SQR 05.2 – SQR 14.2
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	
	42	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	
	84	70						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

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		

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