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

SAR 07.1 – SAR 30.1 AUMA NORM

Type	Speed rpm		Torque range[1]			Modulating torque[2]		Number of starts	Duration of impulse[3]	Back lash	Valve attachment		Valve stem diameter	Handwheel		
	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. c/h	min. ms	max. ms	Standard EN ISO 5210	Option DIN 3210	for a rising valve stem[4] max. mm	Ø mm	Reduction ratio	approx. kg[5]
SAR 07.1	4	4.8	15	30	20	15	10	1,200	50	275	F 07 F 10	G 0	26	160	11 : 1	19
	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	20
	45	54								70					8 : 1	
SAR 07.5	4	4.8	30	60	40	30	20	1,200	50	275	F 07 F 10	G 0	26	160	11 : 1	19
	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	21
	45	54								70					8 : 1	
SAR 10.1	4	4.8	60	120	90	60	45	1,200	50	275	F 10	G 0	40	200	11 : 1	23
	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	25
	45	54								70					8 : 1	
SAR 14.1	4	4.8	120	250	180	120	90	1,200	70	275	F 14	G ½	57	315	11 : 1	47
	5.6	6.7								220					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19						900		90					11 : 1	48
	22	26								80					8 : 1	
	32	38						600		75					11 : 1	51
	45	54								70					8 : 1	
SAR 14.5	4	4.8	250	500	360	200	180	1,200	70	275	F 14	G ½	57	400	11 : 1	49
	5.6	6.7								220					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19						900		90					11 : 1	50
	22	26								80					8 : 1	
	32	38						600		75					11 : 1	57
	45	54								70					8 : 1	
SAR 16.1	4	4.8	500	1,000	710	400	350	900	100	275	F 16	G 3	75	500	11 : 1	75
	5.6	6.7								220					8 : 1	
	8	9.6								155					11 : 1	
	11	13								130					8 : 1	
	16	19						600		90					11 : 1	
	22	26								80					8 : 1	
	32	38						300		75					11 : 1	86
	45	54								70					8 : 1	
SAR 25.1	4	4.8	1,000	2,000	1,400	800	700	300	100	275	F 25	G 4	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	F 30	G 5	115	500	45 : 1	190
	5.6	6.7								220					32 : 1	
	8	9.6								155					45 : 1	
	11	13								130					32 : 1	

1) Tripping torque adjustable for both directions
2) Permissible average modulating torque
3) For identical direction of rotation
4) For output drives types A and B1
5) Weight for multi-turn actuator AUMA NORM with 3-phase AC motor, standard electrical connection, output drive type B1 and handwheel

SAR 07.1 – SAR 30.1 AUMA NORM	Technical data Multi-turn actuators for modulating duty with 3-phase AC motors

General information

Multi-turn actuators AUMA NORM require electric controls. AUMA offers the actuator controls AUMA MATIC AM or AUMATIC AC for the sizes SAR 07.1 – SAR 16.1. These can also easily be mounted to the actuator at a later date.

Features and functions

Type of duty [6]	Standard: Intermittent duty S4 - 25 % Intermittent duty S4 - 50 % Intermittent duty S5 - 25 % (insulation class H required)
Motors	3-ph AC asynchronous motor, type IM B9 according to IEC 34
Insulation class	Standard: F, tropicalized Option: H, tropicalized
Motor protection	Standard: Thermoswitches (NC) Option: PTC thermistors (according to DIN 44082)
Self-locking	yes
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 switch (2 NC and 2 NO) for each end position, switches galvanically isolated Triple switch (3 NC and 3 NO) for each end position, switches galvanically isolated Intermediate position switch (DUO limit switching), available for any intermediate position
Torque switching	Torque switching for direction OPEN and CLOSE, infinitely adjustable 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, switches galvanically isolated
Non-intrusive setting (option)	Magnetic limit and torque transmitter MWG for the sizes SAR 07.1 – SAR 16.1 (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) For further details see separate data sheet
Torque feedback signal, analogue (option)	Only in combination with magnetic limit and torque transmitter MWG and actuator controls AUMATIC AC
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 (5 W, 24 V DC) is installed in the actuator in combination with the actuator controls AUMA MATIC AM or AUMATIC AC.
Motor heater (option)	SAR 07.1 – SAR 10.1: 12.5 W SAR 14.1 – SAR 16.1: 25 W SAR 25.1 – SAR 30.1: 50 W
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electric operation. Option: Handwheel lockable
Electrical connection	Standard: SAR 07.1 – SAR 16.1: AUMA plug/socket connector with screw type connection, SAR 25.1 – SAR 30.1: Control connections on AUMA plug/socket connector Motor connection on terminals
Threads for cable glands	Standard: Metric threads Options: Pg threads, NPT threads, G threads
Terminal plan	KMS TP 100/001 (basic version)
Output drive types	A, B1, B2, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338 Special output drives: AF, B3D, DD, ED, IB1, IB3

6) For nominal voltage and 20 °C ambient temperature at average modulating torque load.

Service conditions			
Mounting position	Any position		
Enclosure protection according to EN 60 529[7)]	Standard:	IP 67	
	Options:	IP 68 IP 67-DS (Double Sealed) IP 68-DS (Double Sealed) (Double Sealed = Electrical connection compartment additionally sealed against interior)	
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 atmosphere with high humidity and high pollutant concentration
		KX-G	same as KX, however aluminium-free version (outer parts)
Finish coating	Standard:	Two-component iron-mica combination	
Colour	Standard:	Grey (DB 702, similar to RAL 9007)	
	Option:	Other colours are possible on request	
Ambient temperature [8)]	Standard:	– 25 °C to + 60 °C	
	Options:	– 40 °C to + 60 °C (low temperature) – 50 °C to + 60 °C (extreme low temperature)	
Vibration resistance according to EN 60068-2-6	2 g, for 10 to 200 Hz (only for sizes SAR 07.1 – SAR 16.1 without controls) Resistant to vibrations 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		
Lifetime [9)]	SAR 07.1 – SAR 10.1:	5,0 million modulating steps	
	SAR 14.1 – SAR 16.1:	3,5 million modulating steps	
	SAR 25.1 – SAR 30.1:	2,5 million modulating steps	
Other information			
EC directives	Electromagnetic Compatibility (EMC): (89/336/EEC) Low Voltage Directive: (73/23/EEC) Machinery Directive: (98/37/EC)		
Reference documents	Product description “Electric Multi-turn actuators SA” Dimension sheets SAR Electrical data sheets SAR		

7) 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.

8) Version with RWG from – 40 °C to + 60 °C

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 operation time, the number of starts per hour should be chosen as low as permissible for the process.