SA 07.2 – SA 16.2
AUMA NORM
Technical data Multi-turn actuators for open-close duty with DC motors

General information

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

Type	Output speed	Torque range[1]		Number of starts	Valve attachment[2]			Handwheel		Weight[3]
	rpm	Min. [Nm]	Max. [Nm]	Starts Max. [1/h]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduction ratio	approx. [kg]
SA 07.2	4	10	30	60	F07 F10	– G0	26 34[4]	160	11 : 1	29
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	32
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		25						4 : 1	
SA 07.6	4	20	60	60	F07 F10	– G0	26 34[4]	160	11 : 1	30
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	44
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		50						4 : 1	
SA 10.2	4	40	120	60	F10	G0	40	200	11 : 1	33
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	36
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	56
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		100						4 : 1	
SA 14.2	4	100	250	60	F14	G1/2	58	315	11 : 1	68
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	100
	22								8 : 1	
	32								11 : 1	
	45								8 : 1	
	63								11 : 1	
	90								8 : 1	
	125								5.5 : 1	
	180		200						4 : 1	

Type	Output speed	Torque range[1]		Number of starts	Valve attachment[2]			Handwheel		Weight[3]
	rpm	Min. [Nm]	Max. [Nm]	Starts Max. [1/h]	Standard EN ISO 5210	Option DIN 3210	Max. Ø rising stem [mm]	Ø [mm]	Reduction ratio	approx. [kg]
SA 14.6	4	200	500	60	F14	G1/2	58	400	11 : 1	76
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	
	32								11 : 1	122
	45								8 : 1	
SA 16.2	4	400	1,000	60	F16	G3	77	500	11 : 1	123
	5.6								8 : 1	
	8								11 : 1	
	11								8 : 1	
	16								11 : 1	
	22								8 : 1	

1) The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range.
2) Indicated flange sizes apply for output drive types A and B1. Refer to separate dimension sheets for further output drive types.
3) Indicated weight includes AUMA NORM multi-turn actuator with 1-phase DC motor, electrical connection in standard version, output drive type B1 and handwheel.
4) Stem diameter for rising stem in combination with AUMA stem protection tube made of PMMA max. 30 mm.

Features and functions		
Type of duty	Short-time duty S2 - 15 min, classes A and B according to EN ISO 22153 For nominal voltage and +40 °C ambient temperature and at load with 35 % of the max. torque.	
Motors	DC shunt motor, type IM B14 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6 DC compound motor, type IM B14 according to IEC 60034-7, IC410 cooling procedure according to IEC 60034-6 Motor type depending on actuator type/output speed. Refer to Electrical data SA 07.2 – SA 16.2 with DC motors	
Mains voltage	Standard voltages: Refer to table: DC standard voltages [▶ 3] Permissible variation of mains voltage: ±10 %	
Overvoltage category	Category III according to IEC 60364-4-44	
Insulation class	F, tropicalized	
Motor protection	Without	
Self-locking	Self-locking: Speeds up to 90 rpm NOT self-locking: Speeds from 125 rpm Multi-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)	
Electrical connection	Actuator controls:	AUMA plug/socket connector with screw-type connection
	Motor:	AUMA plug/socket connector with screw-type connection or motor terminal board
	Options:	Power connection via terminals or crimp type connection Gold-plated control plug (sockets and pins)
Threads for cable entries	Cable entries for AUMA plug/socket connector with screw-type connection:	
	Standard:	Metric threads [▶ 3]
	Option:	Pg threads, NPT threads, G threads
	Cable entries for motor connection via separate motor terminal board:	
	Standard:	Metric threads [▶ 3]

Features and functions		
Wiring diagram	TPA11R0AA-101-000, DC shunt motor, motor connection on AUMA plug/socket connector TPA12R0AA-101-000, DC shunt motor, motor connection on separate terminal box TPA13R0AA-101-000, DC compound motor, motor connection on separate terminal box TPA14R0AA-101-000, DC compound motor, motor connection on AUMA plug/socket connector Depending on motor type/output speed. Refer also to Electrical data SA 07.2 – SA 16.2 with DC motors.	
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, IB3 A prepared for permanent lubrication of stem	

Table 1: DC standard voltages

Voltages					
Volt [dc]	24	48	60	125	220

Table 2: Metric threads

Motor size	24 V	48 V	60 V	110 V	125 V	220 V
FN00063-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
FN00063-2	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
FN00071-4	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
FN00071-2	2 x M25 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5	2 x M20 x 1.5
FN00080-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FN00080-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FN00090-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FN00090-2	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FL00100-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FL00100-2	–	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5
FL00112-4	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5

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	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 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

Electronic control unit (option, only in combination with AC 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
	Option:	–40 °C to +80 °C Lower temperatures on request
Humidity	Up to 100 % relative humidity across the entire permissible temperature range	
Enclosure protection in accordance with IEC 60529	Standard:	IP68 with AUMA DC motor For special motors, differing enclosure protection is possible
	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 • Continuous immersion in water: maximum 96 hours • Up to 10 operations during immersion	
Pollution degree according to IEC 60664-1	Pollution degree 4 (when closed), pollution degree 2 (internal)	
Corrosion protection	Standard:	KS: Suitable for use in areas with high salinity, almost permanent condensation, and high pollution.
	Option:	KX: Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution.
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.	
Sound pressure level	< 72 dB (A)	
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	Electrical data SA 07.2 – SA 16.2	