

## AUMA NORM

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

Type	Output speed rpm		Torque range <sup>1)</sup>			Modulating torque <sup>2)</sup>		Number of starts	Pulse duration <sup>3)</sup>	Backlash <sup>4)</sup>	Valve attachment <sup>5)</sup>			Handrad		Weight <sup>6)</sup>
	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 25.1	4	4.8	1,000	2,000	1,400	800	700	300	100	275	F25	G4	95	400	45 : 1	150
	5.6	6.7								220					32 : 1	
	8	9.6								155					45 : 1	
	11	13								130					32 : 1	
SAR 30.1	4	4.8	2,000	4,000	2,800	1,600	1,400	300	100	275	F30	G5	115	500	44 : 1	190
	5.6	6.7								220					33 : 1	
	8	9.6								155					44 : 1	
	11	13								130					33 : 1	

## General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAR 25.1 – SAR 30.1, 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	Minimum pulse duration for identical direction of rotation.
4) Backlash	Minimum pulse duration for reversal of rotation direction.
5) Valve attachment	Indicated flange sizes apply for output drive types A and B1. Refer to 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.

## 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 S4 - 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-ph 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: <b>3-phase AC current</b> Voltages/frequencies <table border="1"> <tr> <td>Volt</td> <td>380</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>50</td> <td>50</td> <td>50</td> <td>60</td> <td>60</td> <td>60</td> <td>50</td> </tr> </table> Special voltages: <b>3-phase AC current</b> Voltages/frequencies <table border="1"> <tr> <td>Volt</td> <td>220</td> <td>230</td> <td>240</td> <td>525</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> Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	Volt	380	400	415	440	460	480	500	Hz	50	50	50	60	60	60	50	Volt	220	230	240	525	575	600	660	690	Hz	50	50	50	50	60	60	50	50
Volt	380	400	415	440	460	480	500																												
Hz	50	50	50	60	60	60	50																												
Volt	220	230	240	525	575	600	660	690																											
Hz	50	50	50	50	60	60	50	50																											
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 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.																																		

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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
Electrical connection	Controls:	AUMA plug/socket connector with screw-type connection
	Motor:	Terminals within motor connection compartment
	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	TPA00R1AA-001-000 (basic version)	
Valve attachment	Standard:	B1 according to EN ISO 5210
	Options:	A, B2, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338
	Special valve attachment:	AF, 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 switches (1 NC and 1 NO) silver contact (Ag) for each end position, 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 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 switches (1 NC and 1 NO) silver contact (Ag) for each direction, not galvanically isolated
	Options:	Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated Gold plated contacts (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 (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 indication, adjustable indicator disc with symbols OPEN and CLOSED	
Running indication	Blinking signal via 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 -50 °C to +60 °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: DS Terminal compartment additionally sealed against interior (double sealed) According to AUMA definition, enclosure protection IP68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours</li> <li>• Up to 10 operations during continuous immersion</li> <li>• Modulating duty is not possible during continuous immersion.</li> </ul>
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 actuator), 1g, 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 (with AUMA plug/socket connector, without actuator controls). 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)
Top coat	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.

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2004/108/EC) Low Voltage Directive: (2006/95/EC) Machinery Directive: (2006/42/EC)
Reference documents	Brochure Electric actuators for industrial valve automation Dimensions SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1 Electrical data SAR 25.1 – SAR 30.1 with 3-phase AC motors Technical data for switches Technical data Electronic position transmitter/potentiometer