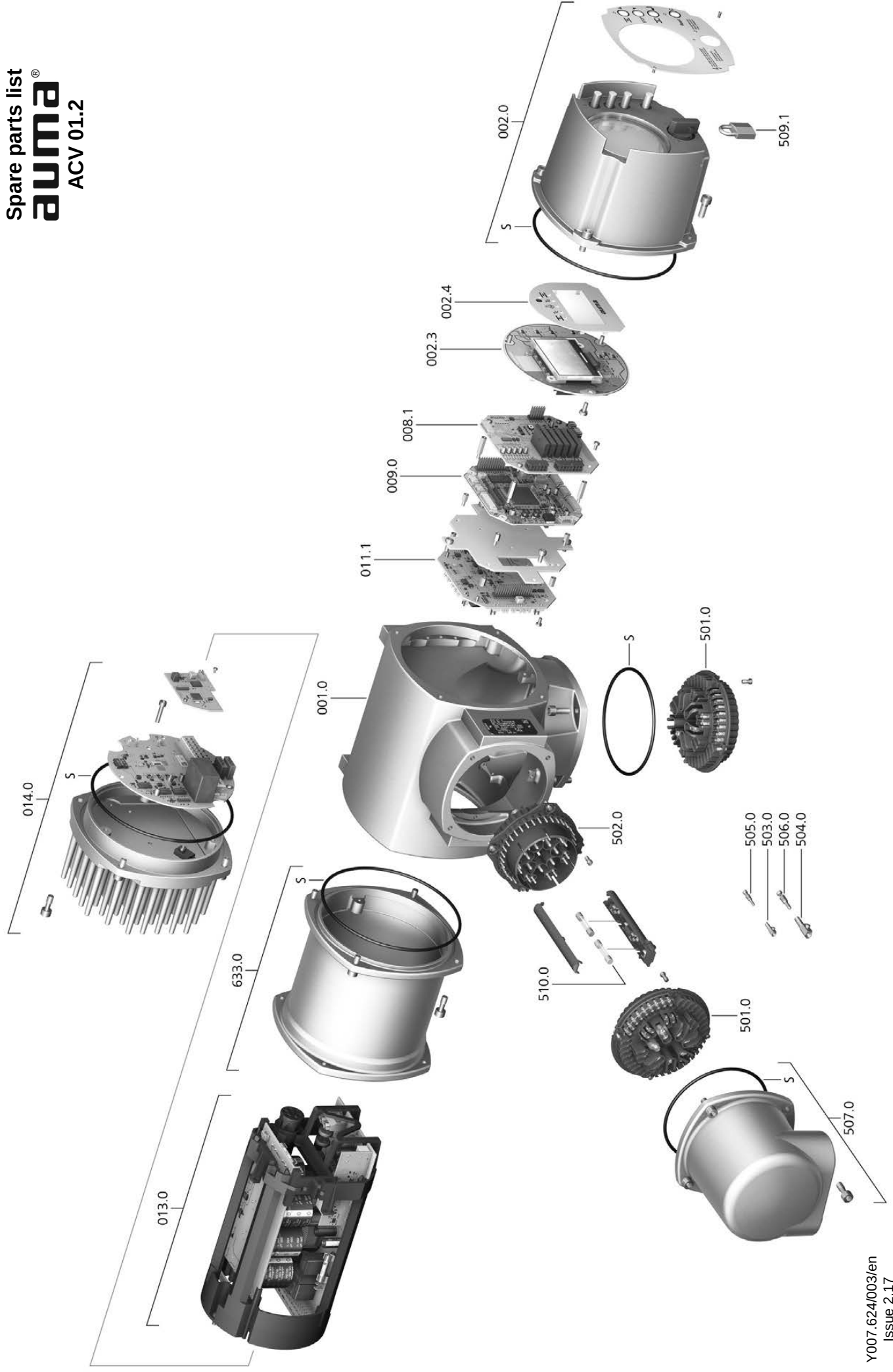
Ref. no.	Designation	Type
001.0	Housing	Sub-assembly
002.0	Local controls	Sub-assembly
002.3	Local controls board	Sub-assembly
002.4	Face plate for display	
006.0	Power supply unit	Sub-assembly
008.1	Fieldbus board	
009.0	Logic board	Sub-assembly
011.1	Relay board	Sub-assembly
012.0	Option board	
050.1	Fieldbus connection board	Sub-assembly
500.0	Cover	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Electrical connection for fieldbus without connection board (050.1)	Sub-assembly
507.1	Frame for electrical connection	Sub-assembly
508.0	Switchgear	Sub-assembly
509.1	Padlock	Sub-assembly
510.0	Fuse kit	Set
611.0	Cover	Sub-assembly
S	Seal kit	Set

Spare parts list AUMATIC

Please state type and order no. of the device (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Delivered spare parts may slightly vary from the representation.

Ref. No.	Designation	Type
001.0	Housing	Sub-assembly
002.0	Local controls	Sub-assembly
002.3	Local controls board	Sub-assembly
002.4	Face plate for display	Sub-assembly
006.0	Power supply unit	
008.1	I/O board	Sub-assembly
009.0	Logic board	
011.1	Relay board	Sub-assembly
012.0	Option board	Sub-assembly
013.1	I/O board SIL module	
501.0	Socket carrier (complete with sockets)	Sub-assembly
502.0	Pin carrier without pins	
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Cover for electrical connection	Sub-assembly
508.0	Switchgear	Sub-assembly
509.1	Padlock	Sub-assembly
510.0	Fuse kit	Set
611.0	Cover	Sub-assembly
S	Seal kit	Set

Spare parts list
auma[®]
 ACV 01.2



Spare parts list

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

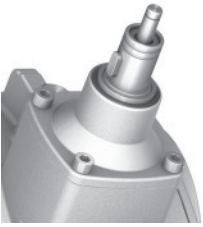
Ref. no.	Designation	Type
001.0	Housing	Sub-assembly
002.0	Local controls	Sub-assembly
002.3	Local controls board	Sub-assembly
002.4	Face plate for display	
008.1	Fieldbus board	
009.0	Logic board	Sub-assembly
011.1	Relay board	Sub-assembly
013.0	Switchgear/DC link	
014.0	Motor controller	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Cover for electrical connection	Sub-assembly
509.1	Padlock	Sub-assembly
510.1	Fuse kit	Set
633.0	Switchgear housing	Sub-assembly
S	Seal kit	Set

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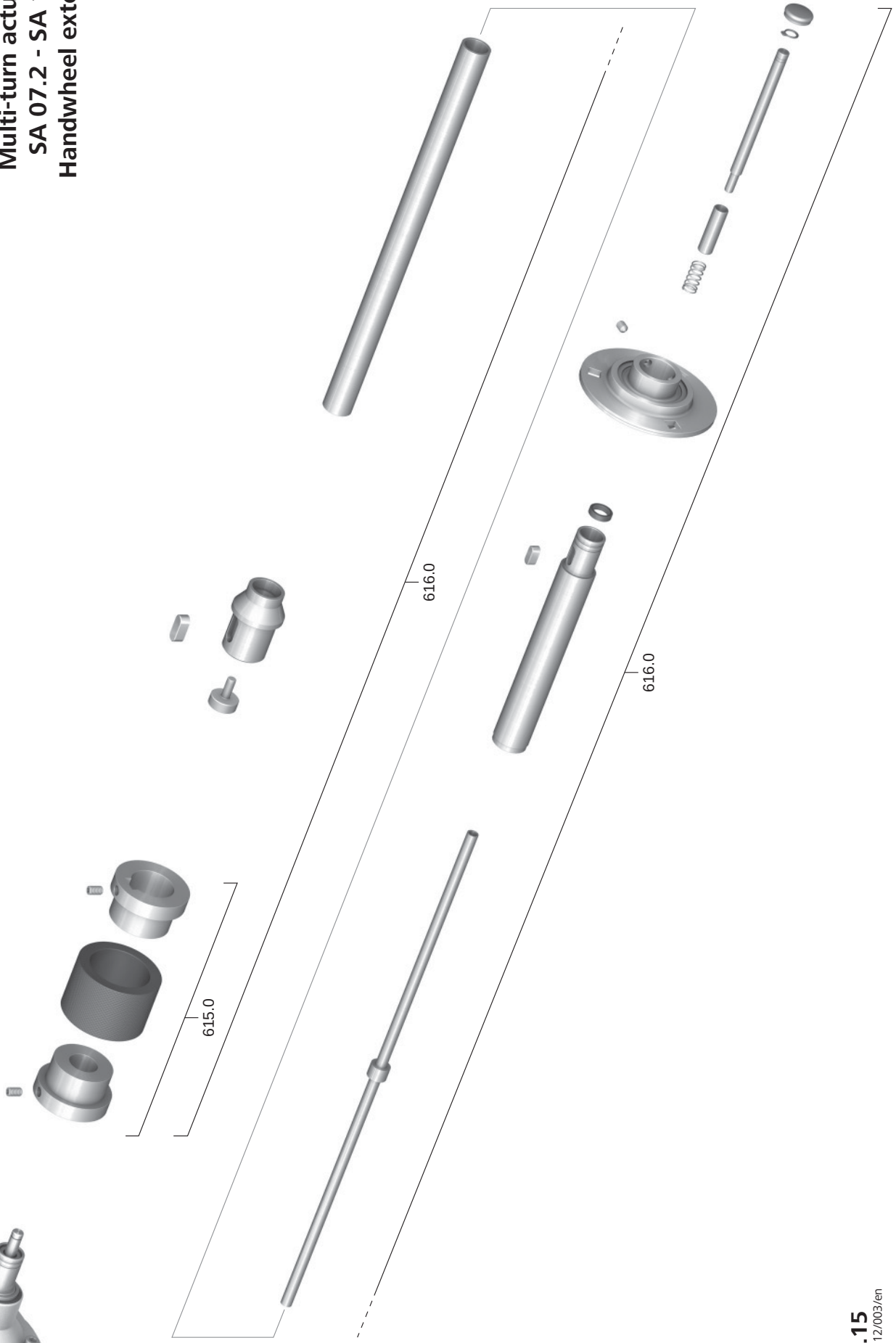
Spare parts list Fieldbus

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type
001.0	Housing	Sub-assembly
002.0	Local controls	Sub-assembly
002.3	Local controls board	Sub-assembly
002.4	Face plate for display	
008.1	Fieldbus board	
009.0	Logic board	Sub-assembly
011.1	Relay board	Sub-assembly
013.0	Switchgear/DC link	
014.0	Motor controller	Sub-assembly
050.1	Fieldbus connection board	Sub-assembly
500.0	Cover	Sub-assembly
501.0	Socket carrier (complete with sockets)	Sub-assembly
502.0	Pin carrier without pins	Sub-assembly
503.0	Socket for controls	Sub-assembly
504.0	Socket for motor	Sub-assembly
505.0	Pin for controls	Sub-assembly
506.0	Pin for motor	Sub-assembly
507.0	Electrical connection for fieldbus without connection board (050.1)	Sub-assembly
507.1	Frame for electrical connection	Sub-assembly
509.1	Padlock	Sub-assembly
510.0	Fuse kit	Set
633.0	Switchgear housing	Sub-assembly
S	Seal kit	Set



Spare parts list
auma[®]
Multi-turn actuators
SA 07.2 - SA 16.2
Handwheel extension



SA 07.2 - SA 16.2
Handwheel extension



Spare parts list Multi-turn actuators

Please state type and order no. of the device (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Delivered spare parts may slightly vary from the representation.

Ref. No.	Designation	Type
615.0	Coupling assy	Sub-assembly
616.0	Stem extension	Sub-assembly

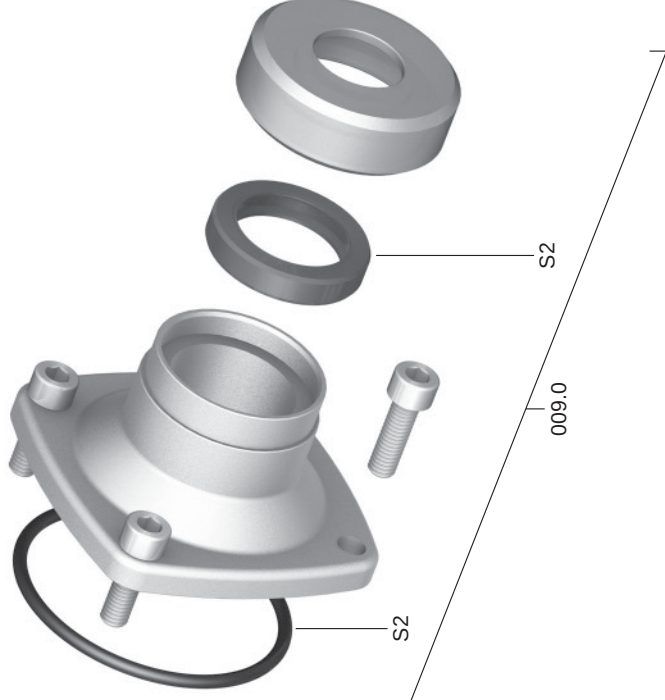
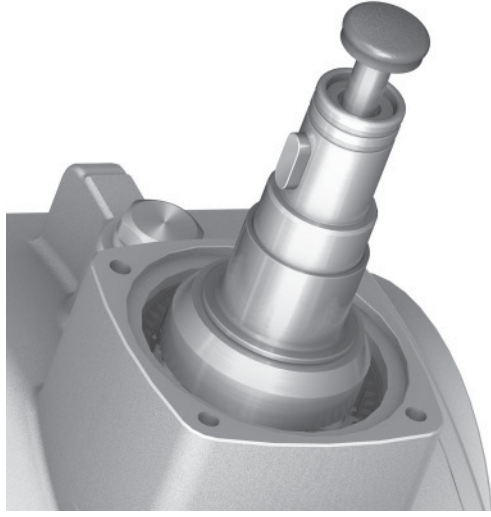
Spare parts list

auma[®]

Multi-turn actuators

SA 07.2 - SA 16.2

Power tool emergency operation



Please state type and order no. of the device (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Delivered spare parts may slightly vary from the representation.

Ref. No.	Designation	Type
009.0	Manual gearing for power tool emergency operation	Sub-assembly
597.0	Adapter for power tool emergency operation	Sub-assembly
S2	Seal kit, large	Set

SA 07.2 – SA 16.2



Adapter for power tool emergency operation for pit application

Spare parts list Multi-turn actuators

Please state device type and our order number (see name plate) when ordering spare parts. Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability. Representation of spare parts may slightly vary from actual delivery.

Ref. no.	Designation	Type
009.0	Manual gearing for power tool emergency operation	Sub-assembly
601.0	Square head for pit application assy	Sub-assembly
642.0	Bellows assy	Sub-assembly
S2	Seal kit, large	Set

8 Mounting positions

AM Actuator controls

SA 07.2 – SA 16.2 / SQ 05.2 – SQ 14.2 – AM 01.1

426

AC Actuator controls

SA 07.2 – SA 16.2 / SQ 05.2 – SQ 14.2 – AC 01.2

429

SA 07.2 – SA 16.2 / SQ 05.2 – SQ 14.2 – AC 01.2 with electrical connection directed to the right

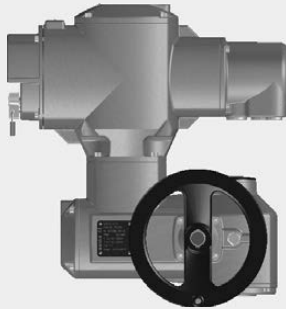
433

SAV 07.2 – SAV 16.2 – ACV 01.2

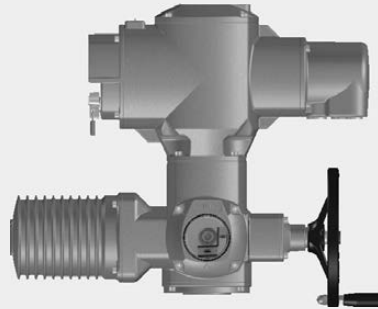
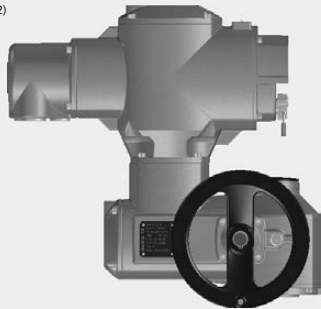
436

1. Mounting positions Actuator controls on actuator¹⁾

Mounting position A

Mounting position B²⁾

Mounting position C

Mounting position D²⁾

Please consider possible space constraints on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

1) Mounting positions apply for the following actuators:
Multi-turn actuators in all sizes: SA, SAR, SAEx, SAREx
Part-turn actuators in all sizes: SQ, SQR, SQEx, SQREx
Actuator controls in all versions: AM, AMEx

2) **Attention:** For SA multi-turn actuators with rising valve stems, mounting positions B and D are not possible.

Mounting positions Actuator controls on SA and SQ actuators

2. Mounting positions Local controls

Mounting position A-1 (standard)
Selector switch pointing in actuator direction



Actuator

Mounting position B-1
Selector switch pointing lateral left



Actuator

Mounting position C-1
Selector switch opposite the actuator



Actuator

Mounting position D-1
Selector switch pointing lateral right



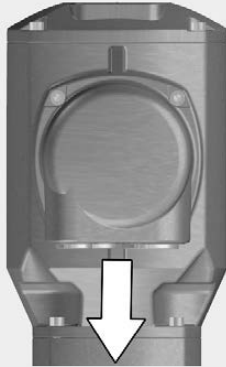
Actuator

Please consider possible space constraints on site when selecting the mounting position.
Mounting positions may easily be changed at a later date.

3. Mounting positions Electrical connection

Mounting position A-1 (standard)

Cable entries in actuator direction



Actuator

Mounting position B-1

Cable entries located lateral left



Actuator

Mounting position C-1

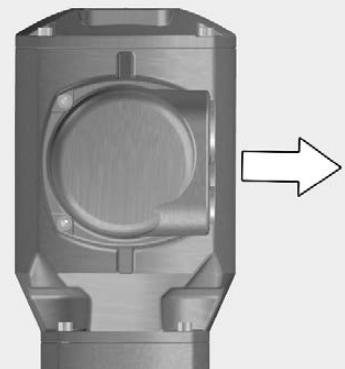
Cable entries located opposite the actuator



Actuator

Mounting position D-1

Cable entries located lateral right

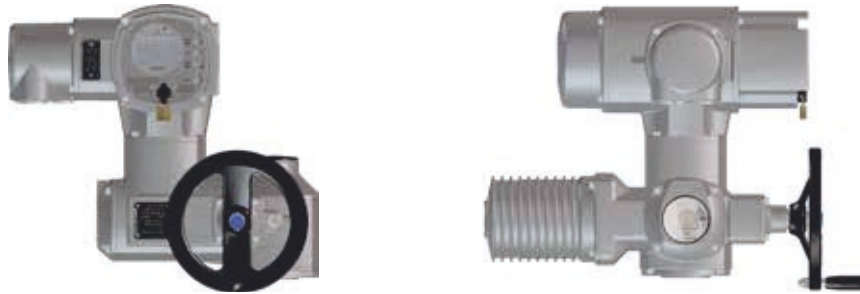
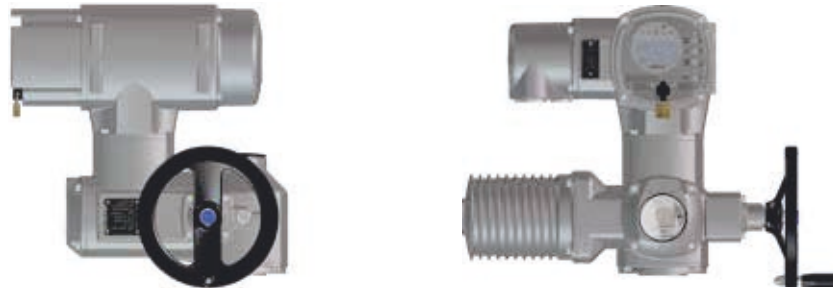
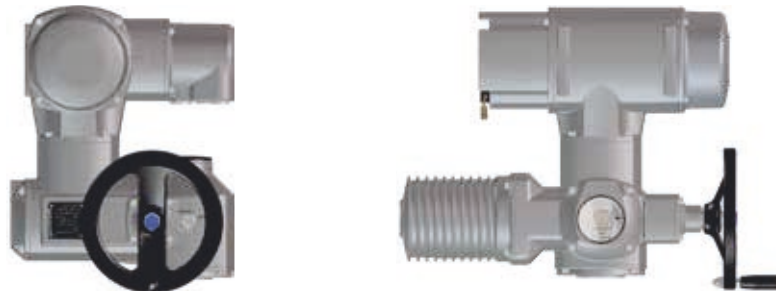


Actuator

Mounting positions may easily be changed at a later date.

The mounting positions shown apply for all types of electrical connections.

Attention: For outdoor installation, make sure that the cable entries are located in downward or lateral position to prevent ingress of water.

1. Mounting positions Actuator controls on actuator¹⁾**Mounting position A****Mounting position B²⁾****Mounting position C²⁾****Mounting position D²⁾**

Please consider possible space confinements on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

1) Mounting positions apply for the following actuators:

- SA, SAR, SAE_x, SARE_x multi-turn actuators in all sizes
- SQ, SQR, SQE_x, SQRE_x part-turn actuators in all sizes
- AC and ACE_xC actuator controls in all versions

2) **Caution:** For SA multi-turn actuators with rising valve stems, mounting positions B, C and D are not possible.

Mounting positions Actuator controls on SA and SQ actuators

2. Mounting positions Local controls

Mounting position A-1 (standard)	Mounting position B-1

Selector switch pointing in actuator direction

Selector switch pointing lateral left



Mounting position C-1	Mounting position D-1

Selector switch opposite the actuator

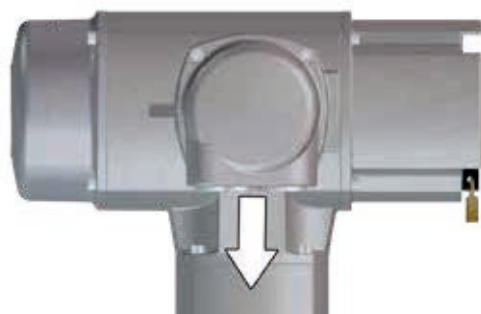
Selector switch pointing lateral right



Please consider possible space confinements on site when selecting the mounting position.
Mounting positions may easily be changed at a later date.

3. Mounting positions Electrical connection**Mounting position A-1 (standard)**

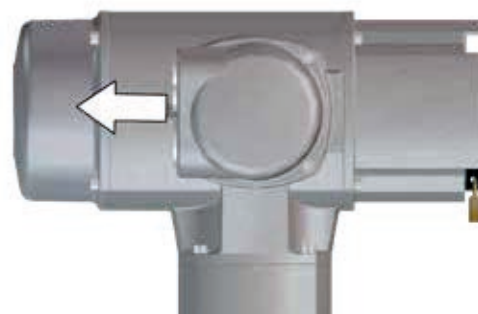
Cable entries in actuator direction



Actuator

Mounting position B-1

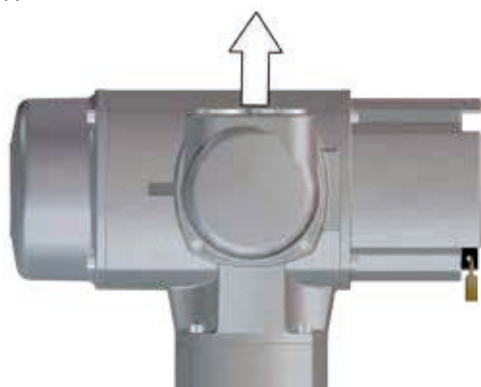
Cable entries located lateral left



Actuator

Mounting position C-1

Cable entries opposite the actuator



Actuator

Mounting position D-1

Cable entries located lateral right



Actuator

Mounting positions may easily be changed at a later date.

The mounting positions shown apply for all types of electrical connections (except KT).

Caution: For outdoor installation, make sure that the cable entries are located in downward or lateral position to prevent ingress of water.

Mounting positions Actuator controls on SA and SQ actuators

4. Mounting positions for KT electrical connection (for explosion-proof applications)

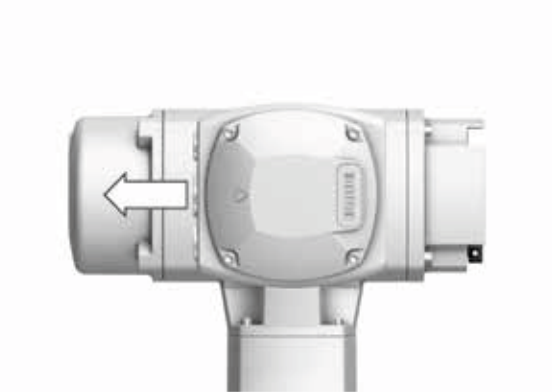
When using one mounting base:

Mounting position A-1 (standard)	Mounting position B-1 (option)

Cable entries in actuator direction

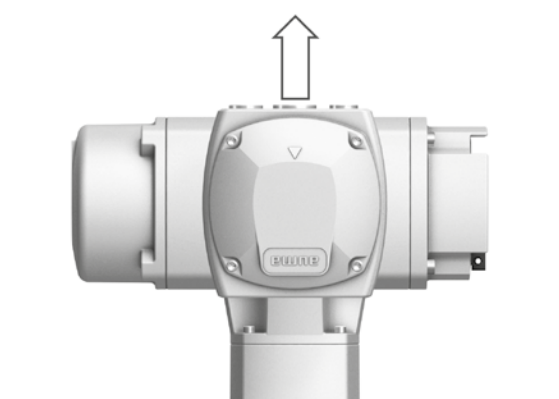


Cable entries located lateral left

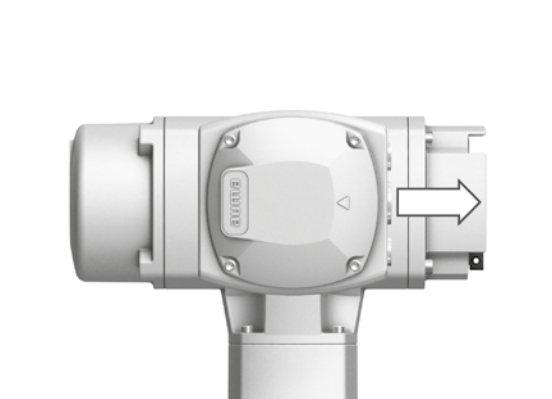


Mounting position C-1 (option)	Mounting position D-1 (option)

Cable entries opposite the actuator



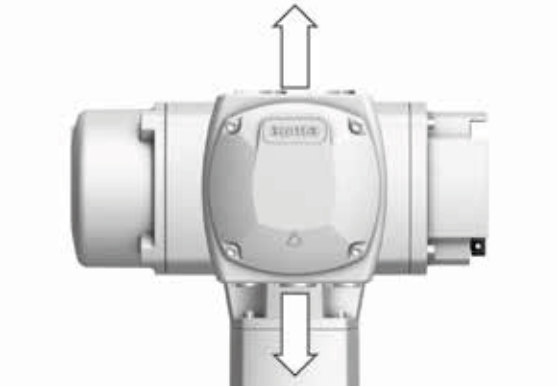
Cable entries located lateral right



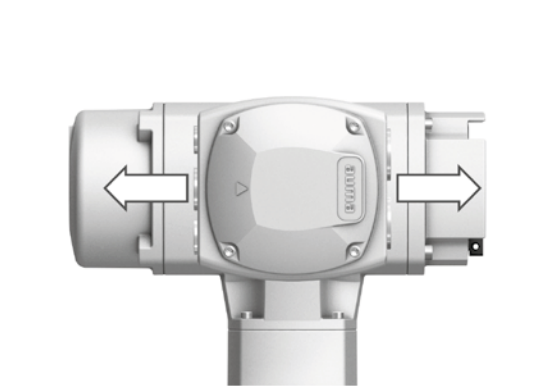
When using both mounting bases:

Mounting position E-1 (option)	Mounting position F-1 (standard)

Cables entries in direction of and opposite the actuator



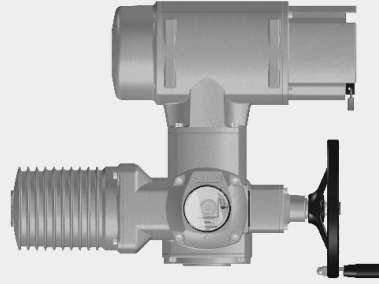
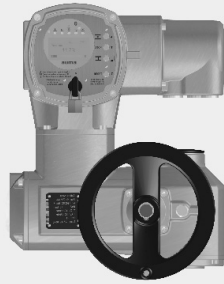
Lateral cable entries both on the left and on the right



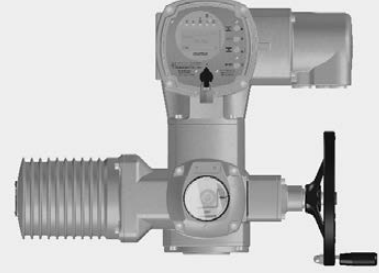
Mounting positions may easily be changed at a later date.
The mounting positions shown apply for KT electrical connection.
When using both mounting bases, the mounting position is possibly shifted in the factory: A-1 becomes F-1, C-1 becomes E-1 and D-1 becomes F-1.
Caution: For outdoor installation, make sure that the cable entries are located in downward or later position to prevent ingress of water.

1. Mounting positions Actuator controls on actuator¹⁾

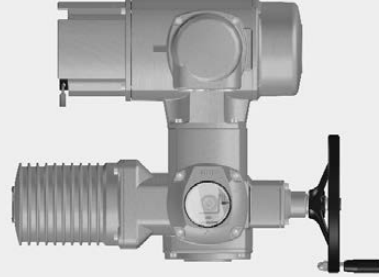
Mounting position E



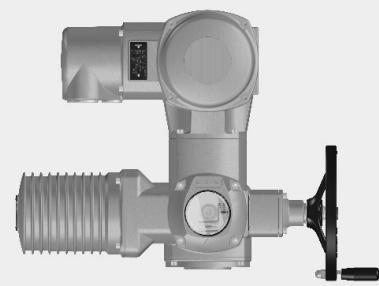
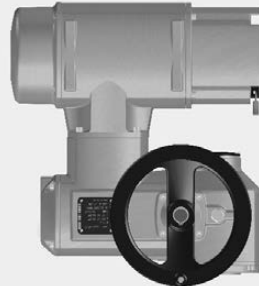
Mounting position F²⁾



Mounting position G²⁾



Mounting position H²⁾



Please consider possible space constraints on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

1) Mounting positions apply for the following actuators:
Multi-turn actuators in all sizes: SA, SAR, SAEx, SAREx
Part-turn actuators in all sizes: SQ, SQR, SQEx, SQREx
Actuator controls: AC, ACEx with electrical connection directed to the right

2) **Attention:** For SA multi-turn actuators with rising valve stems, mounting positions E and H are not possible.

2. Mounting positions Local controls

Mounting position A-1 (standard)

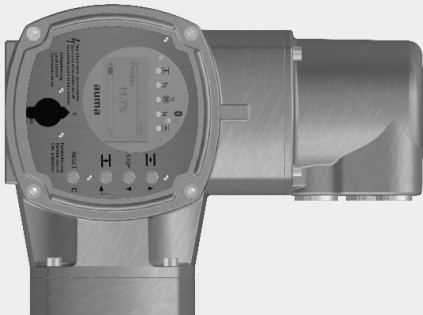
Selector switch pointing in actuator direction



Actuator

Mounting position B-1

Selector switch pointing lateral left



Actuator

Mounting position C-1

Selector switch opposite the actuator



Actuator

Mounting position D-1

Selector switch pointing lateral right



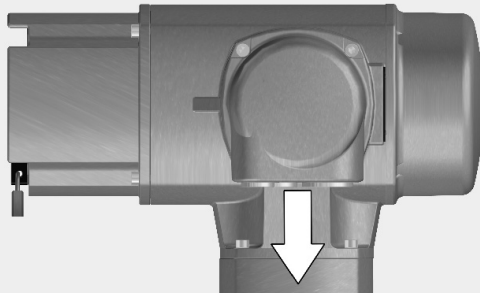
Actuator

Please consider possible space constraints on site when selecting the mounting position.
Mounting positions may easily be changed at a later date.

3. Mounting positions Electrical connection

Mounting position A-1 (standard)

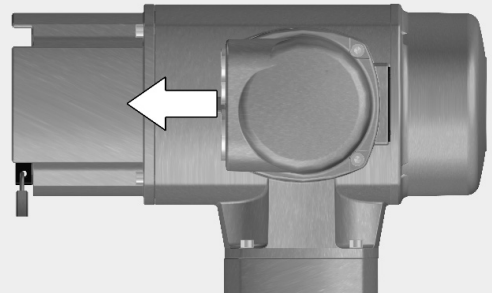
Cable entries in actuator direction



Actuator

Mounting position B-1

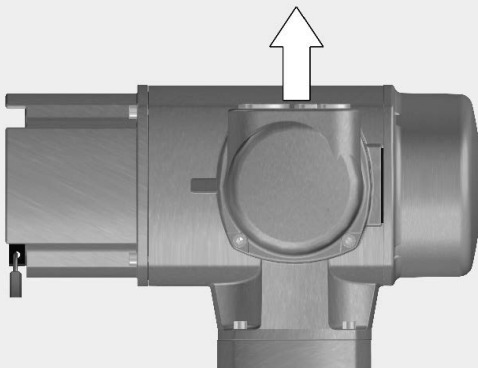
Cable entries located lateral left



Actuator

Mounting position C-1

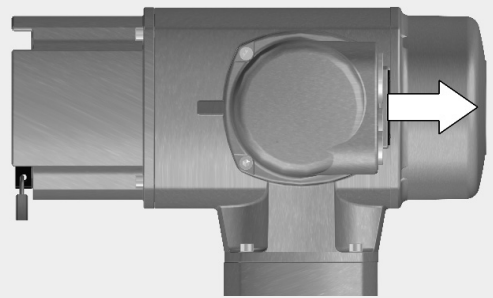
Cable entries located opposite the actuator



Actuator

Mounting position D-1

Cable entries located lateral right



Actuator

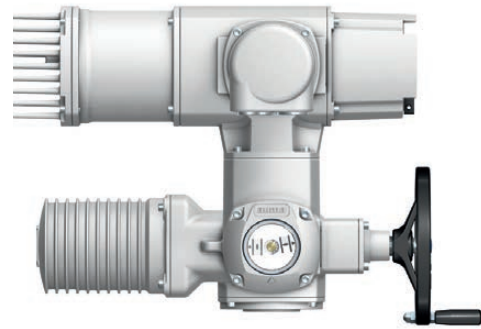
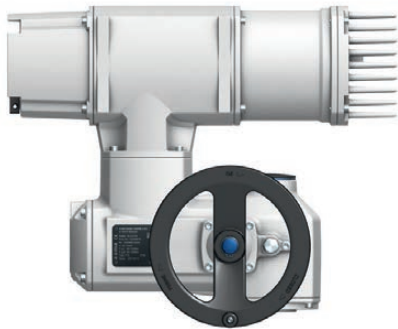
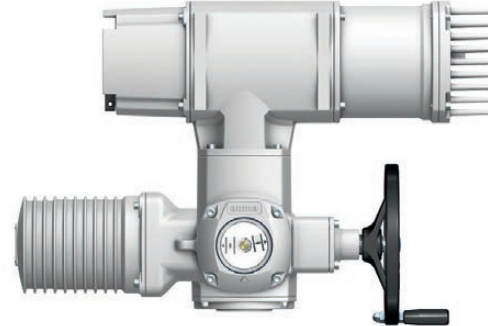
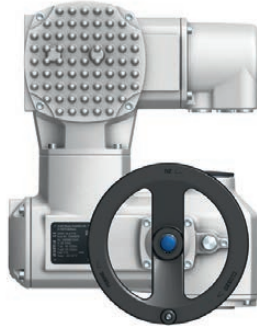
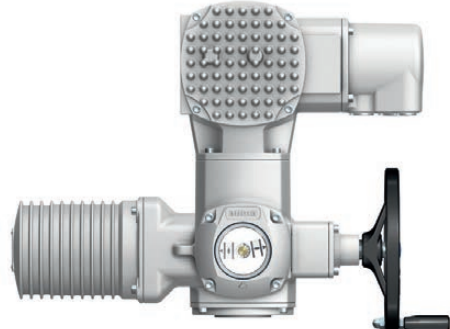
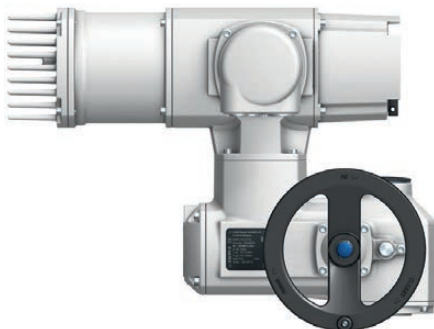
Mounting positions may easily be changed at a later date.

The mounting positions shown apply for all types of electrical connections.

Note: For outdoor installation, make sure that the cable entries are located in downward or lateral position to prevent ingress of water.

1. Mounting positions ACV actuator controls on SAV actuators¹⁾

Mounting position A

Mounting position B²⁾Mounting position C²⁾Mounting position D²⁾

Please consider possible space confinements on site when selecting the mounting position.

Mounting positions may easily be changed at a later date.

1) Mounting positions apply for the following actuators:
 SAV, SARV, SAVEx, SARVEx multi-turn actuators in all sizes
 ACV, ACVExC actuator controls

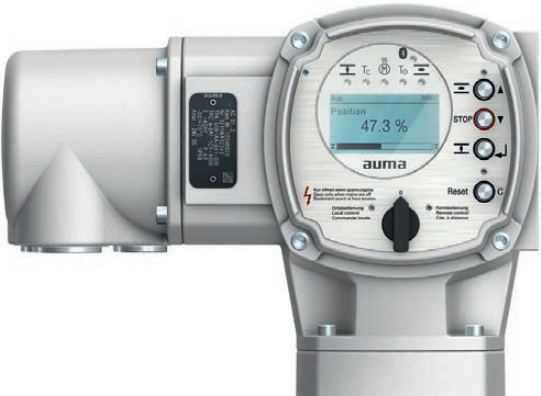
2) **Caution:** For SAV multi-turn actuators with rising valve stems, mounting positions B, C and D are not possible.

Mounting positions ACV Actuator controls on SAV actuators

2. Mounting positions Local controls

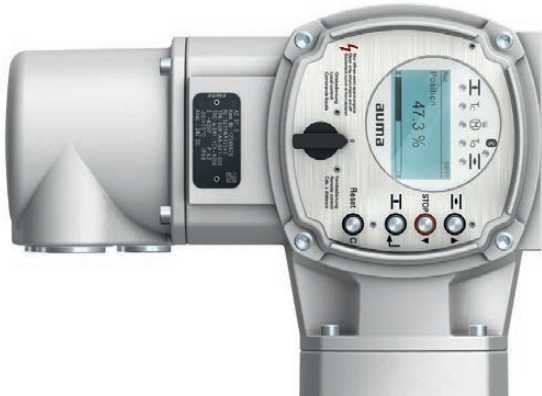
Mounting position A-1 (standard)	Mounting position B-1

Selector switch pointing in actuator direction



Actuator

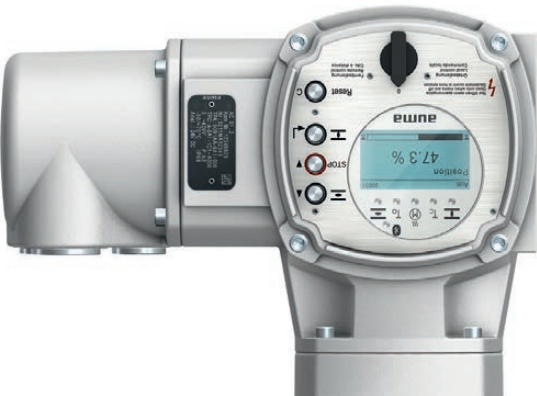
Selector switch pointing lateral left



Actuator

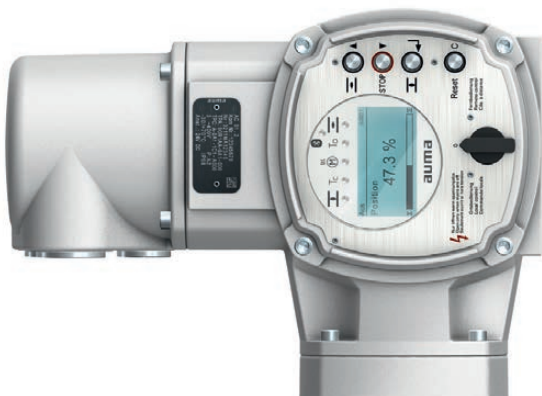
Mounting position C-1	Mounting position D-1

Selector switch opposite the actuator



Actuator

Selector switch pointing lateral right



Actuator

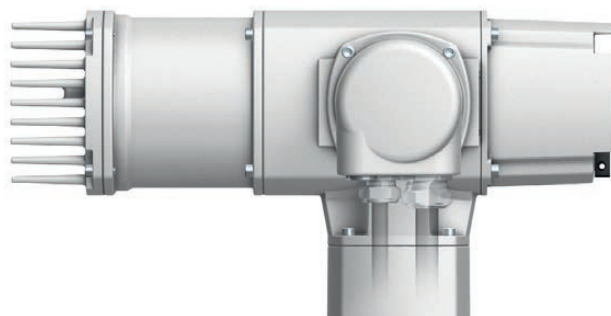
Please consider possible space confinements on site when selecting the mounting position.
Mounting positions may easily be changed at a later date.

Mounting positions ACV Actuator controls on SAV actuators

3. Mounting positions Electrical connection

Mounting position A-1 (standard)

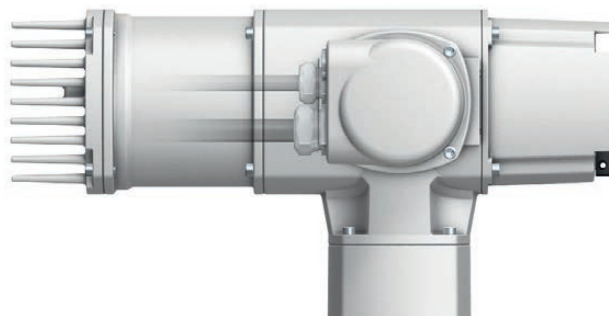
Cable entries in actuator direction



Actuator

Mounting position B-1

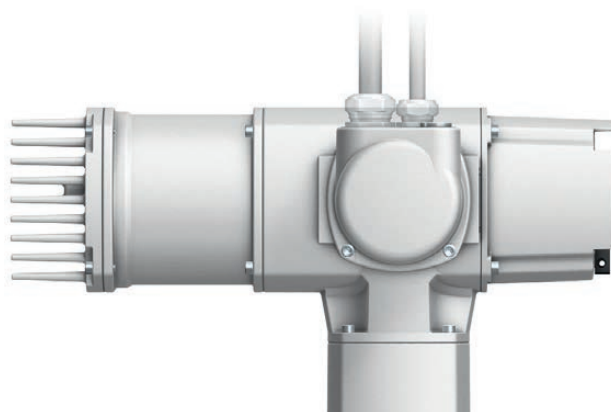
Cable entries located lateral left



Actuator

Mounting position C-1

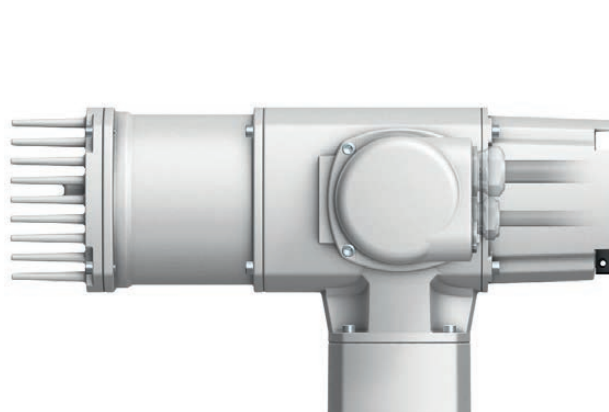
Cable entries located opposite the actuator



Actuator

Mounting position D-1

Cable entries located lateral right



Actuator

Mounting positions may easily be changed at a later date.

The mounting positions shown apply for all types of electrical connections (except KT).

Caution: For outdoor installation, make sure that the cable entries are located in downward or lateral position to prevent ingress of water.

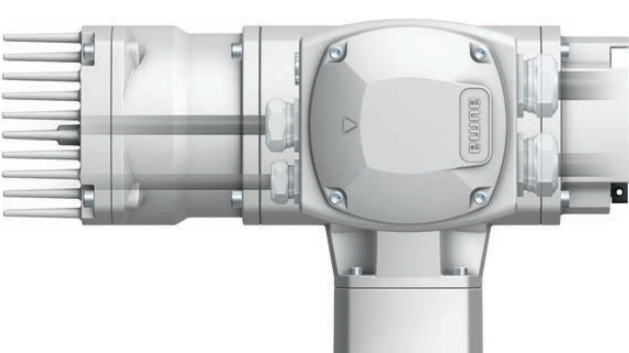
Mounting positions ACV Actuator controls on SAV actuators

4. Mounting positions for KT electrical connection (for explosion-proof applications)

Mounting position A-1 (standard)	Mounting position B-1

Cable entries in actuator direction

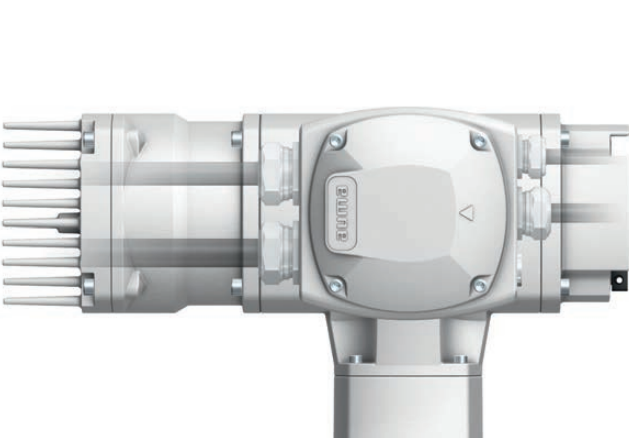
Lateral cable entries both on the left and on the right



Mounting position C-1 (on request)	Mounting position D-1

Cable entries located opposite the actuator

Lateral cable entries both on the right and on the left



Mounting positions may easily be changed at a later date.
The mounting positions shown apply for KT electrical connection.

Caution: For outdoor installation, make sure that the cable entries are located in downward or later position to prevent ingress of water.

9 Wiring diagrams

Actuators

Selection of terminal plans TPA	442
Wiring diagram code TPA	446
Proposed wiring diagram for SA.2/SQ.2 with 3-phase AC motor	447
Proposed wiring diagram for SA.2/SQ.2 with 1-phase AC motor	449

Actuator controls AM 01.1/02.1

Selection of wiring diagrams for AM 01.1/AM 02.1	451
Legend for wiring diagrams AM 01.1/AM 02.1	455
Wiring diagram code MSP for AM 01.1/AM 02.1	458

Actuator controls AC 01.2 / ACV 01.2

Selection of wiring diagrams for AC 01.2	459
Legend for wiring diagrams AC 01.2/ACExC 01.2	482
Selection of wiring diagrams for ACV 01.2	484
Legend for wiring diagrams ACV 01.2/ACVExC 01.2	519
Wiring diagram code TPC for AC 01.2/ACExC 01.2/ACV 01.2	521

TPA

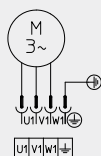
Motor connections

Separate terminal plans are available for DC, brake and two-speed motors.

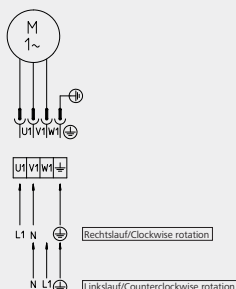
ATTENTION!

Complete protection of AUMA pot-type motors is only achieved when correctly wiring the thermoswitches, embedded in the winding

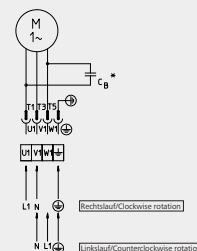
3-phase AC motor
TPA00R... (TP.../...)



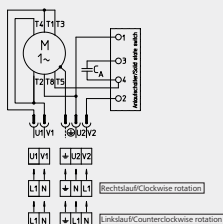
1-phase AC motor
for SG 05.1 – SG 12.1
TPA16R... (1TP.../...)



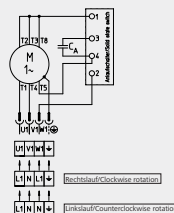
1-phase AC motor with
integral operating capacitor
TPA01R... (60TP.../...)



1-phase AC motor 115 V AC with integral
start-up capacitor and start-up contact
TPA02R... (61TP.../...)



1-phase AC motor 230 V AC with integral
start-up capacitor and start-up contact
TPA03R... (62TP.../...)

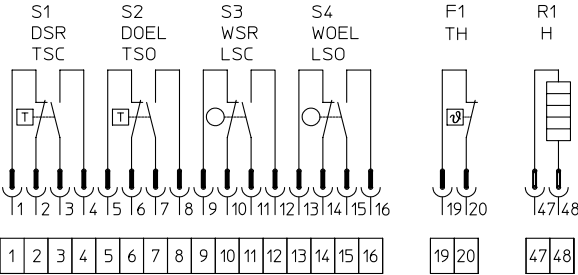


S1	DSR	Torque switch, closing, clockwise rotation
S2	DOEL	Torque switch, opening, counterclockwise rotation
S1/2	DSR1	Torque switch in tandem arrangement with DSR/DOEL (TSC/TSO)
S2/2	DOEL1	
S3	WSR	Limit switch, closing, clockwise rotation
S4	WOEL	Limit switch, opening, counterclockwise rotation
S3/2	WSR1	Limit switch in tandem arrangement with WSR/WOEL (LSC/LSO)
S4/2	WOEL1	
S6	WDR	Limit switch, DUO, for 2 intermediate positions, adjustable
S7	WDL	
S6/2	WDR1	Limit switch, DUO, for 2 intermediate positions in tandem arrangement with WDR/WDL (LSA/LSB), adjustable
S7/2	WDL1	
S5	BI	Blinker transmitter
S17	HA	Handwheel activation switch
F1	TH	Thermoswitch (motor protection); thermoswitch as standard for 1-phase and 3-phase motors only. Contacts open at 140 °C and close automatically once they have cooled down.
B1	IWG	Inductive position transmitter 3-wire or 4-wire system
B2	EWG/RWG	Electronic position transmitter 3-wire or 4-wire system
B3	IWG	Inductive position transmitter 2-wire system
B4	EWG/RWG	Electronic position transmitter 2-wire system
R1	H	Heater in switch compartment
R2	f1	Potentiometer
R2/2	f2	Potentiometer in tandem arrangement with R2
R3-	PTC1	PTC thermistor (motor protection)
R4	H	Motor heater

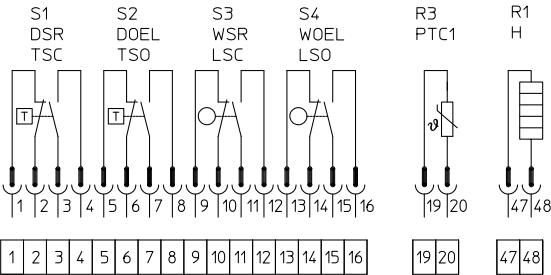
We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

TPA

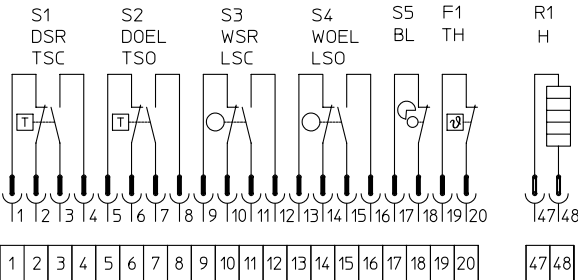
TPA00R1AA-001-000 (KMS TP100/001)



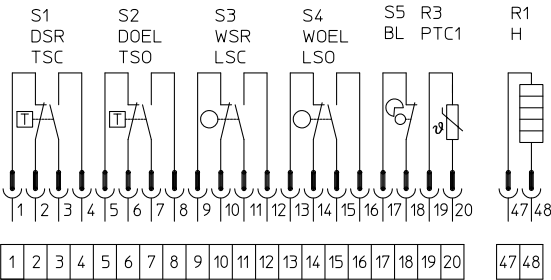
TPA00R2AA-001-000 (KMS TP200/001)



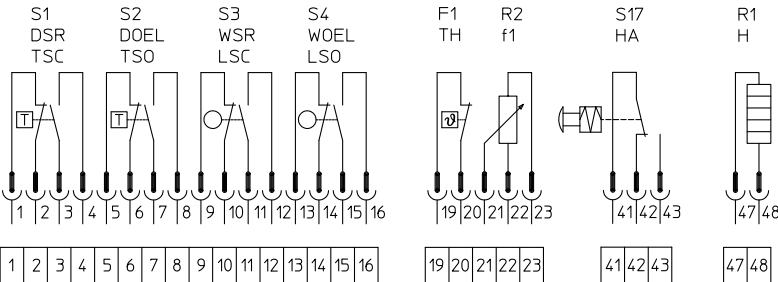
TPA00R1AA-101-000 (KMS TP110/001)



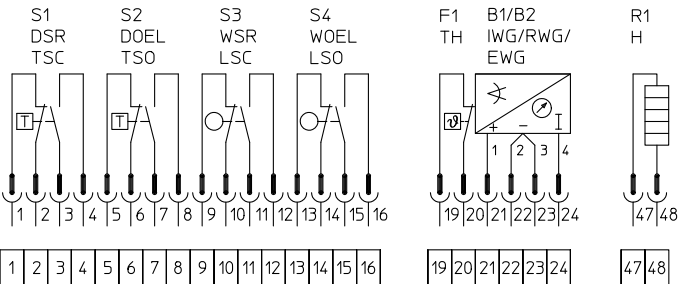
TPA00R2AA-101-000 (KMS TP210/001)



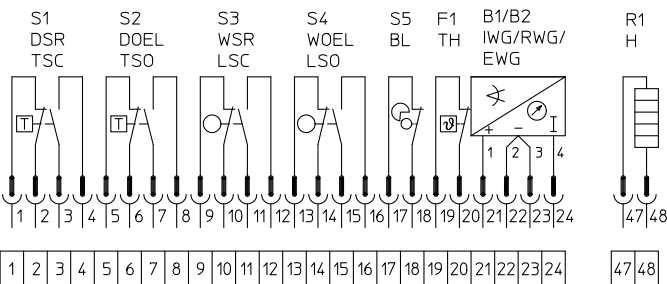
TPA00R1AA-3A1-000



TPA00R1AA-0E1-000 (KMS TP104/001)

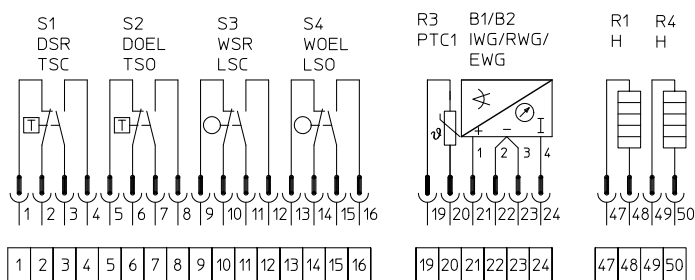


TPA00R1AA-1E1-000 (KMS TP114/001)

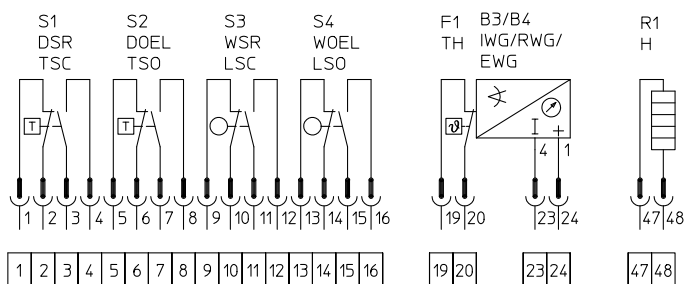


TPA

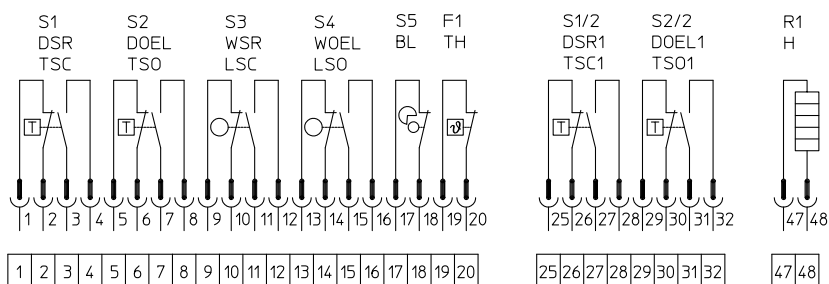
TPA00R2AA-0EA-000 (KMS TP204/009)



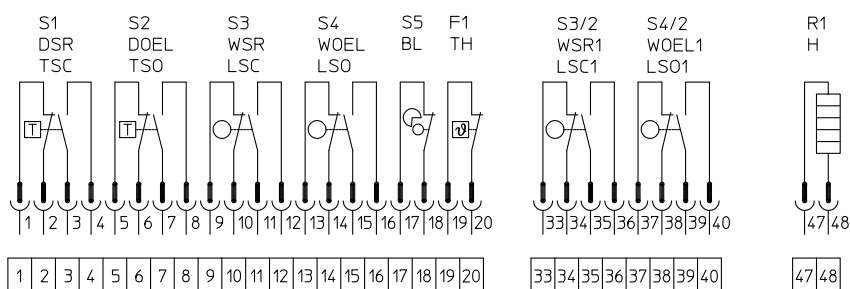
TPA00R1AA-0C1-000 (KMS TP140/001)



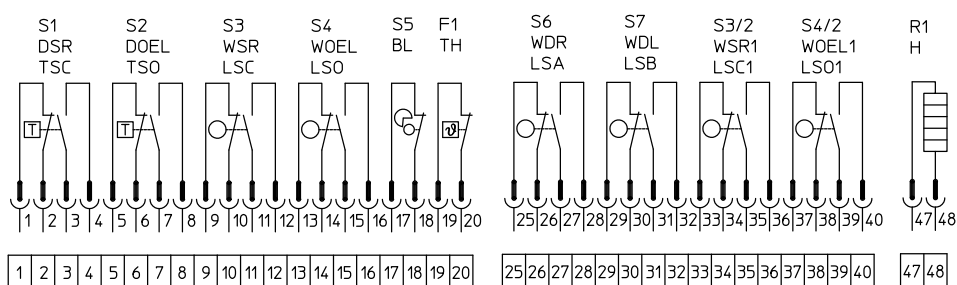
TPA00R1BA-101-000 (KMS TP110/101)



TPA00R1AB-101-000 (KMS TP110/201)

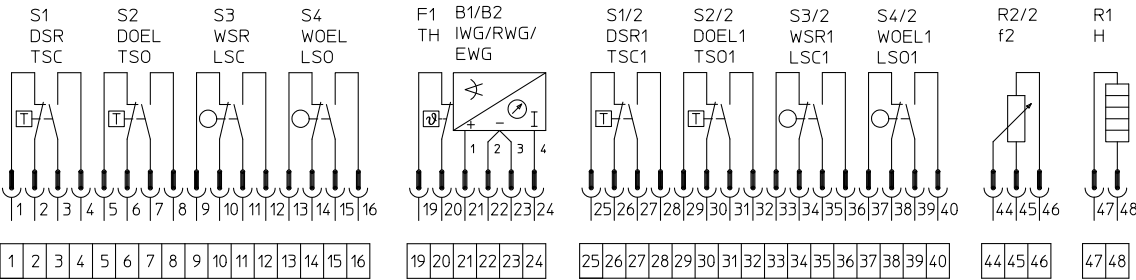


TPA00R1AF-101-000 (KMS TP110/211)

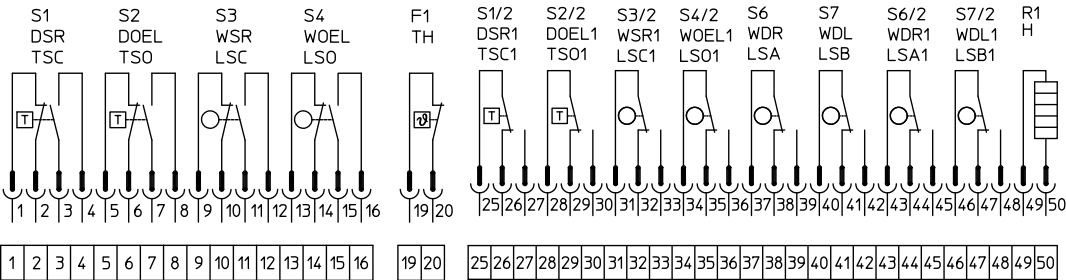


TPA

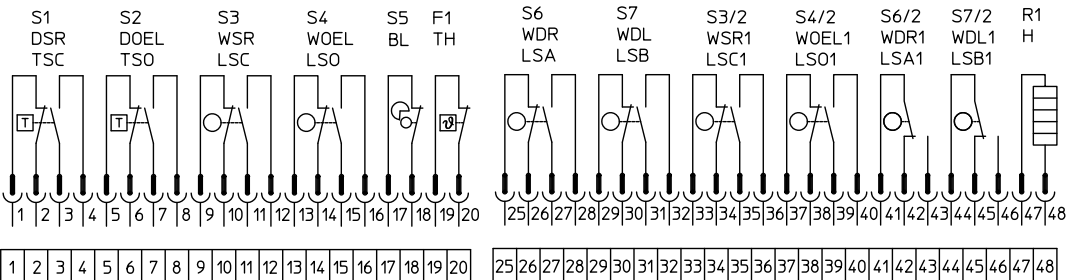
TPA00R1BB-0H1-000 (KMS TP104/341)



TPA00R1BH-001-A30 (KMS 9TP100/331)



TPA00R1AH-101-A30 (KMS 9TP110/231)



TPA

This data applies to:

Multi-turn actuators SA 07.2 – SA 16.2; SAR 07.2 – SAR 16.2
 SA 07.2-UW – SA 16.2-UW; SAR 07.2-UW – SAR 16.2-UW
 SAV 07.2 – SAV 16.2; SARV 07.2 – SARV 16.2
 SA 25.1 – SA 48.1; SAR 25.1 – SAR 30.1
 SAEx 07.2 – SAEx 16.2; SAREx 07.2 – SAREx 16.2
 SAVEx 07.2 – SAVEx 16.2; SARVEx 07.2 – SARVEx 16.2
 SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1

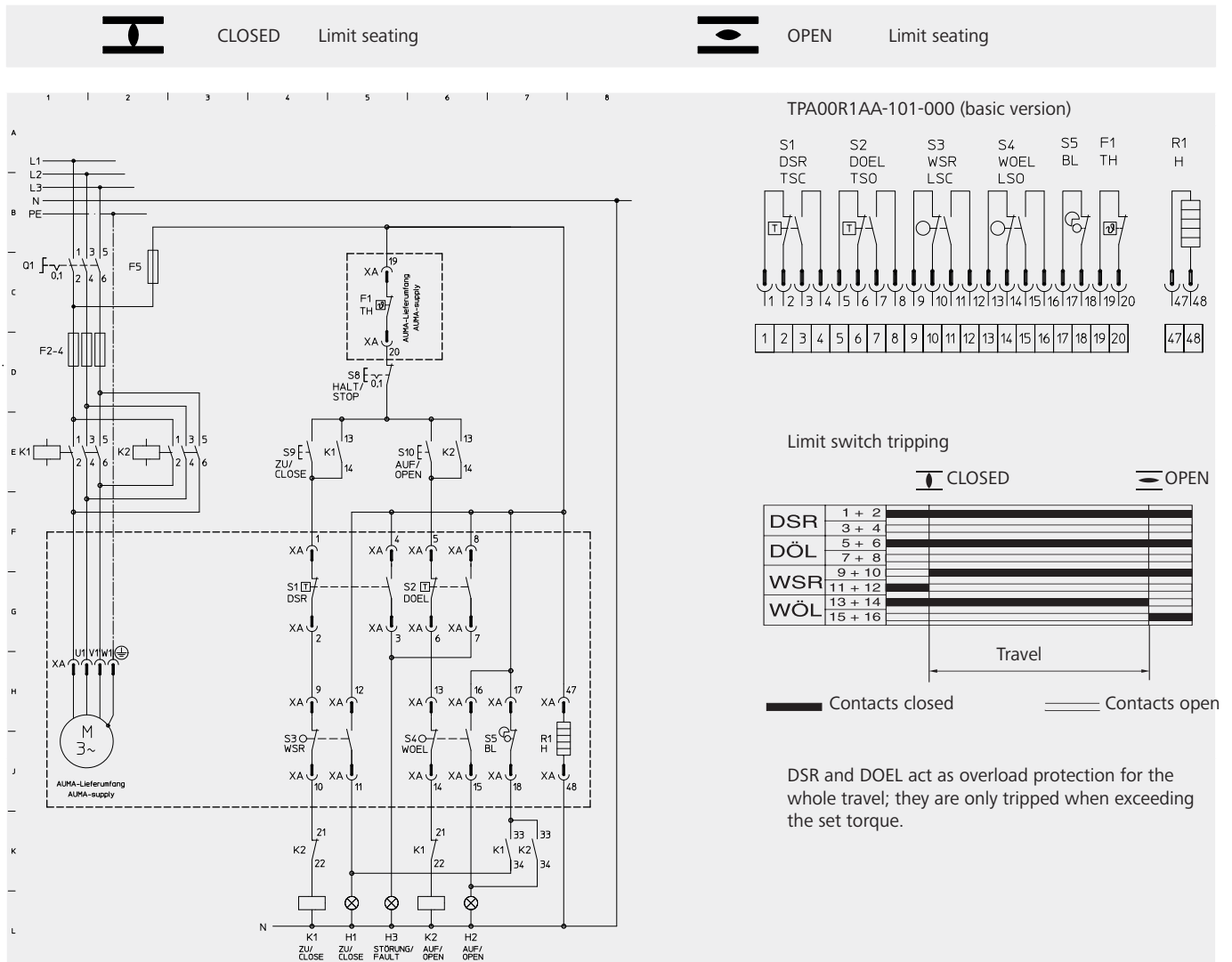
Part-turn actuators SQ 05.2 – SQ 14.2; SQR 05.2 – SQR 14.2
 SQEx 05.2 – SQEx 14.2; SQREx 05.2 – SQREx 14.2
 SG 05.1 – SG 12.1; SGR 05.1 – SGR 12.1
 SGExC 05.1 – SGExC 12.1

		Extract of wiring diagram code														
		Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Position		TPA	0	0	R	1	A	A	-	1	0	1	-	0	0	0
1 + 2	00	AUMA 3-ph AC motor														
	01	AUMA 1-ph AC motor for SA .2/SQ .2														
	16	1-ph AC motor for SG .1														
3	R	Clockwise closing														
	L	Counterclockwise closing														
4	1	1 thermoswitch 140 ° C (NC)														
	2	1 Kaltleiter														
5	0	Without torque switches (MWG)														
	A	2 single switches (standard)														
	B	2 tandem switches														
6	0	Without limit/intermediate switches (MWG)														
	A	2 single switches (standard) for end positions														
	B	2 tandem switches for end positions														
7	-	Reserve														
8	0	Without signalling														
	1	With blinker transmitter														
	2	Manual operation switch with blinker transmitter														
	3	Manual operation switch without blinker transmitter														
9	0	Without position transmitter														
	A	Precision potentiometer														
	C ¹⁾	Electronic position transmitter 2-wire system (EWG/RWG)														
	E ¹⁾	Electronic position transmitter 3-wire or 4-wire system (EWG/RWG)														
10	I ²⁾	Absolute encode for limit and torque sensing (MWG)														
	0	Without heater														
11	1	110 V – 250 V (without controls)														
		24 V (with controls)														
12 – 14	-	Reserve														
12 – 14	000	Without special units														

Notes on table

- 1) C, E When combined with SAEx 25.1 – SAEx 40.1; SAREx 25.1 – SAREx 30.1, valid for 2-wire RWG 5020 (Ex i) only
 2) I Only possible for SAEx 25.1 – SAEx 40.1/SAREx 25.1 – SAREx 30.1 in FM (US) version

Proposed wiring diagram for SA .2 and SQ .2 with 3-phase AC motor



Wiring diagram for standard version, multi-turn actuator closes valve clockwise. The wiring diagram shows the non-rotating multi-turn actuator in intermediate position.

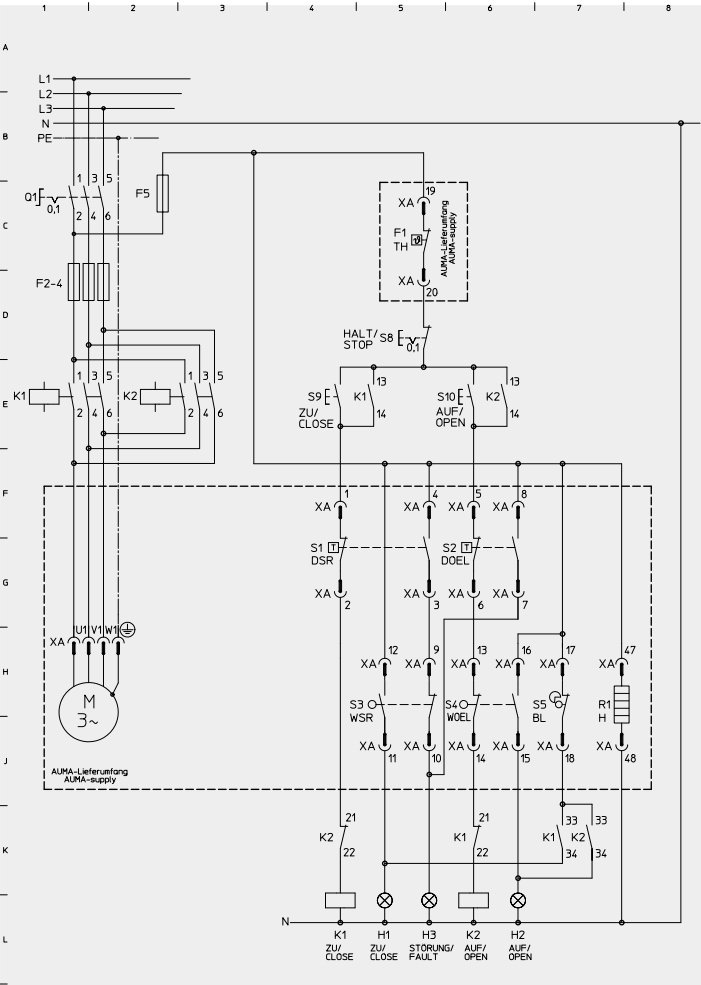
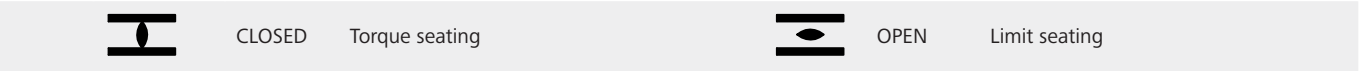
Limit and torque switches can be provided as single, tandem, or triple switches. Only the same potential can be switched on the two circuits (NC/NO contact) of each single switch. If different potentials are to be switched simultaneously, tandem switches or triple switches are required. When using tandem/triple switches:

- For signalling use the leading contacts TSC1, TSO1, LSC1, LSO1.
- For switching off use the lagging contacts TSC, TSO, LSC, LSO.

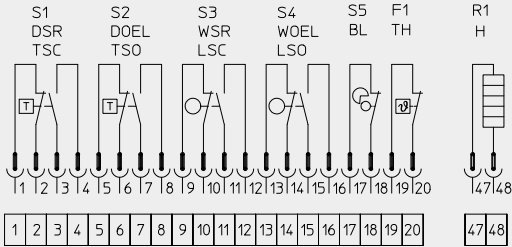
M		Motor (3-phase AC)
S1	TSC	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, counterclockwise rotation
S3	LSC (WSR)	Limit switch, closing, clockwise rotation
S4	LSO (WÖL)	Limit switch, opening, counterclockwise rotation
S5	BL	Blinker transmitter
F1	TH	Thermoswitch
Q1		Main switch
S8		Push button STOP
S9		Push button CLOSE
S10		Push button OPEN
K1, K2		Reversing contactors
F2 – F5		Fuses
H1		Indication light End position CLOSED
H2		Indication light End position OPEN
H3		Indication light FAULT
R1	H	Heater

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

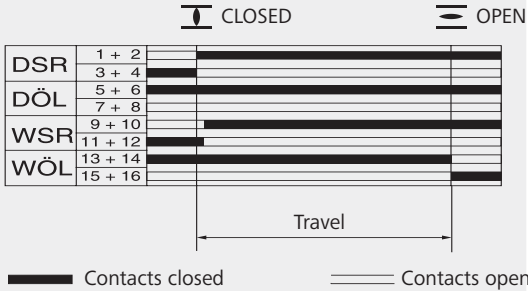
Proposed wiring diagram for SA .2 and SQ .2 with 3-phase AC motor



TPA00R1AA-101-000 (basic version)



Limit switch tripping



TSC (DSR) and TSO (DOEL) act as overload protection for the whole travel. TSC (DSR) interrupts the control circuit when reaching the set torque, the actuator is tripped. Set LSC (WSR) as to ensure that it is tripped shortly before reaching the end position CLOSED.

Wiring diagram for standard version, multi-turn actuator closes valve clockwise. The wiring diagram shows the non-rotating multi-turn actuator in intermediate position.

Limit and torque switches can be provided as single, tandem, or triple switches. Only the same potential can be switched on the two circuits (NC/NO contact) of each single switch. If different potentials are to be switched simultaneously, tandem switches or triple switches are required. When using tandem/triple switches:

- For signalling use the leading contacts TSC1, TSO1, LSC1, LSO1.
- For switching off use the lagging contacts TSC, TSO, LSC, LSO.

M		Motor (3-phase AC)
S1	TSC	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, counterclockwise rotation
S3	LSC (WSR)	Limit switch, closing, clockwise rotation
S4	LSO (WOEL)	Limit switch, opening, counterclockwise rotation
S5	BL	Blinker transmitter
F1	TH	Thermoswitch
Q1		Main switch
S8		Push button STOP
S9		Push button CLOSE
S10		Push button OPEN
K1, K2		Reversing contactors
F2 – F5		Fuses
H1		Indication light End position CLOSED
H2		Indication light End position OPEN
H3		Indication light FAULT
R1	H	Heater

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

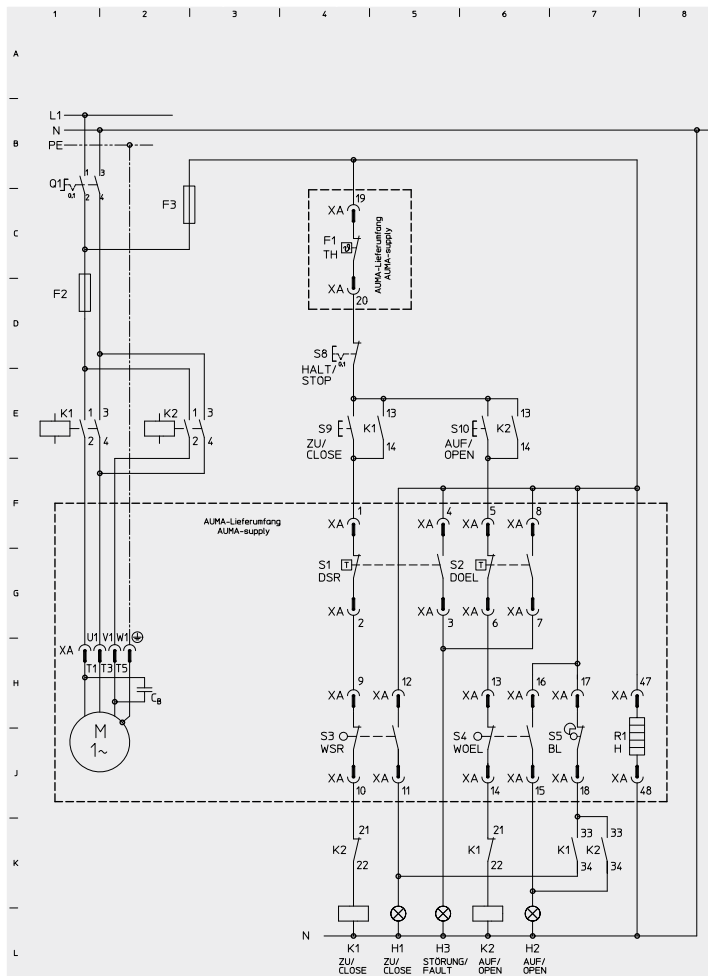
Proposed wiring diagram for SA .2 and SQ .2 with 1-phase AC motor



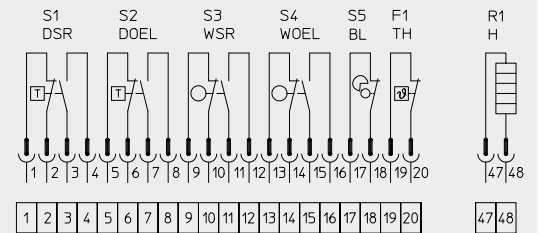
CLOSED Limit seating



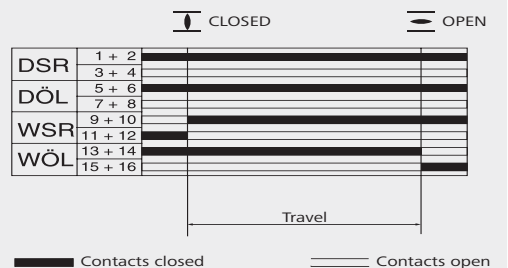
OPEN Limit seating



TPA01R1AA-101-000 (basic version)



Limit switch tripping



DSR and DOEL act as overload protection for the whole travel; they are only tripped when exceeding the set torque.

Wiring diagram for standard version, actuator closes valve clockwise. The wiring diagram shows the actuator at standstill in intermediate position.

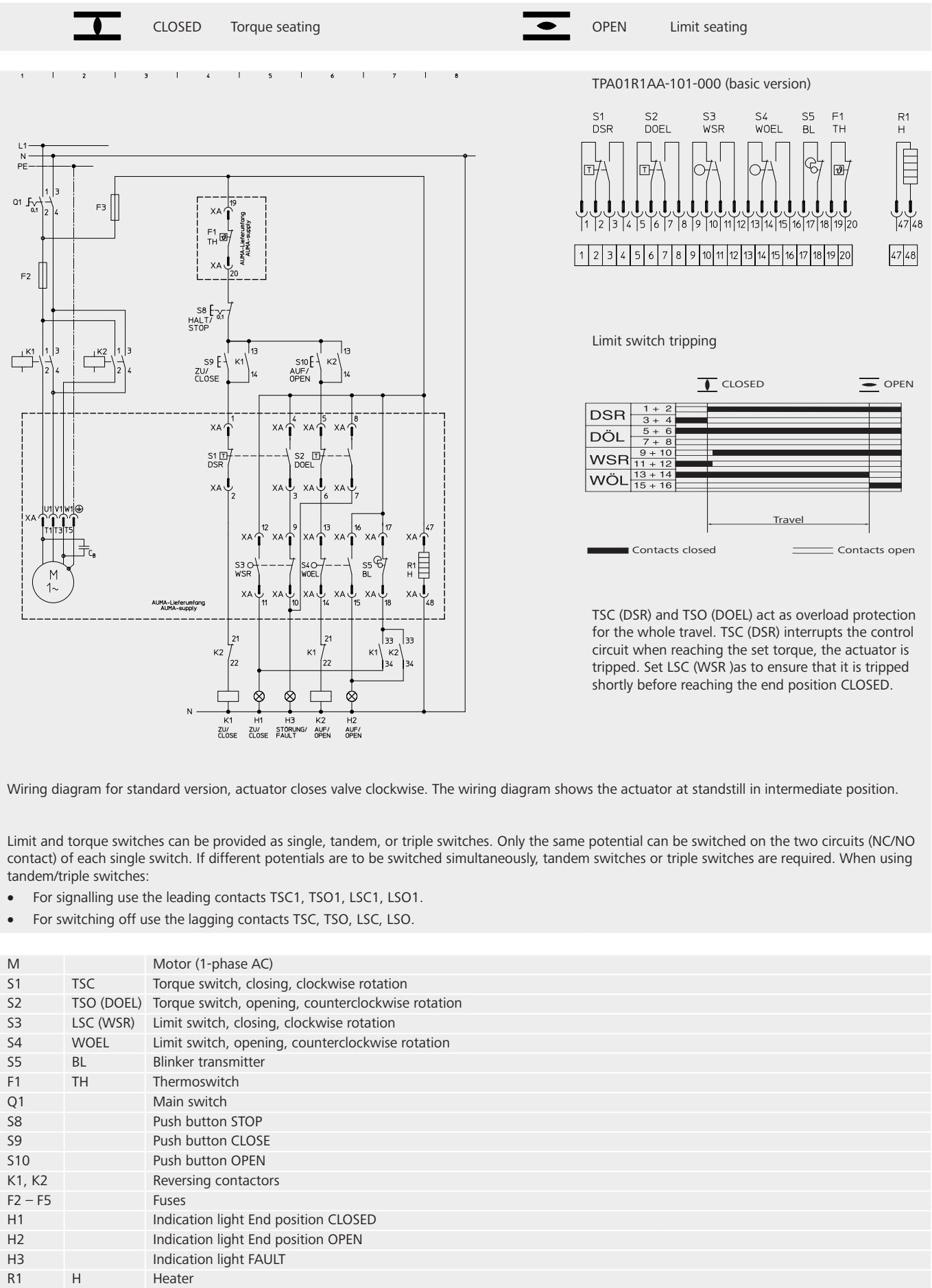
Limit and torque switches can be provided as single, tandem, or triple switches. Only the same potential can be switched on the two circuits (NC/NO contact) of each single switch. If different potentials are to be switched simultaneously, tandem switches or triple switches are required. When using tandem/triple switches:

- For signalling use the leading contacts TSC1, TSO1, LSC1, LSO1.
- For switching off use the lagging contacts TSC, TSO, LSC, LSO.

M		Motor (1-phase AC)
S1	TSC (DSR)	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, counterclockwise rotation
S3	LSC (WSR)	Limit switch, closing, clockwise rotation
S4	LSO (WOEL)	Limit switch, opening, counterclockwise rotation
S5	BL	Blinker transmitter
F1	TH	Thermoswitch
Q1		Main switch
S8		Push button STOP
S9		Push button CLOSE
S10		Push button OPEN
K1, K2		Reversing contactors
F2 – F5		Fuses
H1		Indication light End position CLOSED
H2		Indication light End position OPEN
H3		Indication light FAULT
R1	H	Heater

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Proposed wiring diagram for SA .2 and SQ .2 with 1-phase AC motor



AM 01.1/AM 01.2

Information on wiring diagram selection

General information

This data sheet is used as supplement to wiring diagram selection for AM 01.1/AM 01.2 (Y002.905/001)

Notes

The wiring diagrams listed in the wiring diagram selection can be downloaded from our website (www.auma.com). This manual includes examples of wiring diagrams for all control types in their basic version.

Wiring diagram selection

The short designations (AM1 . . .etc.) are descriptive numberings.

AM1: Basic version

Reversing contactors, OPEN - STOP - CLOSE (24 V DC)
MSP1110KC3--F18E1 TPA00R1AA-101-000

AM3: With position feedback signal (0/4 – 20mA) internally supplied (EWG/RWG within actuator)

Reversing contactors, OPEN - STOP - CLOSE (24 V DC)
MSP1110KC3--F18E1 TPA00R1AA-1E1-000

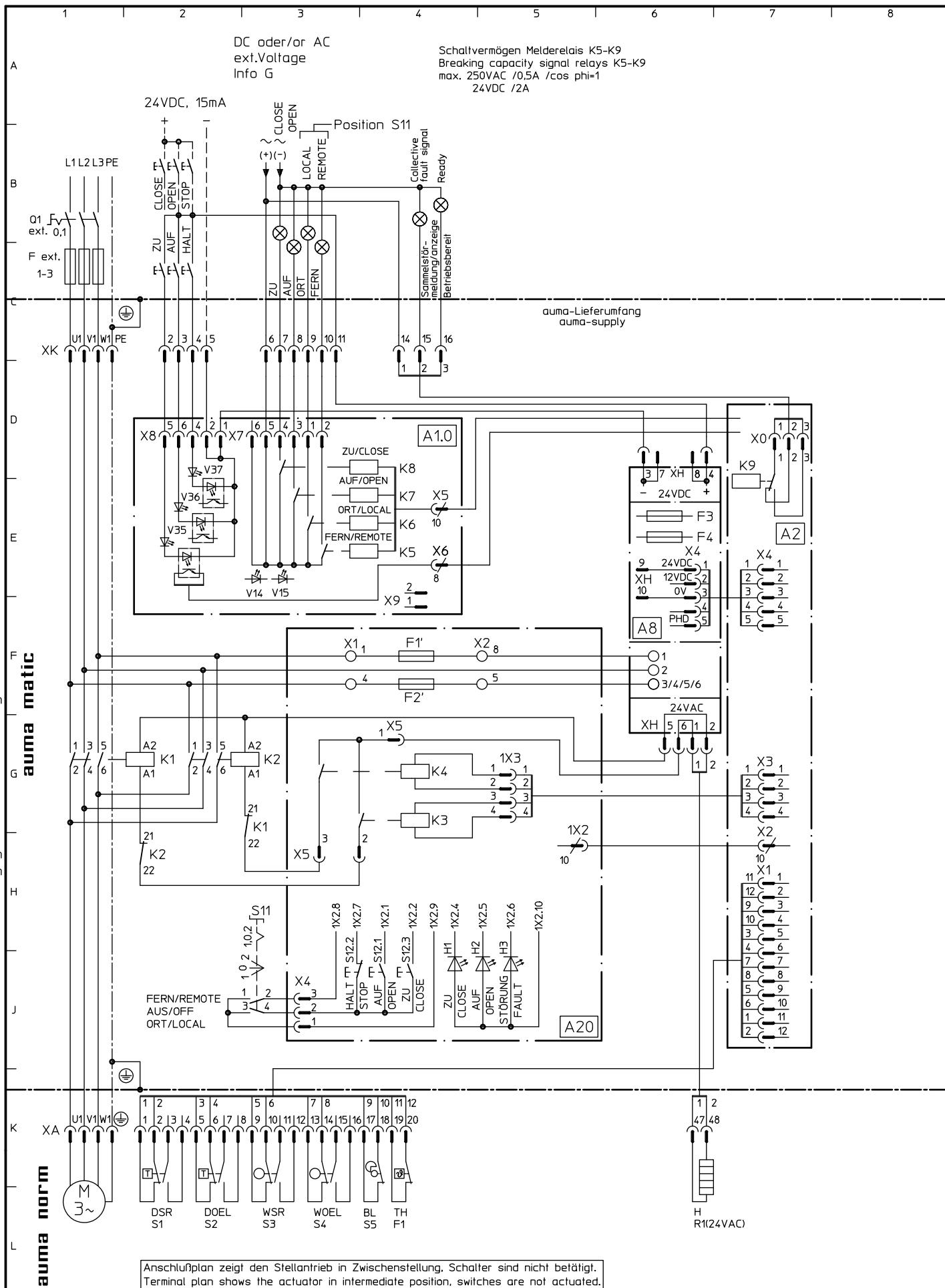
AM4: With position feedback signal (0/4 – 20mA) internally supplied (EWG/RWG within actuator)

Thyristors, OPEN - STOP - CLOSE (24 V DC)
MSP1110KC3--A18E1 TPA00R1AA-1E1-000

AM1W: Basic version on wall bracket

Reversing contactors, OPEN - STOP - CLOSE (24 V DC)
MSP5110KC3--F18E1 TPA00R1AA-101-000

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.

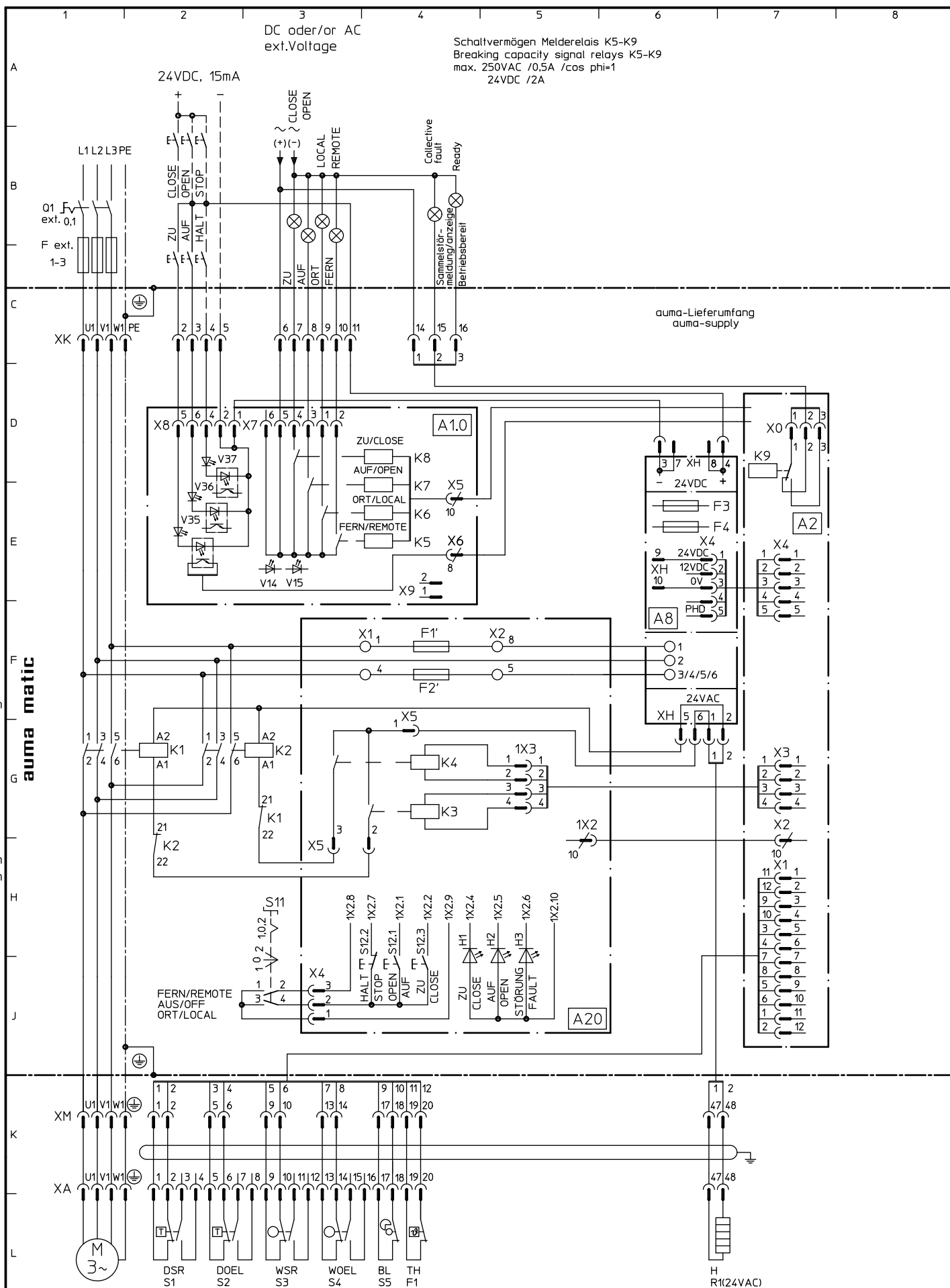


Anschlußplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Code: AM1

			Datum	2011-07-18	 AUMA Riester GmbH & Co. KG	MSP1110KC3--F18E1 TPA00R1AA-101-000		
02	733/09	2011-07-18	Mon	Bearb.		Legende	Auftragsnummer	Bestellnummer
01	800/09	2009-12-07	Mon	Gepr.				
Zust.	Änderung	Datum	Name	Norm				Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlußplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Code: AM1W

				Datum	2013-05-07	 AUMA Riester GmbH & Co. KG	MSP5110KC3--F18E1 TPA00R1AA-101-000		
02	733/09	2013-05-07	Mon	Bearb.	Montaire		Legende	Auftragsnummer	Bestellnummer
01	733/09	2010-07-08	Mon	Gepr.	Montaire				
Zust.	Änderung	Datum	Name	Norm	Montaire				
							Projekt		

Legend for AUMA MATIC

Legend for actuator		
S1	TSC	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, outerclockwise rotation
S3	LSC (SR)	Limit switch, closing, clockwise rotation
S4	LSO (WOEL)	Limit switch, opening, outerclockwise rotation
S1/2	DSR 1	Torque switches, in tandem arrangement with DSR/DOEL (SC/TSO)
S2/2	DOEL 1	
S3/2	SR 1	Limit switches, in tandem arrangement with SR/WOEL (SC/LSO)
S4/2	WOEL 1	
S3/3	SR 2	Limit switches, in trip arrangement with SR/WOEL (SC/LSO)
S4/3	WOEL 2	
S3/4	SR 3	Limit switches, in quadruple arrangement with SR/WOEL (SC/LSO)
S4/4	WOEL 3	
S5	B	Blinker transmitter
S6	WR	Limit switches, DO, for 2 intermediate positions, adjustable
S7	WL	
S6/2	WR 1	Limit switches, DO, for 2 intermediate positions in tandem arrangement with WR/WL (SA/LSB)
S7/2	WL 1	
B /B	EW /RWG	3-wire or 4-wire system/external position transmitter
	IW	
B /B	EW /RWG	2-wire system/external position transmitter
	IW	
F1	TH	Thermoswitch
F1/2	TH	Thermoswitches (signalisation)
R1	H	Heater in switch compartment
R2	f1	Potentiometer
R2/2	f2	Potentiometer in tandem arrangement with R 2
R2/3	f3	Potentiometer in trip arrangement with R 2
R3	PTC 1	PTC thermistor
R3/2	PTC 2	PTC thermistor (indication)
R4	H	Motor heater

Legend for AUMA MATIC		
A1.0		Interface board
8 - 8		Output on start; running indication via output on start (opening and closing) in combination with blinker (S5) and signal board for running indication (A 91)
A1.1		Special interface board
A1.6		Timer board
R10		Direction OPEN, pulse time
R11		Direction OPEN, running time
R12		Direction CLOSE, pulse time
R13		Direction CLOSE, running time
A1.8		Profibus board, Modbus board
A2		Logic board
8		Output on total lock
A4		Overvoltage protection thyristors
A5		Thyristor board
A7		Positioner board
A8		Power supply board
F3, F4		Secondary fuses
A9		REMOTE change-over MANUAL - AUTOMATIC
A9.1		External release of local operation

Legend for AUMA MATIC

A11	PTC trip ing board
A13	Fieldbus on net ion board
A13.1	Profibus DP and PTC trip ing dev e
A13.2	Profibus DP and PTC trip ing dev e an d reset on tat
A17	Galvan id solator
A20/A21	Signal and on trol board
S11/S11/2	Selet or siv tb LOCAL - OFF - REMOTE
S11/3	Selet or siv tb LOCAL - OFF - REMOTE 3 rd level w th sp ing return for test/reset/PTC trip ing dev e
S12.1	Push button OPEN
S12.2	Push button STOP
S12.3	Push button CLOSE
S12.5	Push button EMERGENCY - STOP
H	Indiat ion light CLOSE
Ø	Indiat ion light OPEN
B	Indiat ion light FAU T
K ,K	Control relay for reer sing on tat ors:
F1,F2	FF fuse for semion dut ors
A22	Galvan id solator and REMOTE b ange-oer MANUAL - AUMA MATIC
A24	Bar d for storing the ol let ie fau lt signal 3 s
A25	Signal and on trol board w th EMERGENCY - STOP
A32	Oer ol tage board for Profibus/Modbus
A33	External b ange-oer LOCAL - REMOTE,w thout selet or siv tb
A35	bat er monitoring
A66	REMOTE b ange-oer for MANUAL - FIELD
A67	Profibus w th elet ronidbl inker transmitter
A88	bat er system board
A91	Signal board for running indiat ion Signal board for running indiat ion opn ing and t osing) i n ombi nation w th blinker transmitter (§5)
B	Adju stment board for ps ition transmitter
C _B	Permanent sp it apt or (1 to 3 units)
F1,F2	Primary fuses for per sup y
F7	Thermal oer load relay
K ,K	Reer sing on tat ors
Q1	Dison net siv tb
Q2	Motor p otet ion siv tb
R5	bat er in AUMA MATIC
U - U	Semion dut ors (thyristors)
V14	LED,p hase seq ene)p ase failure,mot or p otet ion tripd
V15	LED,t orq e siv tb opr ated in mid-trael
V21	Step ng mode at ie i n diret ion CLOSE
V22	Step ng mode at ie i n diret ion OPEN
V35	LED,c ommand CLOSE aai lable from on trol room
V36	LED,c ommand OPEN aai lable from on trol room
V37	LED,S TOP omman d aai lable from on trol room
V38	LED,c ommand EMERGENCY aai lable from on trol room
XK	Customer on net ion
XA	At uator on net ion
XM	Connet ion for AUMA MATIC (w l brak et)

Legend for AUMA MATIC

Supplementary information	
Information A	Running indication is possible for installed blinker transmitter (5) (opening and closing) Running direction CLOSE: Sets X_{K6} - X_{K7} Running direction OPEN: Sets X_{K6} - X_{K8} Contacts remain closed in end position. For switching off/on the running indication (blinker transmitter) refer to operation instructions.
Information B	The manual user specifies the type of seating in the end positions. Setting is performed using programming switches S1-2 and S3-2 (refer to operation instructions). Tripping of a torque switch in mid-travel leads to switching off and generates a fault signal. For torque seating, the limit switches are used for signalling. They have to be set as to ensure that the respective switch trips shortly before reaching the end position. If the torque switch trips before the limit switch, the actuator is switched off and a fault signal generated.
Information D	The following fault signals are recorded and can be sent as potential-free output fault signal to the control room. • Mains failure • Phase failure • Motor protection tripped • Torque switch tripped in mid-travel (on/off switch refer to operation instructions)
Information E	Input signals according to DIN 19240. Nominal operating current of inputs X_{K2}; X_{K3} and X_{K4} amounts to 10-15 mA. Should the internal 24 VDC power supply be used for remote control, switching is only possible via potential-free contacts.
Information F	In case of wrong phase sequence, the running direction is adjusted by automatic phase inversion. During phase failure, the multi-turn actuator is at standstill. The failure is indicated at LED V14 of the interface board.
Information G	Potential-free contacts can be used for signals. The internal control voltage ($X_{K11}/+24$ V or $X_{K5}/2-4$ V) must not be used for external lights, relays etc.

Wiring diagram code

		Extract of wiring diagram code														
		Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Position		MSP	1	1	1	0	K	C	3	-	-	F	1	8	E	1
1.	Housing															
	1 Basic version															
	5 AM on wall bracket															
2.	Connector type, connector version															
	1 Plug/socket connector (basic version)															
	B In combination with fieldbus															
3.	Motor type															
	1 3-phase AC motor															
	D 1-phase AC motor															
4	Control version															
	0 Interface board in basic version															
	7 In combination with positioner															
	- Fieldbus															
5.	Input signals of interface board															
	K Alternatively remote commands OPEN - STOP - CLOSE/OPEN - CLOSE															
	0 In combination with positioner or fieldbus															
6	Output signals of interface board															
	C Potential-free end position signal OPEN - CLOSE and signal LOCAL - REMOTE - COLLECTIVE FAULT SIGNAL															
	0 In combination with positioner or fieldbus															
7.	Input level at interface board															
	3 Alternatively internal/external control voltage 24 V DC															
	- Input level in combination with positioner or fieldbus															
8	Programming of control logic and blinker transmitter															
	- Standard															
	1 Profibus DP															
	7 Modbus RTU															
9.	Power supply unit															
	- Standard															
10.	Switchgear															
	F Reversing contactors															
	A Thyristor unit for 3-phase AC motors															
	Z Thyristor unit for 1-phase AC motors															
11.	Selector switch															
	1 Single selector switch															
	2 Selector switch 2 nd level level Signalisation LOCAL/AUTOMATIC (required for positioner)															
12	Control elements															
	8 Push-buttons OPEN – STOP – CLOSE and indication lights OPEN – FAULT – CLOSED															
13	Heater and blinker transmitter															
	E Basic version heater															
14.	Motor protection															
	1 Basic version (thermoswitches)															

AC 01.2

Information on wiring diagram selection

General information

This data sheet is used as supplement to wiring diagram selection for AC 01.2 (Y004.868/001)

Notes

The wiring diagrams listed in the wiring diagram selection can be downloaded from our website (www.auma.com). This manual includes examples of wiring diagrams for all control types in their basic version.

Wiring diagram selection

The short designations (A1 etc.) are descriptive numberings.

I/O interface	
A1:	With position feedback signal 0/4 – 20 mA (potentiometer in actuator), basic version Reversing contactors CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCA-0A1-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A2:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Reversing contactors CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCA-1B1-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY (24 V DC), setpoint (0/4 – 20 mA), 6 programmable output contacts ¹⁾ TPCA-1B1-1C2-A000 TPA00R1AA-0A1-000, AUMA power classes B1/B2 ³⁾ TPCA-1B1-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A1N:	With position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCA-0A1-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A2N:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY (24 V DC), setpoint (0/4 – 20 mA), 6 programmable output contacts ¹⁾ TPCA-1B1-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3N:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY (24 V DC), setpoint (0/4 – 20 mA), 6 programmable output contacts ¹⁾ TPCA-1B1-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCA-1B1-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
A4N:	With PID process controller and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY (24 V DC), setpoint (0/4 – 20 mA), actual value (0/4 – 20 mA), 6 programmable output contacts ¹⁾ TPCA-2B1-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾
A5N:	With position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors CLOSE, OPEN, STOP, EMERGENCY, INTERLOCK CLOSE, INTERLOCK OPEN, 6 programmable output contacts ¹⁾ TPCA-0D1-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾

Prof bus DP	
A2DP:	With position feedback (potentiometer in actuator), basic version Reversing contactors, Profibus TPCAA000-1A1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3DP:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , Profibus TPCAA000-1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAA000-1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NDP:	With position/torque feedback (MWG in actuator) Reversing contactors, Profibus TPCAA000-1A1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NDP:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , Profibus TPCAA000-1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAA000-1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

1) – 3) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Wiring diagram selection

Prof bus DP combined with I/O interface	
A4DP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAA121-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5DP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAA121-1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAA121-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NDP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAA121-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NDP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAA121-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAA121-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Prof net PN	
A3PN:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , Profinet TPCAN000K1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAN000K1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A3NPN:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , Profinet TPCAN000K1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAN000K1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Only possible in combination with thyristors	
Prof net PN combined with I/O interface	
A5PN:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ , Profinet TPCAN121K1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAN121K1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A5NPN:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ , Profinet TPCAN121K1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAN121K1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Only possible in combination with thyristors	
Modbus RTU	
A2MB:	With position feedback (potentiometer in actuator), basic version Reversing contactors, Modbus TPCAC000-1A1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3MB:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , Modbus TPCAC000-1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAC000-1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NMB:	With position/torque feedback (MWG in actuator) Reversing contactors, Modbus TPCAC000-1A1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NMB:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , Modbus TPCAC000-1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAC000-1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

1) – 3) Refer to notes on page 2.

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Wiring diagram selection

Modbus RTU combined with I/O interface	
A4MB:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5MB:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAC121-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NMB:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NMB:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAC121-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Modbus TCP/IP	
A2MBTCP:	With position feedback (potentiometer in actuator), basic version Reversing contactors, Modbus TCP/IP TPCAC000-1A1-A5E0 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3MBTCP:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , Modbus TCP/IP TPCAC000-1A2-A5E0 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAC000-1A3-A5E0 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NMBTCP:	With position/torque feedback (MWG in actuator) Reversing contactors, Modbus TCP/IP TPCAC000-1A1-A5E0 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NMBTCP:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , Modbus TCP/IP TPCAC000-1A2-A5E0 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAC000-1A3-A5E0 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Modbus TCP/IP combined with I/O interface	
A4MBTCP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1A1-A5E0 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5MBTCP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1A2-A5E0 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAC121-1A3-A5E0 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NMBTCP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1A1-A5E0 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NMBTCP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC121-1A2-A5E0 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAC121-1A3-A5E0 TPA00R100-0I1-000, AUMA power class B3 ³⁾

1) – 3) Refer to notes on page 2.

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Wiring diagram selection

Foundation Fieldbus FF	
A2FF:	With position feedback (potentiometer in actuator), basic version Reversing contactors, Foundation Fieldbus FF TPCAF000-1A1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3FF:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , Foundation Fieldbus FF TPCAF000-1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAF000-1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NFF:	With position/torque feedback (MWG in actuator) Reversing contactors, Foundation Fieldbus FF TPCAF000-1A1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NFF:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , Foundation Fieldbus FF TPCAF000-1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAF000-1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
Foundation Fieldbus FF combined with I/O interface	
A4FF:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAF121-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5FF:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAF121-1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAF121-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NFF:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAF121-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NFF:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAF121-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAF121-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾
HART Actuator	
A2HRT:	With position feedback (potentiometer in actuator), basic version Reversing contactors, HART actuator TPCAI000-1A1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3HRT:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , HART actuator TPCAI000-1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAI000-1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NHRT:	With position/torque feedback (MWG in actuator) Reversing contactors, HART actuator TPCAI000-1A1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NHRT:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , HART actuator TPCAI000-1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAI000-1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

1) – 3) Refer to notes on page 2.

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Wiring diagram selection

HART actuator combined with I/O interface	
A4HRT:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAI041-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5HRT:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator), Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAI041-1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAI041-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NHRT:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC041-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NHRT:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAC041-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAC041-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

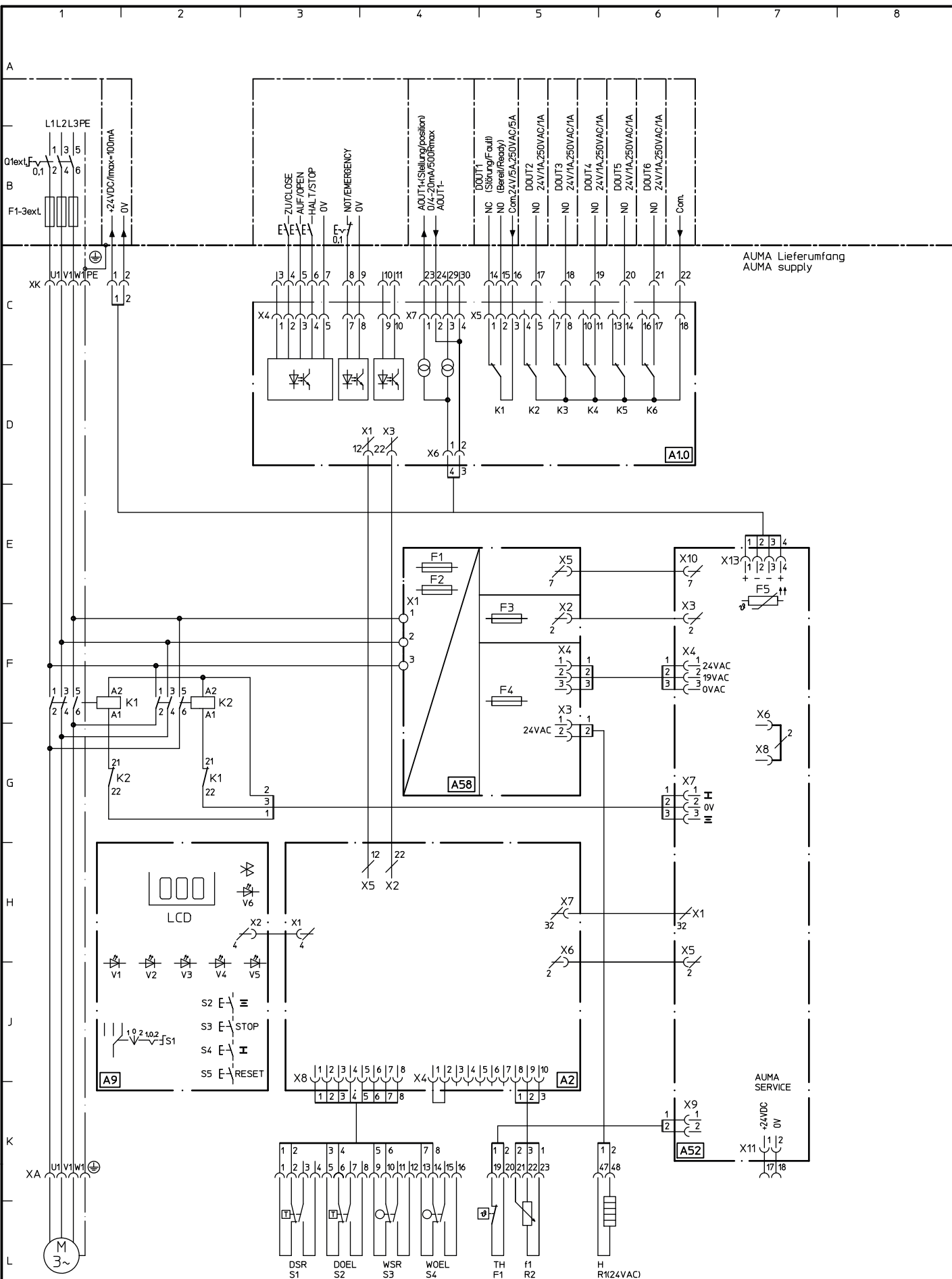
HART Current Output	
A2HRTCO:	With position feedback (potentiometer in actuator), basic version Reversing contactors, HART Current Output TPCAJ000-1A1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A3HRTCO:	With position feedback (potentiometer in actuator) Thyristors ²⁾ , HART Current Output TPCAJ000-1A2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAJ000-1A3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A2NHRTCO:	With position/torque feedback (MWG in actuator) Reversing contactors, HART Current Output TPCAJ000-1A1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A3NHRTCO:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ , HART actuator TPCAJ000-1A2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAJ000-1A3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

HART Current Output with I/O interface	
A4HRTCO:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAJ14D-1C1-A000 TPA00R1AA-0A1-000, AUMA power classes A1 – A3 ³⁾
A5HRTCO:	With position feedback (potentiometer in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAJ14D-1C2-A000 TPA00R1AA-0A1-000, AUMA power class B1/B2 ³⁾ TPCAJ14D-1C3-A000 TPA00R1AA-0A1-000, AUMA power class B3 ³⁾
A4NHRTCO:	With position/torque feedback (MWG in actuator) Reversing contactors MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAJ14D-1C1-A000 TPA00R100-0I1-000, AUMA power classes A1 – A3 ³⁾
A5NHRTCO:	With position/torque feedback (MWG in actuator) Thyristors ²⁾ MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCAJ14D-1C2-A000 TPA00R100-0I1-000, AUMA power class B1/B2 ³⁾ TPCAJ14D-1C3-A000 TPA00R100-0I1-000, AUMA power class B3 ³⁾

- 1) Standard assignment: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN
- 2) Thyristor unit (recommended for modulating actuators)
- 3) Refer to Electrical data SA .2/SAR .2 and SQ .2/SQR .2 with 3-phase AC motors

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Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A1

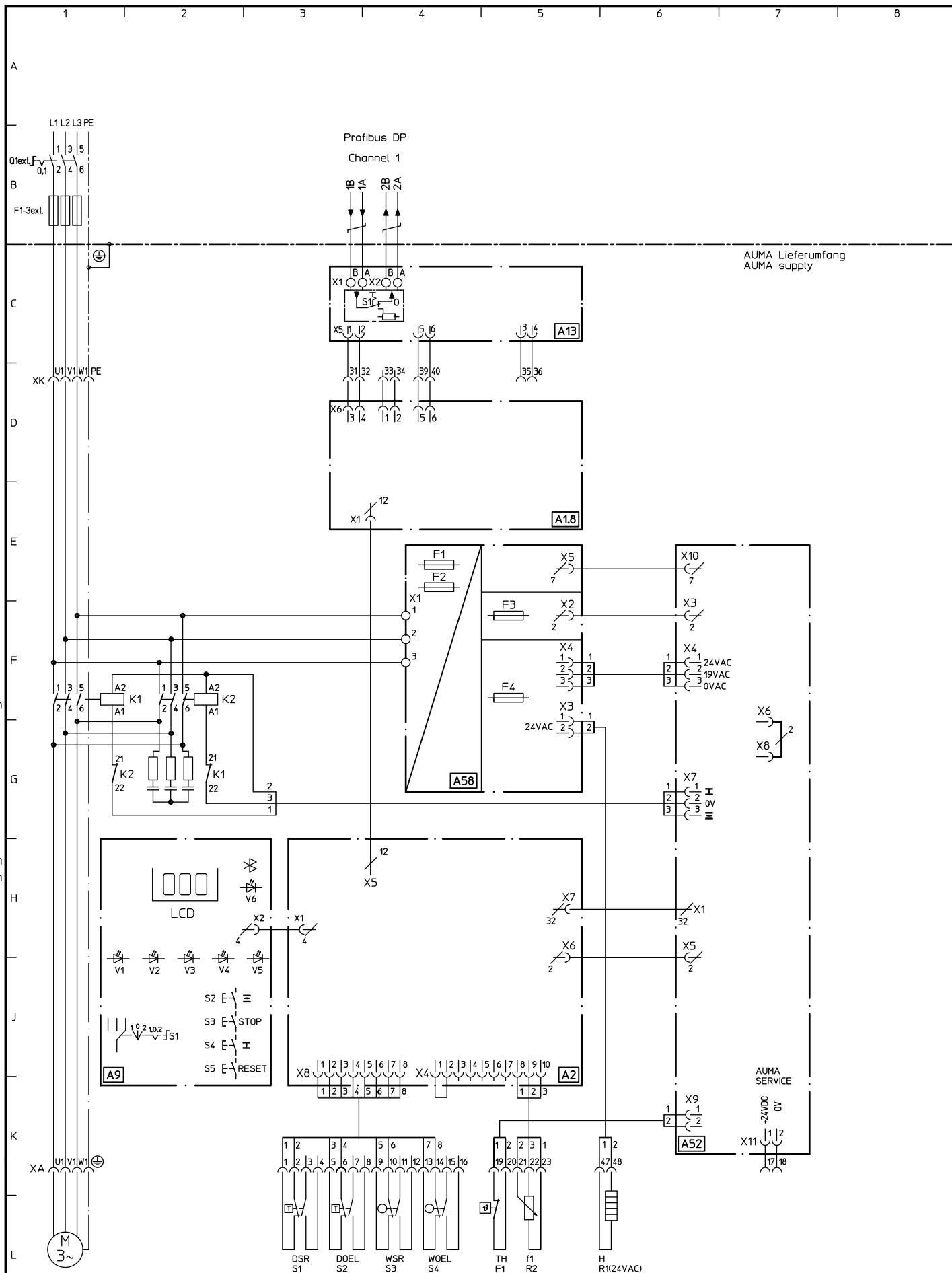
07	733/09	2011-03-16	Mey	Datum	2013-11-22
06	2010/141	2010-09-13	Mey	Bearb.	Montaire
05	733/09	2010-06-10	Mon	Gepr.	Montaire
Zust.	Änderung	Datum	Name	Norm	Montaire

auma[®]
AUMA Riester GmbH & Co. KG

TPCA-0A1-1C1-A000 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



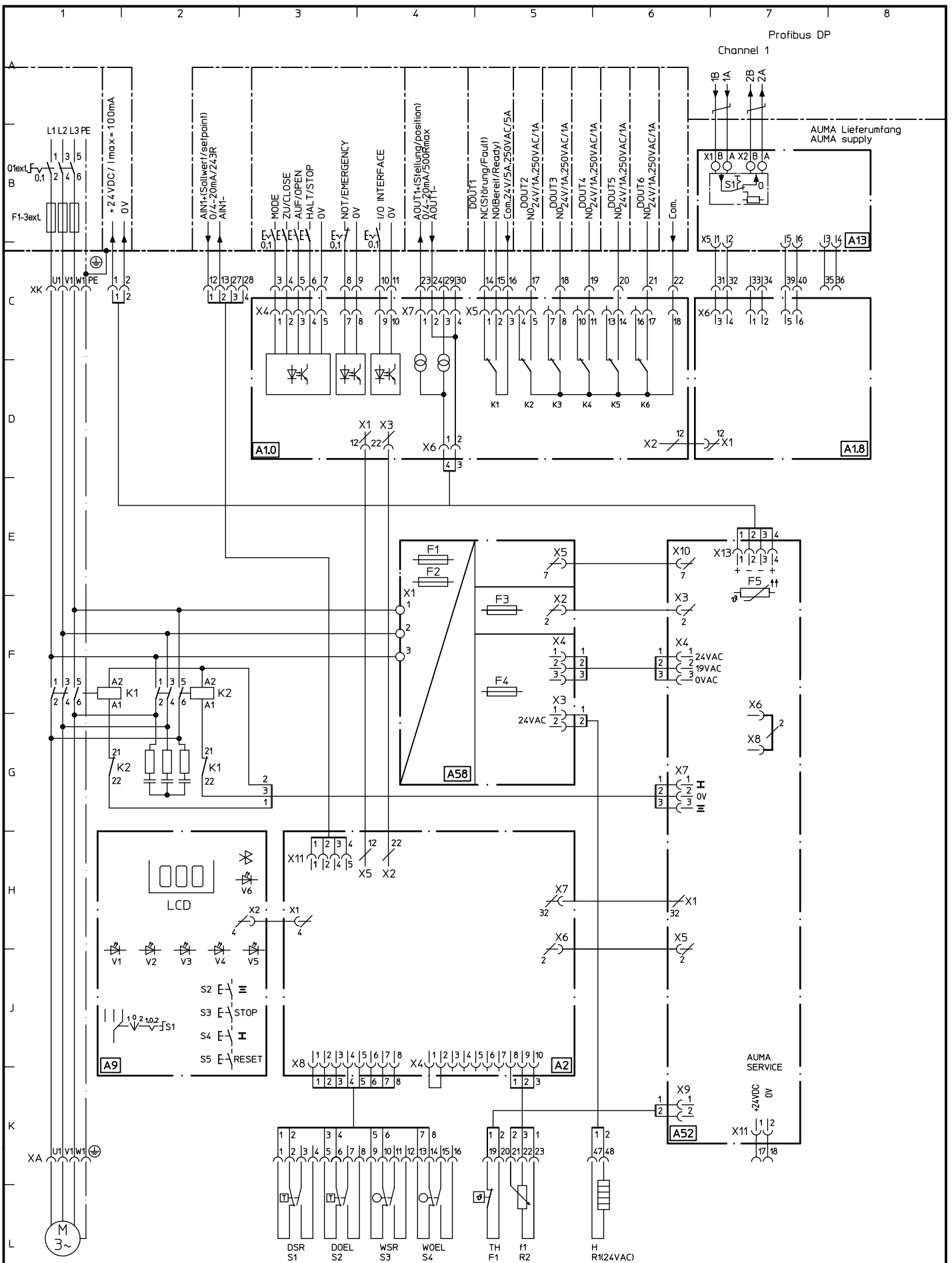
AUMA Lieferumfang
AUMA supply

AUMA SERVICE

Code: A2DP

			Datum	2011-07-11	auma AUMA Riester GmbH & Co. KG	TPCAA000-1A1-A000 TPA00R1AA-0A1-000		
02	798/09	2009-12-08	Mon	Bearb.		Legende	Auftragsnummer	Bestellnummer
01	790/09	2009-10-20	Mon	Gepr.				
Zust.	Änderung	Datum	Name	Norm				Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

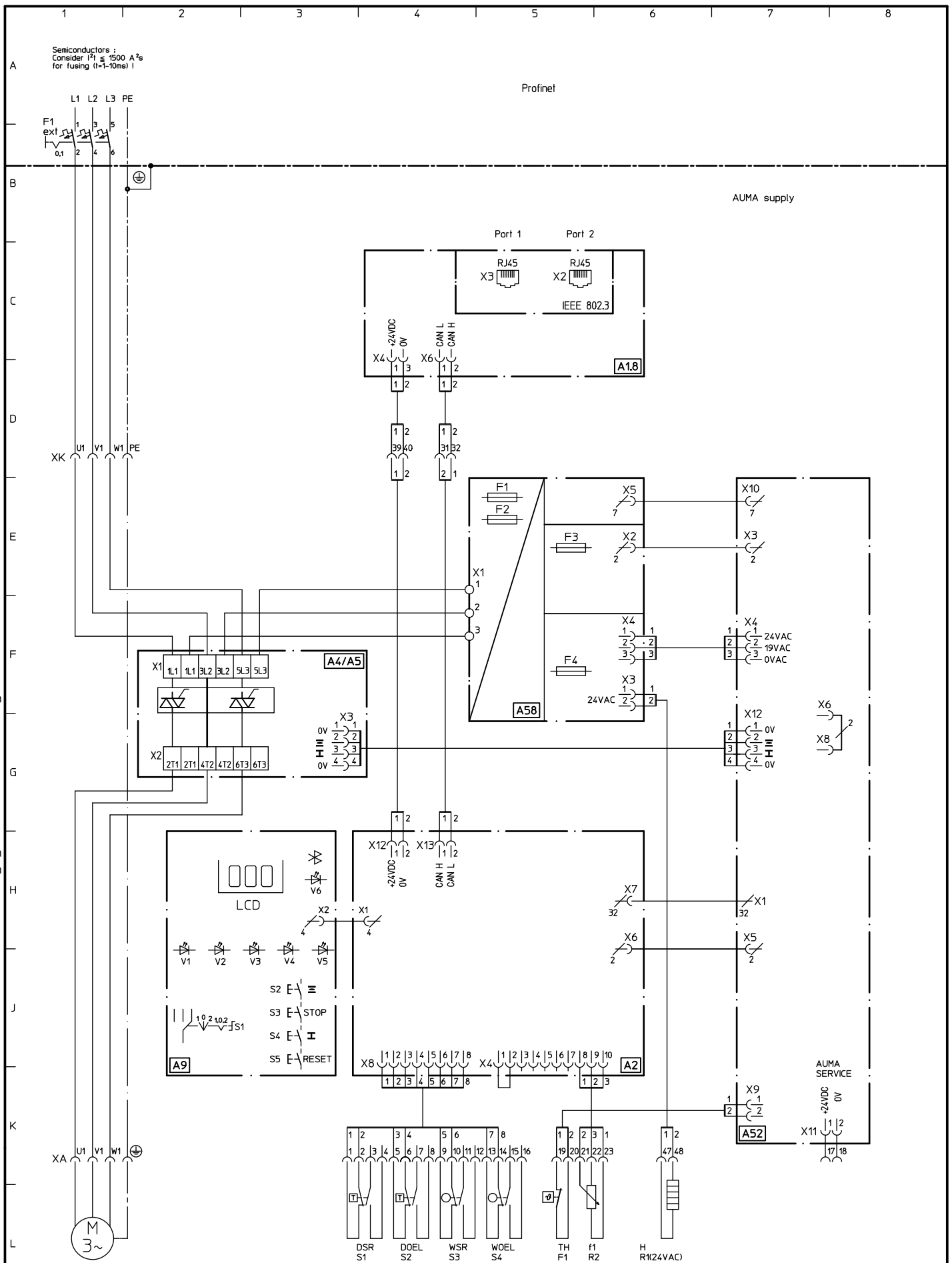
Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A4DP

03	2012-122	2012-09-04	Mon	Datum	2013-02-12	TPCAA121-1C1-A000 TPA00R1AA-0A1-000		
02	2010/141	2010-09-14	Mey	Bearb.	Montaire			
01	733/09	2010-06-11	Mon	Gepr.	Montaire	Legende Auftragsnummer Bestellnummer		
Zust.	Änderung	Datum	Name	Norm	Montaire			
						Projekt		

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Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A3PN

			Datum	2016-11-22	auma[®] AUMA Riester GmbH & Co. KG	TPCAN000K1A2-A000 TPA00R1AA-0A1-000		
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
			Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer	Projekt		

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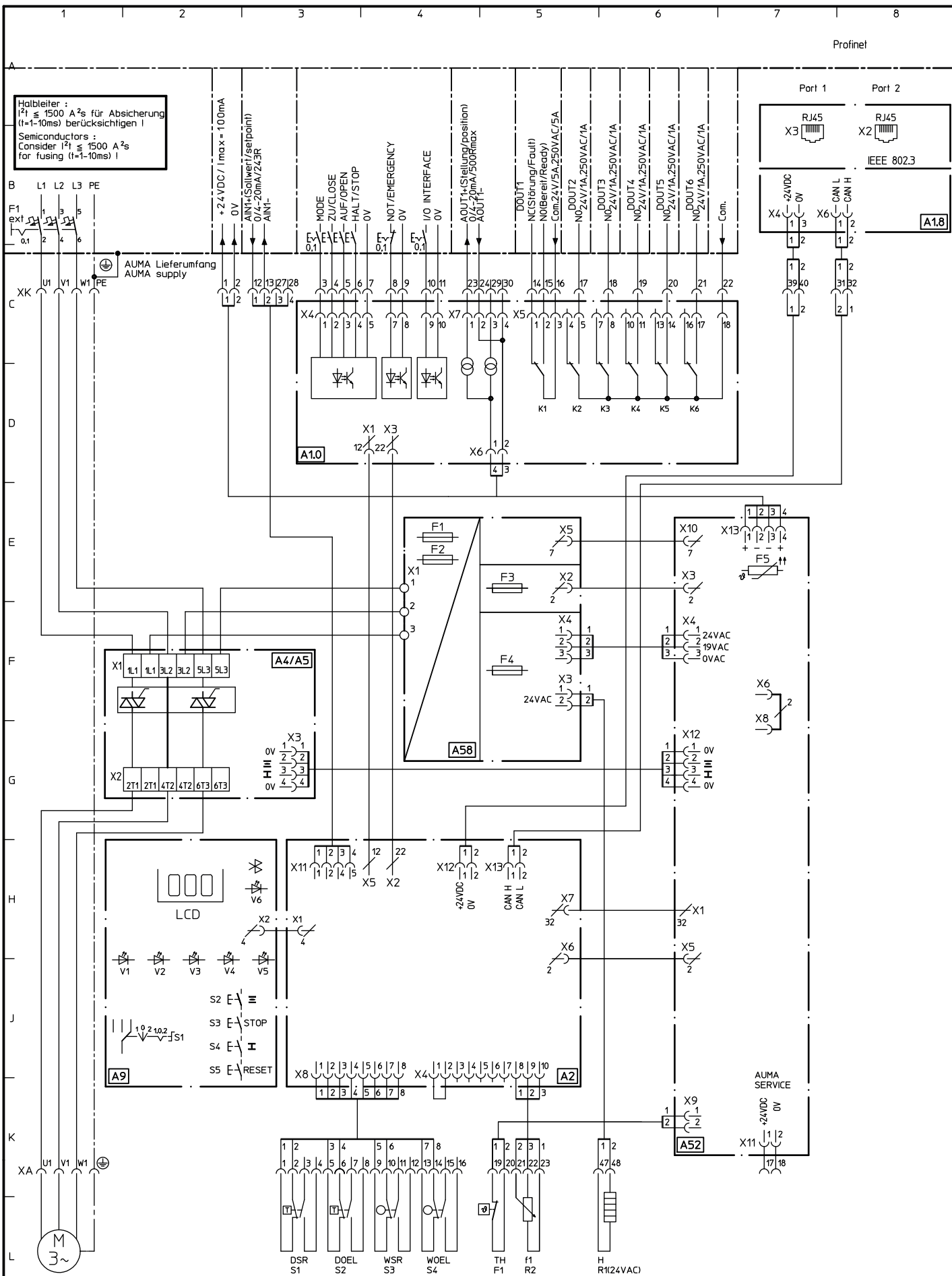
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A3PN

				Datum	2016-11-22	 AUMA Riester GmbH & Co. KG	TPCAN000K1A3-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer		Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A5PN

				Datum	2016-11-22
				Bearb.	Meyer
				Gepr.	Roemer
Zust.	Änderung	Datum	Name	Norm	Roemer

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TPCAN121K1C2-A000 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Projekt	

The diagram illustrates the internal wiring of the AUMA 2000 control unit. Key components and connections include:

- Power Supply:** AUMA Lieferumfang (AUMA supply) providing +24VDC (Imax = 100mA) and 0V. The unit also features a 24VAC/1A power source.
- Terminal Blocks:**
 - X1:** 24VDC, 0V, CAN L, CAN H.
 - X2:** 24VDC, 0V, CAN L, CAN H.
 - X3:** 24VDC, 0V, CAN L, CAN H.
 - X4:** 24VDC, 0V, CAN L, CAN H.
 - X5:** 24VDC, 0V, CAN L, CAN H.
 - X6:** 24VDC, 0V, CAN L, CAN H.
 - X7:** 24VDC, 0V, CAN L, CAN H.
 - X8:** 24VDC, 0V, CAN L, CAN H.
 - X9:** 24VDC, 0V, CAN L, CAN H.
 - X10:** 24VDC, 0V, CAN L, CAN H.
 - X11:** 24VDC, 0V, CAN L, CAN H.
 - X12:** 24VDC, 0V, CAN L, CAN H.
 - X13:** 24VDC, 0V, CAN L, CAN H.
 - X14:** 24VDC, 0V, CAN L, CAN H.
 - X15:** 24VDC, 0V, CAN L, CAN H.
 - X16:** 24VDC, 0V, CAN L, CAN H.
 - X17:** 24VDC, 0V, CAN L, CAN H.
 - X18:** 24VDC, 0V, CAN L, CAN H.
 - X19:** 24VDC, 0V, CAN L, CAN H.
 - X20:** 24VDC, 0V, CAN L, CAN H.
 - X21:** 24VDC, 0V, CAN L, CAN H.
 - X22:** 24VDC, 0V, CAN L, CAN H.
 - X23:** 24VDC, 0V, CAN L, CAN H.
 - X24:** 24VDC, 0V, CAN L, CAN H.
 - X25:** 24VDC, 0V, CAN L, CAN H.
 - X26:** 24VDC, 0V, CAN L, CAN H.
 - X27:** 24VDC, 0V, CAN L, CAN H.
 - X28:** 24VDC, 0V, CAN L, CAN H.
 - X29:** 24VDC, 0V, CAN L, CAN H.
 - X30:** 24VDC, 0V, CAN L, CAN H.
 - X31:** 24VDC, 0V, CAN L, CAN H.
 - X32:** 24VDC, 0V, CAN L, CAN H.
 - X33:** 24VDC, 0V, CAN L, CAN H.
 - X34:** 24VDC, 0V, CAN L, CAN H.
 - X35:** 24VDC, 0V, CAN L, CAN H.
 - X36:** 24VDC, 0V, CAN L, CAN H.
 - X37:** 24VDC, 0V, CAN L, CAN H.
 - X38:** 24VDC, 0V, CAN L, CAN H.
 - X39:** 24VDC, 0V, CAN L, CAN H.
 - X40:** 24VDC, 0V, CAN L, CAN H.
 - X41:** 24VDC, 0V, CAN L, CAN H.
 - X42:** 24VDC, 0V, CAN L, CAN H.
 - X43:** 24VDC, 0V, CAN L, CAN H.
 - X44:** 24VDC, 0V, CAN L, CAN H.
 - X45:** 24VDC, 0V, CAN L, CAN H.
 - X46:** 24VDC, 0V, CAN L, CAN H.
 - X47:** 24VDC, 0V, CAN L, CAN H.
 - X48:** 24VDC, 0V, CAN L, CAN H.
 - X49:** 24VDC, 0V, CAN L, CAN H.
 - X50:** 24VDC, 0V, CAN L, CAN H.
- Internal Components:**
 - A1:** 24VDC, 0V, CAN L, CAN H.
 - A2:** 24VDC, 0V, CAN L, CAN H.
 - A3:** 24VDC, 0V, CAN L, CAN H.
 - A4:** 24VDC, 0V, CAN L, CAN H.
 - A5:** 24VDC, 0V, CAN L, CAN H.
 - A6:** 24VDC, 0V, CAN L, CAN H.
 - A7:** 24VDC, 0V, CAN L, CAN H.
 - A8:** 24VDC, 0V, CAN L, CAN H.
 - A9:** 24VDC, 0V, CAN L, CAN H.
 - A10:** 24VDC, 0V, CAN L, CAN H.
 - A11:** 24VDC, 0V, CAN L, CAN H.
 - A12:** 24VDC, 0V, CAN L, CAN H.
 - A13:** 24VDC, 0V, CAN L, CAN H.
 - A14:** 24VDC, 0V, CAN L, CAN H.
 - A15:** 24VDC, 0V, CAN L, CAN H.
 - A16:** 24VDC, 0V, CAN L, CAN H.
 - A17:** 24VDC, 0V, CAN L, CAN H.
 - A18:** 24VDC, 0V, CAN L, CAN H.
 - A19:** 24VDC, 0V, CAN L, CAN H.
 - A20:** 24VDC, 0V, CAN L, CAN H.
 - A21:** 24VDC, 0V, CAN L, CAN H.
 - A22:** 24VDC, 0V, CAN L, CAN H.
 - A23:** 24VDC, 0V, CAN L, CAN H.
 - A24:** 24VDC, 0V, CAN L, CAN H.
 - A25:** 24VDC, 0V, CAN L, CAN H.
 - A26:** 24VDC, 0V, CAN L, CAN H.
 - A27:** 24VDC, 0V, CAN L, CAN H.
 - A28:** 24VDC, 0V, CAN L, CAN H.
 - A29:** 24VDC, 0V, CAN L, CAN H.
 - A30:** 24VDC, 0V, CAN L, CAN H.
 - A31:** 24VDC, 0V, CAN L, CAN H.
 - A32:** 24VDC, 0V, CAN L, CAN H.
 - A33:** 24VDC, 0V, CAN L, CAN H.
 - A34:** 24VDC, 0V, CAN L, CAN H.
 - A35:** 24VDC, 0V, CAN L, CAN H.
 - A36:** 24VDC, 0V, CAN L, CAN H.
 - A37:** 24VDC, 0V, CAN L, CAN H.
 - A38:** 24VDC, 0V, CAN L, CAN H.
 - A39:** 24VDC, 0V, CAN L, CAN H.
 - A40:** 24VDC, 0V, CAN L, CAN H.
 - A41:** 24VDC, 0V, CAN L, CAN H.
 - A42:** 24VDC, 0V, CAN L, CAN H.
 - A43:** 24VDC, 0V, CAN L, CAN H.
 - A44:** 24VDC, 0V, CAN L, CAN H.
 - A45:** 24VDC, 0V, CAN L, CAN H.
 - A46:** 24VDC, 0V, CAN L, CAN H.
 - A47:** 24VDC, 0V, CAN L, CAN H.
 - A48:** 24VDC, 0V, CAN L, CAN H.
 - A49:** 24VDC, 0V, CAN L, CAN H.
 - A50:** 24VDC, 0V, CAN L, CAN H.
- External Connections:**
 - DSR S1:** 24VDC, 0V, CAN L, CAN H.
 - DOEL S2:** 24VDC, 0V, CAN L, CAN H.
 - WSR S3:** 24VDC, 0V, CAN L, CAN H.
 - WOEL S4:** 24VDC, 0V, CAN L, CAN H.
 - TH F1:** 24VDC, 0V, CAN L, CAN H.
 - f1 R2:** 24VDC, 0V, CAN L, CAN H.
 - H R1(24VAC):** 24VDC, 0V, CAN L, CAN H.

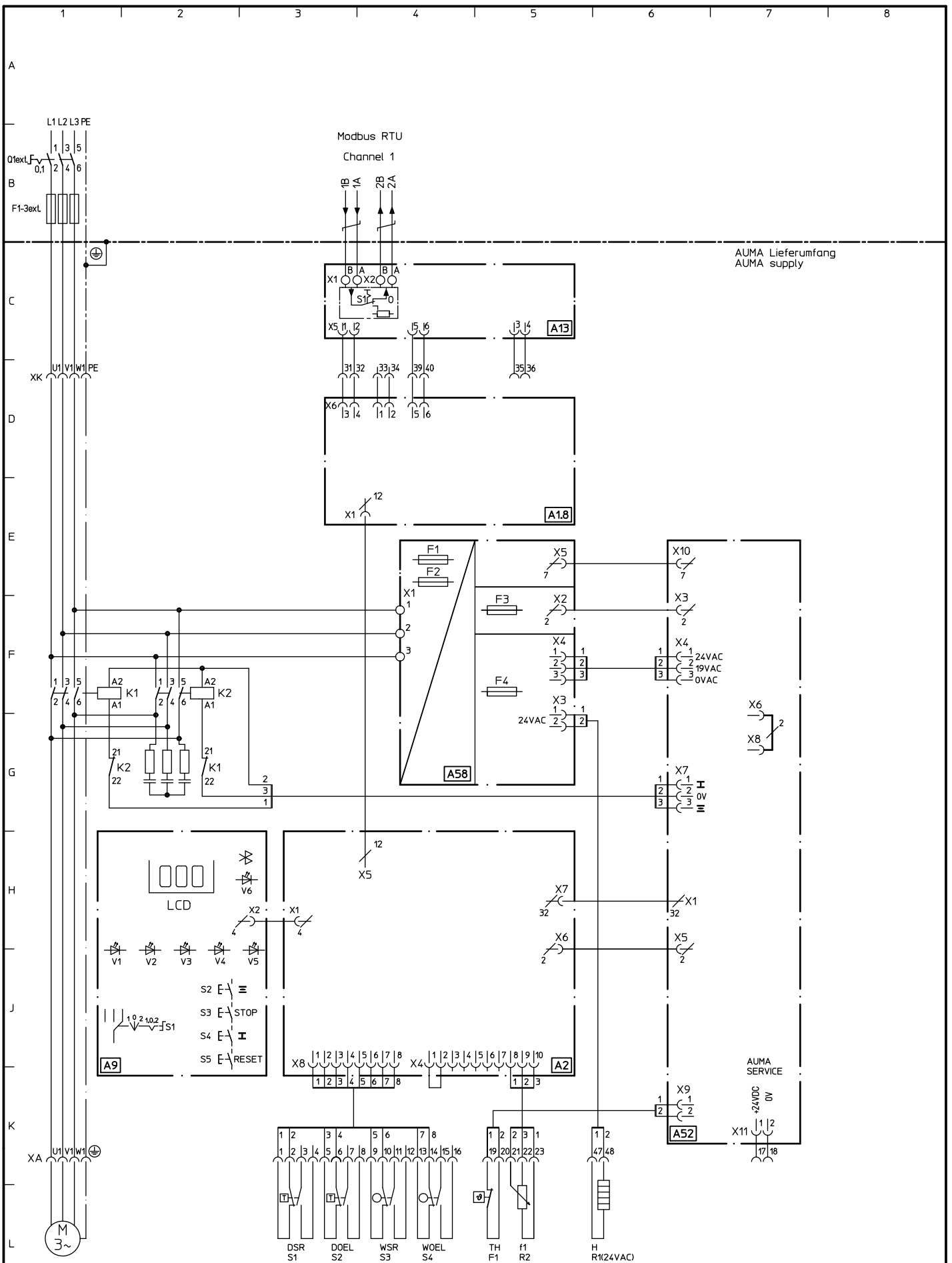
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A5PN

				Datum	2016-11-22	 AUMA Riester GmbH & Co. KG	TPCAN121K1C3-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer		Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



AUMA Lieferumfang
AUMA supply

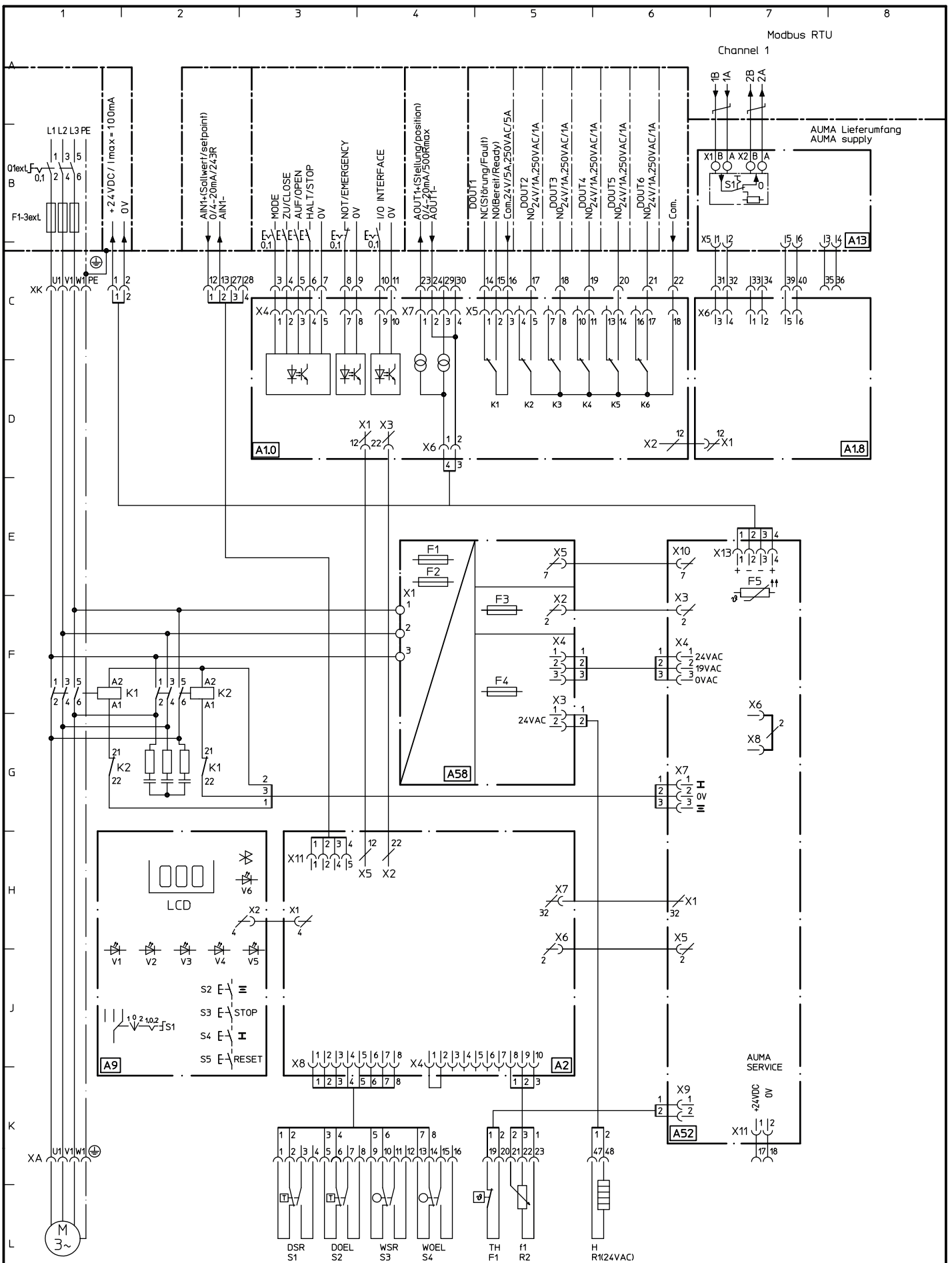
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A2MB

			Datum	2013-04-23	 AUMA Riester GmbH & Co. KG	TPCAC000-1A1-A000 TPA00R1AA-0A1-000		
			Bearb.	Montoire		Legende	Auftragsnummer	Bestellnummer
			Gepr.	Montoire				
Zust.	Änderung	Datum	Name	Norm	Montoire	Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



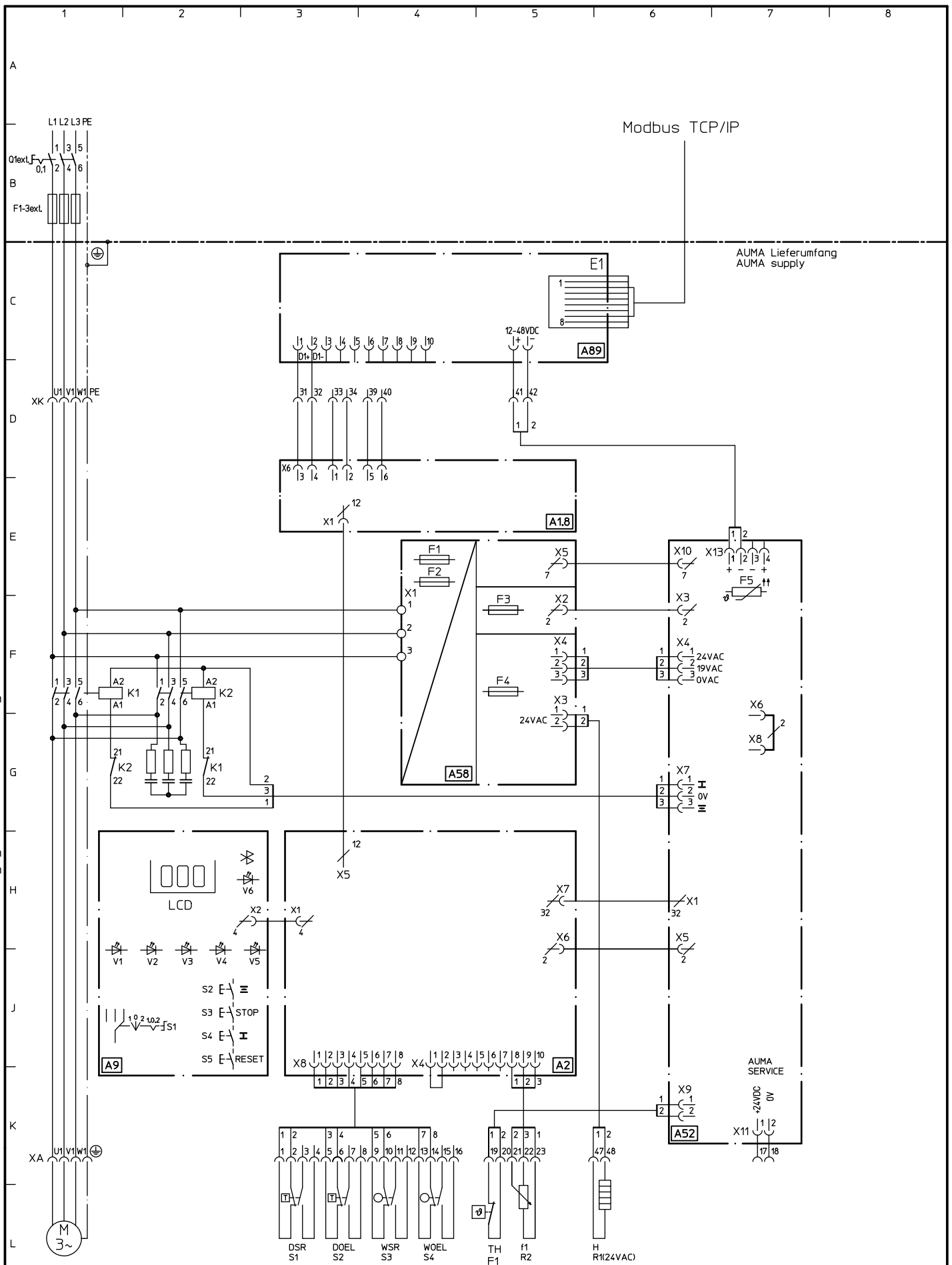
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A4MB

			Datum	2012-08-30	 AUMA Riester GmbH & Co. KG	TPCAC121-1C1-A000 TPA00R1AA-0A1-000		
			Bearb.	Montaire		Legende	Auftragsnummer	Bestellnummer
01	2012-122	2012-08-30	Mon	Gepr.	Montaire			
Zust.	Änderung	Datum	Name	Norm	Montaire			
						Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



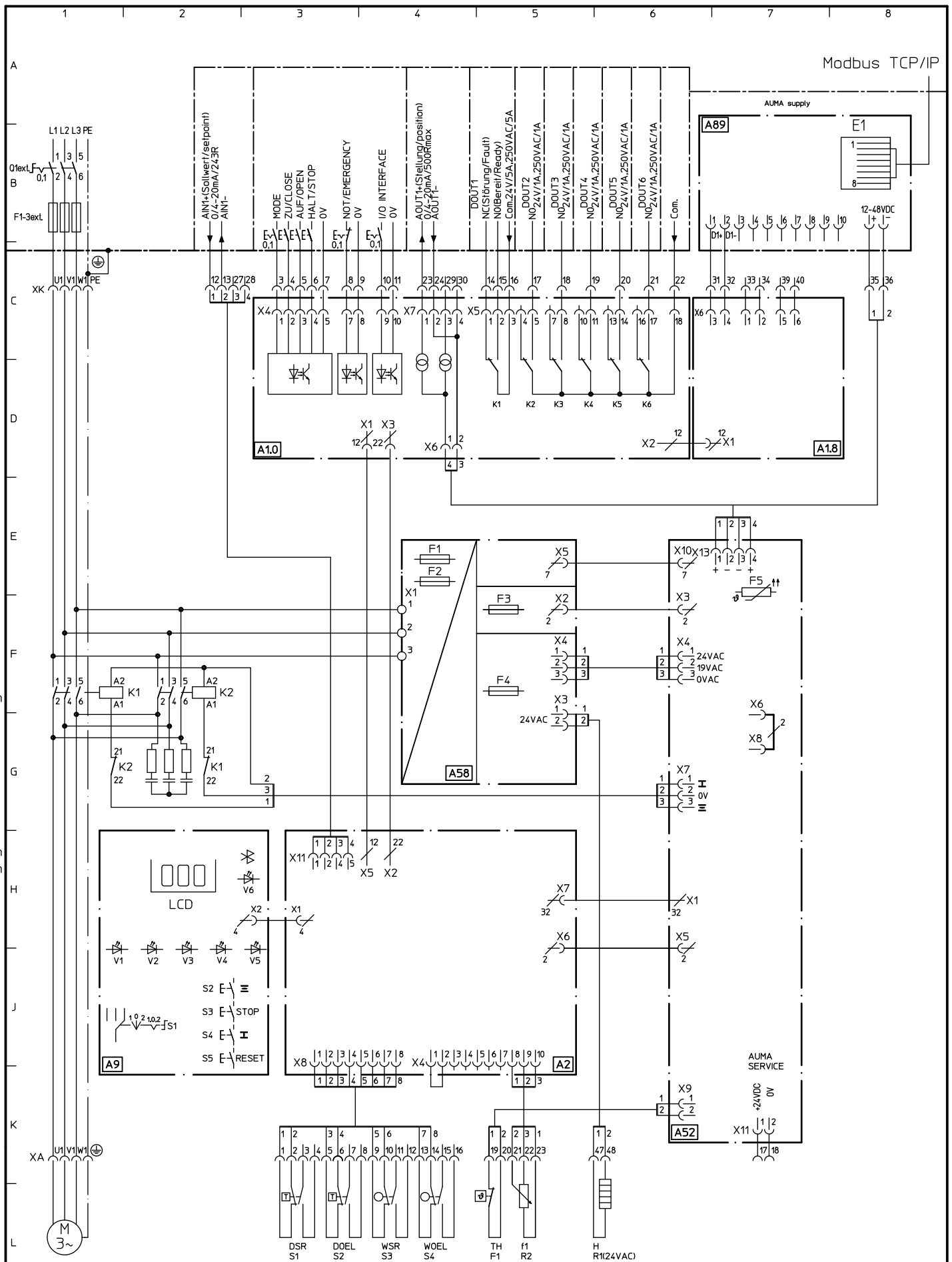
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A2MBTCP

				Datum	2015-04-16	auma AUMA Riester GmbH & Co. KG	TPCAC000-1A1-A5E0 TPA00R1AA-0A1-000		
				Bearb.	Montaire		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Montaire				
Zust.	Änderung	Datum	Name	Norm	Montaire				Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.

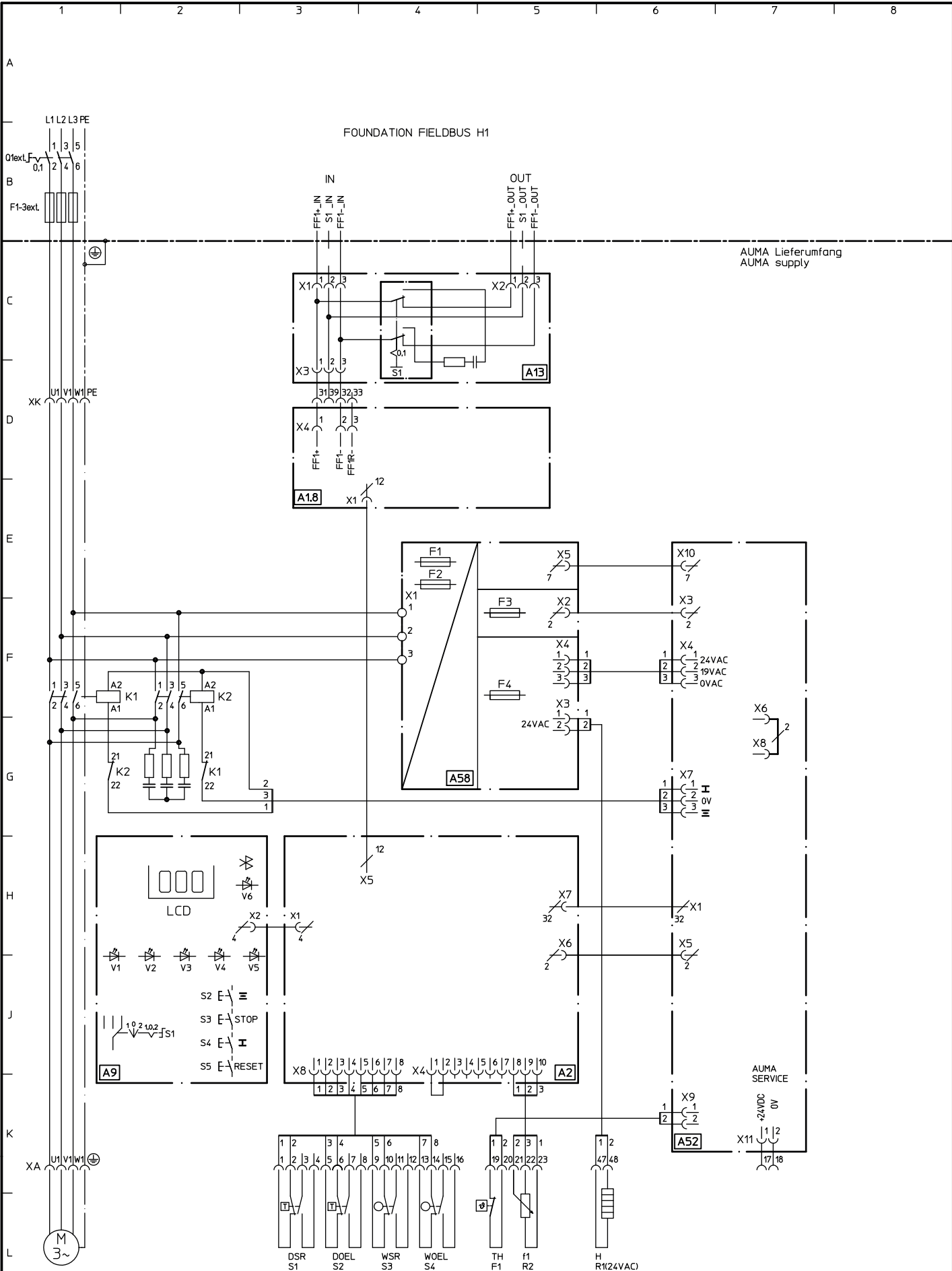


Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A4MBTCP

			Datum	2016-11-23	 AUMA Riester GmbH & Co. KG	TPCAC121-1A1-A5E0 TPA00R1AA-0A1-000		
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
			Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer	Projekt		



AUMA Lieferumfang
AUMA supply

AUMA
SERVICE

Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A2FF

TPCAF000-1A1-A000 TPA00R1AA-0A1-000

Legende

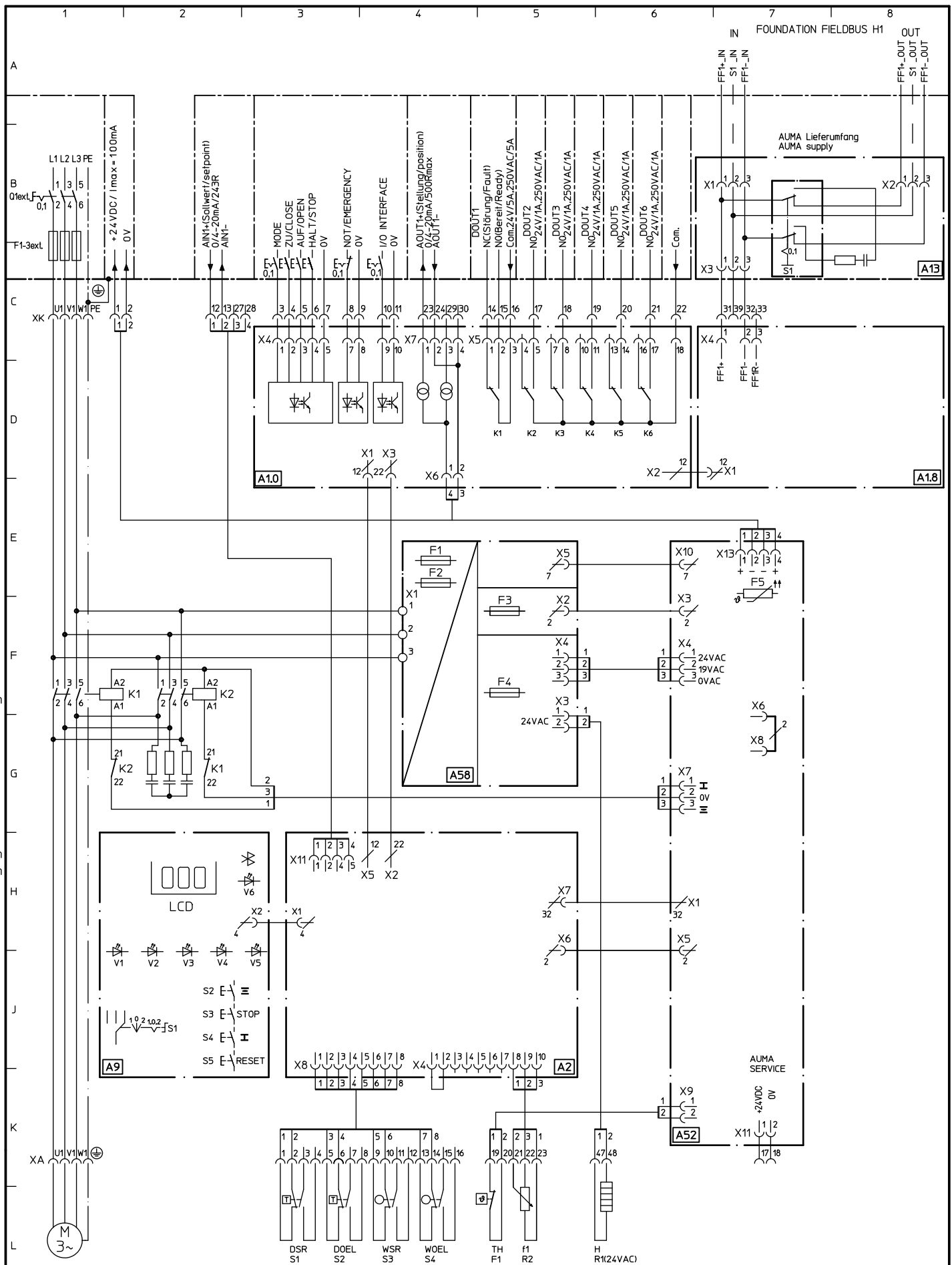
Auftragsnummer

Bestellnummer	

Projekt	

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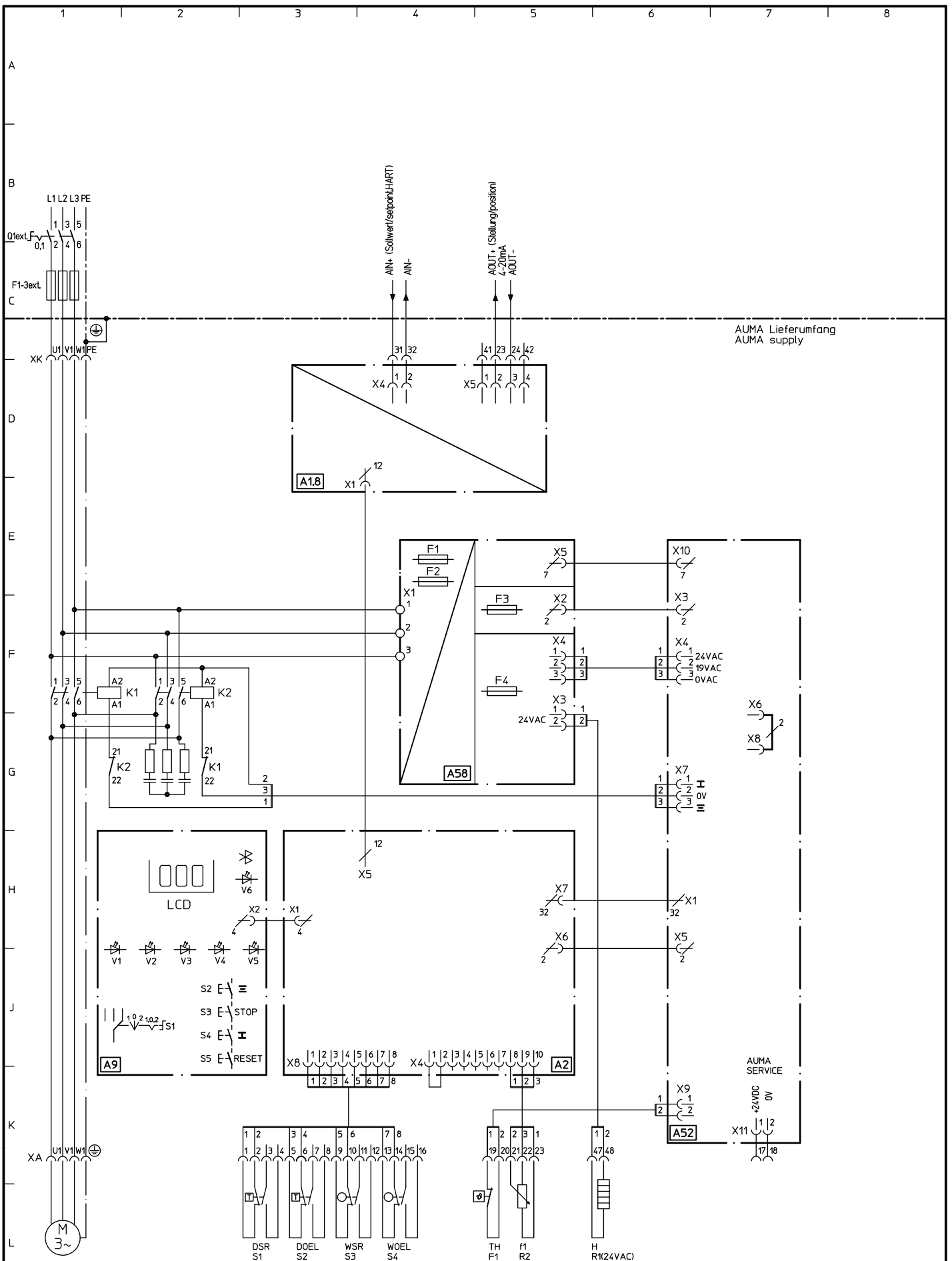
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A4FF

			Datum	2015-11-30	auma[®] AUMA Riester GmbH & Co. KG	TPCAF121-1C1-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	Projekt
			Gepr.	Roemer					
Zust.	Änderung	Datum	Name	Norm	Roemer				

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



AUMA Lieferumfang
AUMA supply

Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

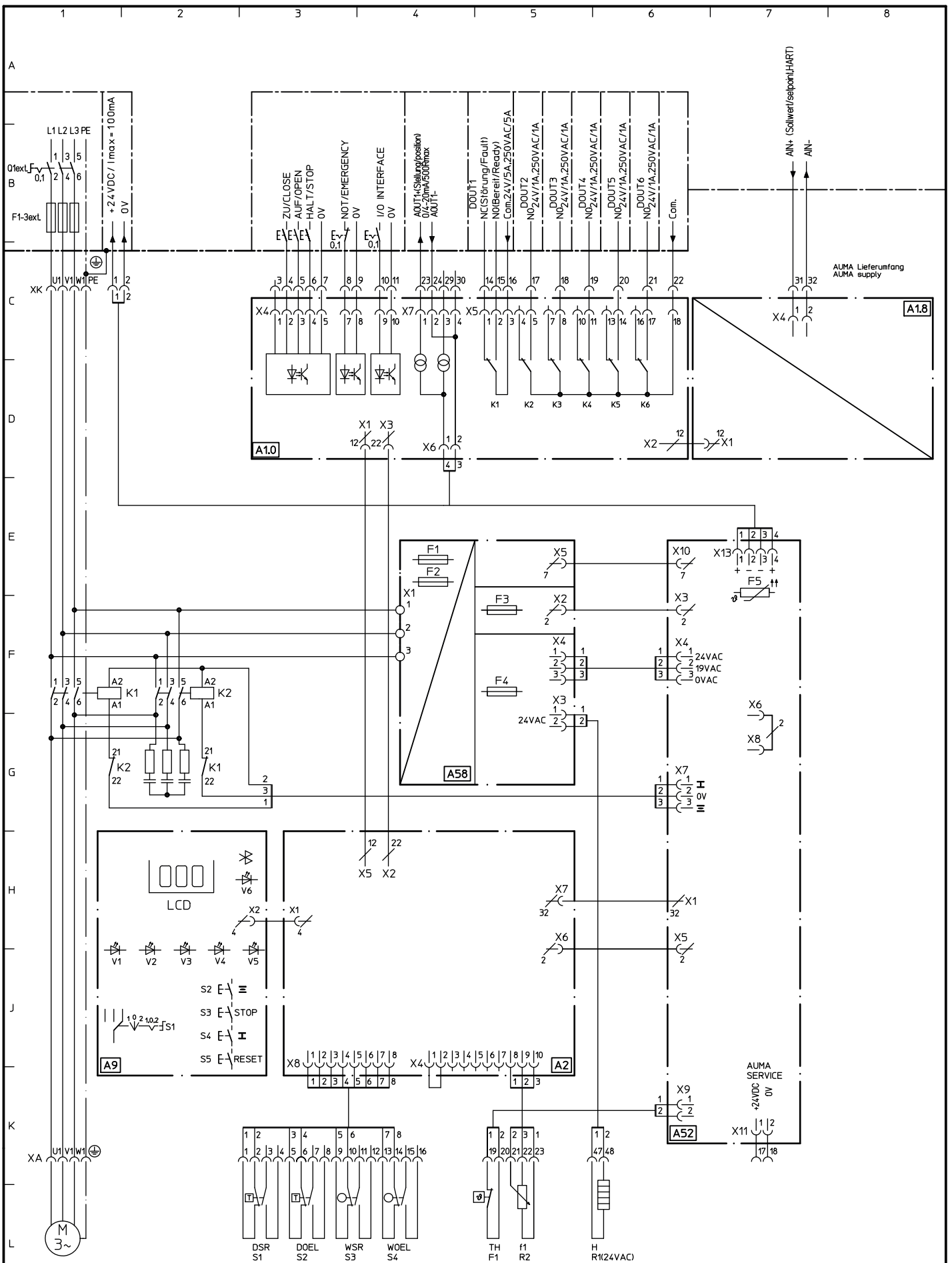
Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A2HRT

			Datum	2015-03-26	TPCAI000-1A1-A000 TPA00R1AA-0A1-000		
04	2015-086	2015-03-26	Mey	Bearb.	Meyer	Legende	Auftragsnummer
03	2014-270	2014-11-07	Mon	Gepr.	Montaire	Bestellnummer	
Zust.	Änderung	Datum	Name	Norm	Montaire	Projekt	

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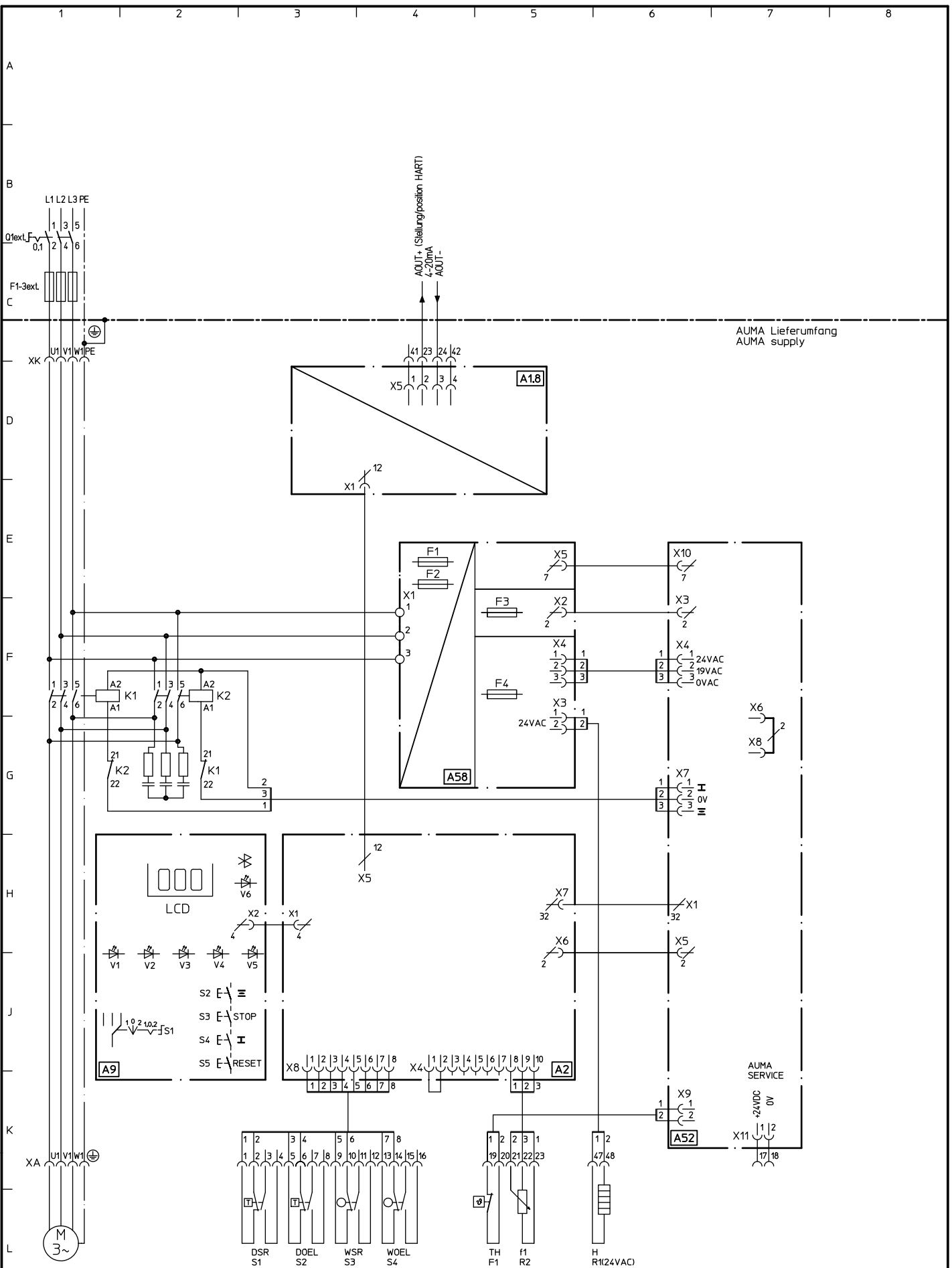


Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A4HRT

				Datum	2015-03-27	auma [®] AUMA Riester GmbH & Co. KG	TPCAIO41-1C1-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
01	2015-086	2015-03-27	Mey	Gepr.	Montaire				
Zust.	Änderung	Datum	Name	Norm	Montaire				
						Projekt			

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

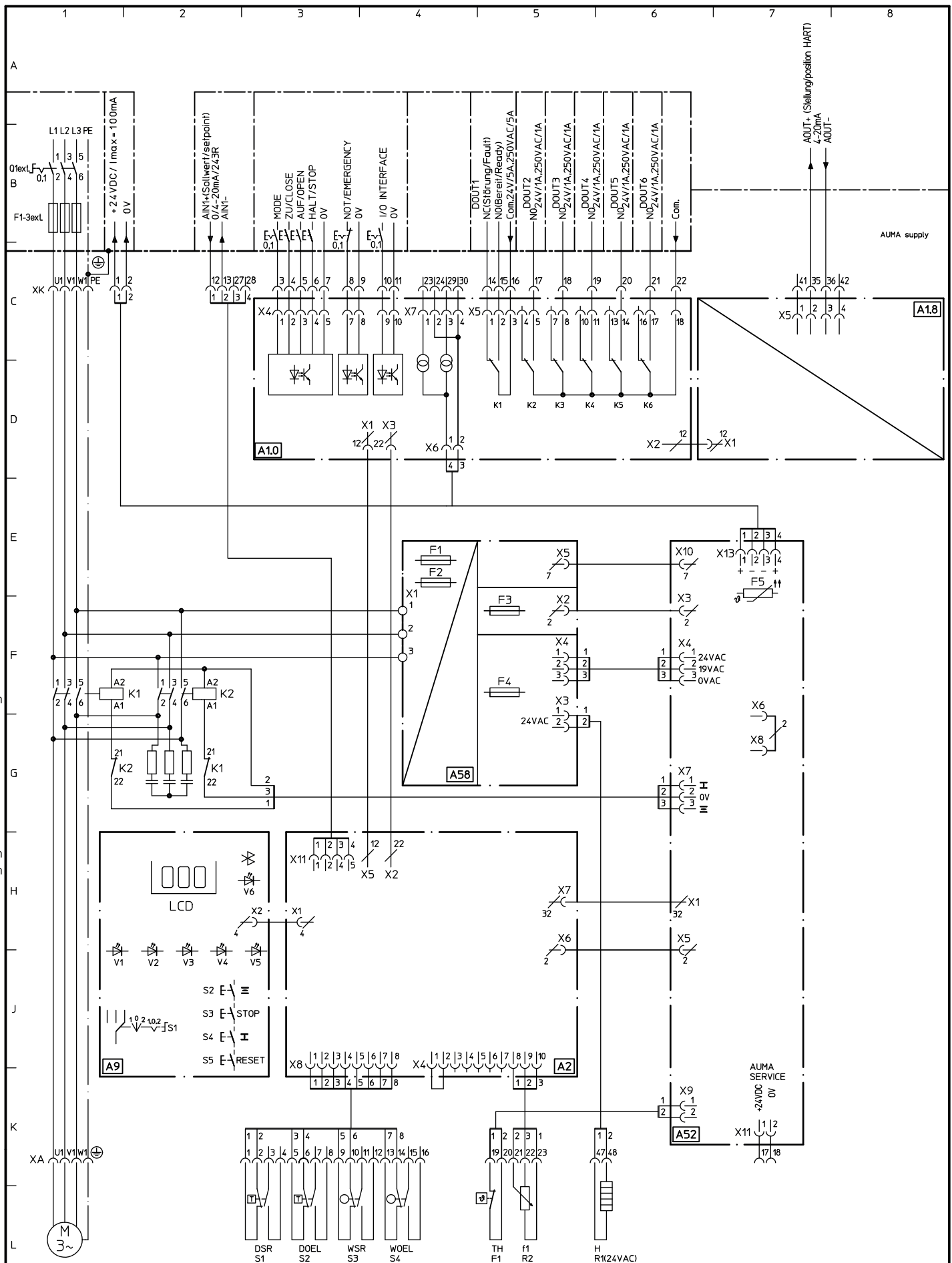
Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: A2HRTCO

				Datum	2015-03-27	TPCAJ000-1A1-A000 TPA00R1AA-0A1-000		
03	2015-086	2015-03-27	Mey	Bearb.	Meyer	Legende		
02	2014-270	2014-11-07	Mon	Gepr.	Monföire			
Zust.	Änderung	Datum	Name	Norm	Meyer	Auftragsnummer		Bestellnummer
						Projekt		

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Terminal plan shows the actuator in intermediate position, switches are not actuated.
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: A4HRTCO

				Datum	2015-03-27	TPCAJ14D-1C1-A000 TPA00R1AA-0A1-000		
03	2015-086	2015-03-27	Mey	Bearb.	Meyer			
02	2014-270	2014-11-07	Mon	Gepr.	Montoire			
Zust.	Änderung	Datum	Name	Norm	Montoire			
						Projekt		

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Legende

Auftragsnummer

Bestellnummer

Legend AUMATIC

A1.0		Interface board
K1 - 6		Output contacts
A1.1		Interface board
K7 - K12		Output contacts
A1.8		Fieldbus board
A2		Logic board
A4		Overvoltage protection thyristors
R1 - R4		Varistors
A9		Local controls
S1		Selector switch LOCAL - OFF - REMOTE
S2		Push button OPEN
S3		Push button STOP
S4		Push button CLOSE
S5		Push button RESET
V1 - V5		Indication lights
V6		Bluetooth
LCD		Graphic display
A13		Fieldbus connection board
A32		Overvoltage protection board for fieldbus
A52		Control board
F5		Fuse (for external supply 24 V DC)
A52.1		Option board
A58		Power supply unit
F3, F4		Secondary fuses
A88		Heater system board
A88.1		Motor heater fuse
A90		WirelessHART Adapter
B2/B4	EWG/RWG	Electronic position transmitter
B6	MWG	Magnetic limit and torque transmitter
F1, F2		Primary fuses for power supply
F1	TH	Thermoswitches
F7		Thermal overload relay
K0		Contactors for all-pole disconnection of thyristors
K1, K2		Reversing contactors
Q1		Disconnect switch
Q2		Motor protection switch
R1	H	Heater in switch compartment
R2	f1	Potentiometer
R2/2	f2	Potentiometer in tandem arrangement with R2
R3	PTC1	PTC thermistor
R4	H	Motor heater
R5	H	Heater in AUMATIC
S0		EMERGENCY stop button (latching)
S1	TSC	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, counterclockwise rotation
S3	LSC (WSR)	Limit switch, closing, clockwise rotation
S4	LSO (WOEL)	Limit switch, opening, counterclockwise rotation
S1/2	DSR 1	Torque switches
S2/2	DOEL 1	in tandem arrangement with DSR/DOEL (TSC/TSO)

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Legend AUMATIC

S3/2	WSR 1	Limit switches
S4/2	WOEL 1	in tandem arrangement with WSR/WOEL (LSC/LSO)
S3/3	WSR 2	Limit switches
S4/3	WOEL 2	in triple arrangement with WSR/WOEL (LSC/LSO)
S6	WDR	Limit switches, DUO, for 2 intermediate positions,
S7	WDL	adjustable
S6/2	WDR 1	Limit switches, DUO, for 2 intermediate positions
S7/2	WDL 1	in tandem arrangement with WDR/WDL (LSA/LSB)
S17	HA	Handwheel activation switch
XK		Customer connection
XA		Actuator connection

ACV 01.2

Information on wiring diagram selection

General information

This data sheet is used as supplement to wiring diagram selection for ACV 01.2 (Y007.370/001)

Notes

The wiring diagrams listed in the wiring diagram selection can be downloaded from our website (www.auma.com). This manual includes examples of wiring diagrams for all control types in their basic version.

Wiring diagram selection

The short designations (AV1 etc.) are descriptive numberings.

I/O interface	
AV1:	With position feedback signal 0/4 – 20 mA (potentiometer in actuator), basic version CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCH-0A1-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCH-0A1-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator) CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCH-1B1-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCH-1B1-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV1N:	With position/torque feedback signal 0/4 – 20 mA (MWG in actuator) CLOSE, OPEN, STOP, EMERGENCY (24 V DC), 6 programmable output contacts ¹⁾ TPCH-0A1-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCH-0A1-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
AV2N:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY (24 V DC), setpoint (0/4 – 20 mA), 6 programmable output contacts ¹⁾ TPCH-1B1-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCH-1B1-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
AV5N:	With position/torque feedback signal 0/4 – 20 mA (MWG in actuator) CLOSE, OPEN, STOP, EMERGENCY, INTERLOCK CLOSE, INTERLOCK OPEN, 6 programmable output contacts ¹⁾ TPCH-0D1-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCH-0D1-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

Profibus DP	
AV2DP:	With position feedback (potentiometer in actuator), basic version Profibus TPCHA000-1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHA000-1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NDP:	With position/torque feedback (MWG in actuator) Profibus TPCHA000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHA000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

Profibus DP combined with I/O interface	
AV4DP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHA121-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHA121-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NDP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHA121-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHA121-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

¹⁾ Refer to notes on page 4.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Wiring diagram selection

Profinet PN	
AV2PN:	With position feedback (potentiometer in actuator)
	Profinet TPCHN000K1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHN000K1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NPN:	With position/torque feedback (MWG in actuator)
	Profinet TPCHN000K1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHN000K1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
Profinet PN combined with I/O interface	
AV4PN:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer in actuator)
	Profinet TPCHN121K1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHN121K1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NPN:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator)
	Profinet TPCHN121K1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHN121K1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
Modbus RTU	
AV2MB:	With position feedback (potentiometer in actuator), basic version
	Modbus TPCHC000-1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHC000-1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NMB:	With position/torque feedback (MWG in actuator)
	Modbus TPCHC000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHC000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
Modbus RTU combined with I/O interface	
AV4MB:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version
	MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHC121-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHC121-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NMB:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator)
	MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHC121-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHC121-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V
Modbus TCP/IP	
AV2MBTCP:	With position feedback (potentiometer in actuator), basic version
	Modbus TCP/IP TPCHC000-1AF-A5E0 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHC000-1AE-A5E0 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NMBTCP:	With position/torque feedback (MWG in actuator)
	Modbus TCP/IP TPCHC000-1AF-A5E0 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHC000-1AE-A5E0 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

1) Refer to notes on page 4.

Wiring diagram selection

Modbus TCP/IP combined with I/O interface	
AV4MBTCP:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHC121-1AF-A5E0 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHC121-1AE-A5E0 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NMBTCP:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHC121-1AF-A5E0 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHC121-1AE-A5E0 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

Foundation Fieldbus FF	
AV2FF:	With position feedback (potentiometer in actuator), basic version Foundation Fieldbus FF TPCHF000-1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHF000-1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NFF:	With position/torque feedback (MWG in actuator) Foundation Fieldbus FF TPCHF000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHF000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

Foundation Fieldbus FF combined with I/O interface	
AV4FF:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHF121-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHF121-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NFF:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHF121-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHF121-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

HART Actuator	
AV2HRT:	With position feedback (potentiometer in actuator), basic version HART Actuator TPCHI000-1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHI000-1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NHRT:	With position/torque feedback (MWG in actuator) HART Actuator TPCHI000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHI000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

HART Actuator combined with I/O interface	
AV4HRT:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHI041-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHI041-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NHRT:	With positioner and position/torque feedback signal 0/4 – 20 mA (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHI041-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHI041-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

1) Refer to notes on page 4.

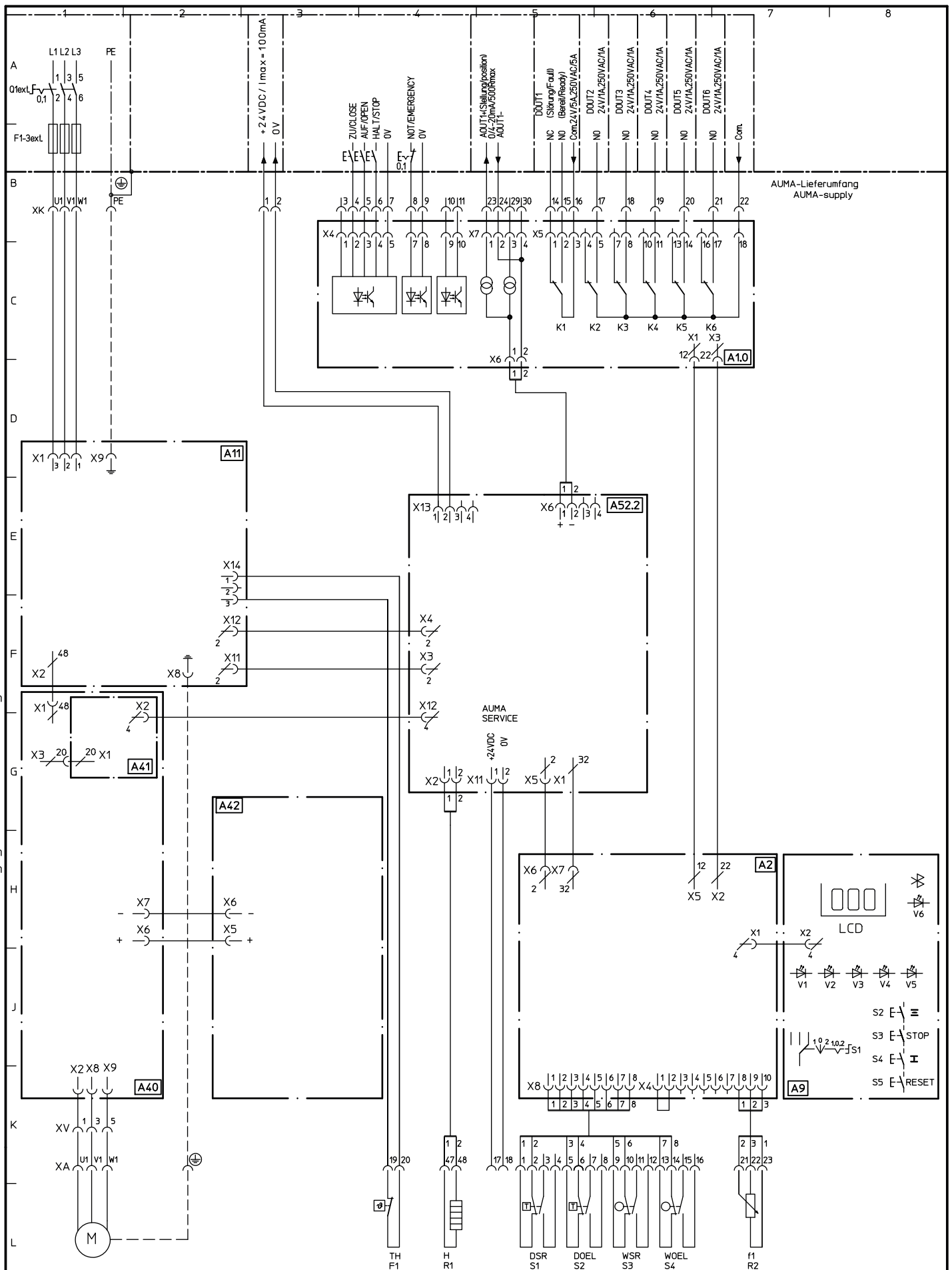
Wiring diagram selection

HART Current Output	
AV2HRTCO:	With position feedback (potentiometer in actuator), basic version HART Current Output TPCHJ000-1AF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHJ000-1AE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV2NHRTCO:	With position/torque feedback (MWG in actuator) HART Current Output TPCHJ000-1AF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHJ000-1AE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

HART Current Output with I/O interface	
AV4HRTCO:	With positioner and position feedback signal 0/4 – 20 mA (potentiometer within actuator), basic version MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHJ14D-1CF-A000 TPA00R1AA-0A1-000, 3-ph; 380 V – 480 V TPCHJ14D-1CE-A000 TPA00R1AA-0A1-000, 1-ph; 220 V – 240 V
AV4NHRTCO:	With position/torque feedback (MWG in actuator) MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O (24 V DC), 6 programmable output contacts ¹⁾ TPCHJ14D-1CF-A000 TPA00R100-0I1-000, 3-ph; 380 V – 480 V TPCHJ14D-1CE-A000 TPA00R100-0I1-000, 1-ph; 220 V – 240 V

1) Default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

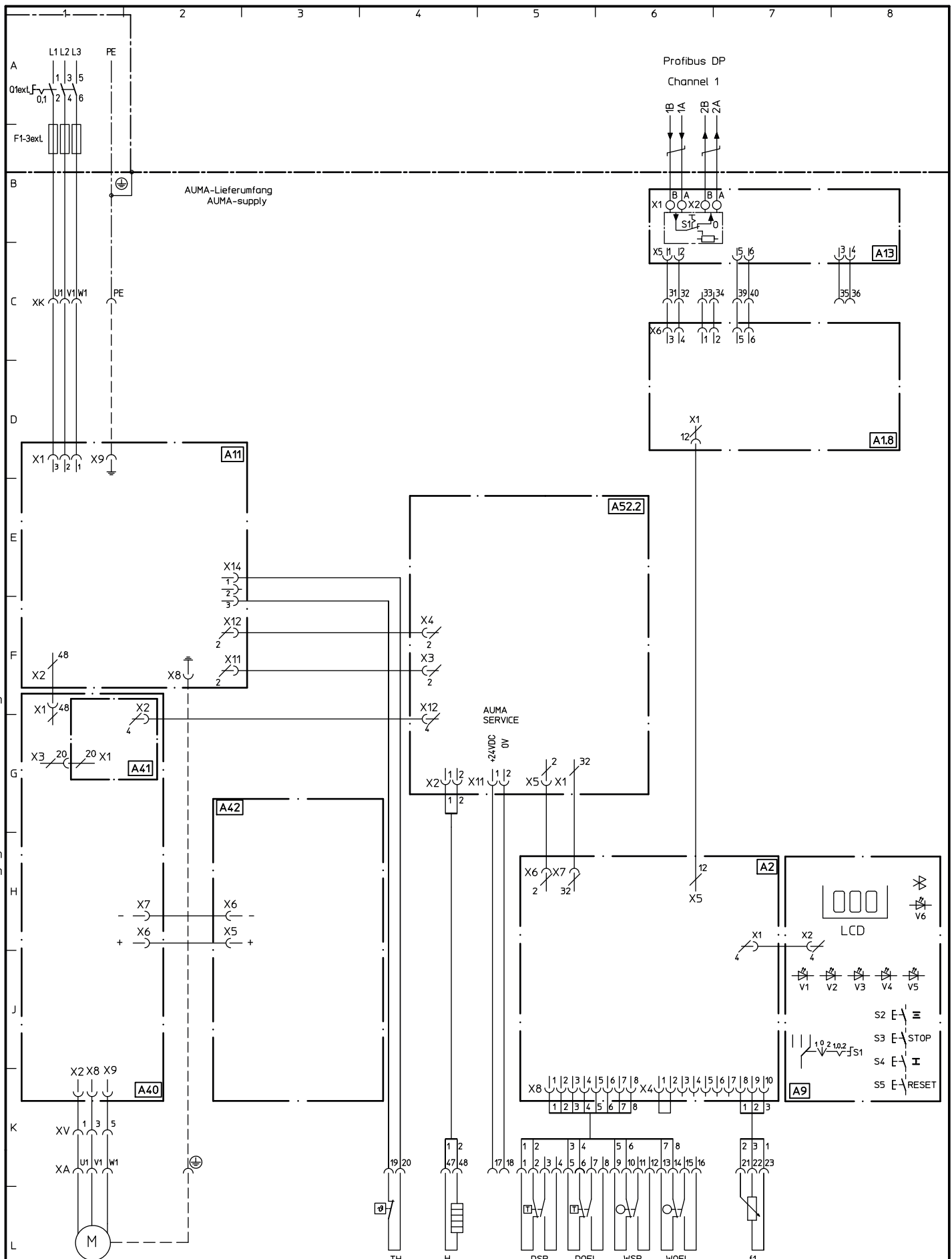
Code: AV1

			Datum	2017-05-30	auma [®] AUMA Riester GmbH & Co. KG	TPCH-0A1-1CF-A000 TPA00R1AA-0A1-000		
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
01	2017-089	2017-05-30	Mey	Gepr.	Roemer			
Zust.	Änderung	Datum	Name	Norm	Roemer	Projekt		

[illegible]

				Datum	2017-06-21	 AUMA Riester GmbH & Co. KG	TPCH-0A1-1CE-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer		Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



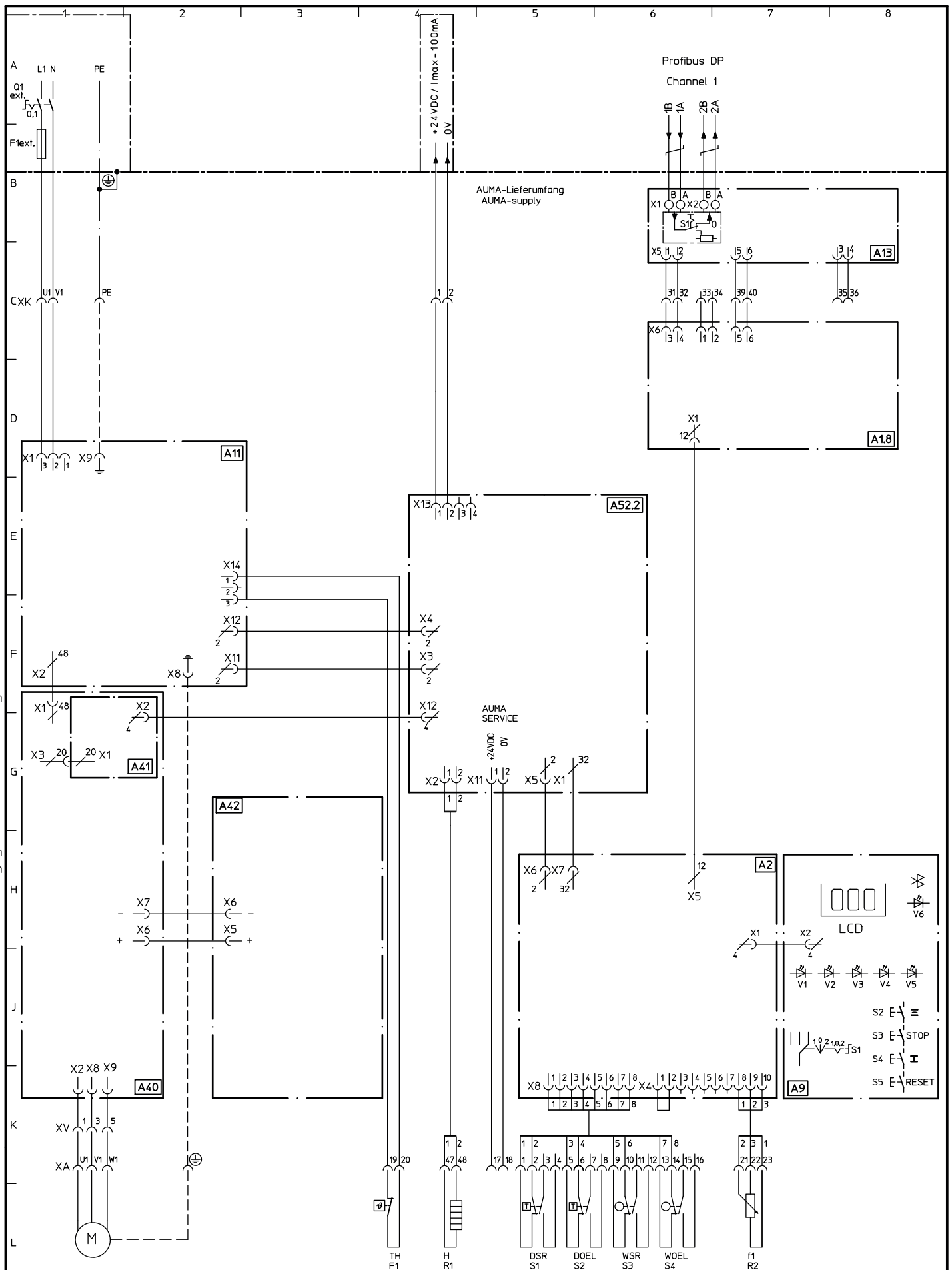
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2DP

			Datum	2016-08-16	 AUMA Riester GmbH & Co. KG	TPCHA000-1AF-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	
			Gepr.	Roemer					
Zust.	Änderung	Datum	Name	Norm					Roemer
						Projekt			

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2DP

			Datum	2017-06-21	auma [®] AUMA Riester GmbH & Co. KG	TPCHA000-1AE-A000 TPA00R1AA-0A1-000		
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
			Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer			Projekt

The diagram illustrates the wiring for an AUMA 250V AC/1A motor control system. It includes the following components and connections:

- Power Supply:** L1, L2, L3 (250V AC) and PE (ground) are connected to the motor (M) and the control unit. The AUMA supply is provided via a 24VDC / 100mA source.
- Control Unit (A1.0):** This unit contains three relays (K1, K2, K3) and a contactor (K4). It is connected to the motor and the control unit via terminals X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100.
- Communication:** The system is connected to a Profibus DP network via a Channel 1 interface (A13).
- Motor (M):** The motor is connected to the control unit via terminals X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100.

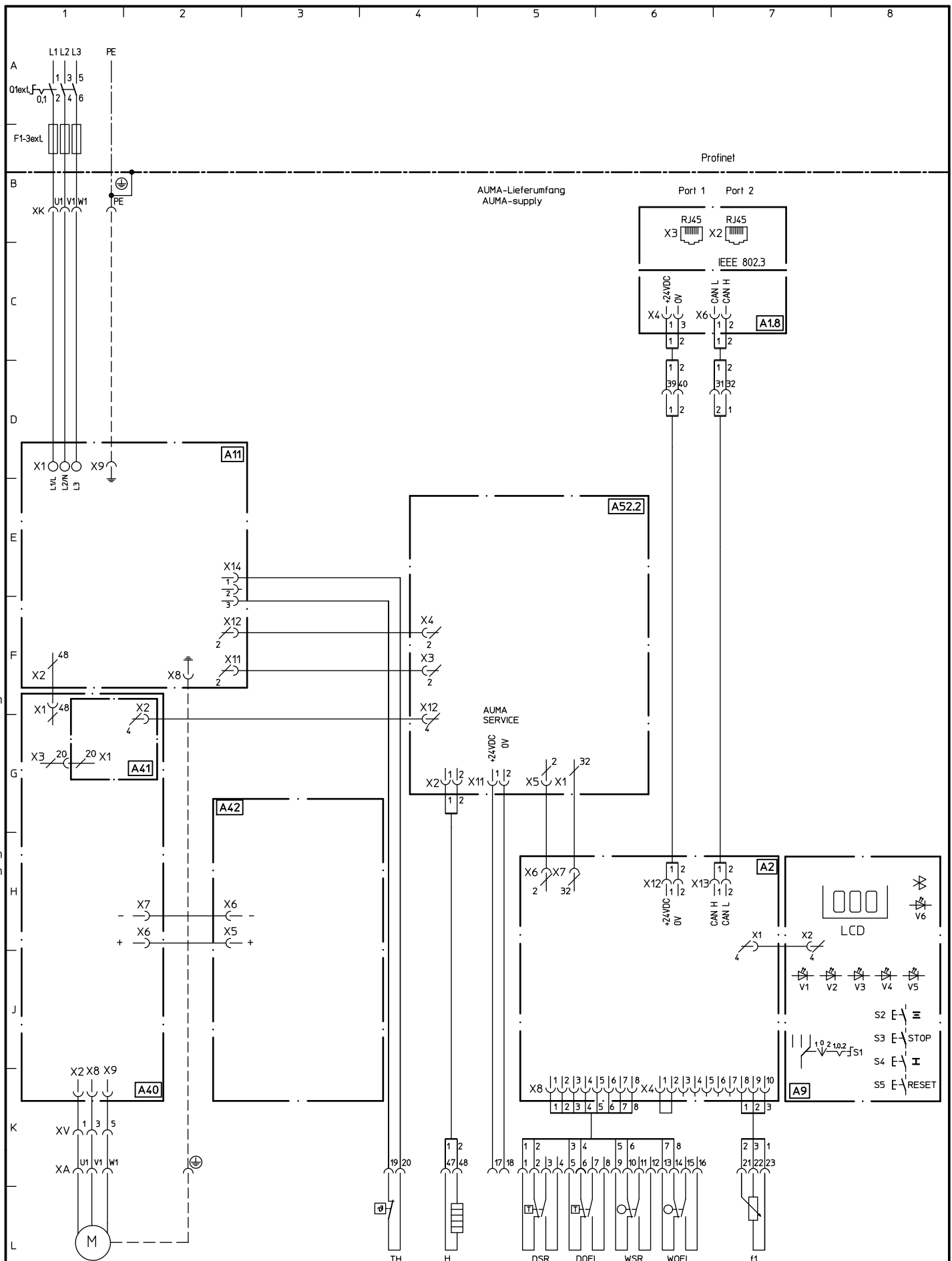
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV4DP

				Datum	2017-07-05	 AUMA Riester GmbH & Co. KG	TPCHA121-1CF-A000 TPA00R1AA-0A1-000		
02	733/09	2017-07-05	Mey	Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
01	2017-089	2017-06-09	Mey	Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer				
							Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



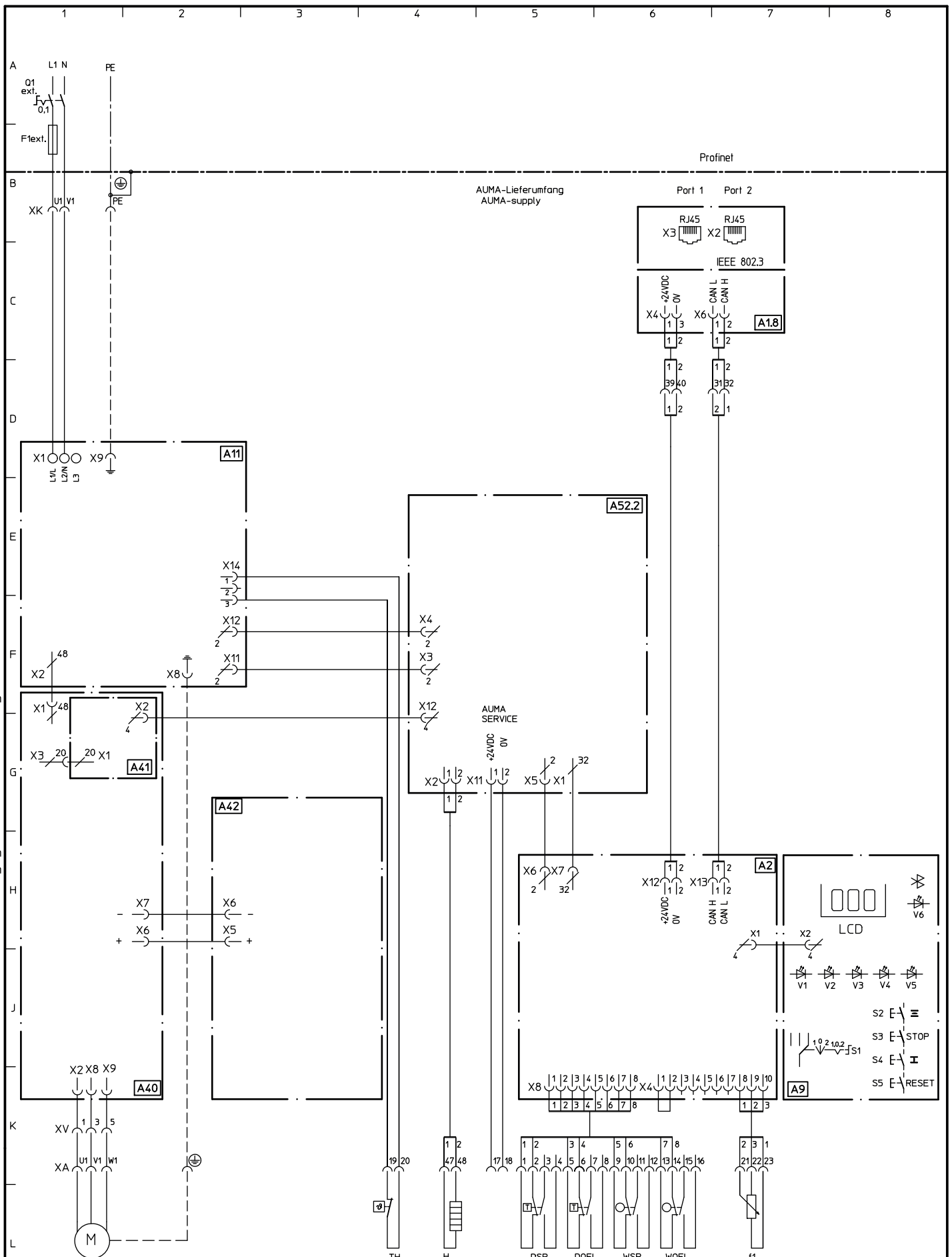
Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2PN

				Datum	2018-02-07	auma[®] AUMA Riester GmbH & Co. KG	TPCHN000K1AF-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer				
				Gepr.	Roemer				
				Norm	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer				
								Projekt	

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2PN

				Datum	2018-02-07	auma[®] AUMA Riester GmbH & Co. KG	TPCHN000K1AE-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer				
								Projekt	

[illegible]

Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV4PN

				Datum	2018-02-07	 AUMA Riester GmbH & Co. KG	TPCHN121K1CF-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer		Projekt		

The diagram illustrates the electrical connections for the AUMA 2000 system. It is organized into a grid with columns numbered 1 to 8 and rows lettered A to L.

- Power Supply (A):** Shows three-phase supply (L1, L2, L3) and PE. A fuse F1-3ext. is connected to terminals 1, 2, 3, 4, 5, 6. A transformer symbol is shown between columns 1 and 2.
- Motor (M) (L):** Connected to terminals XA, XV, and XW. A transformer symbol is shown between columns 1 and 2.
- AUMA Unit (A11):** Located in row C, column 1. It has terminals X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100.
- AUMA SERVICE (A52.2):** Located in row E, column 4. It has terminals X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100.
- Control Panel (A9):** Located in row H, column 6. It contains an LCD, five indicator lights (V1, V2, V3, V4, V5), and five push buttons (S1, S2, S3, S4, S5) labeled E-STOP, STOP, RESET, and others.
- Modbus RTU (A13):** Located in row C, column 6. It shows a Modbus RTU interface with terminals X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100.

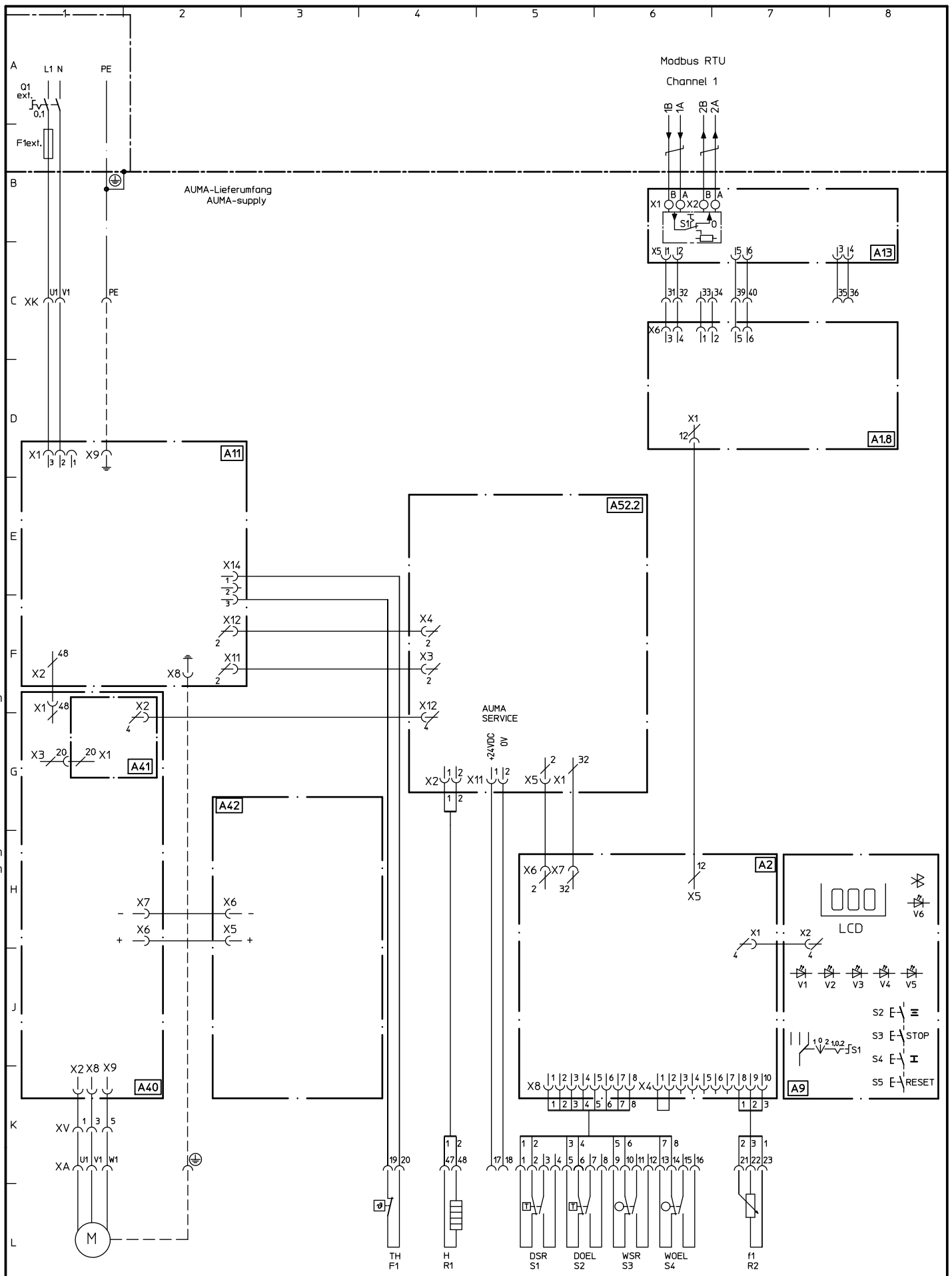
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2MB

				Datum	2016-08-16	 AUMA Riester GmbH & Co. KG	TPCHC000-1AF-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer		Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



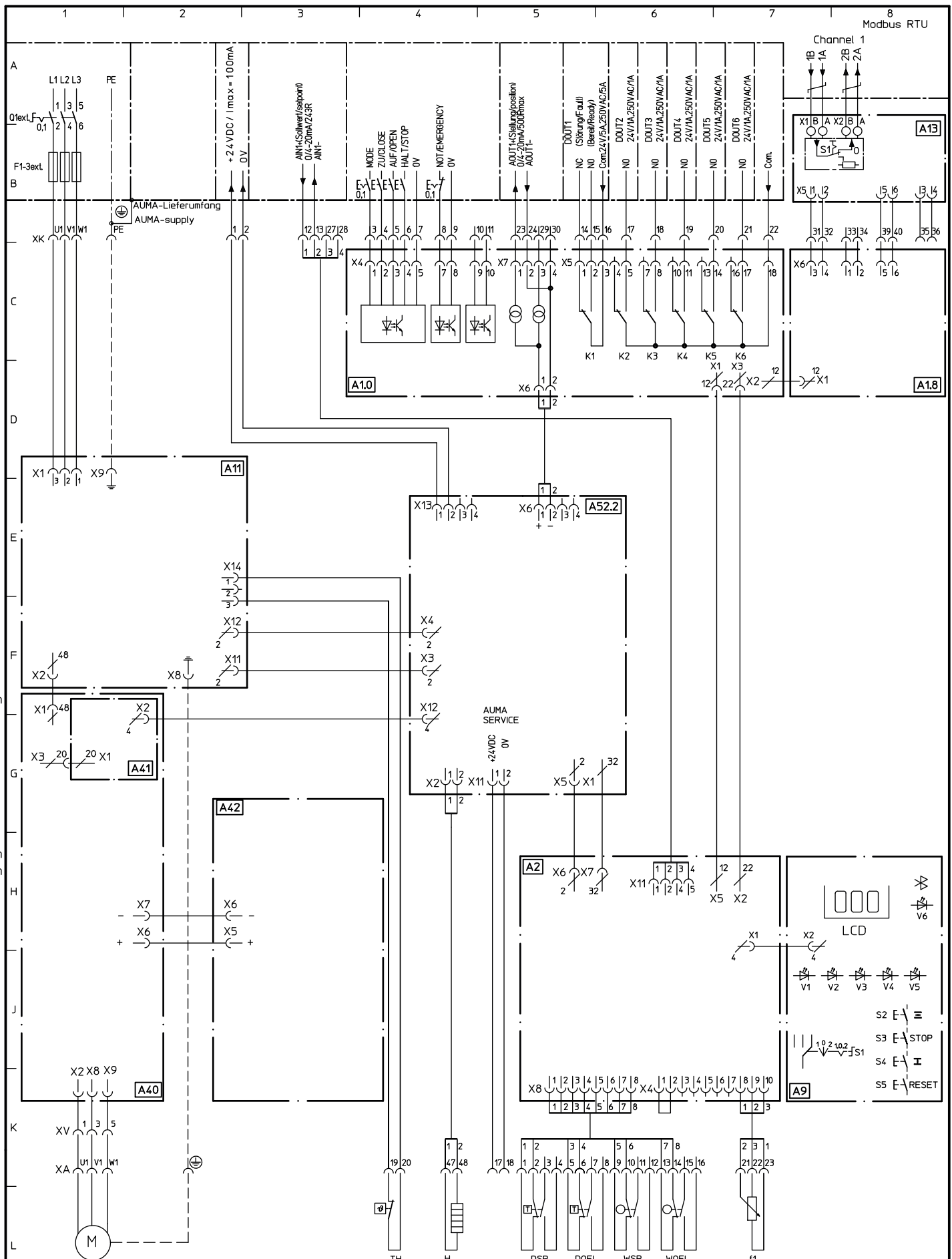
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Code: AV2MB

			Datum	2017-07-05	auma [®] AUMA Riester GmbH & Co. KG	TPCHC000-1AE-A000 TPA00R1AA-0A1-000		
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
01	733/09	2017-07-05	Mey	Gepr.				
Zust.	Änderung	Datum	Name	Norm	Roemer	Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



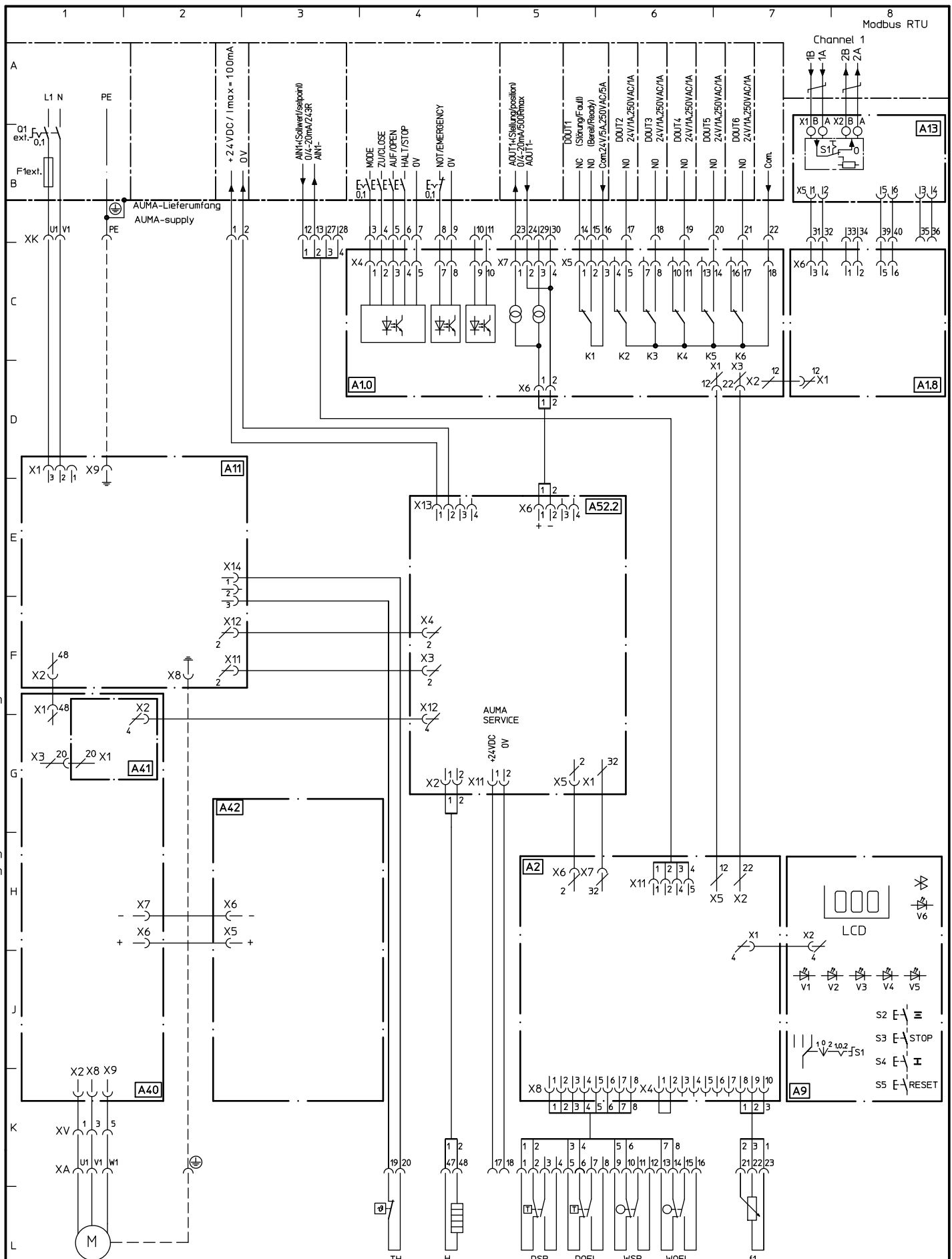
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For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4MB

			Datum	2017-06-09	 AUMA Riester GmbH & Co. KG	TPCHC121-1CF-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	
01	2017-089	2017-06-09	Mey	Gepr.					Roemer
Zust.	Änderung	Datum	Name	Norm					Roemer
						Projekt			

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



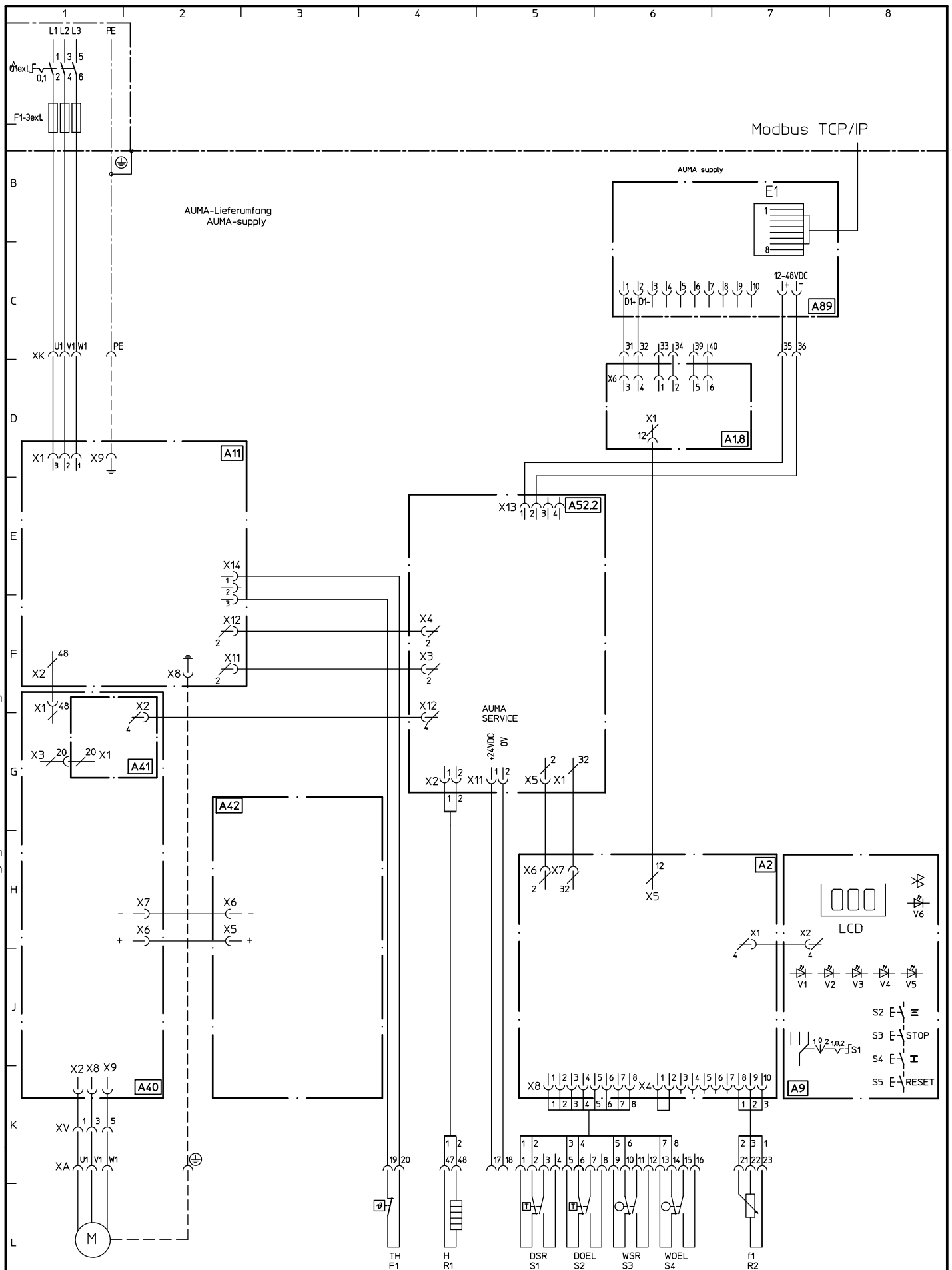
Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

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For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4MB

Datum 2017-07-05				auma [®] AUMA Riester GmbH & Co. KG		TPCHC121-1CE-A000 TPA00R1AA-0A1-000		
01	733/09	2017-07-05	Mey			Legende	Auftragsnummer	Bestellnummer
Zust.	Änderung	Datum	Name	Gepr.	Roemer	Projekt		
				Norm	Roemer			

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



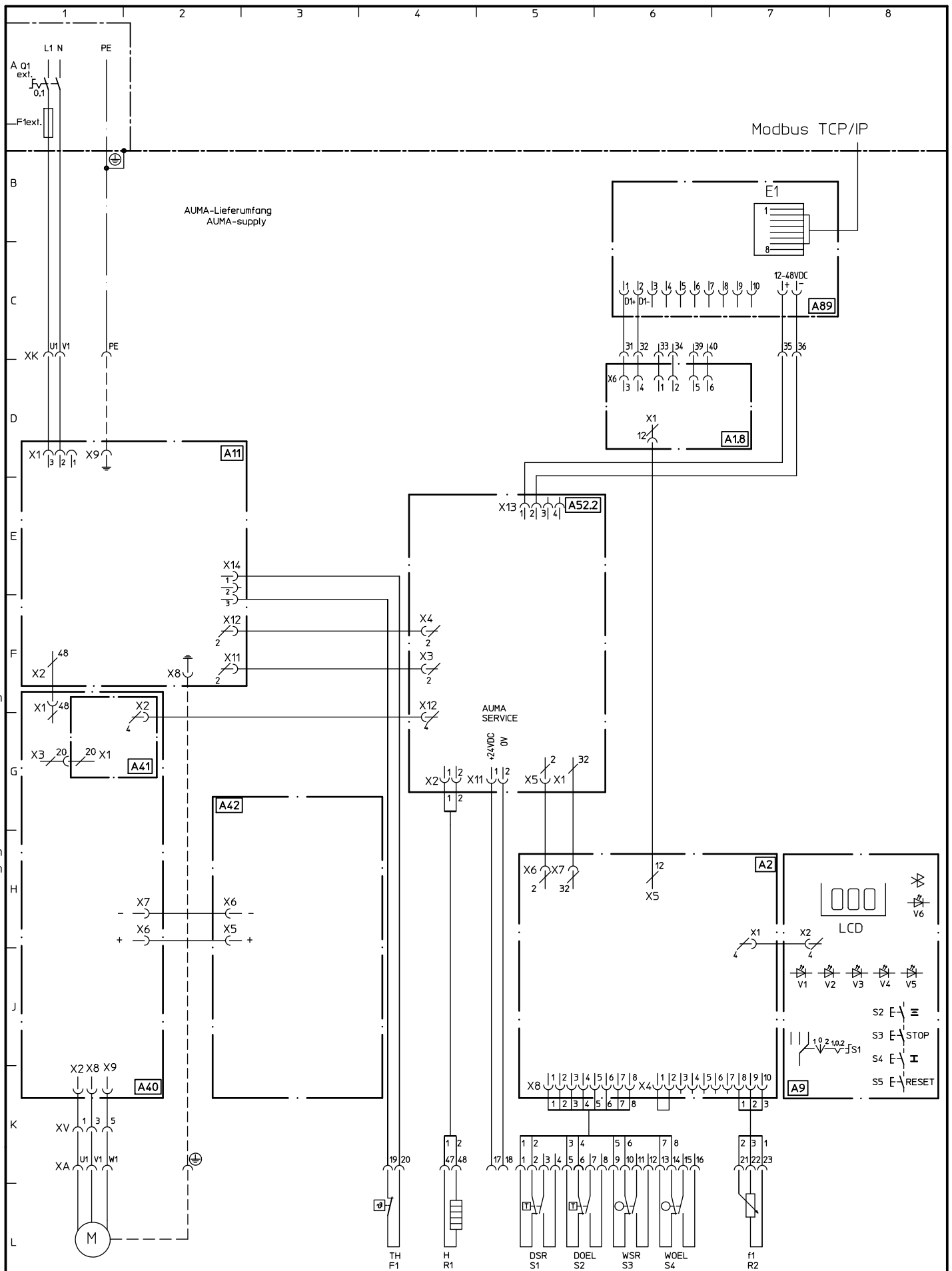
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Terminal plan shows the actuator in intermediate position, switches are not actuated.

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For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2MBTCP

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Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



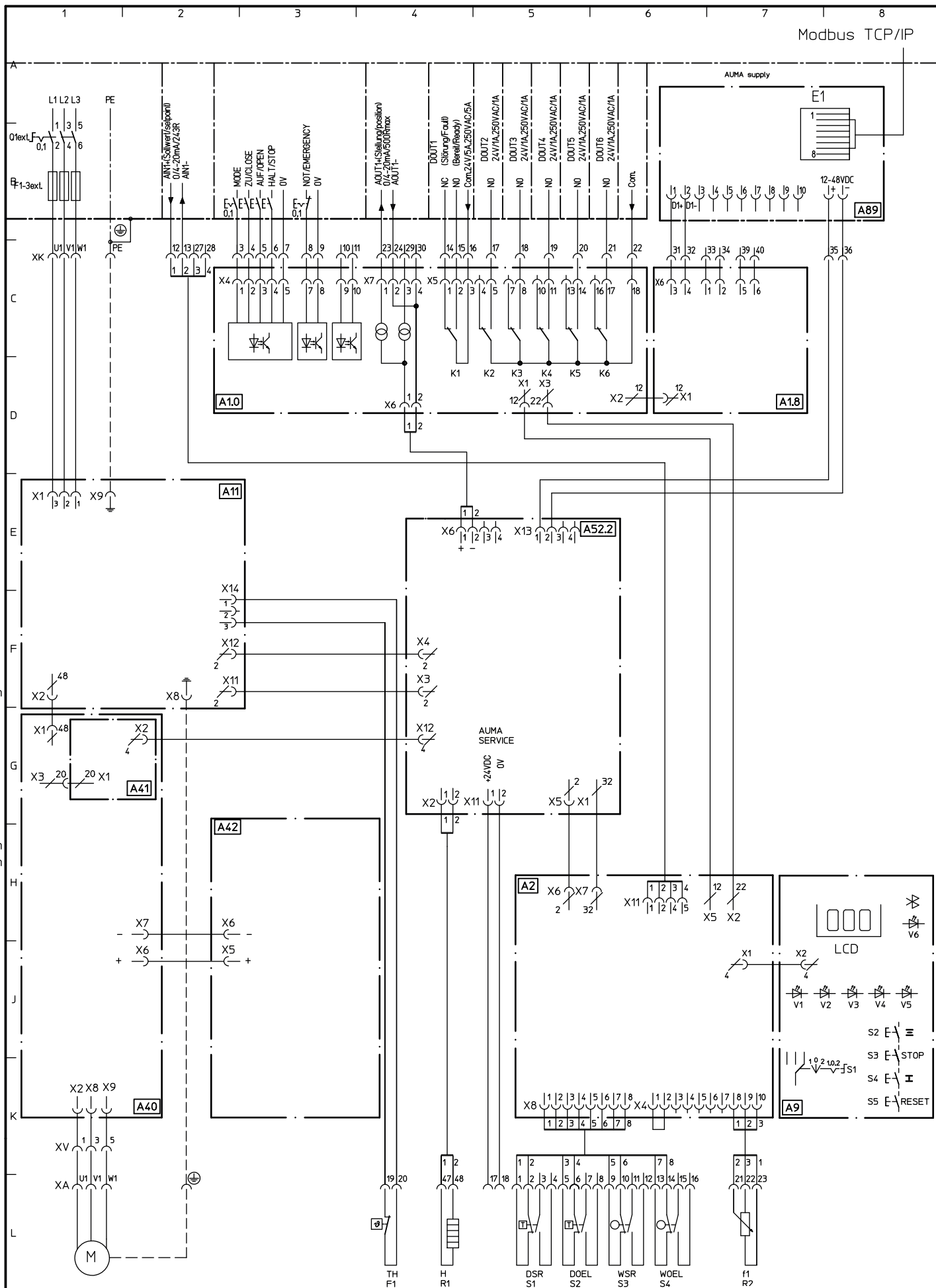
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

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Code: AV2MBTCP

			Datum	2017-07-05	auma® AUMA Riester GmbH & Co. KG	TPCHC000-1AE-A5E0 TPA00R1AA-0A1-000				
			Bearb.	Meyer						
01	733/09	2017-07-05	Mey	Gepr.		Roemer	Legende		Auftragsnummer	Bestellnummer
Zust.	Änderung	Datum	Name	Norm		Roemer				
						Projekt				

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Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV4MBTCP

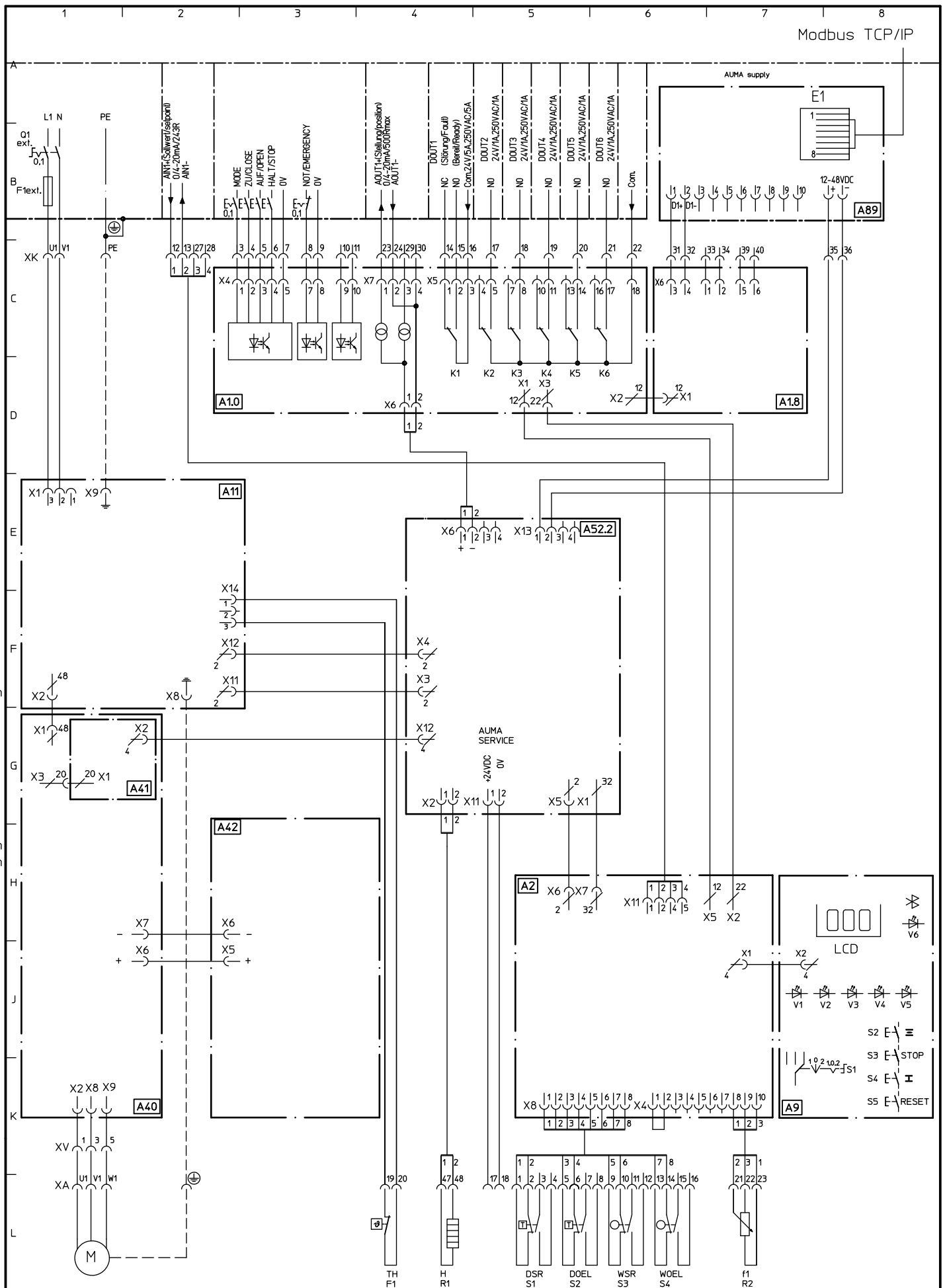
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		Bearb.	Meyer
		Gepr.	Roemer
Zust.	Änderung	Datum	Name
		Norm	Roemer

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AUMA Riester GmbH & Co. KG

TPCHC121-1AF-A5E0 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftigzugfederklemmen verwendet !
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Code: AV4MBTCP

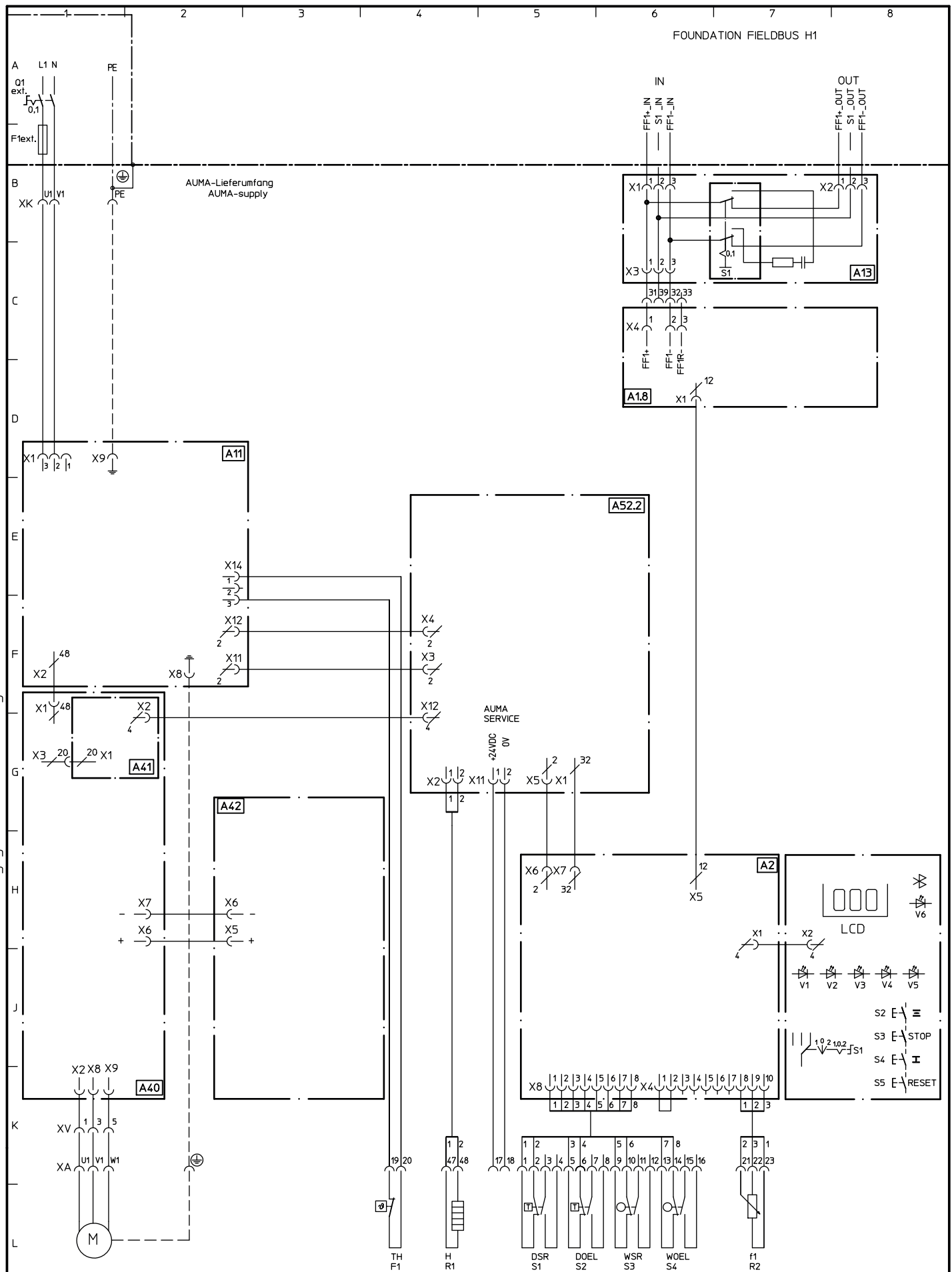
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			Bearb.	Meyer
			Gepr.	Roemer
Zust.	Änderung	Datum	Name	Norm
				Roemer

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TPCHC121-1AE-A5E0 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

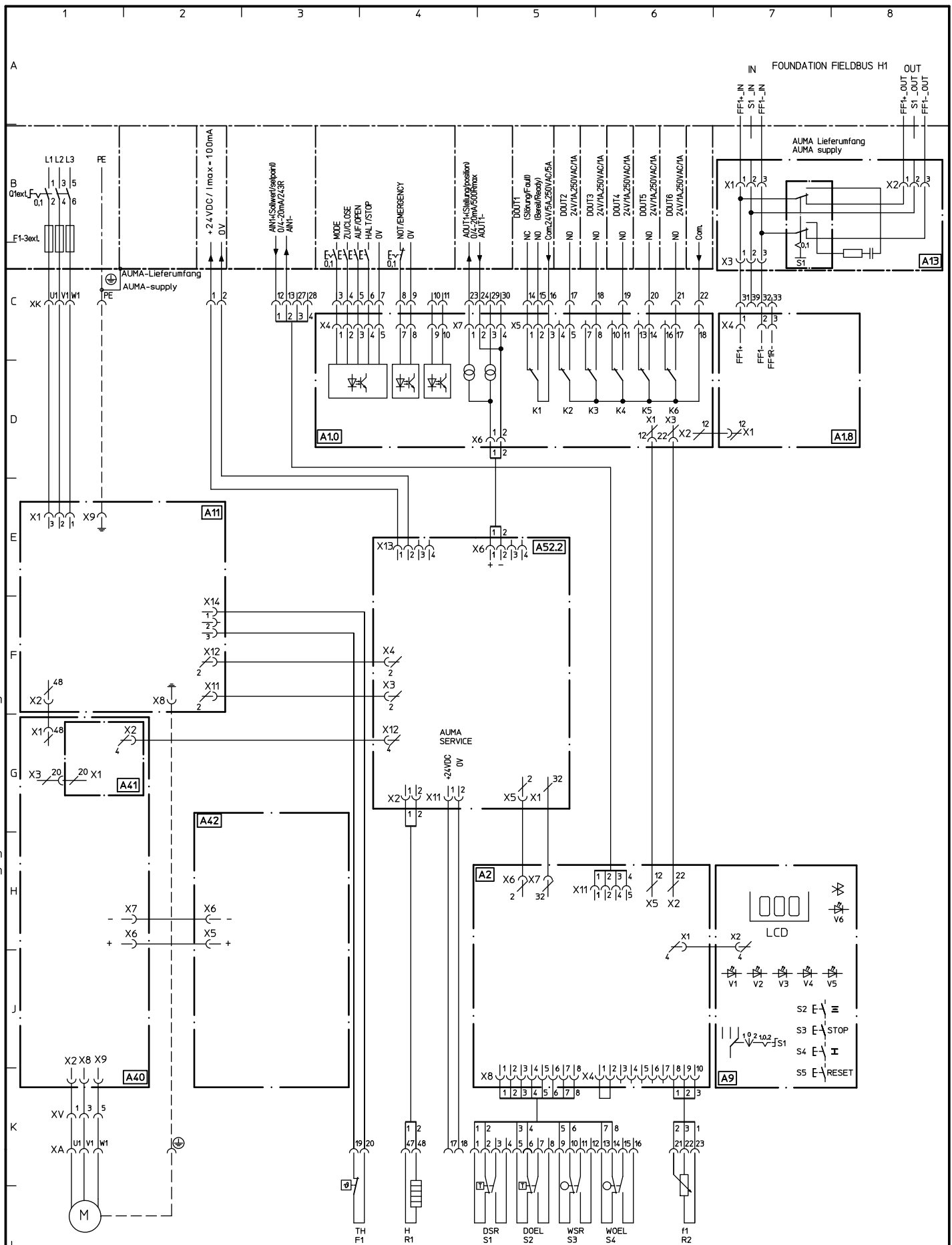
			Datum	2017-07-26
			Bearb.	Meyer
			Gepr.	Roemer
Zust.	Änderung	Datum	Name	Norm
				Roemer

auma[®]
AUMA Riester GmbH & Co. KG

TPCHF000-1AE-A000 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV4FF

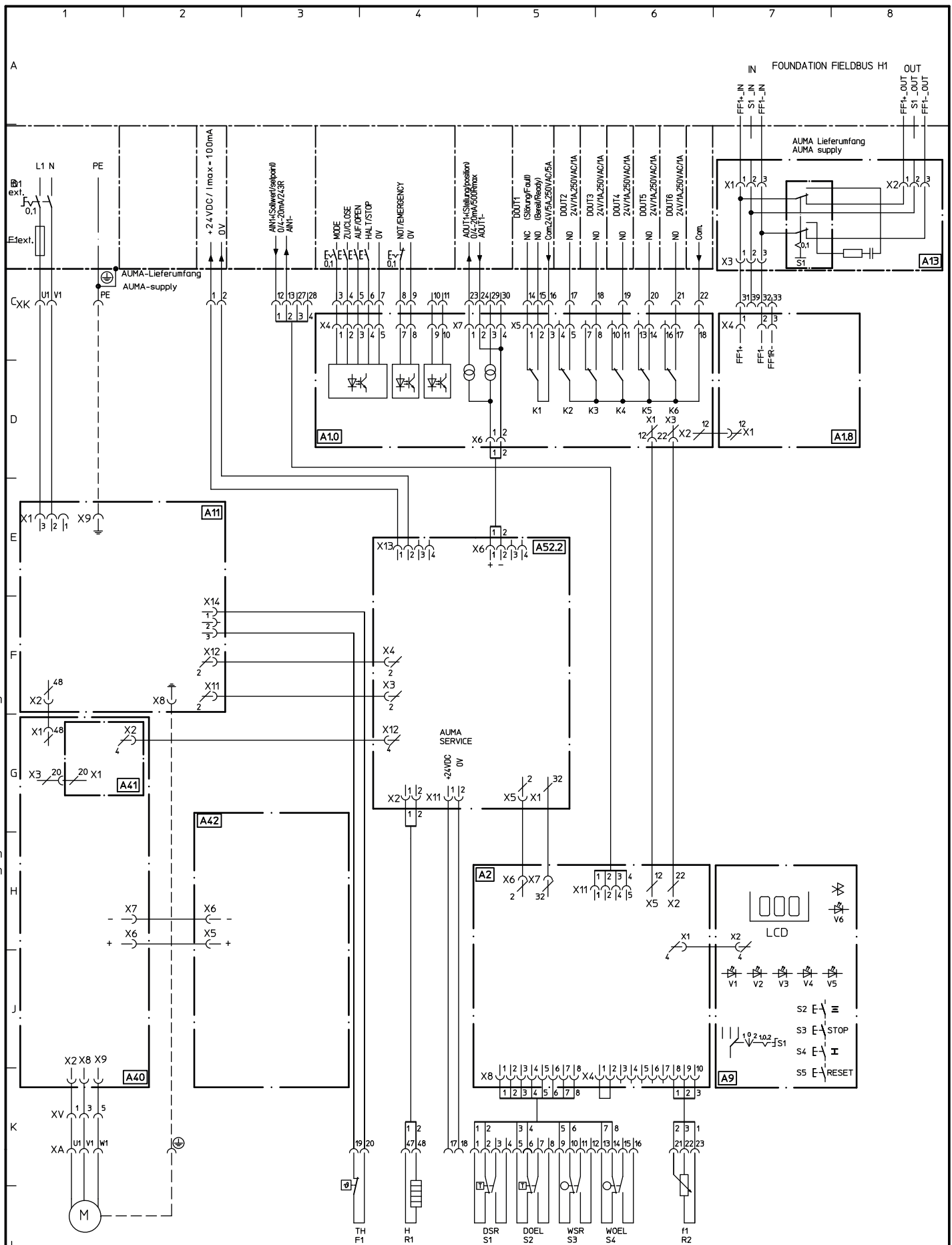
		Datum	2017-07-28
		Bearb.	Meyer
		Gepr.	Roemer
Zust.	Änderung	Datum	Name
		Norm	Roemer

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AUMA Riester GmbH & Co. KG

TPCHF121-1CF-A000 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4FF

		Datum	2017-07-28
		Bearb.	Meyer
		Gepr.	Roemer
Zust.	Änderung	Datum	Name
		Norm	Roemer

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TPCHF121-1CE-A000 TPA00R1AA-0A1-000

Legende	Auftragsnummer	Bestellnummer
		Projekt

[illegible]

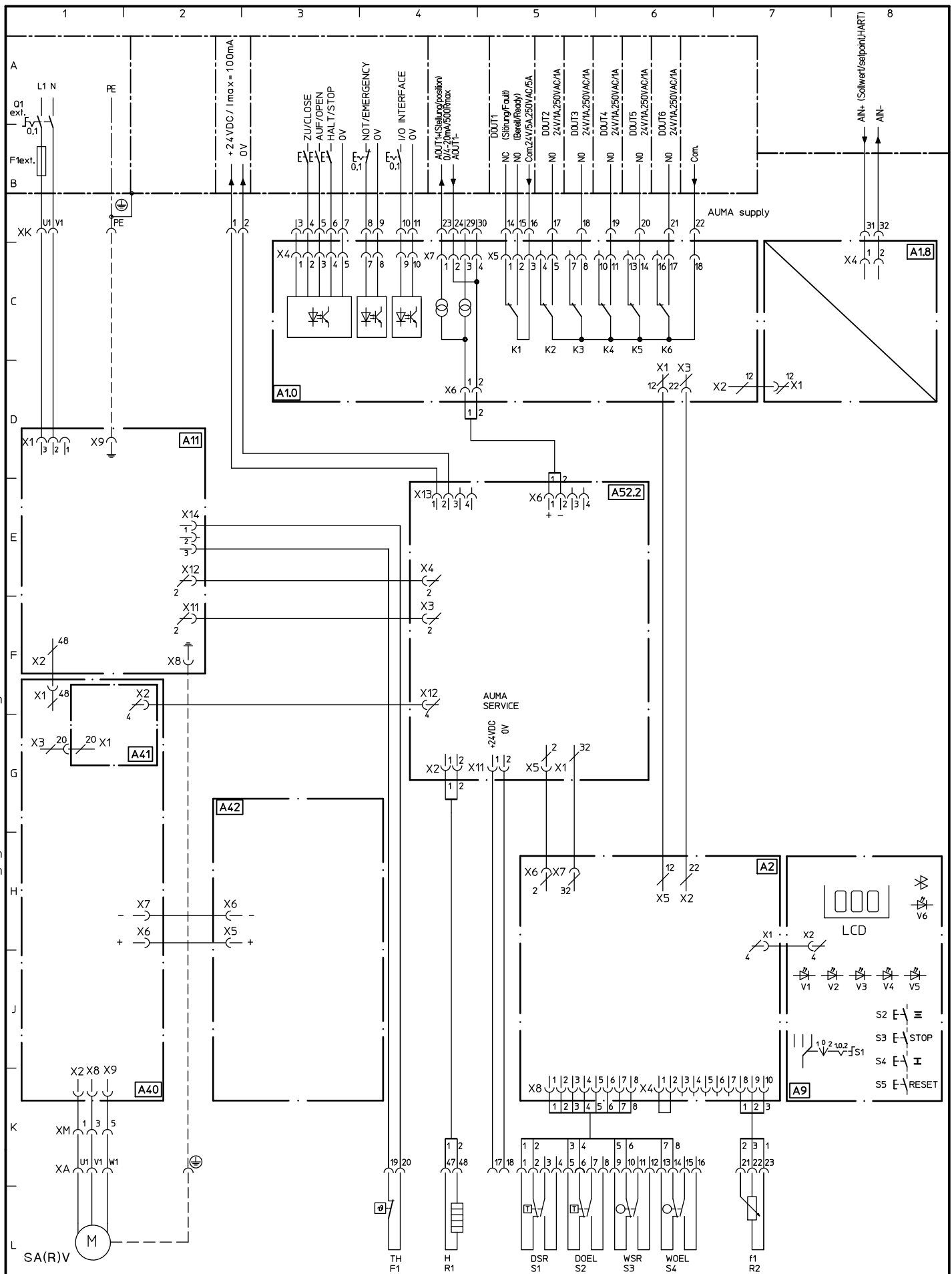
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2HRT

				Datum	2017-07-28	 AUMA Riester GmbH & Co. KG	TPCHI000-1AE-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	Roemer				
Zust.	Änderung	Datum	Name	Norm	Roemer				
							Projekt		

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



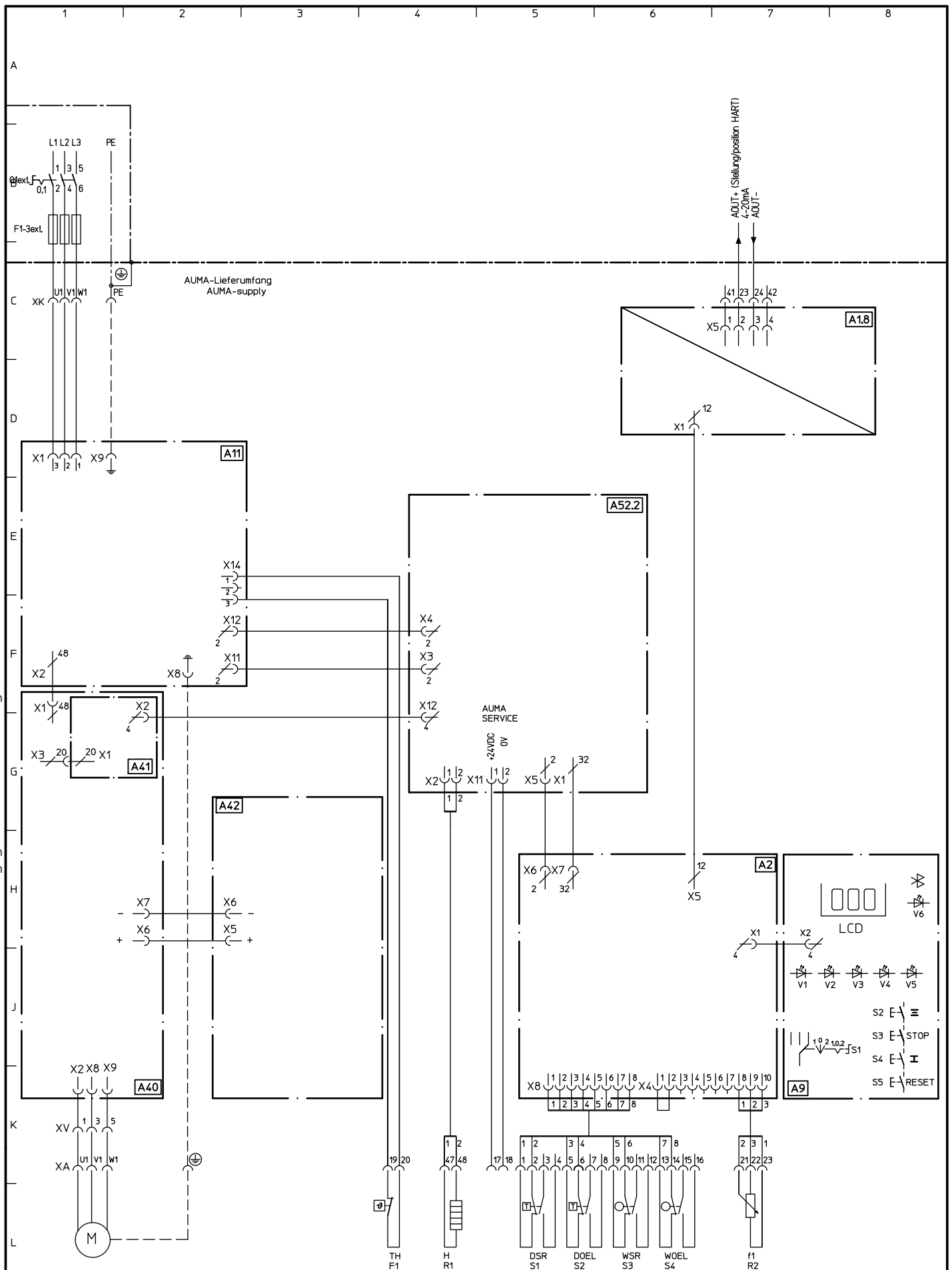
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4HRT

			Datum	2017-07-31	 AUMA Riester GmbH & Co. KG	TPCHIO41-1CE-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	
			Gepr.	MuellerSe					
Zust.	Änderung	Datum	Name	Norm	MuellerSe				
								Projekt	

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



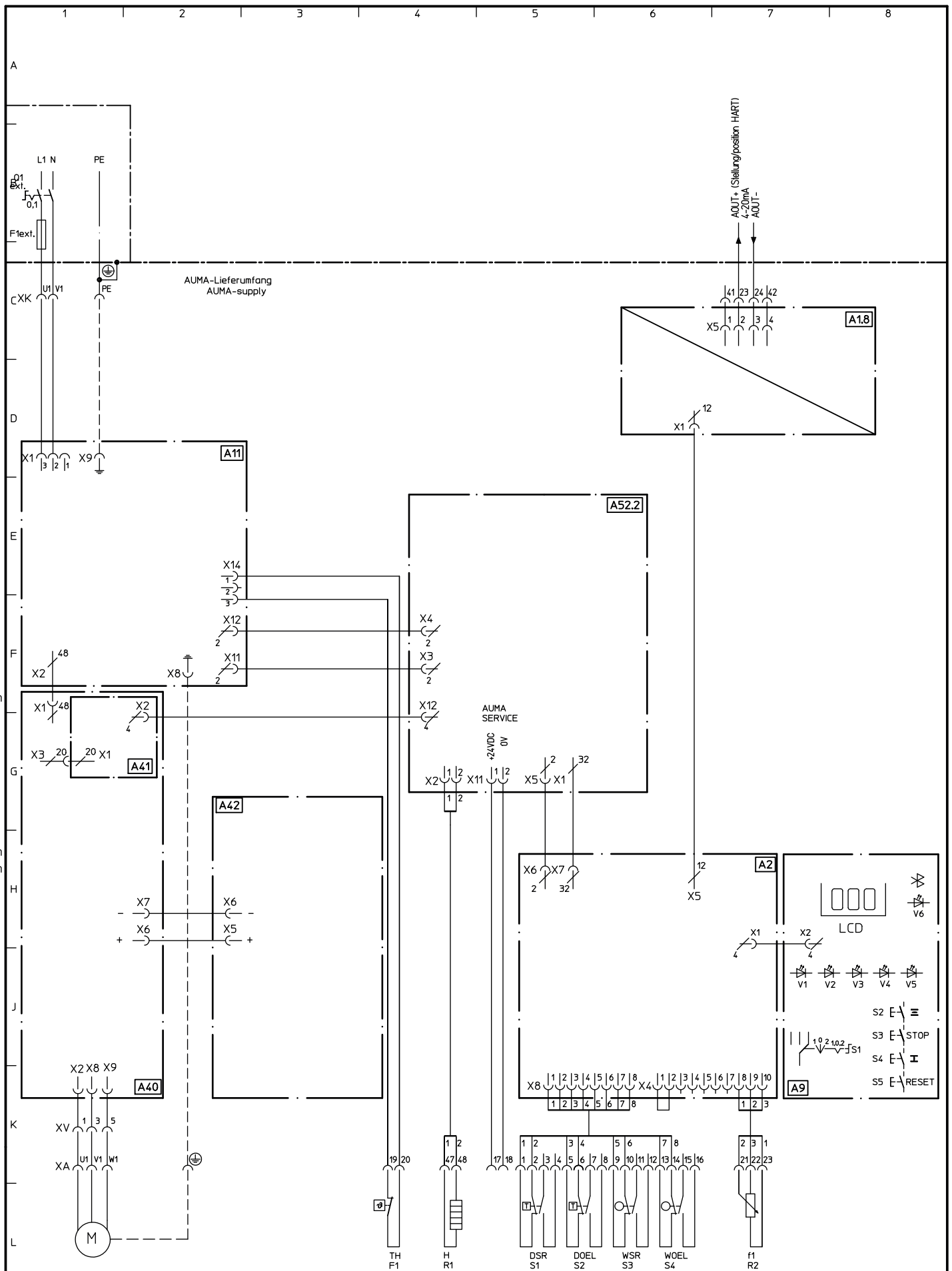
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2HRTCO

			Datum	2017-07-31	auma® AUMA Riester GmbH & Co. KG	TPCHJ000-1AF-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	
			Gepr.	MuellerSe					
Zust.	Änderung	Datum	Name	Norm	MuellerSe			Projekt	

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



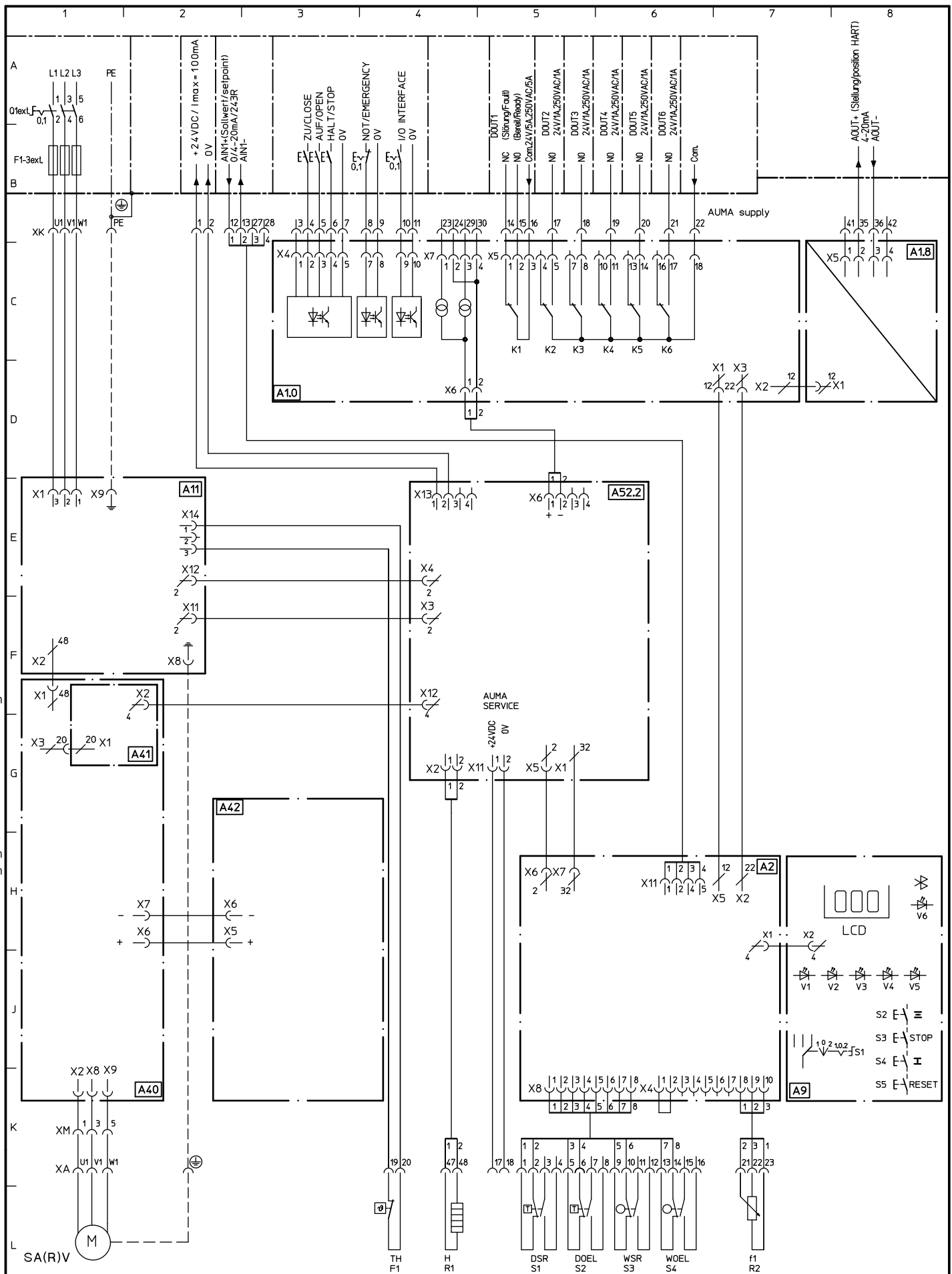
Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet !
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector !

Code: AV2HRTCO

				Datum	2017-08-02	auma® AUMA Riester GmbH & Co. KG		TPCHJ000-1AE-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer			Legende	Auftragsnummer	Bestellnummer
				Gepr.	MuellerSe					
Zust.	Änderung	Datum	Name	Norm	MuellerSe					
									Projekt	

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



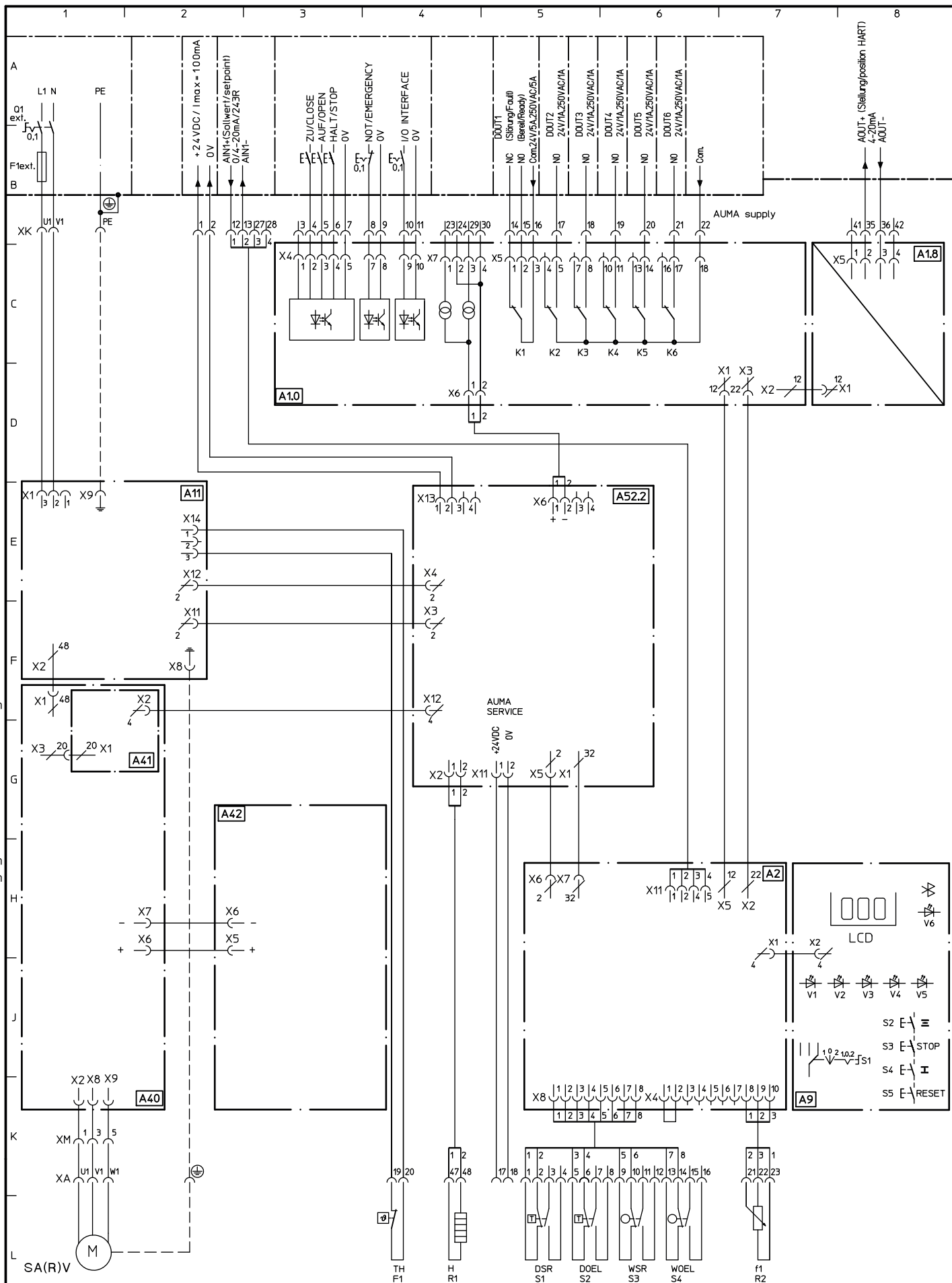
Anschlussplan zeigt den Stellantrieb in Zwischenstellung. Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käftzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4HRTCO

			Datum	2017-07-31	 AUMA Riester GmbH & Co. KG	TPCHJ14D-1CF-A000 TPA00R1AA-0A1-000			
			Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer	
			Gepr.	MuellerSe					
Zust.	Änderung	Datum	Name	Norm	MuellerSe	Projekt			

Für diese Zeichnung gelten die Bestimmungen über den Schutz für Urheberrecht.



Anschlussplan zeigt den Stellantrieb in Zwischenstellung, Schalter sind nicht betätigt.
Terminal plan shows the actuator in intermediate position, switches are not actuated.

Bei Ex-Antrieben werden an Stelle der Stecker Schraubklemmen / Käfigzugfederklemmen verwendet!
For explosion-proof actuators terminals / cage clamps are used instead of plug / socket connector!

Code: AV4HRTCO

				Datum	2017-07-31	 AUMA Riester GmbH & Co. KG	TPCHJ14D-1CE-A000 TPA00R1AA-0A1-000		
				Bearb.	Meyer		Legende	Auftragsnummer	Bestellnummer
				Gepr.	MuellerSe				
Zust.	Änderung	Datum	Name	Norm	MuellerSe				Projekt

Legend AUMATIC

A1.0		Interface board
K1 - 6		Output contacts
A1.1		Interface board
K7 - K12		Output contacts
A1.3		Interface board with mains failure proof output contacts
K2 - K5		Mains failure proof output contacts (bistable)
K1 + K6		Output contacts
A1.8		Fieldbus board
A2		Logic board
A9		Local controls
S1		Selector switch LOCAL - OFF - REMOTE
S2		Push button OPEN
S3		Push button STOP
S4		Push button CLOSE
S5		Push button RESET
V1 - V5		Indication lights
V6		Bluetooth
LCD		Graphic display
A11		Power supply unit
A13		Fieldbus connection board
A32		Overvoltage protection board for fieldbus board
A40		Switchgear
A41		Motor controller
A42		ACV DC link
A42.1		ACV DC link/heating system
A52.1		Option board
A52.2		ACV control board
F5		Fuse (for 24 V DC supply)
A90		WirelessHART adapter
B2/B4	EWG/RWG	Electronic position transmitter
B6	MWG	Magnetic limit and torque transmitter
F1, F2		Primary fuses for power supply unit
F1	TH	Thermoswitch
Q1		Disconnect switch
Q2		Motor protection switch
R1	H	Heater in switch compartment
R2	f1	Potentiometer
R2/2	f2	Potentiometer in tandem arrangement with R2
R3	PTC1	PTC thermistor
R4	H	Motor heater
R5, R5.1	H	Heating element
S0		EMERGENCY stop button (latching)
S1	TSC	Torque switch, closing, clockwise rotation
S2	TSO (DOEL)	Torque switch, opening, counterclockwise rotation
S3	LSC (WSR)	Limit switch, closing, clockwise rotation
S4	LSO (WOEL)	Limit switch, opening, counterclockwise rotation
S1/2	DSR 1	Torque switches
S2/2	DOEL 1	in tandem arrangement with DSR/DOEL (TSC/TSO)
S3/2	WSR 1	Limit switches
S4/2	WOEL 1	in tandem arrangement with WSR/WOEL (LSC/LSO)

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

Legend AUMATIC

S3/3 S4/3	WSR 2 WOEL 2	Limit switches in triple arrangement with WSR/WOEL (LSC/LSO)
S6 S7	WDR WDL	Limit switches, DUO, for 2 intermediate positions, adjustable
S6/2 S7/2	WDR 1 WDL 1	Limit switches, DUO, for 2 intermediate positions in tandem arrangement with WDR/WDL (LSA/LSB)
S17	HA	Handwheel activation switch
XM		Internal power plug
XK		Customer connection
XA		Actuator connection

Wiring diagram code

		Extract of wiring diagram code													
Position	I/O interface	TPC	A	–	0	A	1	–	1	C	1	–	A	0	0
	Profibus DP	TPC	A	A	0	0	0	–	1	A	1	–	A	0	0
1	Controls type A AC 01.2/ACExC 01.2 H ACV 01.2														
2	Interface to the distributed control system – I/O interface A Profibus DP C Modbus RTU/Modbus TCP/IP F Foundation Fieldbus I HART Connection Type: Actuator J HART Current Output N Profinet														
3	Analogue inputs 0 Without 1 4 – 20 mA for positioner A With 2 free analogue inputs														
4	Digital inputs A CLOSE, OPEN, STOP, EMERGENCY B With positioner: MODE, CLOSE, OPEN, STOP, EMERGENCY 0 Without 1 With 4 free digital inputs 2 With 6 inputs: MODE, CLOSE, OPEN, STOP, EMERGENCY, I/O interface 4 With 5 inputs: CLOSE, OPEN, STOP, EMERGENCY, I/O interface														
5	Output contacts, position and torque feedback signals (0/4 – 20 mA) 1 / D 5 NO contacts, 1 change-over contact, position feedback signal torque feedback signal (in combination with MWG) 0 Without														
6	Additional equipment – Without K Profinet, 2xIEEE 802.3														
7	Local controls 1 Push buttons OPEN, STOP, CLOSE, RESET, selector switch LOCAL - OFF - REMOTE, display, 5 indication lights														
8	Auxiliary voltage for supply of digital inputs A Without C 24 V DC														
9	Switchgear 1 Reversing contactors max. AUMA power class A3 (refer to Electrical data SA .2/SAR .2 with 3-phase AC motor) 2 Thyristors max. AUMA power class A3 (refer to Electrical data SA .2/SAR .2 with 3-phase AC motor) 3 Thyristors max. AUMA power class B3 (refer to Electrical data SA .2/SAR .2 with 3-phase AC motor) 4 Thyristors with additional tripping max. AUMA power class B2 (refer to Electrical data SA .2/SAR .2 with 3-phase AC motor) 5 Thyristors with additional tripping max. AUMA power class B3 (refer to Electrical data SA .2/SAR .2 with 3-phase AC motor) E Power electronics 1-ph ¹⁾ F Power electronics 3-ph ¹⁾														

1) Refer to notes on page 2.

Wiring diagram code

		Extract of wiring diagram code														
		Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Position	I/O interface	TPC	A	–	0	A	1	–	1	C	1	–	A	0	0	0
	Profibus DP	TPC	A	A	0	0	0	–	1	A	1	–	A	0	0	0
10	Motor protection evaluation															
	–	Thermoswitches (standard for AC 01.2), refer to wiring diagram TPA														
	1	Thermoswitch with thermal overload relay														
	–	PTC thermistors with tripping device (standard for ACExC), refer to TPA terminal plan														
11	Heater															
	A	Internally supplied within the switch compartment of the actuator														
12 – 14	Control elements															
	000	Without														
	A20	KP suitable wiring														
	5E0	Modbus TCP/IP														
	5EF	Modbus TCP/IP Ex														
	410	Profibus Ex														
	460	Profibus Ex, KP suitable wiring														

Notes on tables on page 1

1)	In combination with ACV 01.2 only.

AC 01.2

Actuator controls . Bluetooth class II
Push buttons OPEN, STOP, CLOSE, RESET

Current consumption 380 to 500 V AC = max. 250 mA

Category III according to IEC 60364-4-443 . Thyristor unit

Selector switch LOCAL - OFF - REMOTE . NO contacts max. 250 V AC, 5 A

Push buttons OPEN, STOP, CLOSE, RESET. -25 °C to +70 °C . 12 output contacts

Permissible variation of mains voltage: ±10 % . IEC 60068-2-6 1 g, from 10 Hz to 200 Hz

Chip AUMA CDT Profibus DP 0/4 – 20 mA . Output signals: 5 potential-free NO contacts

Standard voltages: 3-phase AC current voltages/frequencies . Volt 380, 400, 415, 440, 460, 480, 500 . Hz 50, 50, 50, 60, 60, 60, 50 . Selector switch LOCAL - OFF - REMOTE . Graphic LC display

1-phase AC current voltages/frequencies . Volt 110, 115, 120, 220, 230, 240 . Hz 60, 50 . AUMA NE 107 . Chip AUMA CDT Profibus DP 0/4 – 20 mA . Default configuration: End position CLOSED,

end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN . F16 . IP 68

Special voltages: 3-phase AC current voltages/frequencies Volt 525, 575, 660, 690 . 1-phase

AC current voltages/frequencies Volt 208. Hz 50, 50, 50, 50 Hz 60 . 24 V DC +20 %/-15 %

PID EMERGENCY Stop TPCA-0A1-1C1-A000 TPA00R1AA-0A1-000 . Control voltage 24 V

AC 01.2

Actuator controls

External supply 24 V DC +20 %/-15 %

Chip AUMA CDT Profibus DP 0/4 – 20 mA

NO contacts max. 250 V AC, 5 A . Bluetooth

class II . Control voltage 24 V DC . Profibus. SPP

KS, KX . Current consumption 380 to 500 V AC

Push buttons OPEN, STOP, CLOSE, RESET . IP 68

Selector switch LOCAL - OFF - REMOTE . Default

configuration: End position CLOSED, Torque fault

OPEN . Thyristor unit . 5 potential-free NO contacts

Category III according to IEC 60364-4-443 . Pollution

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info@auma.com

AUMA subsidiaries or representatives

are implanted in more than 70 countries. For

detailed contact information, please refer to

www.auma.com

3-ph AC asynchronous motor, type IM B9 according to IEC 60034. IP 68

60 Hz . F10 . Terminal plan TPA00R1AA-001-000 (basic version). SA07.2

F14. Valve attachment Standard: B1 according to EN ISO 5210 . SA14.2

A, B, D, E according to DIN 3210 . C according to DIN 3338 . F14, F16

RWG 0/4 – 20 mA . Options: A, B2, B3, B4 according to EN ISO 5210

Turns per stroke: 2 to 500 . Ambient temperature -40 °C to +80 °C

IP 68 . (EMC): (2004/108/EG) , (2006/42/EG) . Weight approx. 19 kg

50 Hz . F10 . AUMA . Self-locking. SAR07.2: 19/20 . SAR07.6: 20/21

SAR10.2: 22/25 . Enclosure protection according to EN 60529 IP 68. Volt

220, 230, 240, 380, 400, 415, Hz 50, 50, 50, 50, 50, 50, 60, 60, 60, 60, 60

AUMA . Category III according to IEC 60364-

for emergency operation with

or 50 mm. F07, F10, F14

Standard: Intermittent

S4 - 25 %

SAR14.2:

SAR14.6:

SAR16.2:

Finish coating

Two-component iron-mica

combination

SAR 07.2 – SAR 16.2

Speed 4 – 216 1/min.

Torque range

S2-15 min

S2-30 min.

Min. 10 [Nm] . Max. 710 [Nm]

Max. Ø rising. stem 26 mm

Pulse duration . Weight approx. 19 kg

Handwheel Ø 160 [mm]

F16 . Valve attachment

Reduction ratio 11:1 8:1

Handwheel lockable

Insulation class Standard: F, tropicalized

SQR 07.2

Weight approx. 21 kg . AUMA

Intermittent duty S4 - 25 % . Enclosure protection according to EN 60529. F05

Valve attachment EN ISO 5211 F05 F07 F12 F14 . KS, KX, KX-G . 50 Hz, 60 Hz

Position feedback signal, analogue (options) Potentiometer or 0/4 – 20 mA (RWG)

Standard voltages: 3-phase AC current - voltages/frequencies Volt 220 230 240

380 400 415 440 460 480 500 . Hz 50 . Intermittent duty S4 - 25 % . IP 68

Power depending on the size 12.5 – 25 W . Weight approx. 44 kg . SQR 07.2

Valve attachment Standard EN ISO 5211. Option DIN3210. SQR 07.2 - F05. KS

Swing angle: 75° to < 105°, 15° to < 45°, 45° to < 75°, 105° to < 135° . IP 68

Ambient temperature -40 °C to +80 °C. Category III according to IEC60364-4-443. F05

3-ph AC asynchronous motor, type IM B9 according to IEC 60034 . Blinker

SQR 12.2 . 3-ph AC asynchronous motor IM B9 . Min. 75 Nm Max. 300

Power tool for emergency operation with square 30 mm

Standard Metric threads, square

bore, bore with two-flats . IP 68

SQR 05.2: F05, F07. SQR 07.2:

F07, F10, SQR 10.2: F10, F12 .

SQR 12.2: F12, F14. SQR 14.2:

F14, F16. Handwheel lockable

Options: F, tropicalized

Handwheel Ø 160 mm

Thermoswitches (NO)

50 Hz 60 Hz

F05 – F014 . SQR 05.2 – SQR 14.2

Swing angle: djustable between

75° and < 105° . IP 68 . SQR 05.2

SQR 07.2 . Turns for 90°: 11 – 70

EMC: (2004/108/EG) (2006/42/EG)

EMC: (2004/108/EG) (2006/42/EG)

3-ph AC asynchronous motor, type IM B9 according to IEC 60034 . Blinker

SQR 12.2 . 3-ph AC asynchronous motor IM B9 . Min. 75 Nm Max. 300

Power tool for emergency operation with square 30 mm

Standard Metric threads, square

bore, bore with two-flats . IP 68

SQR 05.2: F05, F07. SQR 07.2:

F07, F10, SQR 10.2: F10, F12 .

SQR 12.2: F12, F14. SQR 14.2:

F14, F16. Handwheel lockable

Options: F, tropicalized

Handwheel Ø 160 mm

Thermoswitches (NO)

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

50 Hz 60 Hz

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50 Hz 60 Hz

50 Hz 60 Hz