

Actuator controls AUMA MATIC AM 01.1/AM 02.1 for controlling multi-turn actuators of the SA/SAR type range and part-turn actuators of the SG/SGR type range for version with Profibus DP interface.

Features and functions

Voltage supply	Standard voltages:																																											
	<table border="1"> <tr> <th colspan="11">3-ph AC voltages/frequencies</th> <th colspan="3">1-ph AC voltages/frequencies</th> </tr> <tr> <td>Volt</td> <td>220</td> <td>230</td> <td>240</td> <td>380</td> <td>400</td> <td>415</td> <td>440</td> <td>460</td> <td>480</td> <td>500</td> <td>Volt</td> <td>110,115,120</td> <td>220,230,240</td> </tr> <tr> <td>Hz</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>60</td> <td>60</td> <td>60</td> <td>50</td> <td>Hz</td> <td>60</td> <td>50</td> </tr> </table>	3-ph AC voltages/frequencies											1-ph AC 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	50	
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Permissible variation of the nominal voltage: $\pm 10\%$ Permissible variation of the mains frequency: $\pm 5\%$ Current consumption of the controls depending on the mains voltage: 100 to 120 V AC = max. 575 mA 208 to 240 V AC = max. 275 mA 380 to 690 V AC = max. 160 mA																																												
External supply of the electronics (option)	24 V DC + 20 %/- 15 %, Current consumption: Basic version approx. 200 mA, with options up to 500 mA																																											
Switchgear	Standard	Reversing contactors ¹⁾ (mechanically and electrically interlocked) for motor power up to 1.5 kW, nominal motor current up to 9 A (OPEN - CLOSE duty) or 5.2 A (modulating duty)																																										
	Options:	Reversing contactors ¹⁾ (mechanically and electrically interlocked) for motor power up to 7.5 kW, nominal motor current up to 20 A (OPEN - CLOSE duty) or 18 A (modulating duty) Thyristor unit (recommended for modulating actuators) for motor power up to 1.5 kW, 500 V AC, with internal fuses for motor power up to 3.0 kW, 500 V AC, with internal fuses for motor power up to 5,5 kW, 500 V AC, external fuses required																																										
Control and output signals	Via Profibus DP interface																																											
Profibus DP interface with additional inputs (option)	Profibus DP interface with 4 free 24 V DC inputs and 2 free 0/4 – 20 mA inputs. Signal transmission via fieldbus interface.																																											
Local controls	Standard:	Selector switch LOCAL - OFF - REMOTE (lockable in all three positions) Push buttons OPEN - STOP - CLOSE 3 indication lights: End position CLOSED (yellow), collective fault signal (red), end position OPEN (green)																																										
	Option:	Protection cover, lockable																																										
Functions	Standard :	Switch-off mode adjustable Limit or torque seating for end position CLOSED Overload protection against excessive torques over the whole travel Phase failure monitoring with automatic phase correction Push-to-run operation or self-retaining in LOCAL Positioner ²⁾ : Nominal position value via Profibus DP interface Adjustable behaviour on loss of signal Adjustable sensitivity (dead band) and pause time																																										
	Motor protection evaluation	Standard: Monitoring of the motor temperature in combination with thermostiches in the actuator motor Options: In combination with thermostiches in the actuator, additional thermal overload relay in the controls Additional PTC tripping device in combination with PTC thermistors in the actuator motor																																										

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) Requires position transmitter in actuator

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Electrical connection	Standard: AUMA plug/socket connector with screw type connection: Threads for cable glands: M-threads: 1 x M20 x 1.5; 2 x M25 x 1.5 Pg-threads: 1 x Pg13.5; 2 x Pg21 NPT-threads: 1 x 1/2" NPT; 2 x 3/4" NPT Special threads, other than standard mentioned above, possible Gold-plated control plug (pins and sockets) Parking frame for wall mounting of the disconnected plug Protection cover for plug compartment (when plug is removed)																								
Overvoltage protection (option)	Protection of the actuator and control electronics against overvoltages on the fieldbus cables of up to 4 kV																								
Wiring diagram (basic version)	MSP 1B1-00-1-F18E1 KMS TP102/001																								
Settings/programming of the Profibus DP interface																									
Setting of the baud rate	Automatic baud rate recognition																								
Setting of the Profibus DP address	The Profibus DP address is set via rotary switches																								
Commands and signals of the Profibus DP interface																									
Process representation output (command signals)	OPEN, STOP, CLOSE, nominal position value ²⁾																								
Process representation input (feedback signals)	End position OPEN, CLOSED Actual position value ²⁾ Selector switch in position LOCAL/REMOTE Running indication ²⁾ (directional) Torque switch OPEN, CLOSED Limit switch OPEN, CLOSED Manual operation by handwheel ²⁾ or local controls																								
Process representation input (fault signals)	Motor protection tripped Torque switch tripped in mid-travel One phase missing																								
Behaviour on loss of communication	The behaviour of the actuator is programmable: - Move to end position OPEN or CLOSED - Move to any intermediate position ²⁾																								
General data Profibus DP																									
Communication protocol	Profibus DP according to IEC 61158 and IEC 61784																								
Network topology	Linear (bus) structure. When using repeaters, tree structures can also be implemented. Coupling and uncoupling of devices during operation without affecting other devices is possible.																								
Transmission medium	Twisted, screened copper cable according to IEC 61158																								
Profibus DP interface	EIA-485 (RS485)																								
Transmission speed/ cable length	<table border="1"> <thead> <tr> <th>Baud rate (kbit/s)</th> <th>Max. cable length (segment length) without repeater</th> <th>Possible cable length with repeater (entire network cable length)</th> </tr> </thead> <tbody> <tr> <td>9.6</td> <td>1,200 m</td> <td>approx. 10 km</td> </tr> <tr> <td>19.2</td> <td>1,200 m</td> <td>approx. 10 km</td> </tr> <tr> <td>45.45</td> <td>1,200 m</td> <td>approx. 10 km</td> </tr> <tr> <td>93.75</td> <td>1,200 m</td> <td>approx. 10 km</td> </tr> <tr> <td>187.5</td> <td>1,000 m</td> <td>approx. 10 km</td> </tr> <tr> <td>500</td> <td>400 m</td> <td>approx. 4 km</td> </tr> <tr> <td>1,500</td> <td>200 m</td> <td>approx. 2 km</td> </tr> </tbody> </table>	Baud rate (kbit/s)	Max. cable length (segment length) without repeater	Possible cable length with repeater (entire network cable length)	9.6	1,200 m	approx. 10 km	19.2	1,200 m	approx. 10 km	45.45	1,200 m	approx. 10 km	93.75	1,200 m	approx. 10 km	187.5	1,000 m	approx. 10 km	500	400 m	approx. 4 km	1,500	200 m	approx. 2 km
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Device types	DP master class 1, e.g. central controllers such as PLC, computer, ... DP master class 2, e.g. programming/configuration tools DP slave, e.g. devices with digital and/or analogue inputs/outputs such as actuators, sensors																								
Number of devices	32 devices without repeater, with repeater expandable to 126																								
Bus access	Token-passing between the masters and polling for slaves. Mono-master or multi-master systems are possible.																								
Supported Profibus DP functions	Cyclic data exchange, sync mode, freeze mode, fail-safe mode																								

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Technical data Actuator controls AUMA MATIC		AM 01.1/AM 02.1 Profibus DP
Service conditions		
Enclosure protection according to EN 60 529	Standard:	IP 67 (when mounted)
	Options:	IP 68 ³⁾ DS terminal compartment additionally sealed against interior (double sealed)
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. 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
	Option:	Special primer/special finish coat (customer's choice)
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)
	Option:	Other colours than standard colour are possible on request
Ambient temperature	Standard:	- 25 °C to + 70 °C
	Options:	- 40 °C to + 70 °C, low temperature version - 50 °C to + 70 °C, extreme low temperature version incl. heating system ⁵⁾ - 60 °C to + 70 °C, extreme low temperature version incl. heating system ⁵⁾
Vibration resistance ⁴⁾ according to IEC 60 068	1 g, from 10 Hz to 200 Hz	
Weight	Approx. 7 kg (with AUMA plug/socket connector)	
Accessories		
Wall bracket ⁵⁾	AUMA MATIC 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 vibrations during service.	
Further information		
EU Directives	Electromagnetic Compatibility (EMC): (89/336/EEC) Low Voltage Directive: (73/23/EEC) Machinery Directive: (98/37/EC)	
Reference documents	Product description "Actuator controls AUMA MATIC" Dimension sheets "Multi-turn actuators/part-turn actuators with integral controls AUMA MATIC"	
<p>3) For version in enclosure protection IP 68, higher corrosion protection KS or KX is strongly recommended.</p> <p>4) Resistant to vibrations during start-up or for failures of the plant. However, a fatigue strength may not be derived from this.</p> <p>5) Cable length between actuator and AUMA MATIC max. 100 m. Not suitable for version with potentiometer in the actuator. Instead of the potentiometer, an RWG has to be used in the actuator.</p> <p>We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.</p>		
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