General information

AUMA NORM multi-turn actuators require electric controls. For the SAR type range, AUMA offers AM and AC actuator controls. These can also easily be mounted to the actuator at a later date.

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		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]	Starts Max. [1/h]	Min. [ms]	Max. [ms]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduction ratio	approx. [kg]
SAR 25.1	4[7]	4,8[7]	1,000	2,000	1,400	800	700	300	100	275	F25	G4	95	400	45 : 1	150
	5,6[7]	6,7[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	

1) The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Maximum permissible torque for modulating duty.
3) For identical direction of rotation: Time duration for which the motor must be electrically powered until there is a movement at the output drive.
4) For reversal of rotation direction: Time duration for which the motor must be electrically powered until there is a movement at the output drive.
5) Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
6) 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) On request

Features and functions

Type of duty	Standard:	Intermittent duty S4 - 25 %, class C according to EN ISO 22153
	Option:	Intermittent duty S4 - 50 %, class C according to EN ISO 22153 Intermittent duty S5 - 25 % (insulation class H required), class C according to EN ISO 22153
	For nominal voltage and +40 °C ambient temperature and at modulating torque load.	
Motors	3-phase AC asynchronous squirrel-cage motor, type IM B9 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6	
Mains voltage, mains frequency	Standard voltages: Refer to table: 3-phase AC standard voltages [▶ 2] Special voltages: Refer to table: 3-phase AC special voltages [▶ 2] Further voltages on request Permissible variation of mains voltage: ±10 % Permissible variation of mains frequency: ±5 %	
Overvoltage category	Category III according to IEC 60364-4-44	
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 (actuator 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

Features and functions		
Electrical connection	Actuator 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 pins)
Threads for cable entries	Standard:	Metric threads
	Option:	Pg threads, NPT threads, G threads
Wiring diagram	TPA00R1AA-001-000 (basic version)	
Valve attachment	Standard:	B1 in accordance with ISO 5210
	Options:	A, B2, B3, B4, C, D according to 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 or IB3 for size 25.1 only, larger sizes on request) A prepared for permanent lubrication of stem	

Table 1: 3-phase AC standard voltages

Voltages/frequencies											
Volt [3~]	220	230	380	380	400	400	415	440	460	480	500
Hz	60	50	50	60	50	60	50	60	60	60	50

Table 2: 3-phase AC special voltages

Voltages/frequencies							
Volt [3~]	220	440	525	575	600	660	690
Hz	50	50	50	50	60	50	50

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 (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 settings	Magnetic limit and torque transmitter (MWG) Turns per stroke: 2 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

Service conditions		
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 in accordance with IEC 60529	Standard:	IP67 with AUMA 3-phase AC motor For special motors, differing enclosure protection is possible
	Options:	• IP68 with AUMA 3-phase AC motor • DS 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 • Continuous immersion in water: maximal 96 hours • Up to 10 operations during immersion • Modulating duty is not possible during 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 actuator 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	
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 ISO 22153. Detailed information can be provided on request.	

Further information	
EU Directives	Machinery Directive 2006/42/EC Low Voltage Directive 2014/35/EU EMC Directive 2014/30/EU RoHS Directive 2011/65/EU
Reference documents	Dimensions SA 25.1 – SA 48.1/SAR 25.1 – SAR 30.1 Electrical data SAR 25.1 – SAR 30.1