

## Technical Data Actuator controls

### General information

AC 01.2 actuator controls for controlling multi-turn actuators of the SA/SAR .2 type range and part-turn actuators of the SG/SGR type range.

### Features and functions

Power supply	Standard voltages:										
	<b>3-phase AC current</b> voltages/frequencies				<b>1-phase AC current</b> voltages/frequencies						
	Volt	380	400	415	440	460	480	500	Volt	110, 115, 120	220, 230, 240
	Hz	50	50	50	60	60	60	50	Hz	60	50
	Special voltages:										
<b>3-phase AC current</b> voltages/frequencies				<b>1-phase AC current</b> voltages/frequencies							
Volt	525	575	660	690	Volt	208					
Hz	50	50	50	50	Hz	60					
Permissible variation of mains voltage: $\pm 10\%$											
Permissible variation of mains voltage: $\pm 30\%$ (option)											
Permissible variation of mains frequency: $\pm 5\%$											
External supply of the electronics (option)	24 V DC $+20\%$ / $-15\%$ , Current consumption: Basic version approx. 250 mA, with options up to 500 mA External power supply must have reinforced insulation against mains voltage in accordance with IEC 61010-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61010-1.										
Current consumption	Current consumption of controls depending on mains voltage: For permissible variation of the mains voltage 10 % <ul style="list-style-type: none"> <li>• 100 to 120 V AC = max. 740 mA</li> <li>• 208 to 240 V AC = max. 400 mA</li> <li>• 380 to 500 V AC = max. 250 mA</li> <li>• 515 to 690 V AC = max. 200 mA</li> </ul> For permissible variation of the mains voltage $\pm 30\%$ : <ul style="list-style-type: none"> <li>• 100 to 120 V AC = max. 1,200 mA</li> <li>• 208 to 240 V AC = max. 750 mA</li> <li>• 380 to 500 V AC = max. 400 mA</li> <li>• 515 to 690 V AC = max. 400 mA</li> </ul>										
Overvoltage category	Category III according to IEC 60364-4-443										
Rated power	Controls are designed for rated motor power, refer to Electrical Data Multi-turn actuators/Part-turn actuators										
Switchgear	Standard:	Reversing contactors (mechanically and electrically interlocked) for AUMA power classes A1/A2									
	Options:	Reversing contactors (mechanically and electrically interlocked) for AUMA power class A3									
		Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes B1, B2 and B3									
Reversing contactors are designed for a lifetime of 2 million starts. For applications requiring a high number of starts, we recommend the use of thyristor units. For AUMA power class assignment, refer to Electrical data on Multi-turn actuators or Part-turn actuators.											
Control	Via digital inputs OPEN, STOP, CLOSE, EMERGENCY (via opto-isolator, OPEN, STOP, CLOSE with one common), respect minimum pulse duration for modulating actuators.										
Control voltage/current consumption for control inputs	Standard:	24 V DC, current consumption: approx. 10 mA per input									
	Options:	48 V DC, current consumption: approx. 7 mA per input									
		60 V DC, current consumption: approx. 9 mA per input									
115 V DC, current consumption: approx. 15 mA per input											
115 V AC, current consumption: approx. 15 mA per input											
All input signals must be supplied with the same potential.											

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Status signals (output signals)	Standard:	<ul style="list-style-type: none"> <li>6 programmable output contacts: <ul style="list-style-type: none"> <li>5 potential-free NO contacts with one common, max. 250 V AC, 1 A (resistive load), default configuration: End position CLOSED, end position OPEN, selector switch REMOTE, torque fault CLOSE, torque fault OPEN</li> <li>1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load), default configuration: Collective fault signal (torque fault, phase failure, motor protection tripped)</li> </ul> </li> <li>Analogue output signal for position feedback <ul style="list-style-type: none"> <li>Galvanically isolated position feedback signal 0/4 – 20 mA (load max. 500 Ω)</li> </ul> </li> </ul>
	Options:	<ul style="list-style-type: none"> <li>6 programmable output contacts: <ul style="list-style-type: none"> <li>5 change-over contacts with one common, max. 250 V AC, 1 A (resistive load), 1 potential-free change-over contact, max. 250 V AC, 5 A (resistive load)</li> </ul> </li> <li>12 programmable output contacts: <ul style="list-style-type: none"> <li>10 potential-free NO contacts, 5 with one common each, max. 250 V AC, 1 A (resistive load), 2 potential-free change-over contact, max. 250 V AC, 5 A (resistive load)</li> </ul> </li> <li>6 programmable output contacts: <ul style="list-style-type: none"> <li>6 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load)</li> </ul> </li> <li>10 programmable output contacts: <ul style="list-style-type: none"> <li>10 potential-free change-over contacts without one common, per contact max. 250 V AC, 5 A (resistive load)</li> </ul> </li> </ul> <p>All output signals must be supplied with the same potential.</p>
Voltage output	Standard:	Auxiliary voltage 24 V DC, max. 100 mA for supply of control inputs, galvanically isolated from internal voltage supply
	Option:	Auxiliary voltage 115 V AC, max. 30 mA for supply of control inputs, galvanically isolated from internal voltage supply Not possible in combination with PTC tripping device
Local controls	Standard:	<ul style="list-style-type: none"> <li>Selector switch LOCAL - OFF - REMOTE (lockable in all three positions)</li> <li>Push buttons OPEN, STOP, CLOSE, RESET <ul style="list-style-type: none"> <li>Local Stop The actuator can be stopped via push button Stop of local controls if the selector switch is in position REMOTE. Not activated when leaving the factory.</li> </ul> </li> <li>6 indication lights: <ul style="list-style-type: none"> <li>End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (violet), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue)</li> </ul> </li> <li>Graphic LC display, illuminated</li> </ul>
	Option:	<ul style="list-style-type: none"> <li>Special colours for the 5 indication lights: <ul style="list-style-type: none"> <li>End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (white), end position OPEN (red)</li> </ul> </li> </ul>
Bluetooth communication interface	Bluetooth class II chip, version 2.0 with a range up to 10 m in industrial environments. Supports the SPP Bluetooth profile (Serial Port Profile). Programming software: AUMA ToolSuite, commissioning and diagnostic tool for Windows-based PCs, PDAs and smartphones	
Application functions	Standard:	<ul style="list-style-type: none"> <li>Switch-off mode adjustable <ul style="list-style-type: none"> <li>Limit or torque seating for end position OPEN and end position CLOSED</li> </ul> </li> <li>Torque by-pass, adjustable up to 5 seconds (no torque monitoring during start-up time)</li> <li>Start and end of stepping mode as well as ON and OFF times (1 to 1,800 seconds) can be set individually for directions OPEN and CLOSE.</li> <li>Any 8 intermediate positions between 0 and 100 %, reaction and signal behaviour programmable</li> </ul>
	Options:	<ul style="list-style-type: none"> <li>Positioner: <ul style="list-style-type: none"> <li>Position setpoint via analogue input E1 = 0/4 – 20 mA</li> <li>Programmable behaviour on loss of signal</li> <li>Automatic adaptation of the dead band (adaptive behaviour selectable)</li> <li>Split Range operation</li> <li>MODE input for selecting between open-close and modulating duty</li> </ul> </li> <li>PID controller with adaptive positioner, 0/4 – 20 mA inputs for process setpoint and actual process value</li> </ul>

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Safety functions	Standard:	<ul style="list-style-type: none"> <li>EMERGENCY operation, programmable behaviour               <ul style="list-style-type: none"> <li>Digital input low active</li> <li>Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN, run to intermediate position</li> <li>Torque monitoring can be by-passed during EMERGENCY operation.</li> <li>Thermal protection can be by-passed during EMERGENCY operation (only in combination with thermoswitch within actuator, not with PTC thermistor).</li> </ul> </li> </ul>
	Options:	<ul style="list-style-type: none"> <li>Enabling local controls via digital input Enable LOCAL. Thus, actuator operation can be enabled or disabled via push buttons on the local controls.</li> <li>Interlock, enable of operation commands OPEN and CLOSE via two digital inputs</li> <li>EMERGENCY Stop push button (latching) interrupts electrical operation, irrespective of the selector switch positions.</li> </ul>
Monitoring function	Standard:	<ul style="list-style-type: none"> <li>Valve overload protection (adjustable), results in switching off and generates fault signal</li> <li>Motor temperature monitoring (thermal monitoring), results in switching off and generates fault indication</li> <li>Monitoring the heater within actuator, generates warning signal</li> <li>Monitoring of permissible on-time and number of starts (adjustable), generates warning signal</li> <li>Operation time monitoring (adjustable), generates warning signal</li> <li>Phase failure monitoring, results in switching off and generates fault signal</li> <li>Automatic correction of rotation direction upon wrong phase sequence (3-ph AC current)</li> </ul>
Diagnostic function		<ul style="list-style-type: none"> <li>Electronic device ID with order and product data</li> <li>Logging of operating data: A resettable counter and a lifetime counter each for:           <ul style="list-style-type: none"> <li>Motor running time, number of starts, torque switch trippings in end position CLOSED, limit switch trippings in end position CLOSED, torque switch trippings in end position OPEN, limit switch trippings in end position OPEN, torque faults CLOSE, torque faults OPEN, motor protection trippings</li> </ul> </li> <li>Time-stamped event report with history for setting, operation and faults:           <ul style="list-style-type: none"> <li>Status signals according to NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required"</li> </ul> </li> <li>Torque characteristics           <ul style="list-style-type: none"> <li>3 torque characteristics (torque-travel characteristic) for opening and closing directions, can be saved separately. Torque characteristics stored can be shown on the display.</li> </ul> </li> </ul>
Motor protection evaluation	Standard:	<ul style="list-style-type: none"> <li>Monitoring the motor temperature in combination with thermoswitches within actuator motor</li> </ul>
	Options:	<ul style="list-style-type: none"> <li>Thermal overload relay in controls combined with thermoswitches within the actuator</li> <li>PTC tripping device in combination with PTC thermistors within actuator motor</li> </ul>
Electrical connection	Standard:	AUMA plug/socket connector with screw-type connection
	Options:	<ul style="list-style-type: none"> <li>Terminals or crimp connection</li> <li>Gold-plated control plug (sockets and plugs)</li> </ul>
Threads for cable entries	Standard:	Metric threads
	Options:	Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)		TPCA-0A1-1C1-A000 TPA00R1AA-0A1-000

### Further options for version with MWG in actuator

Setting of limit and torque switching via local controls

Torque feedback signal Galvanically isolated analogue output E6 = 0/4 – 20 mA (max. load 500 Ω)

### Service conditions

Use	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: –25 °C to +70 °C
	Options: –60 °C to +60 °C, extreme low temperature version incl. heating system Low temperature versions incl. heating system for connection to external power supply 230 V AC or 115 V AC.
Humidity	Up to 100 % relative humidity across the entire permissible temperature range

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

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Enclosure protection according to EN 60529	Standard:	IP 68 with AUMA 3-phase AC motor/1-phase AC motor Differing enclosure protection for special motors: refer to name plate	
	Option:	Terminal compartment additionally sealed against interior (double sealed)	
	According to AUMA definition, enclosure protection IP 68 meets the following requirements: <ul style="list-style-type: none"> <li>• Depth of water: maximum 8 m head of water</li> <li>• Duration of continuous immersion in water: Max. 96 hours</li> <li>• Up to 10 operations during continuous immersion</li> </ul> Modulating duty is not possible during continuous immersion.		
Pollution degree	Pollution degree 4 (when closed)		
Vibration resistance according to IEC 60068-2-6	1 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Not valid in combination with gearboxes.		
Corrosion protection	Standard:	KS	Suitable for installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. wastewater treatments plants, chemical industry)
	Options:	KX	Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Finish coating	Powder paint Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Other colours are possible on request.	

### Accessories

Wall bracket	AC mounted separately from the actuator, including plug/socket connector. Connecting cable on request. Recommended for high ambient temperatures, difficult access, or in case of heavy vibration during service. Cable length between actuator and AC max. 100 m. Not suitable for version with potentiometer in the actuator. Instead of the potentiometer, the actuator has to be provided with RWG. Cable length for Non-intrusive version with MWG in the actuator max. 100 m. Requires separate data cable for MWG.
Programming software	AUMA ToolSuite

### Further information

Weight	Approx. 7 kg (with AUMA plug/socket connector)
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 with integral controls SA 07.2 – SA 16.2/SA 25.1 – SA 48.1 with AM 01.1/2.1 and AC 01.2 Product description Electric part-turn actuators with integral controls SG 05.1 – SG12.1 with AM 01.1 – AM 02.1 and AC 01.2 Dimensions Multi-turn actuators with integral controls AUMATIC Dimensions Part-turn actuators with integral controls AUMATIC