

Technical data Actuator controls AUMATIC	ACExC 01.2
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Actuator controls AUMATIC ACExC 01.2 for controlling multi-turn actuators of the SAEx.2/SAREx.2 type range and part-turn actuators of the SGExC type range. For versions with fieldbus interfaces refer to separate documents.

Features and functions

Explosion protection	Standard: I I2G Ex de IIC T4 or T3 Options: I I2G Ex d IIC T4 or T3
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EC type examination certificate	DEKRA 11ATEX0008 X
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Mains voltage, mains frequency	Standard voltages:																	
	3-ph AC voltage/frequencies											1-ph AC (SGExC only) voltages/frequencies						
	Volt	220	230	240	380	400	415	440	460	480	500	Volt	110	115	120	220	230	240
	Hz	50	50	50	50	50	50	60	60	60	50	Hz	60	60	60	50	50	50
	Special voltages:																	
	3-ph AC voltages/frequencies											1-ph AC (SGExC only) voltages/frequencies						
Volt	525		575	660	690	Volt	208											
Hz	50		50	50	50	Hz	60											
Permissible variation of the mains voltage: $\pm 10\%$ Permissible variation of the mains frequency: $\pm 5\%$ Option: Permissible variation of the mains voltage: $\pm 30\%$																		

External supply of the electronics (option)	24 V DC $+20\%$ / -15% , Current consumption: Basic version approx. 250 mA, with options up to 500 mA The external power supply must have a 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.
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Current consumption	Current consumption of the controls depending on mains voltage: For permissible variation of mains voltage of $\pm 10\%$ 100 to 120 V AC = max. 750 mA 208 to 240 V AC = max. 400 mA 380 to 500 V AC = max. 250 mA 515 to 690 V AC = max. 200 mA For permissible variation of mains voltage of $\pm 30\%$ 100 to 120 V AC = max. 1,200 mA 208 to 240 V AC = max. 750 mA 380 to 500 V AC = max. 400 mA 515 to 690 V AC = max. 400 mA
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Overvoltage category	Category III according to IEC 60364-4-443
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Rated power	The controls are designed for the rated motor power, refer to Electrical Data Multi-turn actuators/Part-turn actuators
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Switchgear	Standard: Reversing contactors ¹⁾ (mechanically and electrically interlocked) for AUMA power class ²⁾ A1
	Options: Reversing contactors ¹⁾ (mechanically and electrically interlocked) for AUMA power class ²⁾ A2 Thyristor unit for mains voltage up to 500 V AC (recommended for modulating actuators) for AUMA power classes ²⁾ B1, B2 and B3

Control	Via digital inputs OPEN, STOP, CLOSE, EMERGENCY (via opto-isolator, OPEN, STOP, CLOSE with one common), respect minimum pulse duration for modulating actuators
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Control voltage/current consumption for control inputs ³⁾	Standard: 24 V DC Current consumption: approx. 10 mA per input
	Option: 48 V DC Current consumption: approx. 7 mA per input 60 V DC Current consumption: approx. 9 mA per input 110 V DC Current consumption: approx. 8 mA per input 115 V AC Current consumption: approx. 15 mA per input


1) The 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.
2) For the assignment of AUMA power classes, please refer to electrical data on multi-turn or part-turn actuators.
3) All input signals must be supplied with the same potential.

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<p>Status signals</p>	<p>Standard: 6 programmable output contacts: 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 in REMOTE, torque fault CLOSE, torque fault OPEN 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)</p> <p>Options: 6 programmable output contacts: 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)</p> <p>12 programmable output contacts: 10 potential-free NO contacts, one common for respectively 5 contacts, max. 250 V AC, 1 A (resistive load) 2 potential-free change-over contacts, max. 250 V AC, 5 A (resistive load)</p> <p>6 programmable output contacts: 6 potential-free change-over contacts <u>without</u> one common, per contact max. 250 V AC, 5 A (resistive load)</p> <p>10 programmable output contacts: 10 potential-free change-over contacts <u>without</u> one common, per contact max. 250 V AC, 5 A (resistive load)</p> <p>All output signals must be supplied with the same potential.</p>
<p>Position feedback signal</p>	<p>Galvanically isolated analogue output E2 = 0/4 – 20 mA (load max. 500 Ω)</p>
<p>Voltage output</p>	<p>Standard: Auxiliary voltage 24 V DC, max. 100 mA for supply of the control inputs, galvanically isolated from internal voltage supply</p> <p>Option: Auxiliary voltage 115 V AC, max. 30 mA for supply of the control inputs, galvanically isolated from internal voltage supply</p>
<p>Local controls</p>	<p>Standard: Selector switch LOCAL - OFF - REMOTE (lockable in all three positions) Push buttons OPEN, STOP, CLOSE, RESET 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.</p> <p>6 indication lights: End position and running indication CLOSED (yellow), torque fault CLOSE (red), motor protection tripped (red), torque fault OPEN (red), end position and running indication OPEN (green), Bluetooth (blue) Graphic LC display, illuminated</p> <p>Option: Special colours for the 5 indication lights: End position CLOSED (green), torque fault CLOSE (blue), torque fault OPEN (yellow), motor protection tripped (white), end position OPEN (red)</p>
<p>Bluetooth communication interface</p>	<p>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 smart phones</p>
<p>Application functions</p>	<p>Standard: Limit or torque seating for end position OPEN and end position CLOSED Torque by-pass, adjustable up to 5 seconds (no torque monitoring during start-up time) Timer Start and end of stepping mode as well as ON and OFF times (1 up to 1,800 seconds) can be set individually for directions OPEN and CLOSE. Any 8 intermediate positions between 0 and 100 %, Reaction and signal behaviour programmable</p> <p>Option: Positioner: Position setpoint via analogue input E1 = 0/4 – 20 mA Programmable behaviour on loss of signal Automatic adaptation of the dead band (adaptive behaviour selectable) Split Range operation MODE input for selecting between open-close and modulating duty</p>

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Failure functions	Standard:	EMERGENCY operation, behaviour programmable Digital input low active Reaction can be selected: Stop, move to end position CLOSED, move to end position OPEN, move to intermediate position The torque monitoring can be by-passed during EMERGENCY operation
	Options:	Enabling local controls via digital input Enable LOCAL. Thus, the actuator operation can be enabled or disabled via push buttons on the local controls. Remote enable of operation commands OPEN and CLOSE via two digital inputs Interlock OPEN and Interlock CLOSE.
Monitoring function	Standard:	Valve overload protection (adjustable), results in switching off and generates fault indication Monitoring the heater within the actuator, generates warning signal Monitoring of permissible on-time and number of starts (adjustable), generates warning signal Operation time monitoring (adjustable), results in switching off and generates warning signal Phase failure monitoring, results in switching off and generates fault indication Automatic correction of the direction of rotation upon wrong phase sequence (3-ph AC current)
	Diagnostic functions	Electronic device ID with order and product data Logging of operating data: A resettable counter and a lifetime counter each for: 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 Time-stamped event report with entries for setting, operation and fault history: Status signals in compliance with NAMUR recommendation NE 107: "Failure", "Function check", "Out of specification", "Maintenance required" Torque characteristics 3 torque characteristics (torque-travel characteristic) for opening and closing directions, can be saved separately. Torque characteristics stored can be shown on the display.
	Motor protection evaluation	Standard: PTC tripping device in combination with PTC thermistors in the actuator motor Option: Additional thermal overload relay in the controls in combination with thermostiches within the actuator
	Electrical connection	Standard: AUMA plug/socket connector KP with screw-type terminals Options: AUMA plug/socket connector KES with terminal blocks, increased safety Ex e AUMA plug/socket connector KES with terminal blocks, flameproof enclosure Ex d
	Threads for cable entries	Standard Metric threads Options: Pg-threads, NPT-threads, G-threads
Wiring diagram (basic version)	TPCA-0A1-1C1-A000 TPA00R2AA-0A1-000	
Further options for Non-intrusive version with MWG in the actuator		
Setting of limit and torque switching via local controls		
Torque feedback signal	Galvanically isolated analogue output E6 = 0/4 – 20 mA (load max. 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: –20 °C to +40 °C/+60 °C	
Humidity	Up to 100 % relative humidity over the entire permissible temperature range	
Enclosure protection according to EN 60529	Standard:	IP 68 with AUMA 3-ph AC motor/1-ph AC motor For special motors differing enclosure protection:
	Option:	Terminal compartment additionally sealed against interior (double sealed) According to AUMA definition, enclosure protection IP 68 meets the following requirements: Depth of water: maximum 8 m head of water Duration of submersion in water: max. 96 hours Up to 10 operations during continuous immersion Modulating duty is not possible during continuous immersion.
Pollution degree	Within actuator controls: Pollution degree 2	
	Outside actuator controls (in closed conditions): Pollution degree 4	
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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. in waste water treatment plants, chemical industry) Options: KX Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration
Finish coating	Standard: Two-component iron mica combination Powder paint
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Other colours are possible on request.
Accessories	
Wall bracket ⁴⁾	AUMATIC mounted separately from the actuator, including plug/socket connector. Connecting cables on request. Recommended for high ambient temperatures, difficult access, or in case of heavy vibration during service.
Further information	
Weight	Approx. 12 kg (including Ex-plug/socket connector with terminal board)
EU Directives	ATEX Directive: (94/9/EC) 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 for applications in the oil and gas industry” Dimensions “Multi-turn actuators/part-turn actuators with integral controls AUMATIC”
4) Cable length between actuator and AUMATIC max. 100 m. Not suitable for version with potentiometer in the actuator. Instead of the potentiometer, an RWG has to be used. Cable length for Non-intrusive version with MWG in the actuator max. 100 m. Requires separate data cable for MWG.	
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