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

SAR 07.1 – SAR 14.5 AUMA NORM

Type	Speed rpm		Torque range[1]		Modulating torque[2]	Number of starts[3]	Duration of impulse[4]	Back-lash	Valve attachment		Valve stem diameter	Handwheel		Weight
	50 Hz	60 Hz	min. Nm	S4-25% max. Nm	max. Nm	max. c/h	min. ms	max. ms	Standard EN ISO 5210	Option DIN 3210	for a rising valve stem[5] max. mm	Ø mm	Reduction ratio	approx. kg[6]
SAR 07.1	4	4.8	15	30	15	600	50	275	F07 F10	G0	26	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	
	22	26						80					8 : 1	
	32	38						75					11 : 1	28
	45	54						70					8 : 1	
SAR 07.5	4	4.8	30	60	30	600	50	275	F07 F10	G0	26	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	
	22	26						80					8 : 1	
	32	38						75					11 : 1	28
	45	54						70					8 : 1	
SAR 10.1	4	4.8	60	120	60	600	50	275	F10	G0	40	200	11 : 1	29
	5.6	6.7						220					8 : 1	
	8	9.6						155					11 : 1	32
	11	13						130					8 : 1	
	16	19						90					11 : 1	
	22	26						80					8 : 1	
SAR 14.1	4	4.8	120	250	120	600	50	275	F14	G1/2	57	315	11 : 1	62
	5.6	6.7						220					8 : 1	
	8	9.6						155					11 : 1	
	11	13						130					8 : 1	
SAR 14.5	4	4.8	250	500	200	600	50	275	F14	G1/2	57	400	11 : 1	66
	5.6	6.7						220					8 : 1	

General information

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

Features and functions

Type of duty[7]	Intermittent duty S4 - 25 %
Motors	1-ph AC motor, type IM B14 according to IEC 34
Power supply, mains frequency, and current consumption	Standard voltages: **1-ph AC** voltages/frequencies Volt: 115 / 230 Hz: 60 / 50 Permissible variation of the mains voltage: ± 10 % Permissible variation of the mains frequency: ± 5 %
Overvoltage category	Category III according to IEC 60634-4-443
Insulation class	F, tropicalized
Motor protection	Thermoswitches (NC)
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.
Limit switching	Counter gear mechanism for end positions CLOSED and OPEN for 1 to 500 turns per stroke (optional for 1 to 5,000 turns per stroke) Standard: Single switch (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 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	Adjustable torque switching for directions OPEN and CLOSE Standard: Single switch (1 NC and 1 NO) for each direction, not galvanically isolated Options: Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated

1) Tripping torque adjustable for both directions.
2) Permissible, average torque for modulating duty
3) When reversing a pause of at least 100 ms is required.
4) For identical direction of rotation.
5) For output drives types A and B1
6) Weight for multi-turn actuator AUMA NORM with 1-phase AC motor, standard electrical connection, output drive type B1 and handwheel
7) For nominal voltage and 20 °C ambient temperature and at average modulating torque load

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Non-intrusive setting (option)	Magnetic limit and torque transmitter MWG (only possible in combination with actuator controls AUMATIC AC) for 1 to 500 turns per stroke or for 10 to 5,000 turns per stroke
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
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 (5 W, 24 V DC) is installed within the actuator in combination with the actuator controls AM or AC.
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation. Option: Handwheel lockable
Electrical connection	Plug/socket connector with screw-type connection
Threads for cable entries	Standard: Metric threads Options: Pg-threads, NPT-threads, G-threads
Terminal plan	KMS 60TP 100/001 (basic version)
Valve attachment	Standard: B1 according to EN ISO 5210 Options: A, B1, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338 Special output drive types: AF, AK, AG, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem
Service conditions	
Application	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	Standard: –40 °C to +60 °C Options: –50 °C to +60 °C –60 °C to +60 °C
Enclosure protection according to EN 60529[8)]	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	Within multi-turn actuator: Pollution degree 2 Outside multi-turn actuator: Pollution degree 4
Corrosion protection	Standard: KN Suitable for installation in industrial units, in water or power plants with a low pollutant concentration Options: KS Suitable for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. in wastewater treatment plants, chemical industry) KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Finish coating	Standard: Two-component iron-mica combination/powder coating
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Other colours possible on request
Lifetime[9)]	SAR 07.1 – SAR 10.1: 5.0 million modulating steps SAR 14.5: 3.5 million modulating steps

8) For version in enclosure protection IP 68, higher corrosion protection KS or KX is strongly recommended Additionally, for enclosure protection IP 68, we recommend to use the double sealed terminal compartment DS.

9) The lifetime in operation hours (h) depends on the load and the number of starts. A high starting frequency will rarely improve the modulating accuracy. To reach the longest possible maintenance and fault-free operating time, the number of starts per hour chosen should be as low as possible for the process.

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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 multi-turn actuators SA” Dimensions SAR Electrical data SAR Technical data Switches Technical data Electronic position transmitter/potentiometer

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