

**Technical data Part-turn actuators with integral actuator controls
for open-close and modulating duty**

Type	Operating time for 90° in seconds (adjustable in 9 steps)	Torque range ¹⁾	Running torque ^{2)/} Modulating torque ³⁾	Valve attach- ment	Valve shaft			Handwheel		Weight ⁴⁾
					50 Hz/60 Hz	Max. [Nm]	Max. [Nm]	Standard EN ISO 5211	Cylindrical max. [mm]	
SGC/SGCR 04.1	4 – 63	25 – 63	32	F05/F07	20	17	17	100	13.5	7.0
SGC/SGCR 05.1	4 – 63	50 – 125	63	F05/F07	20	17	17	100	13.5	7.0
SGC/SGCR 07.1	4 – 63	100 – 250	125	F07	25.4	22	22	125	13.5	10
SGC/SGCR 10.1	5.6 – 90	200 – 500	250	F10	38	30	27	160	13.5	15
SGC/SGCR 12.1	20 – 275	400 – 1,000	500	F12	50	36	41	125	35	25

Notes on table

1) Unseating torque	The "Torque by-pass" function (can be activated) allows increasing the pre-set torque to 130 %. This increase only applies during actuator start for an adjustable time period, allowing safer unseating of blocked valves.
2) Running torque	Maximum permissible torque for 15 min. running time.
3) Modulating torque	Maximum permissible torque for modulating duty
4) Weight	Indicated weight includes part-turn actuator with controls, electrical connection in standard version, unbored coupling and handwheel

Features and functions of actuator

Type of duty	Open-close duty SGC:	Short-time duty S2 - 15 min, classes A and B according to EN 15714-2
	Modulating duty SGCR:	Intermittent duty S4 - 40 %, class C according to EN 15714-2 with maximum number of 1,800 starts per hour (option)
For nominal voltage and +40 °C ambient temperature and at running or modulating torque load. The type of duty must not be exceeded.		
Motor	Variable speed, brushless motor	
Insulation class	F, tropicalized	
Motor protection	PTC thermistors (according to DIN 44081)	
Self-locking	Yes	
Swing angle	Standard:	SGC/SGCR 04.1 – 10.1: 82° – 98° adjustable between min. and max. values SGC/SGCR 12.1: 75° – 105°
	Options:	Available swing angles on request
Limit switching	Via position transmitter potentiometer, status signals for directions OPEN and CLOSE Signalling via fieldbus interface	
Torque switching	Via electronic current measurement, status signals for directions OPEN and CLOSE, adjustable in 8 steps Signalling via fieldbus interface	
Mechanical position indicator	Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED	
Manual operation	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation	
Coupling	Standard:	Coupling unbored
	Options:	<ul style="list-style-type: none"> • Coupling unbored extended • Finish machining of coupling (standard or extended) <ul style="list-style-type: none"> - Bore according to EN ISO 5211 with 1 keyway according to DIN 6885-1 - Square bore according to EN ISO 5211 - Two-flat according to EN ISO 5211
Valve attachment	Dimensions according to EN ISO 5211	

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Features and functions of actuator controls													
Power supply	Standard voltages: <table border="1"> <tr> <th colspan="3">1-phase AC current</th> </tr> <tr> <th colspan="3">Voltages/frequencies</th> </tr> <tr> <td>Volt</td> <td>115</td> <td>230</td> </tr> <tr> <td>Hz</td> <td>50/60</td> <td>50/60</td> </tr> </table> Permissible variation of mains voltage: $\pm 10\%$ Permissible variation of mains frequency: $\pm 5\%$ For current consumption, refer to Electrical data Part-turn actuators SGC/SGCR	1-phase AC current			Voltages/frequencies			Volt	115	230	Hz	50/60	50/60
1-phase AC current													
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Volt	115	230											
Hz	50/60	50/60											
External supply of the electronics (option)	24 V DC $+20\%$ / -15% , Current consumption: With options up to 200 mA The external power supply must have reinforced insulation against mains voltage in accordance with IEC 61800-5-1 and may only be supplied by a circuit limited to 150 VA in accordance with IEC 61800-5-1.												
Overvoltage category	Category III according to IEC 60364-4-443												
Power electronics	Power electronics with integral motor controller												
Rated power	Controls are designed for rated motor power, refer to Electrical Data Part-turn actuators SGC/SGCR												
Control (input signals)	Operation commands and setpoint via fieldbus interface												
Status signals (output signals)	Via fieldbus interface												
Profibus DP-V1 (option)	Access to parameters, the electronic name plate and the operating and diagnostic services with acyclic write/read services												
Local controls	<table border="0"> <tr> <td>Standard:</td> <td> <ul style="list-style-type: none"> Push buttons OPEN, STOP (LOCAL - REMOTE), CLOSE 2 multi-colour indication lights: <ul style="list-style-type: none"> End position CLOSED (yellow), fault/failure (red), end position OPEN (green), operation mode LOCAL (blue) </td> </tr> <tr> <td>Option:</td> <td>Local controls mounted separately on wall bracket</td> </tr> </table>	Standard:	<ul style="list-style-type: none"> Push buttons OPEN, STOP (LOCAL - REMOTE), CLOSE 2 multi-colour indication lights: <ul style="list-style-type: none"> End position CLOSED (yellow), fault/failure (red), end position OPEN (green), operation mode LOCAL (blue) 	Option:	Local controls mounted separately on wall bracket								
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Functions	<ul style="list-style-type: none"> Switch-off mode adjustable: <ul style="list-style-type: none"> Limit or torque seating for end positions OPEN and CLOSED Torque monitoring across the whole travel Torque by-pass Programmable EMERGENCY behaviour <ul style="list-style-type: none"> via fieldbus interface Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN Positioner: <ul style="list-style-type: none"> Position setpoint via fieldbus interface Programmable behaviour on loss of signal Automatic adaptation of dead band (adaptive behaviour selectable) Selection between open-close duty and modulating duty via fieldbus interface 												
Electrical connection	<table border="0"> <tr> <td>Standard:</td> <td>Plug/socket connector with crimp connection</td> </tr> <tr> <td>Option:</td> <td>AUMA plug/socket connector with screw-type connection</td> </tr> </table>	Standard:	Plug/socket connector with crimp connection	Option:	AUMA plug/socket connector with screw-type connection								
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Wiring diagram (basic version)	TPCBA000-2A7-0540 TPA50R200-0A0-000												

Settings/programming the Profibus DP interface	
Baud rate setting	Automatic baud rate recognition
Setting the Profibus DP interface	Setting of the Profibus DP address is performed via switches, alternatively also via parameters
Configurable process representation via GSD file	For an optimum adaptation to the process control system, the process representation can be configured as desired.

General Profibus DP interface data	
Communication protocol	Profibus DP according to IEC 61158 and IEC 61784-1
Network topology	<ul style="list-style-type: none"> Line (fieldbus) structure. When using repeaters, tree structures can also be implemented. Coupling and uncoupling of devices during operation without affecting other devices is possible.

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Transmission medium	Twisted, screened copper cable according to IEC 61158
Fieldbus interface	EIA-485 (RS485)
Transmission rate/cable length	<ul style="list-style-type: none"> • Baud rate and maximum cable length (segment length) without repeater: <ul style="list-style-type: none"> - between 9.6 and 93.75 kbit/s: 1,200 m - for 187.5 kbit/s: 1,000 m - for 500 kbit/s: 400 m - for 1,500 kbit/s: 200 m • Baud rate and possible cable length with repeater (total network cable length): <ul style="list-style-type: none"> - between 9.6 and 93.75 kbit/s: approx. 10 km - for 187.5 kbit/s: approx. 10 km - for 500 kbit/s: approx. 4 km - for 1,500 kbit/s: approx. 2 km
Device types	<ul style="list-style-type: none"> • DP master class 1, e.g. central controllers such as PLC, PC, ... • 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
Fieldbus access	<ul style="list-style-type: none"> • Token-passing between masters and polling for slaves • Mono-master or multi-master systems are possible
Supported fieldbus functions	Cyclic data exchange, sync mode, freeze mode, fail-safe mode
Profibus DP ident no.	0x0C77: Standard applications with Profibus DP-V0 and DP-V1

Commands and signals of the Profibus DP interface

Process representation output (command signals)	OPEN, STOP, CLOSE, position setpoint, RESET, EMERGENCY operation command, motor speed
Process representation input (feedback signals)	<ul style="list-style-type: none"> • End positions OPEN, CLOSED • Actual position value • Selector switch in position LOCAL/REMOTE • Torque switches OPEN, CLOSED • Limit switches OPEN, CLOSED
Process representation input (fault signals)	<ul style="list-style-type: none"> • Motor protection tripped • Torque switch tripped in mid-travel
Behaviour on loss of communication	<p>The behaviour of the actuator is programmable:</p> <ul style="list-style-type: none"> - Stop in current position - Travel to end position OPEN or CLOSED - Travel to any intermediate position - Execute last received operation command

Service conditions

Mounting position	Any position
Installation altitude	<p>≤ 2 000 m above seal level</p> <p>> 2,000 m above sea level on request</p>
Ambient temperature	-25 °C to +70 °C
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection according to EN 60529	<p>IP68</p> <p>According to AUMA definition, enclosure protection IP68 meets the following requirements:</p> <ul style="list-style-type: none"> • 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	<p>2 g, from 10 Hz to 200 Hz</p> <p>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.</p>

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GL approval (option)	Environmental categories D, G, EMC2		
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 Two-component iron-mica combination		
Colour	Standard:	AUMA silver-grey (similar to RAL 7037)	
	Option:	Available colours on request	
Lifetime	Open-close duty:	20,000 operating cycles OPEN - CLOSE - OPEN An operating cycle is based on an operation from CLOSED to OPEN and back to CLOSED, at a respective rotary movement of 90°.	
		Modulating duty:	5 million modulating steps
	The lifetime depends on the load and the number of starts. A high starting frequency will rarely improve the modulating accuracy. To reach the longest possible maintenance and fault-free operating time, the number of starts per hour chosen should be as low as permissible for the process.		

Further information	
EU Directives	Electromagnetic Compatibility (EMC): (2014/30/EU) Low Voltage Directive: (2014/35/EU) Machinery Directive: (2006/42/EC)
Reference documents	Dimensions SGC 04.1– SGC 12.1/SGCR 04.1 – SGCR 12.1 Electrical data SGC 04.1– SGC 12.1/SGCR 04.1 – SGCR 12.1