



Part-turn actuators

PROFOX

PF-Q20 – PF-Q600

in version with emergency operation module



Use short instructions in combination with operation instructions only!

These short instructions are only complete with the respective operation instructions of the actuator. Safety and warning instructions contained in the actuator operation instructions must be heeded when performing work on the actuator!

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Basic information

These short instructions describe the special features of PROFOX actuators in version with emergency operation module.

All standard functions and equipment are described in the operation instructions pertaining to actuator.

1 Short description

Design and function

The emergency operation module is equipped with an own housing which is connected to the actuator. The emergency operation module supplies the actuator with power in case of power failure. The electrical energy is stored in supercapacitors. They are permanently charged during operation. If the mains supply is available, the actuator can be operated parallel to charging the energy storage.

Standby time following a power failure

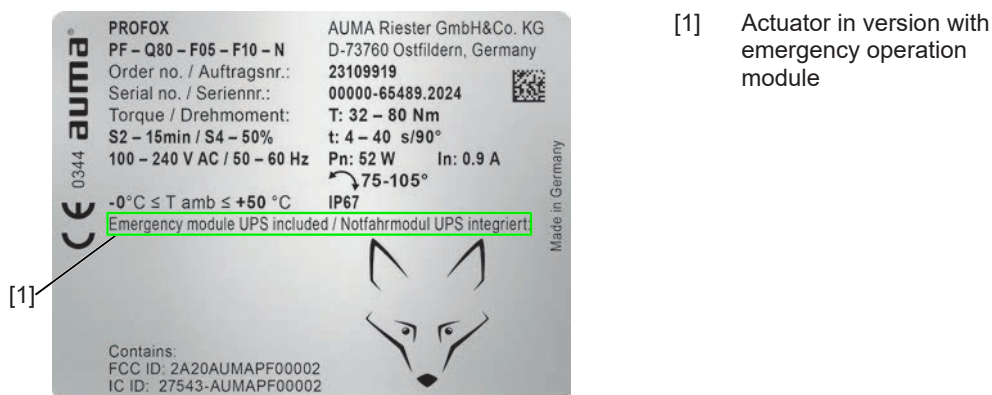
Time between the mains supply failure until the actuator being switched off without performing an emergency operation.

During this time, the energy of the emergency operation module is sufficient to allow for actuator communication:

1. PF-Q20 – PF-Q300= **3 min.**
2. PF-Q600= **6 min.**

2 Name plate

Figure 1: PROFOX name plate (example with emergency operation module)



3 Mounting the actuator with emergency operation module

For mounting actuators with emergency operation module, the screws must be 15 mm longer compared to the version without emergency operation module.

The through bores in the base plate of the emergency operation module are without threads.

On delivery of actuators equipped with emergency operation module, the coupling supplied is longer than the standard. This coupling must be used when mounting the actuator.

3.1 Mount actuator to valve

Figure 2: Mounting positions for coupling

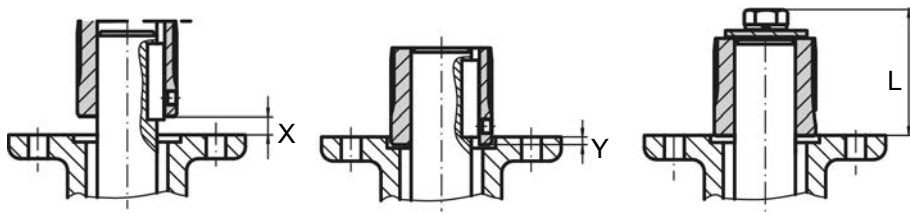


Table 1: Mounting position of the coupling within fitting dimensions according to AUMA definition

Dimensions [mm]	Q20	Q40	Q80	Q150	Q300	Q600
EN ISO 5211	F03/F04/F05/F07		F05/F07/10		F07/10	
X max.	10		3		4.5	
Y max.	2		2		4.5	
L max.	50/53 ¹⁾		53/55 ²⁾		65	

1) 50 mm (height of coupling without retaining screw) / 53 mm (height of coupling with retaining screw)

2) 53 mm (height of coupling without retaining screw) / 55 mm (height of coupling with retaining screw)

4 Electrical connection

⚠ CAUTION

Risk of immediate actuator operation when connecting to mains!

Risk of personal injuries or damage to the valve.

- Check operation signals and operation behaviour prior to switching on the mains voltage.
- Ensure that the tripping conditions for the failure behaviour are not fulfilled when switching on.
- Ensure that the tripping conditions for the EMERGENCY behaviour are not fulfilled when switching on.

Reasons for immediate operation:

- The signal and fieldbus cables are connected and a respective operation command has been issued.
- The “Failure behaviour” function was configured as to ensure that this state results in an operation once the mains voltage is applied. Factory setting of parameter **Failure operation**: STOP (the actuator stops).
- The “EMERGENCY behaviour” function was configured as to ensure that this state results in an operation once the mains voltage is applied.

The EMERGENCY input is used by the emergency operation module and is consequently activated.

On delivery when equipped with the emergency operation module, the EMERGENCY output is configured with the “Good signal first” as factory setting. This means that the “Good signal first” state must have occurred prior to tripping. If the configuration is changed to “Immediately active”, this can lead to an operation once the mains voltage is applied.

For circuit breakers, the following sizing/characteristics are recommended:

Table 2: Sizing of circuit breakers

Number of actuators	100 – 240 V AC/50 – 60 Hz	24 V DC
1	B06	B06
2	B10	B10
4	C13	B20

Refer to the electrical data for the maximum current values of individual models and versions.

4.1 Open the terminal compartment of the emergency operation module

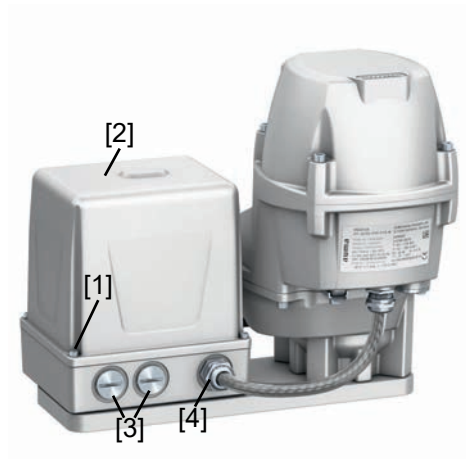
⚠ DANGER

Electric shock due to presence of hazardous voltage!

Death or serious injury.

- Disconnect from mains before opening.
- Wait for minimum 60 seconds after power cut-off prior to opening the housing.

Figure 3: Open terminal compartment



- | | | | |
|-----|----------------|-----|-------------|
| [1] | Screws | [2] | Cover |
| [3] | Blanking plugs | [4] | Cable gland |

How to proceed

1. Unfasten the screw [1] and remove the cover [2] of the emergency operation module.

4.2 Connect the cables of the emergency operation module

Table 3: Terminal cross sections and tightening torques of PE connection

Designation	Terminal cross sections	Tightening torque
Protective earth connection ⚡ (PE)	1.5 – 2.5 mm ² (flexible) direct	3 – 4 Nm
	1.5 – 6 mm ² (solid) direct	
	1.0 – 6 mm ² (flexible) via spade lug or wire end sleeve	

Table 4: Cross sections mains cable

Designation	Wire type	Cross section	
		min [mm ²]	max [mm ²]
Mains cable	solid/flexible	0.08	2.5
	AWG	AWG 28	AWG 12

Table 5: Cross sections for signal cables (at spring clamp terminals)

Designation	Wire type	Cross section	
		min [mm ²]	max [mm ²]
I/O signal cable	solid	0.2	1.5
	flexible	0.2	1.5
	flexible with wire end sleeve without plastic sleeve	0.2	1.5
	AWG	AWG 28	AWG 16

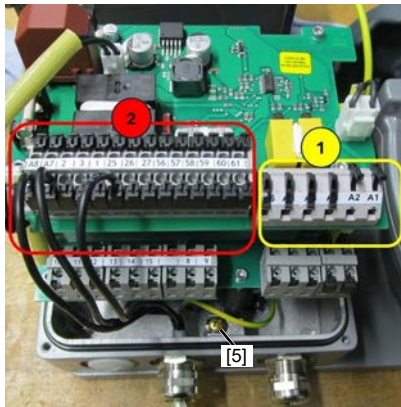
⚠ WARNING

In case of a fault: Hazardous voltage while protective earth conductor is NOT connected!

Electrical shock, risk of injuries or death.

- Connect all protective earth conductors.
- Connect PE connection to external protective earth conductor of connection cable.
- Power the device only once the protective earth conductor has been connected.

Figure 4: Connections of the emergency operation module



- [1] Terminal carrier for connecting mains cable
- [2] Terminal carrier
- [5] Screw

How to proceed

Protective earth connection at the emergency operation module

1. Unfasten the screw [5] at the protective earth connection.
2. Mount PE conductor with spade lug or wire end sleeve at the protective earth connection and fasten the screw [5].

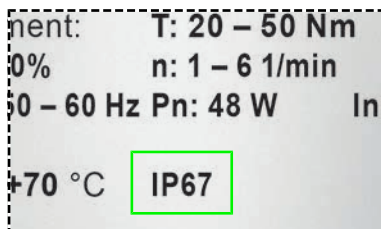
Connection of mains cable

NOTICE

Corrosion by ingress of humidity when using unsuitable cable glands/blanking plugs!

- Use suitable cable glands/blanking plugs according to the IP enclosure protection specified on the name plate.

Figure 5: Enclosure protection IP67 (example)

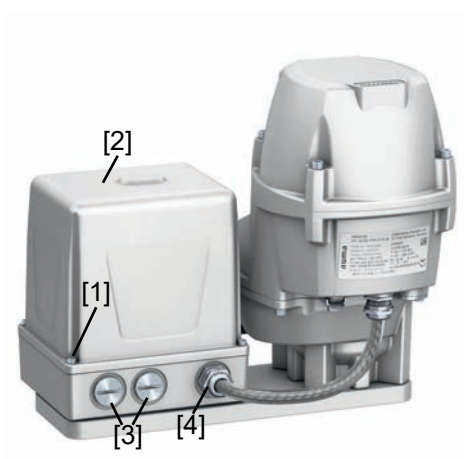


For shielded cables: Use EMC cable glands.



The supplied blanking plugs fulfil the IP protection of the actuator.

Figure 6: Open terminal compartment



- | | | | |
|-----|----------------|-----|-------------|
| [1] | Screws | [2] | Cover |
| [3] | Blanking plugs | [4] | Cable gland |

How to proceed

3. Unfasten and remove one of the blanking plugs [3] at the emergency operation module.
4. Screw in fasten a further cable gland [4] at the position of the removed blanking plug at the housing of the emergency operation module. Respect torques according to manufacturer's specifications.
5. Lead the mains cable through the cable gland [4] up to the terminal carrier [1].
6. Remove the available cable piece at the terminal carrier [1] and remove the insulation tube from the cable piece.
7. Push the insulation tube onto the inserted mains cable within the emergency operation module.
8. Connect mains cable to terminal carrier [1] in compliance with the order-related wiring diagram.
9. Fasten cable gland [4] of mains cable. Respect torques according to manufacturer's specifications.

Connecting the signal cables

How to proceed

The signal cables are directly connected to PROFOX, refer to PROFOX operation instructions.

Refer to

- 📄 Tightening torques for screws ► 15]

4.3 Close the terminal compartment of the emergency operation module

NOTICE

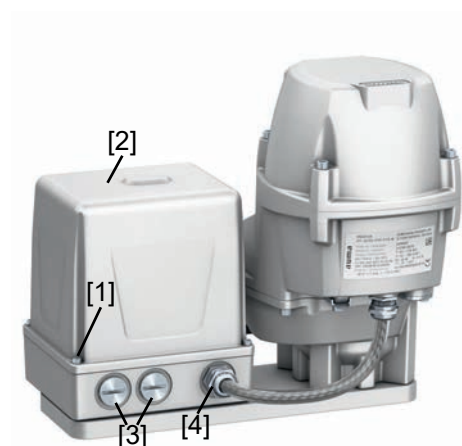
Emergency operation module:

When closing the cover, make sure that the electrical connection between the cover and the lower part is available (via the screw connections).

Contact surfaces and bores must be clean and free of residues.

Otherwise, the IP protection is not guaranteed!

Figure 7: Close terminal compartment



- | | | | |
|-----|----------------|-----|-------------|
| [1] | Screws | [2] | Cover |
| [3] | Blanking plugs | [4] | Cable gland |

How to proceed

1. Remove the O-ring at the housing of the emergency operation module.
2. Check if the O-ring is in order and replace if damaged.
3. Clean sealing surface at cover [2] and housing of the emergency operation module.
4. Slightly grease the O-ring with acid-free grease (e.g. petroleum jelly).
5. Insert the O-ring in provided groove.
6. Place the cover [2] onto the housing of the emergency operation module and fasten the screws [1].
7. Fasten the screws [1] (M4) evenly crosswise. For torques, refer to [Tightening torques for screws](#) ► 15.

5 Commissioning

5.1 Position indicator setting

Deviating from the standard version, the version with emergency operation module is only available with a swing angle of 90° with the pertaining position indicator.

5.2 Configure parameters for the emergency operation module

For actuators with emergency operation module, additional parameters can be configured.

Either the AUMA Assistant App or AUMA CDT software is required to use the complete range of configuration options. The user level defines which parameters are displayed or can be changed.

Description of the EMERGENCY signal

The emergency operation module controls the emergency operation via the EMERGENCY signal.

For this purpose, the output of the emergency operation module is hard wired with the digital input DIN3 of the actuator and preconfigured (low-active: 0 V = activation of the emergency operation). Basically, the EMERGENCY signal can be sent via all command channels (digital signals, fieldbus or Ethernet), provided they are available or configured accordingly. For PROFOX with emergency operation module, the command channel for digital signals is already assigned as described above and cannot be used again. The EMERGENCY signal is prioritised among the standard operation commands, irrespective of the command channel (digital signals, fieldbus or Ethernet).

The emergency operation is activated if 0 V is applied to the DIN3 input, irrespective of the actuator voltage source (either from the customer mains or the module). The following constellations cause the actuator to start operation:

- The emergency operation module is charged and the customer mains supply is disconnected or fails.
- The module is charged and the signal cable between PROFOX and the emergency operation module is disconnected (this is not recommended).
- The emergency operation module is not charged but the customer mains supply is connected and the signal cable between PROFOX and the emergency operation module is disconnected (this is not recommended).

The EMERGENCY signal can be configured by means of several parameters. The most important parameters can be defined in the factory by indicating the requirements when placing the order. All other parameters are standard values, suited for most applications. All parameters can be modified by the users via the AUMA Assistant App or the AUMA CDT software.

The parameters for the EMERGENCY signal are equally applicable for the failure behaviour. The failure behaviour is a function which is not activated in the standard version.

Table 6: EMERGENCY signal parameters

Parameters	Description	Factory settings	Specified by
EMCY operation mode	The EMERGENCY signal is only executed in the selected operation modes.	REMOTE only	Factory
Selection list of EMERGENCY channels	It is used to disable Individual command channels triggering the EMERGENCY signal.	Fieldbus disabled	Factory
Failure/EMCY tripping	- If the EMERGENCY signal is assigned to a digital input, the following parameters can be adjusted: Whether the EMERGENCY operation should be executed immediately once the power supply is applied and if the tripping condition is present at the input assigned to the EMERGENCY signal (EMERGENCY signal = Bad). The signal must have reached the "Good" state at least once before. - If the actuator is combined with the AUMA emergency operation module, the factory setting is "Good signal first". With this setting, the emergency operation is not directly activated once the actuator is connected to the power supply.	Good signal first	Factory
Failure/EMCY delay	The EMERGENCY operation is only executed once the delay time has elapsed. If the tripping conditions change, the counter starts again at zero. For the version with emergency operation module, the standard value is 1 sec. In this version, the set value may not exceed 5 sec. Otherwise, there is the risk that there may be not sufficient energy left for a complete operation via the emergency operation module!	1 sec.	Factory
EMCY operation	Definition to which position the actuator shall operate if a tripping condition is present. This parameter is used to define the emergency operation which also applies to the emergency operation module.	Default "End position CLOSED"	Order
Failure /EMCY position	If "Intermediate position" is selected for the EMERGENCY operation, this parameter is used to precisely define the intermediate position.	Default 50 %	Order
Motor speed for the failure operation OPEN and emergency operation OPEN	Speed specification for the emergency/failure operation in direction OPEN on the basis of the speed range of the respective actuator version. The value is indicated in % of the motor speed. For information on converting into the actuator operating time, refer to operation instructions pertaining to the PROFOX actuator. Maximum values are applied for the operating time. Refer to the important note below.	Default 100 %	Order
Motor speed for the failure operation CLOSE and emergency operation CLOSE	Speed specification for the emergency/failure operation in direction CLOSE on the basis of the speed range of the respective actuator version. The value is indicated in % of the motor speed. For information on converting into the actuator operating time, refer to operation instructions pertaining to the PROFOX actuator. Maximum values are applied for the operating time. Refer to the important note below.	Default 100 %	Order

Important notes on speeds and parameters:

The capacity of the emergency operation module is limited. To allow complete execution of the emergency operation across 90°, the values for the following parameters must be within these limits:

The operating time for the emergency operation may only be set up to a maximum value: With regard to the parameter indicating the speed for the emergency operation (respectively in OPEN and CLOSE), only the motor speeds may be selected for which the actuator operating time is shorter or equal to these maximum values:

PF-Q20 – PF-Q300: maximum 60 s / 90°

PF-Q600: maximum 120 s / 90°

The parameter for the delay time must be set to maximum 5 sec.

6 Fault indications and warning indications

If the actuator is supplied by the emergency operation module (the customer power supply is interrupted) and the voltage is insufficient for the operation of the PROFOX actuator, the collective fault signal "Fault" (sub-categories: Internal error-> Mains failure) is generated by the PROFOX. This collective fault signal or the first level of the sub-category "Internal error" can be signalled to the DCS via a digital output or the fieldbus. Furthermore, the collective fault signal is displayed via the FOX-EYE. If the voltage of the emergency operation module drops further, the integral controls of the PROFOX shut down and thus all signals are discontinued.

7 Servicing and maintenance

7.1 Test and maintenance

In addition to the seals S1 which must be replaced at the PROFOX, the seals of the emergency operation module must also be replaced:

- The seal between cover and lower part, respectively in the case of the emergency operation module of the PF-Q600, the seals above and below the intermediate frame should be replaced.
- The seal between emergency operation module and base plate

7.2 Lifetime of the emergency operation module

Emergency operation module: The capacitors have a lifetime of > 10 years at an ambient temperature of 25 °C (for at least 5,000 operating cycles). Higher temperatures will impair the lifetime of the components, approximately as follows: When increasing by respectively 10 °C, the lifetime/number of cycles is reduced to half.

We urgently recommend contacting the AUMA service or to replace the emergency operation module as soon as one of the following conditions occurs.

1. The emergency operation module exceeds the age of 12 years at an ambient temperature of 25 °C or earlier by a temperature reduction, see above.
2. The maximum number of operations carried out via the emergency operation module exceeds 5,000.

8 Technical data



The following tables include standard and optional features. For detailed information on the specific version, refer to the order-related data sheet. The order-related data sheet can be downloaded from our website at www.auma.com in both German and English (please state the order number).

8.1 Technical data Part-turn actuators PF-Q with emergency operation module

Features and functions		
Type of duty	Open-close duty:	Classes A and B according to ISO 22153, short-time duty S2 - 15 min
	Modulating duty:	Class C according to ISO 22153, intermittent duty S4 - 50 %, with maximum number of starts up to 1,200 starts/h
	For nominal voltage and +40 °C ambient temperature and at load of 35 % of the maximum torque. The type of duty must not be exceeded.	
Motor	Variable speed, brushless motor Soft start/soft stop. The progress characteristics can be configured as requested.	
Insulation class	F (motor winding)	
Motor protection	Via short-circuit protection and current measurement	
Self-locking	At standstill with spring-applied brake	
Swing angle	90° ±15° adjustable between min. and max. values (with mechanical end stops)	
Limit switching	Via Hall sensors	
Torque switching	Via electronic current measurement. Tripping torques infinitely adjustable via Bluetooth. 8 levels can be selected when placing the order.	

Features and functions		
Mechanical position indication	Standard:	Continuous indication for 90°
	Option:	Without mechanical position indicator
Manual operation	PF-Q20 – PF-Q40:	
	Manual emergency operation possible using additional tools:	
	• Hexagon socket spanner AF10 (coupling change-over) • Allen key AF5 (for turning)	
	PF-Q80 – PF-Q600:	
	Standard:	Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation.
	Option:	Without handwheel, i.e. handwheel and handwheel shaft are obsolete. The end stops are included except for version with swing range 45° – 360°.
Coupling	Standard:	Coupling unbored
	Options:	• Coupling unbored extended • Finish machining of coupling (standard or extended) – 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 without spigot	

Features and functions		
Power supply	Refer to name plate	
Overvoltage category (actuator)	Category III according to IEC 60364-4-44 Category II in compliance with IEC 60364-4-44 (according to cDEKRAus for the North American market)	
Power electronics	With integral motor controller (current consumption in standby mode < 6.5 W)	
I/O interface control (input signals)	3 digital inputs:	• Via opto-isolator, with one common • Control voltage 24 V DC, current consumption: approx. 15 mA per input • Minimum pulse duration for shortest operation pulse: 100 ms • All digital inputs must be supplied with the same potential • All inputs can be configured as required • Standard assignment (without positioner and without fieldbus interface): OPEN, CLOSE. An input is internally assigned the "EMERGENCY operation" signal. • Assignment for option with positioner: MODE. An input is internally assigned the "EMERGENCY operation" signal. • Assignment for option with fieldbus interface: I/O interface. An input is internally assigned the "EMERGENCY operation" signal. I/O interface: Selection of the control source (fieldbus interface or I/O input signals) Factory setting of "I/O Interface" signal: Input signal 0 V = fieldbus interface is active
	Analogue input: (option)	• 0/4 – 20 mA or 0 – 10 V • No galvanic isolation • For option with positioner: Used as input signal for position setpoint or as input signal for motor speed • For option with fieldbus interface: Used as input for the position setpoint (definition via 2 digital inputs which command source is active for the positioning: fieldbus or analogue input) or for a sensor signal which can be further transmitted via fieldbus.
Status signals of I/O interface (output signals)	3 digital outputs:	• Freely configurable semi-conductor output contacts, per contact max. 24 V DC, 100 mA (resistive load) • Outputs can be configured as required • Default assignment: End position CLOSED (high active), end position OPEN (high active), collective fault signal (low active)
	Analogue output:	• Position feedback signal 0/4 – 20 mA (load maximum 500 Ω) or 0 – 10 V • No galvanic isolation

Features and functions		
Additional I/O signals for control and signalling (option)	2 digital inputs:	2 digital inputs (via opto-isolator, galvanically isolated) - Control voltage 115 V DC, current consumption: approx. 15 mA per input - Minimum pulse duration for shortest operation pulse: 100 ms - All inputs can be configured as required; however, a signal may only be assigned to maximum one input (irrespective of the type, 24 V DC or 115 V AC). - Assignment as specified in the order, e.g.: CLOSE, OPEN (push-to-run operation) or CLOSE/OPEN, EMERGENCY
	3 digital outputs:	Freely configurable output contacts, max. 240 V AC / 30 V DC, 1 A (resistive load) 2 x type SPST NO, 1 type SPDT - Outputs can be configured as required - Default assignment: End position CLOSED (high active), end position OPEN (high active), collective fault signal (SPDT)
Voltage output (option)	Auxiliary voltage 24 V DC, max. 80 mA for supply of control inputs, without galvanic isolation.	
Functions (actuators with I/O interface)	Standard:	- Switch-off mode adjustable: Limit or torque seating for end positions OPEN and CLOSED - Torque monitoring across the whole travel - Function for excessive torque in defined situations - Programmable EMERGENCY behaviour: - Digital input low active, - Reaction can be selected: Stop, run to end position CLOSED, run to end position OPEN - Speed control - Ramps - Program operation profiles - Program specific speed for OPEN and CLOSE operations or one digital input
	Option:	- Positioner - Position setpoint via analogue input E1 = 0/4 – 20 mA or 0 – 10 V - Programmable behaviour on loss of signal - Automatic adaptation of dead band (adaptive behaviour selectable) - Selection between open-close duty and modulating duty via digital MODE input
Local controls (external)	Standard:	Without
	Options:	- Push buttons OPEN, STOP (LOCAL - REMOTE), CLOSE - Signalling the operation via the FOX-EYE: - Change between the operation modes: REMOTE (OK), OFF, LOCAL and COMMISSIONING - End positions CLOSED and OPEN - Running CLOSE, running OPEN
Bluetooth communication interface	BT 5.x version Min. range of 3 m in industrial environments. Required accessories: - AUMA CDT (Commissioning and Diagnostic Tool for Windows-based PCs) - AUMA Assistant App (Commissioning and Diagnostic Tool for Android and iOS devices)	
Electrical connection	Cable entry: 2 x M20 x 1.5 thread for cable glands at the actuator housing Cable entry: 2 x M20 x 1.5 thread for cable glands at emergency operation module housing Inside rail with spring clamp terminals for wire connection each.	
Wiring diagram (basic version)	Refer to name plate	
With base and lever (option; only possible for PF-Q80 – PF-Q600)		
Swing lever	Made of spheroidal cast iron with two or three bores for fixing a lever arrangement. Considering the installation conditions, the lever may be mounted to the output shaft in any desired position.	
Ball joints (option)	Two ball joints matching the lever, including lock nuts and two welding nuts, suitable for pipe according to dimension sheet.	
Fixing	Base and four holes for fastening screws	

Operation and display

At the actuator	Status indication:	FOX-EYE (indication LED) Display of operation modes and states: - REMOTE: System OK or not ready REMOTE LOCAL COMMISSIONING (only in combination with outside local controls) - End positions - Faults - Bluetooth connection active
	Set end positions:	4 buttons and 1 LED are located below the hood, as well as 3 external buttons for local controls (option) and signalling via FOX-EYE: Run actuator in directions OPEN and CLOSE. Set end position once mounted to the valve.
Via Bluetooth using AUMA Assistant App or AUMA CDT software	Set end positions:	Operate the actuator in directions OPEN and CLOSE. Set end position once mounted to the valve.
	Configuration:	Basic settings for operation: - Rotation speed - Type of seating for end positions, torque switching - Assignment of signal inputs and signal outputs - Fieldbus parameters (if fieldbus option has been selected) Further functions: For applications, safety and service, e.g.: - Positioner - EMERGENCY behaviour - Torque bypass - Failure behaviour - Signal configuration
	Diagnostics:	Monitoring key indicators and measured values for preventive maintenance and consequently increasing process safety. Limit values can be set. Deviations generate warning signals which can be transmitted to the DCS via digital outputs or fieldbus. Actuator: Temperature value within actuator Key indicators regarding lifetime of electronics, brake, gearbox and seals. Actuator and valve: Method for identifying changes in torque requirement: Perform reference operation and save torque as reference profile. Define tolerance range. Perform comparative operations if required. Values outside tolerance initiate a signal which is communicated as described above. Further key indicators: Furthermore, the actuator monitors and records further indicators and conditions. The generated fault and warning signals are saved within the event log. These signals can be configured as requested. An overview in the AUMA Assistant App or the CDT software shows all available fault/warning signals with option to enter the details.

Emergency operation module

With emergency operation module in a separate housing connected to the actuator. The emergency operation module supplies the actuator with power in case of power failure. The electrical energy is stored in supercapacitors. They are permanently charged during operation. If the mains supply is available, the actuator can be operated parallel to charging the energy storage.

Emergency operation module

Emergency operation	The emergency operation is made via the “EMERGENCY signal” function of the actuator. This can be configured with the following parameters: • Direction of the emergency operation. OPEN or CLOSE • Operating time for the emergency operation, respectively in directions OPEN and CLOSE. To allow performing the emergency operation across 90°, the maximum operating times may not exceed the maximum values: PF-Q20 – PF-Q300: maximum 60 s/90° PF-Q600: maximum 120 s/90° • Delay time: Time interval between the mains supply failure until the start of the emergency operation. If the voltage is restored during this time interval, the tripping command is ignored and the emergency operation is no longer executed. The factory settings are at one second. In combination with the emergency operation module, maximum 5 seconds are permitted. • The “EMERGENCY signal” and the “Failure behaviour” function use the same parameters. If the “Failure behaviour” function is activated additionally, the parameter settings of the “EMERGENCY signal” also apply. Consequently, other settings are not possible.
Charging duration	PF-Q20 – PF-Q300: approx. 4 minutes PF-Q600: approx. 9 minutes
Stand-by following a power failure	Time interval between the mains supply failure until the actuator being switched off without performing an emergency operation. During the following time intervals, the energy supply of the emergency operation module is sufficient to maintain actuator communication: PF-Q20 – PF-Q300: approx. 3 minutes PF-Q600: approx. 6 minutes

Service conditions

Installation altitude	≤ 2,000 m above sea level > 2,000 m above sea level on request
Ambient temperature	Refer to actuator name plate
Humidity	Up to 100 % relative humidity across the entire permissible temperature range
Enclosure protection in accordance with IEC 60529	Standard: IP67 Option: IP68 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 • Modulating duty is not possible during 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	Without test certificate
Seismic resistance according to IEC 60068-3-3	Without test certificate
Coating	Double layer powder coating
Corrosion protection	Standard: KS (actuator) Suitable for use in areas with high salinity, almost permanent condensation, and high pollution. Option: KX (upon request) (actuator) Suitable for use in areas with extremely high salinity, permanent condensation, and high pollution. Emergency operation module: C3 according to EN ISO 12944-2
Colour	Standard: AUMA silver-grey (similar to RAL 7037) Option: Available colours on request
Driving load	During operation, accelerating loads up to 15 % of the max. torque may occur.
Lifetime	At least ten years at an ambient temperature of +25 °C Derating for higher temperatures: Increases by 10 °C result respectively in a lifetime reduction of up to 50 percent.
Sound pressure level	< 70 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

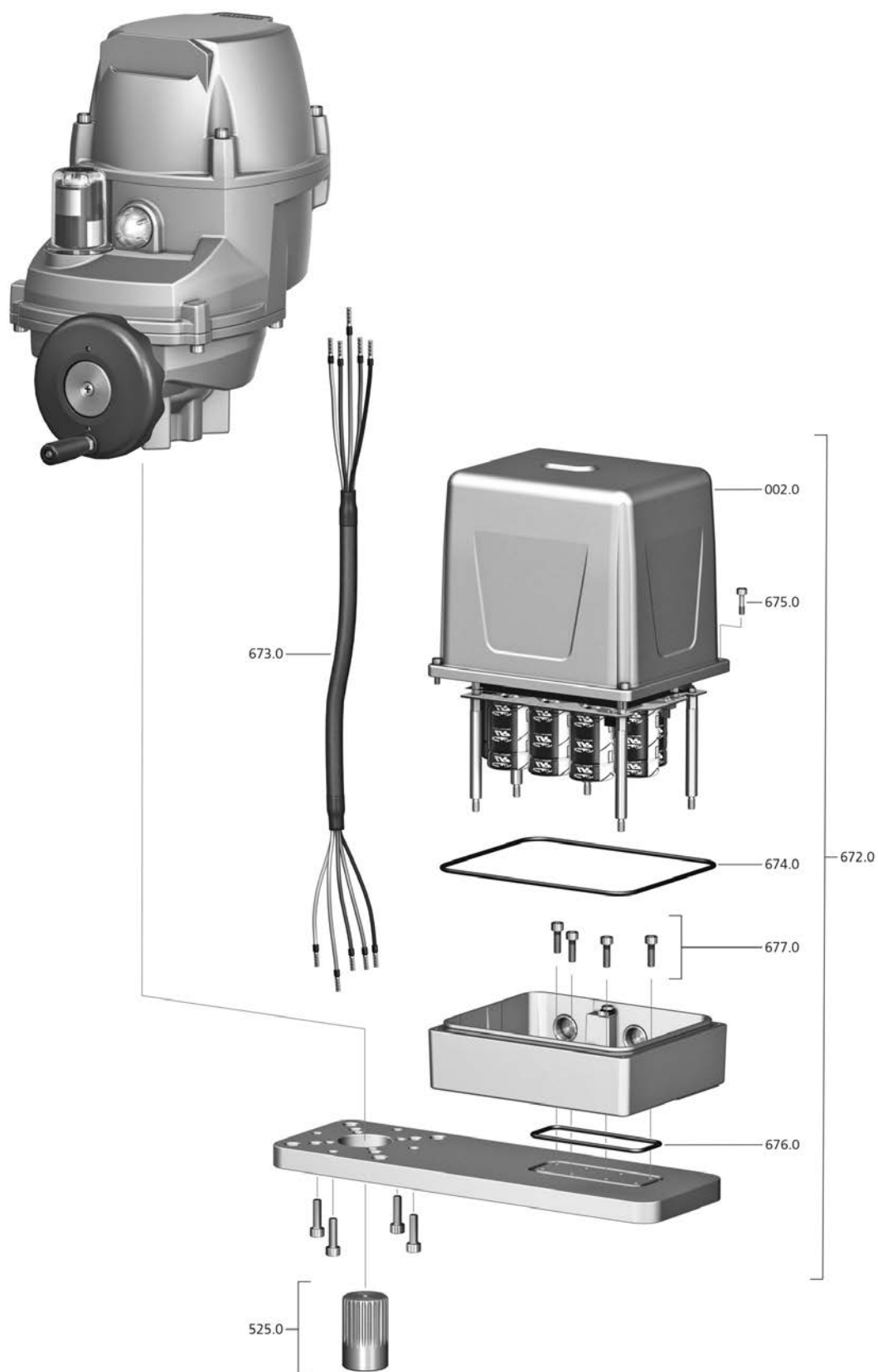
8.2 Tightening torques for screws

Table 7: Tightening torques for screws

Threads	Tightening torque [Nm]	
	Strength class	
	A2-70/A4-70	A2-80/A4-80
M4	2.2	3
M5	4.3	5.7
M6	7.4	10
M8	18	24
M10	36	48
M12	61	82
M16	150	200
M20	294	392
M30	1,015	1,057
M36	1,769	2,121

Spare parts list

Emergency operation module UPS 20 for part-turn actuators PF-Q20 – PF-Q300
PROFOX



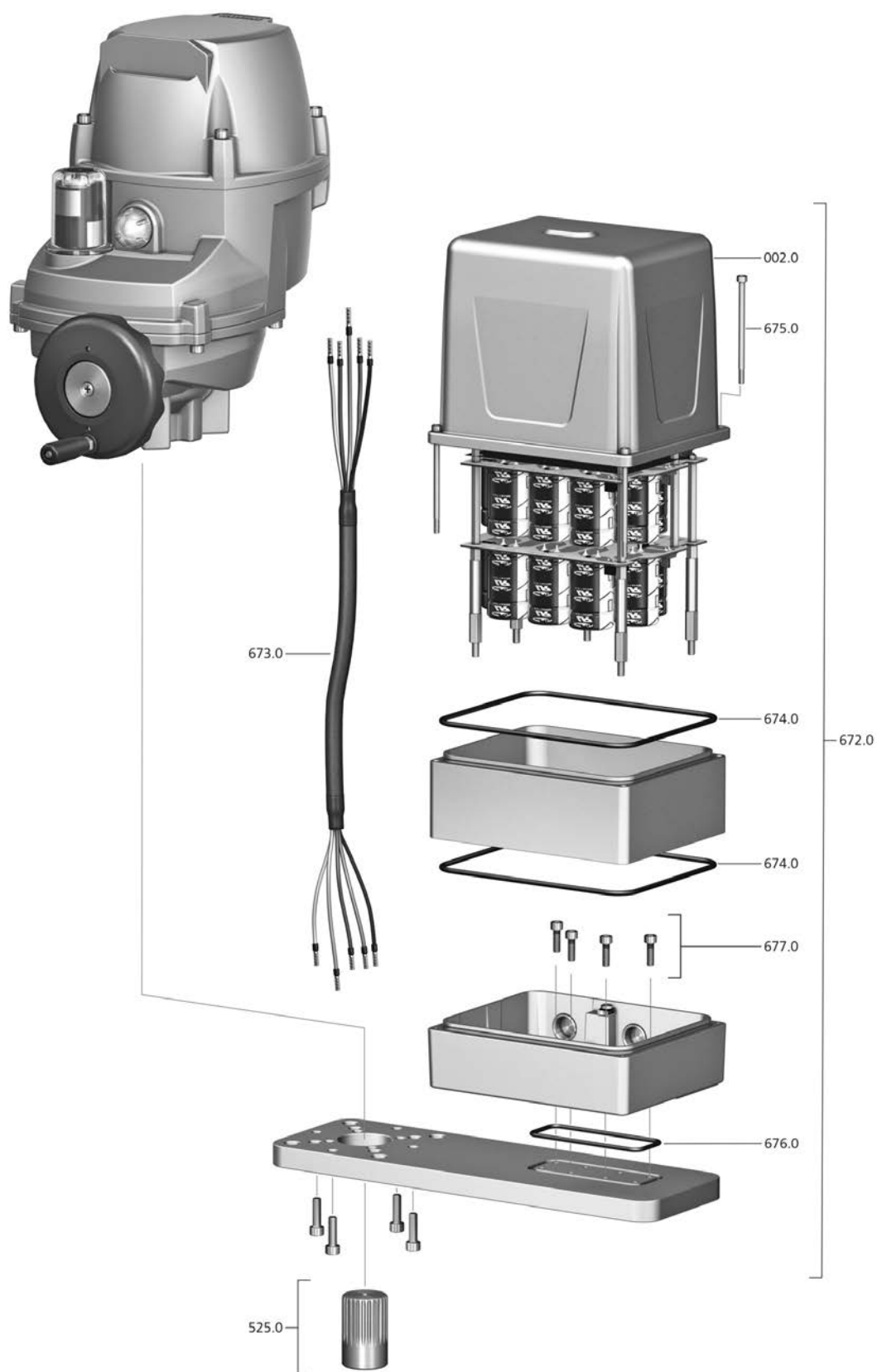
Please state device type and our order number (see name plate) when ordering spare parts.

Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability.

Representation of spare parts may slightly vary from actual delivery.

Ref. No.	Designation
002.0	Housing cover
525.0	Coupling
672.0	UPS emergency operation module assy
673.0	Cable harness for emergency operation module
674.0	Seal for cover of emergency operation module
675.0	Screw for cover
676.0	Seal for base plate of the emergency operation module
677.0	Screw for fastening the emergency operation module

Emergency operation module UPS 40 for part-turn actuators PF-Q600 PROFOX



Part-turn actuators
PROFOX
PF-Q20 – PF-Q600

Please state device type and our order number (see name plate) when ordering spare parts.

Only original AUMA spare parts should be used. Failure to use original spare parts voids the warranty and exempts AUMA from any liability.

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Ref. No.	Designation
002.0	Housing cover
525.0	Coupling
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673.0	Cable harness for emergency operation module
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675.0	Screw for cover
676.0	Seal for base plate of the emergency operation module
677.0	Screw for fastening the emergency operation module



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