ACTUATOR
a product
of the AUMA group

Operation instructions
RP32/ RP64/ RP100

Operation instructions
Assembly and commissioning

Read operation instructions first.

- Heed safety instructions.
- These operation instructions are part of the product.
- Store operation instructions during product life.
- Pass on instructions to any subsequent user or owner of the product.

Target group:

This document contains information for assembly, commissioning and maintenance staff.

Table of contents

1 Safety

1.1 Prerequisites for the safe handling of the product

Safety instructions/warnings

All personnel working with this device must be familiar with the safety and warning instructions in this manual and heed the instructions given. Safety instructions and warning signs on the device must be observed to avoid personal injury or property damage.

Qualification of staff

Assembly, electrical connection, commissioning, operation, and maintenance must be carried out by suitably qualified personnel authorised by the end user or contractor of the plant only.

Prior to working on this product, the staff must have thoroughly read and understood these instructions and, furthermore, know and observe officially recognised rules regarding occupational health and safety.

Operation

Prerequisites for safe and smooth operation:

- Heed recognised rules for occupational health and safety.
- Heed national regulations.
- During operation, the housing warms up and surface temperatures > 60 °C may occur. To prevent possible burns, we recommend checking the surface temperature using an appropriate thermometer and wearing protective gloves, prior to working on the device.

1.2 Range of application

The part-turn actuators described herein are designed for the operation of industrial valves, e.g. butterfly valves and ball valves.

The following applications are not permitted, e.g.:

- Industrial trucks according to EN ISO 3691
- Lifting appliances according to EN 14502
- Passenger lifts according to DIN 15306 and 15309
- Service lifts according to EN 81-1/A1
- Escalators
- Continuous duty
- Buried service
- Continuous underwater use (observe enclosure protection)
- Potentially explosive atmospheres
- Radiation exposed areas in nuclear power plants

No liability can be assumed for inappropriate or unintended use.

1.3 Warnings and notes

The following warnings draw special attention to safety-relevant procedures in these operation instructions, each marked by the appropriate signal word (DANGER, WARNING, CAUTION, NOTICE).

⚠DANGER

Indicates an imminently hazardous situation with a high level of risk. Failure to observe this warning results in death or serious injury.

⚠WARNING

Indicates a potentially hazardous situation with a medium level of risk. Failure to observe this warning could result in death or serious injury.

⚠CAUTION

Indicates a potentially hazardous situation with a low level of risk. Failure to observe this warning could result in minor or moderate injury. May also be used with property damage.

NOTICE

Potentially hazardous situation. Failure to observe this warning could result in property damage. Is not used for personal injury.

The ⚠ safety symbol warns of a potential personal injury hazard.

The signal word (here: DANGER) indicates the level of hazard.

1.4 References and symbols

The following references and symbols are used in these instructions:

The ⓘ symbol stands for the **Information** concept. This text provides important notes and information.

Information: If the **Information** term is part of instruction, the text will give important notes and information to this action step.

Symbol for CLOSED (valve closed)

Symbol for OPEN (valve open)

Result of a process step

Describes the result of a preceding process step.

Action step

Describes one single action step.

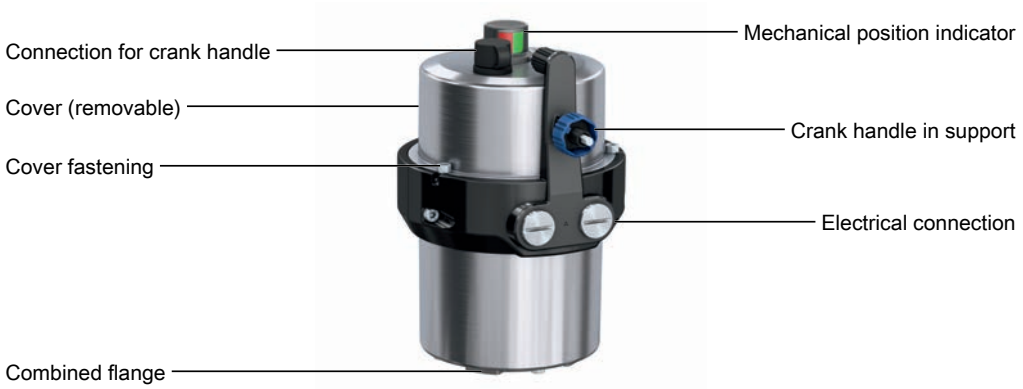
Reference to the page number

Refers to the page number for further information. To return from the target to the previous view, it is possible to jump back to the previous view within PDF documents: When using Adobe Acrobat via **Menu > Previous view** or using the key combination **Alt + left**.

2 Short description

RP part-turn actuator

Figure 1: Overview on components



Compact part-turn actuator for final elements with 90° part-turn movements such as butterfly and ball valves.

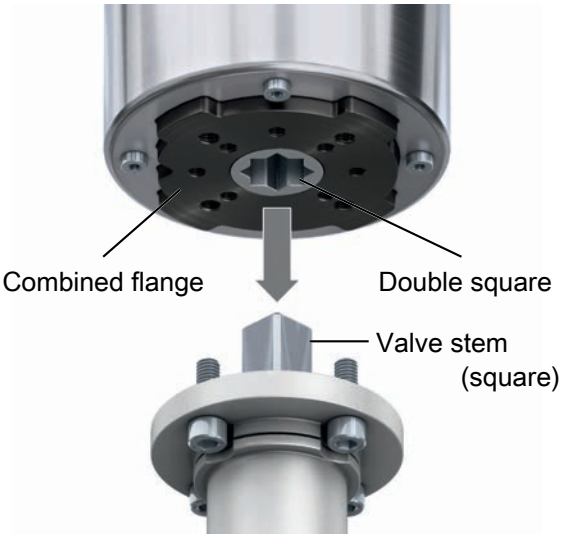
The modern concept with BLDC motors enables easy and safe operation and additionally low energy consumption at very compact dimensions. The part-turn actuator is available in two housing materials: stainless steel and plastics. The stainless steel version is designed for demanding ambient conditions: The stainless steel housing offers high mechanical protection as well as high corrosion resistance.
Uniform modules for feedback/control can easily be retrofitted. A reduced number of models in small designs can thus be extended to a multitude of variants.

Product features overview:

- Open-close duty as well as positioning
- Torque range: 32 – 100 Nm
- Torque measurement and torque seating for all sizes
- Swing range 90°
- Mechanical position indicator
- Manual operation via detachable crank handle
- Easy commissioning with software support
- Maintenance-free actuator across the indicated lifetime
- Low energy consumption both during operation and in standby
- Precise electronic and wear-free position sensing
- Soft start/soft stop for valve protection and precise positioning
- Options for feedback signals via 24 V and analogue signals, furthermore for positioning via 4 – 20 mA or 0 – 10 V.

3 Mount to valve

Figure 2: Fit actuator



NOTICE

Damage by excessive force during assembly!

If the double square is subjected to excessive mechanical forces, there is a risk of actuator damage.

→ When placing the actuator, make sure that the valve stem does not jam within the double square.

→ Should the insertion not be smooth, check the fit and sufficiently grease the valve stem.

→ During assembly, the axis of the double square may be subjected to a force of max. 300 N during a short period.

NOTICE

Damage due to axial forces during operation!

During operation, no axial forces may act upon the double square.

→ The valve stem (square) may be at a maximum of 23 mm within the double square.

→ If the valve stem is excessively long: Mount a spacer between valve flange and combined flange.

How to proceed

1. Clean mounting faces, thoroughly degrease uncoated mounting surfaces.
2. Grease valve stem (square).
3. Fit actuator.
   3.1 If required, shift actuator position by one tooth.
4. Fasten actuator with screws.
5. Fasten screws crosswise to a torque according to table.

Table 1: Tightening torques for screws

Threads	Tightening torque [Nm]
	Strength class A2–80 / A4-80
M5	6
M6	10

4 Open the housing

The housing must only be opened for electrical connection and commissioning settings.

⚠WARNING

In case of a fault: Electric shock due to presence of hazardous voltage!

Death or serious injury.

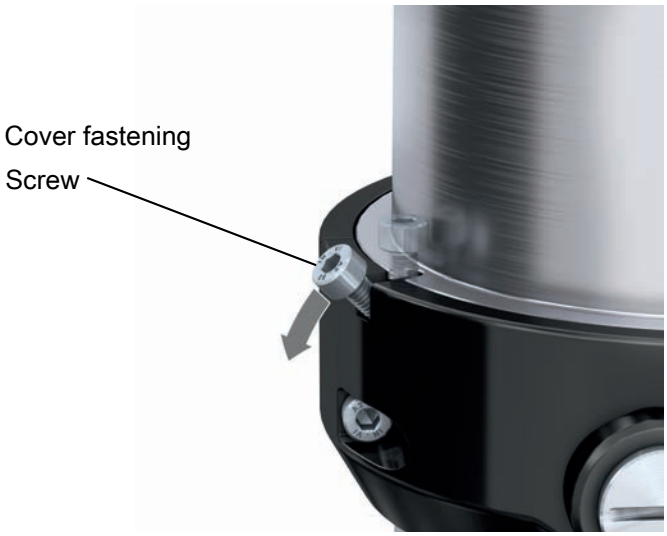
→ Always disconnect from mains prior to opening (unfastening the screws).

→ Only unfasten specified screws.

After opening the housing, this means after removing the cover, the power supply can be switched on again for e.g. Commissioning settings.

4.1 Open/close the cover

Figure 3: Unfasten the cover fastening



How to proceed

1. Remove crank handle from fixture.
2. Open the cover: Unfasten all three screws from the cover fastening and tilt outwards. **Information:** Only loosen screws, do not remove completely!
3. Close cover: Place cover, tilt all three screws upwards and evenly tighten the screws.
4. Place crank handle onto fixture.

The enclosure protection IP... stated on the name plate is only ensured if the cover is properly fastened.

5 Electrical connection

5.1 Basic information

⚠WARNING

Electric shock due to presence of hazardous voltage!

Failure to observe this warning could result in death, serious injury, or property damage.

→ The electrical connection must be carried out exclusively by suitably qualified personnel.

→ Only perform electrical connection when not live.

⚠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.

⚠CAUTION

Risk of direct start of the actuator equipped with I/O module (option 2), once the mains voltage is switched on.

Risk of personal injuries or damage to the valve.

→ For versions with multi I/O module (option 2) and configurations 3 and 4, the actuator operates into the position as pre-defined via input I/O 1 (AIN). For 0 V or 4 mA in direction of end position CW. For 10 V or 20 mA in direction of end position CCW.

⇨ Either ensure that the actuator is in the end position suitable to the signal prior to switching on the mains voltage.

⇨ Or ensure that valve movement cannot cause any damage prior to switching on the mains voltage.

Terminal plan

The pertaining terminal plan (in German or English language) is attached to the actuator upon delivery. It can also be requested using the serial number (refer to name plate).

Permissible networks (supply networks)

The actuators are suitable for use in TN and TT networks. For IT networks, a suitable, approved insulation monitor is required, e.g. an insulation monitor measuring the pulse code.

Current type, mains voltage, mains frequency

Type of current, mains voltage and mains frequency must match the data on the name plate, Name plate.

Protection and sizing on site

For short-circuit protection and for disconnecting the actuator from the mains, fuses and disconnect switches or circuit breakers have to be provided by the customer. When using DC current, select circuit breakers suitable for DC applications.

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

Table 2: Sizing of circuit breakers

Number of actuators	Sizing/characteristics
1	B06
2	B10
4	C13
10	D16

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

5.2 Open terminal compartment and mount cable glands

Figure 4: Cable entry for two cables and one cable

When using two cables, we recommend using the left cable entry for mains cables, the right cable entry for signal cables.

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.

The blanking plugs supplied in the factory are made of plastics. They are only designed for protection during transport and indoor installation. We recommend blanking plugs made of stainless steel for the version with stainless steel housing used for outdoor installation.

How to proceed

1. Open the housing. Further information: Open/close the cover [▶ 7]
2. Remove blanking plugs.
3. Insert cable glands suitable for connecting cables.
4. Seal unused cable entries with suitable blanking plugs.
5. Tighten cable glands and blanking plugs with the appropriate torque in compliance with the manufacturer's specifications.

5.3 Connect cables in basic version (power terminals)

Figure 5: Socket strip with plug-in terminals (illustration shows the basic version, power terminals)

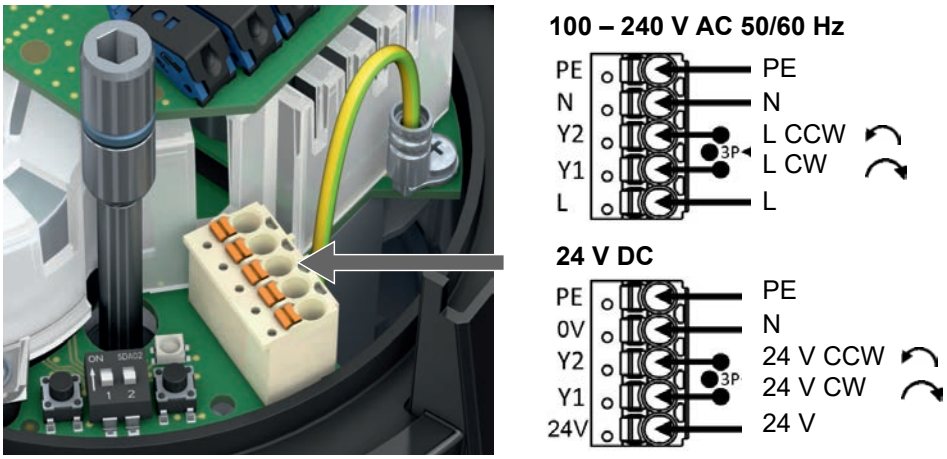


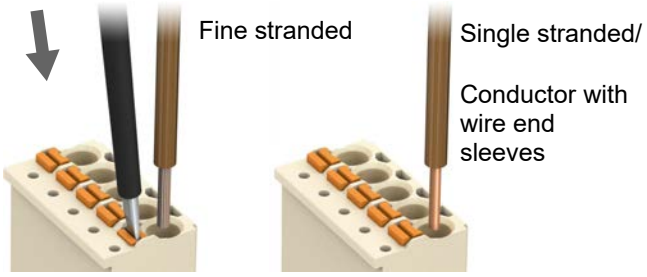
Table 3: Terminal cross sections

Type of conductor	Terminal cross sections
solid or fine stranded without wire end sleeve	0.2 – 1.5 mm² [24 – 14 AWG]
fine stranded with wire end sleeve and plastic edge (insulated)	0.25 – 0.75 mm² [24 – 19 AWG]
fine stranded with wire end sleeve without plastic edge	0.25 – 1.5 mm² [24 – 14 AWG]

How to proceed

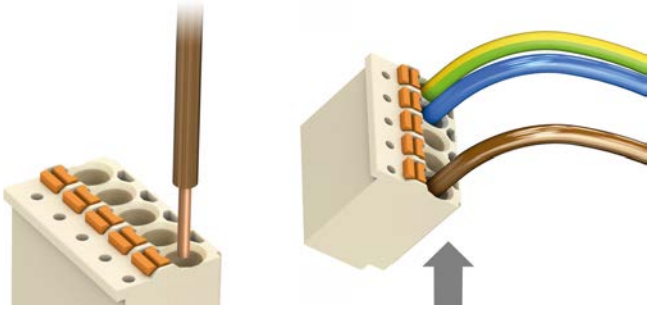
1. Lead cables through cable glands.
2. Remove cable sheathing.
3. Strip wires. Dismantling length: 8 – 9 mm [0.31 – 0.35 inch]
4. Connect cables to plug-in terminals according to the wiring diagram.
   - 4.1 For **fine stranded** conductors **without** wire end sleeves, push in the orange push button with a suitable screwdriver and insert the wire.
   - 4.2 Directly insert **single stranded** conductors and conductors **with** wire end sleeves.

Figure 6: Connect cables to plug-in terminals.



The socket strip can be removed from the board and replaced again. This can be very helpful in case of single stranded and solid conductors for easier placement of the wires.

Figure 7: Remove socket strip



5. To remove the conductor, always push in the orange push button with a suitable screwdriver.
6. Connect PE conductor at the feed line of the protective earth connection (PE ⏚).

5.4 Connect options 1/2

Figure 8: Plug-in terminals option 1, output signals end positions OPEN and CLOSED

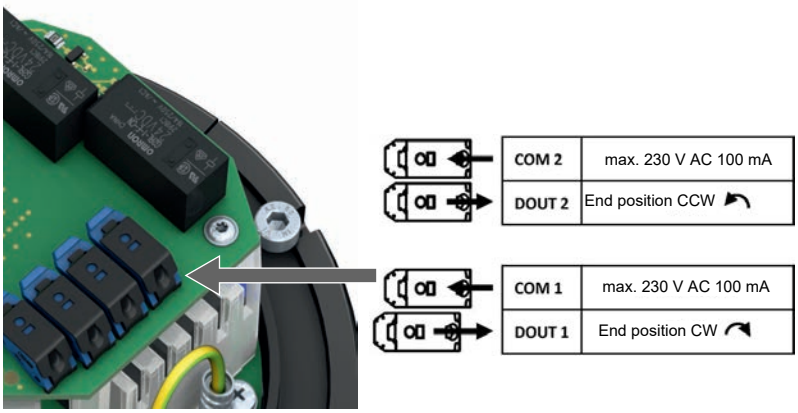


Figure 9: Plug-in terminals option 2, multi I/O module

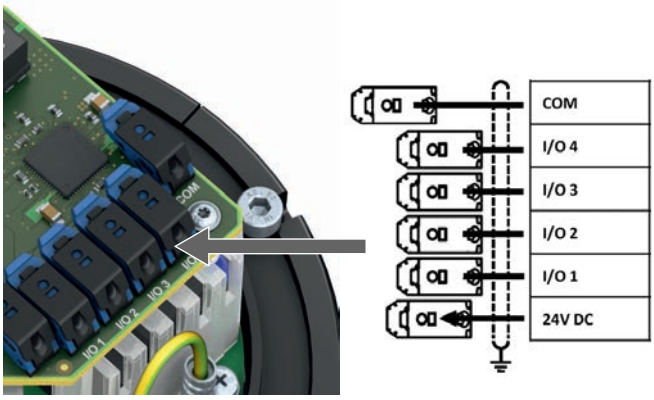


Table 4: Terminal cross sections

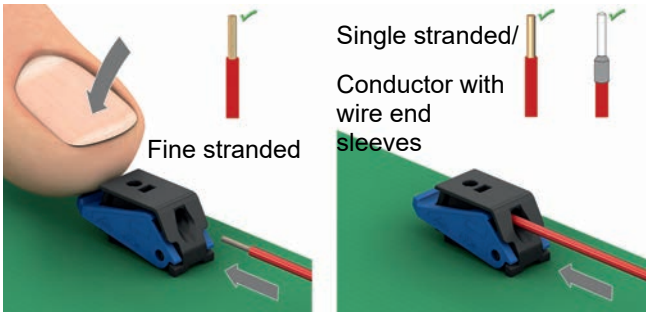
Type of conductor	Terminal cross sections
solid without wire end sleeve	0.2 – 1.5 mm² [24 – 16 AWG]
fine stranded with/without wire end sleeve	0.2 – 1.5 mm² [24 – 16 AWG]

How to proceed

1. Lead cables through cable glands.
2. Remove cable sheathing.
3. Strip wires. Dismantling length min.: 7 mm [0.28 inch]
4. Connect cables to plug-in terminals according to the wiring diagram.
   4.1 For **fine stranded** conductors **without** wire end sleeves, push the finger-operated levers and insert the wire.

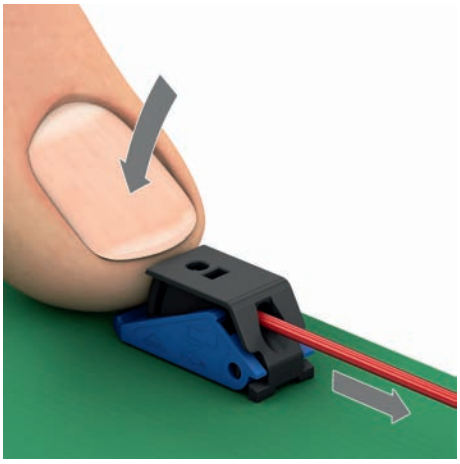
4.2 Directly insert **single stranded** conductors and conductors **with** wire end sleeves.

Figure 10: Connect cables to plug-in terminals.



5. To loosen a conductor, always push finger-operated levers.

Figure 11: Loosen conductors



6 Commissioning

The following functions can be checked and set during commissioning:

1. Set type of seating
2. ⇨ Set type of seating in end position CW (CLOSED) [▶ 13]
3. Set end positions
4. ⇨ Set end position 1 manually, end position 2 automatically to 90° [▶ 13]
5. ⇨ Set end position 1 and end position 2 manually [▶ 15]
6. Set inputs and outputs of the multi I/O module (option)
7. ⇨ Option 2: Set multi I/O module (option 2) [▶ 17]
8. Position indicator setting
9. ⇨ Mechanical position indicator [▶ 20]

6.1 Set type of seating in end position CW (CLOSED)

NOTICE

Valve damage due to incorrect setting!

→ The type of seating setting (limit or torque seating) must match the selection for the valve.

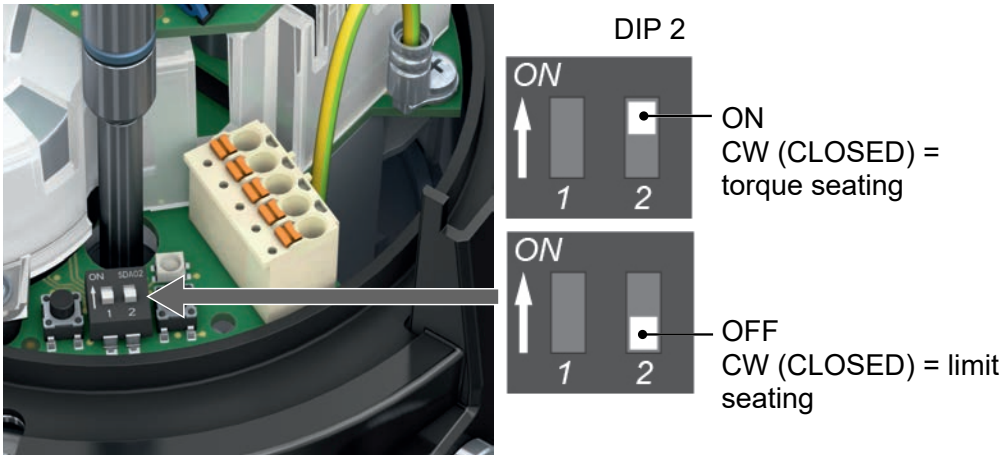
→ Only change the setting with prior consent of the valve manufacturer.

Seating in end position CW (CLOSED) can either be set to limit or torque seating In end position CCW (OPEN), the type of seating is always limit seating

How to proceed

1. Open cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]
2. Set type of seating for end position CW (CLOSED) via DIP switch 2.

Figure 12: Set type of seating via DIP switch 2



3. Close cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]

6.2 Set end position 1 manually, end position 2 automatically to 90°

This setting is made via the **Auto commissioning mode**. In this mode, the position of end position 1 (CW or CCW) can be set manually via two push buttons. The position for end position 2 is automatically set at a distance of 90°.

If you wish to manually reset both positions (end positions CCW and CCW), please read: ⇨ Set end position 1 and end position 2 manually [▶ 15]

Basic procedure:

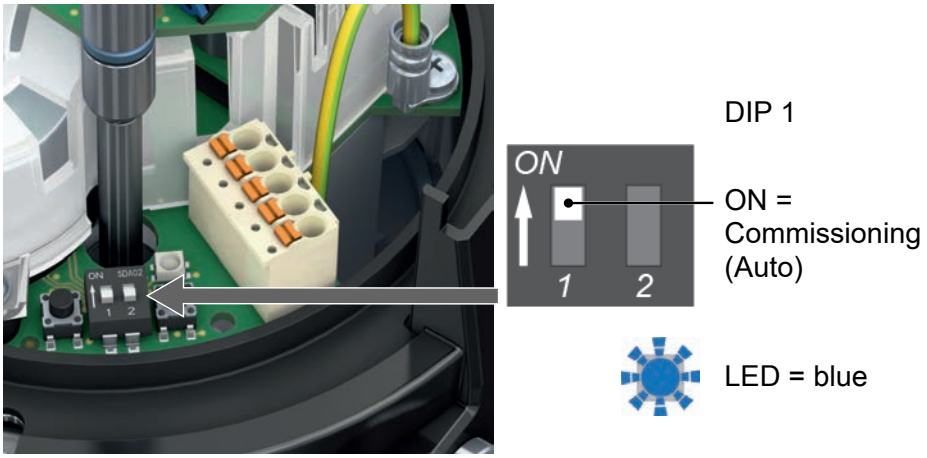
- Activate Auto commissioning mode

- Delete previous end positions.
- Approach end position 1.
- Activate setting mode and set end position 1.
- Exit the Auto commissioning mode.

How to proceed

1. Open cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]
2. Activate Auto commissioning mode: Set DIP switch 1 to ON.

Figure 13: Activate Auto commissioning mode via DIP switch 1



⇨ The Auto commissioning mode is activated if the LED changes to blue.

⇨ If the actuator is in intermediate position, the LED is blinking in blue. For other blinking signals, please refer to: ⇨ LED signals [▶ 22]

3. Delete end positions: Simultaneously press both push buttons + and hold them down for **minimum** 5 seconds.
   ⇨ At first, the LED is illuminated in red, after 5 seconds it is blinking in red.
   ⇨ Now, release the push buttons once the following LED blinking pattern is visible: (blinking in red)
   The previous end positions are thus deleted.
   ⇨ After releasing the push buttons, the LED is blinking again in blue.
4. Approach the respective end position (OPEN/CLOSED) you wish to set manually using the push buttons CW and CCW.
   ⇨ The LED continues blinking in blue during operation.
5. Activate the setting mode to set the end position: Simultaneously press both push buttons + (between 0.5 and 5 seconds).
   ⇨ The LED is blinking faster in setting mode.
6. In setting mode, you may select which end position (OPEN/CLOSED) you wish to set manually:
   → To set end position CW (CLOSED): Press push button CW.
   → To set end position CCW (OPEN): Press push button CCW.
   ⇨ If the LED blinks as follows, the end position CW (CLOSED) is set: (blue with red flashed)
   ⇨ If the LED is illuminated as follows, the end position CCW (OPEN) is set: (blue)

7. Exit the Auto commissioning mode: Set DIP switch 1 to OFF.
   ⇨ The basic colour of the LED changes from blue to green.
   ⇨ Then, the actuator is again in operation mode REMOTE and ready for operation.
8. Close cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]

6.3 Set end position 1 and end position 2 manually

This setting is made via the **Manual commissioning mode**. In this mode, the positions of both end positions are manually set using two push buttons. The maximum swing angle is 350°. The settable range is between 45° – 350°.

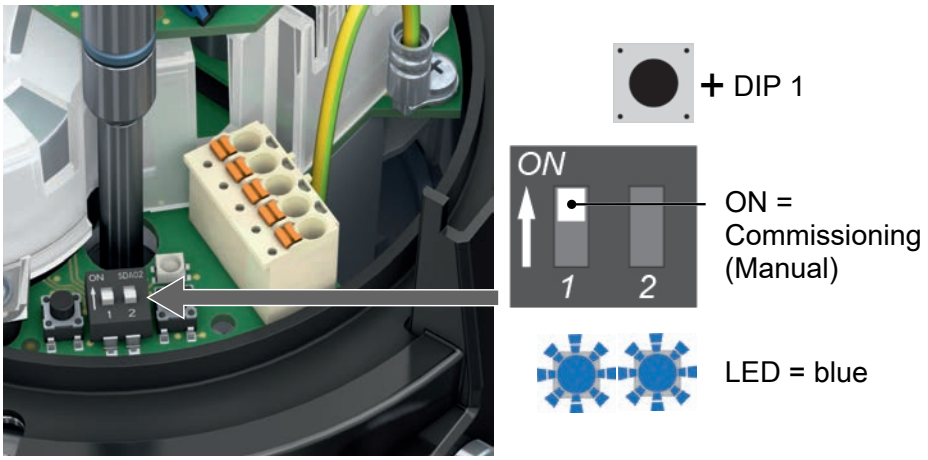
Basic procedure:

- Activate Manual commissioning mode.
- Delete previous end positions.
- Approach end position 1.
- Activate setting mode and set end position 1.
- Approach end position 2.
- Activate setting mode and set end position 2.
- Exit the Manual commissioning mode.

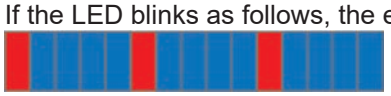
How to proceed

1. Open cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]
2. Activate Manual commissioning mode: Press and hold down any push button + set DIP switch 1 to ON.

Figure 14: Activate Manual commissioning mode via push button + DIP switch 1

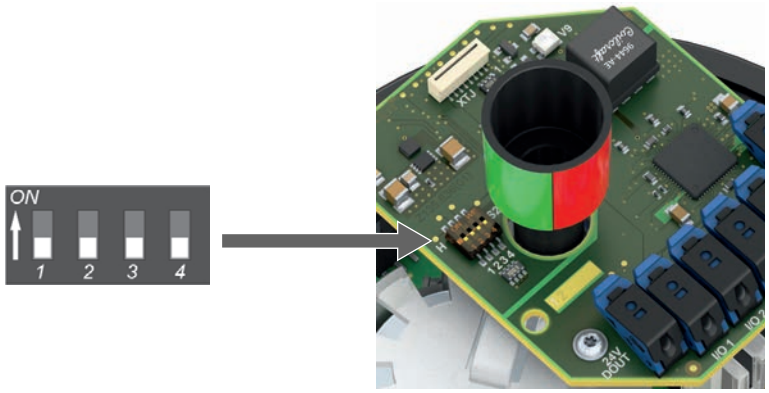


   ⇨ The Manual commissioning mode is activated if the LED changes to blue.
   ⇨ If the actuator is in intermediate position, the LED is double-blinking in blue. For other blinking signals, please refer to: ⇨ LED signals [▶ 22]
3. Delete end positions: Simultaneously press both push buttons + and hold them down for **minimum** 5 seconds.
   ⇨ At first, the LED is illuminated in red, after 5 seconds it is blinking in red.
   ⇨ Now, release the push buttons once the following LED blinking pattern is visible: (blinking in red)
   The previous end positions are thus deleted.
   ⇨ After releasing the push buttons, the LED is double-blinking again in blue.

4. Approach an end position (CLOSED/OPEN) using the push buttons CW and CCW.
   ⇨ The LED continues blinking in blue during operation.
5. Activate the setting mode to set the end position 1: Simultaneously press both push buttons + (between 0.5 and 5 seconds).
   ⇨ The LED is blinking faster in setting mode.
6. In setting mode, you may select which end position (OPEN/CLOSED) you wish to set manually first:
   → To set end position CW (CLOSED): Press push button CW.
   → To set end position CCW (OPEN): Press push button CCW.
   ⇨ If the LED blinks as follows, the end position CW (CLOSED) is set:  (blue with red flashed)
   ⇨ If the LED is illuminated as follows, the end position CCW (OPEN) is set:  (blue)
7. Approach the second end position (CLOSED/OPEN) using the push buttons CW and CCW.
   ⇨ The LED continues blinking in blue during operation.
8. Activate the setting mode again to set the end position 2. Simultaneously press both push buttons + (between 0.5 and 5 seconds).
   ⇨ The LED is blinking faster in setting mode.
   → To set end position CW (CLOSED): Press push button CW.
   → To set end position CCW (OPEN): Press push button CCW.
   ⇨ If the LED blinks as follows, the end position CW (CLOSED) is set:  (blue with red flashed)
   ⇨ If the LED is illuminated as follows, the end position CCW (OPEN) is set:  (blue)
   ⇨ **Information:** If the LED is permanently illuminated in red, the second end position is NOT set. For further settings, please refer to: ⇨ End position setting is not possible: LED permanently illuminated in red [▶ 24]
9. Exit the Manual commissioning mode: Set DIP switch 1 to OFF.
   ⇨ The basic colour of the LED changes from blue to green.
   ⇨ Then, the actuator is again in operation mode REMOTE and ready for operation.
   ⇨ **Information:** Both end positions are only saved for operation mode REMOTE, once they have been reset in Manual commissioning mode. If only one end position was reset, this end position will be deleted when changing to operation mode REMOTE.
10. Close cover. For further information, refer to: ⇨ Open/close the cover [▶ 7]

6.4 Option 2: Set multi I/O module (option 2)

Figure 15: DIP switch multi I/O module



The inputs and outputs of the multi I/O module can be configured using a DIP switch.

Figure 16: Option 2: Multi I/O module

	1	2	3	4	5	6	7
	* 1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
COM	COM	COM	COM	COM	COM	COM	COM
I/O 4	DOUT End position CCW	DOUT Actuator ready for operation	DOUT Actuator ready for operation	DOUT Actuator ready for operation	DOUT Actuator ready for operation	DOUT Actuator ready for operation	DOUT End position CCW
I/O 3	DOUT End position CW	DOUT Torque fault	DOUT Torque fault	DOUT Torque fault	AOUT Feedback position 4 – 20 mA	AOUT Feedback position 0 – 10 V	DOUT End position CW
I/O 2	DIN CCW operation command	DOUT End position CCW	AOUT Feedback position 4 – 20 mA	AOUT Feedback position 0 – 10 V	DIN CCW operation command	DIN CCW operation command	DIN Operation command CW/CCW **
I/O 1	DIN CW operation command	DOUT End position CW	AIN Control position 4 – 20 mA	AIN Control position 0 – 10 V	DIN CW operation command	DIN CW operation command	
24V DC	24V DC external	24V DC external	24V DC external	24V DC external	24V DC external	24V DC external	24V DC external

	8	9	10	11	12	13	14
	1 2 3 4	1 2 3 4					
COM	COM	COM					
I/O 4	DOUT End position CCW	DOUT End position CCW					
I/O 3	DOUT End position CW	DOUT End position CW					
I/O 2	AOUT Feedback position 4 – 20 mA	AOUT Feedback position 0 – 10 V					
I/O 1	AIN Control position 4 – 20 mA	AIN Control position 0 – 10 V					
24V DC	24V DC external	24V DC external					

* Factory setting

CW: clockwise
CCW: counterclockwise
DOUT max. 30 V AC/DC 1 A
DIN/AOUT/AIN PLC standard type 2

** 0 V = CW
24 V = CCW

The actuator must be rebooted subsequently to any change (switching the power supply off and on).

7 Operation and control of actuator

7.1 Manual operation

The actuator can be operated via crank handle even in case of power failure. However, handwheel operation is only provided for occasional manual valve operation.

7.1.1 Mount crank handle

⚠CAUTION

Automatically rotating crank handle if the crank handle is fitted during running motor!

Finger injuries.

→ Only fit the crank handle if motor is at standstill.

→ Exclusively use supplied crank handle for manual operation.

NOTICE

The enclosure protection IP... stated on the name plate is not ensured while crank handle is fitted!

Ingress of humidity at bayonet mechanism.

→ Do not spray the device with water while crank handle is fitted.

→ To ensure full enclosure protection IP, the bayonet mechanism must be covered by the rubber protective cap.

How to proceed

1. Remove protective rubber cap from cover.
2. Remove crank handle from fixture.
3. Fit crank handle.
4. Press down crank handle and turn blue cap nut clockwise until bayonet mechanism engages.

Figure 17: Mount crank handle

7.2 Motor operation

In motor operation, the actuator is electrically driven. When controlling from REMOTE, the motor must be controlled by means of the terminals indicated in the wiring diagram.

If the crank handle is fitted, the actuator cannot be controlled in motor operation. Not from REMOTE and not from the push button.

For commissioning (setting the end positions), two push buttons are provided within the housing. They are used to electronically control the actuator in commissioning mode.

8 Mechanical position indicator

The mechanical position indicator shows both the valve position and whether the actuator is operating (running indication). If set correctly, the position indicator shows that end position OPEN or CLOSED has been reached.

Table 5: Colours of the position indicator

Colour/state		Signification	Description
Completely red		CLOSED	The actuator is in end position CLOSED.
Completely green		OPEN	The actuator is in end position OPEN.
Red/green		Intermediate position	The actuator is not in any of the end positions.

The indicator glass can be turned if the position indication within the indicator glass does not show the correct colours/states in the end positions after mounting.

For further information, refer to: Set the position indication via the indicator glass [▶ 20]

If the actuator is mounted in a position so that the indicator glass is hardly or not at all visible, the position of the indicator shaft can be changed.

For further information, refer to: Pre-set the position indicator via the indicator shaft [▶ 21]

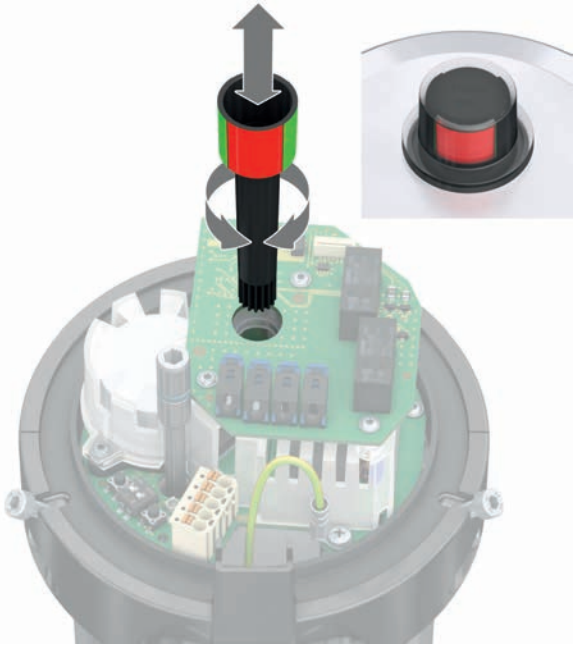
8.1 Set the position indication via the indicator glass

Figure 18: Turn indicator glass

1. Operate actuator to end position CLOSED.
2. Turn indicator glass until only the red colour is visible.

8.2 Pre-set the position indicator via the indicator shaft

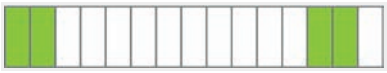
Figure 19: Pre-set the position indicator via the indicator shaft



1. Lift and shift the indicator shaft (rotate).
2. Replace/mount the cover
   For further information, refer to: Open/close the cover [▶ 7]
3. If required, perform “fine tuning” using the indicator glass.
   For further information, refer to: Set the position indication via the indicator glass [▶ 20]

9 LED signals

Table 6: LED signals

Blinking signal	Signification
Operation mode REMOTE (green)	green = ready for operation, for control from REMOTE
	in CW end position (CLOSED)[1)]
	in CCW end position (OPEN)[1)]
	CW operation (in direction CLOSE)[1)] or CCW operation (in direction OPEN)[1)]
	in intermediate position (not in end position)
	no end positions set, consequently no position indication
Commissioning mode (blue)	blue = commissioning (via DIP switch and push button)
	in end position CW (CLOSED)[1)] and set end position
	in end position CCW (OPEN)[1)] and set end position
	Manual commissioning mode (in intermediate position)
	Auto commissioning mode (in intermediate position)
	Setting mode for end position setting in Manual and Auto commissioning modes.
	End position setting is not possible or change in the setting mode. Further information: ➪End position setting is not possible: LED permanently illuminated in red [▶ 24]
	End positions deleted (during commissioning)
Fault signals in operation mode REMOTE (red)	red = fault
	Torque fault CW or CCW
	Temperature fault
	Failure: Actuator stops Further information: ➪ LED failure [▶ 25]

1) For clockwise closing valves, CW = CLOSED

10 Output signals multi I/O module (option)

Table 7: Output signals DOUT

Signal	Description
End position CW	in CW end position (CLOSED)[1)]
End position CCW	in CCW end position (OPEN)[1)]
Torque fault	Torque fault CW or CCW
Actuator ready for operation	Ready for operation from REMOTE The actuator is NOT ready for operation should one of the following conditions occur: • Torque fault • Temperature fault • Electronic fault hardware • Parameter fault • End positions are missing (no end positions set) • Incorrect operation command • Blockage (no revolution in spite of valid operation command) • Setpoint invalid (analogue input) • Manual operation active (crank handle is fitted, the actuator cannot be operated in motor operation)

1) For clockwise closing valves, CW = CLOSED

11 Corrective actions

Control not possible in motor operation

Possible cause: Crank handle mount is blocked. Consequently, manual drive inhibits motor operation.

Remedy: Slightly use an Allen key to slightly shake the crank handle mount until the manual drive disengages.

Figure 20: Release blocked manual drive

End position setting is not possible: LED permanently illuminated in red

In Manual commissioning mode

Description: The end position 1 is set. When setting end position 2, the LED is permanently illuminated for two seconds. The actuator returns to the commissioning mode. The LED is double-blinking in blue.

Cause: The setting of end position 2 is not permitted at this position. The second end position may only be set within a range of minimum 45° and maximum 350° from the first end position.

Remedy:

Use push buttons  CCW/CW to operate the actuator in directions OPEN or CLOSE so that the second end position is at a distance of min. 45° and max. 350° to the first end position.

After this, activate the setting mode again by simultaneously pressing both push buttons and set the second end position using one of the two CW/CCW push buttons.

In Auto and Manual commissioning mode

Description: Both end positions have been reset. When trying to set them once again, e.g. to correct them, and trying to activate the setting mode, the LED is permanently illuminated in red.

Cause: The end positions can be set only once for each commissioning procedure. Repeated setting during a single commissioning procedure is blocked and signalled.

Remedy: Exit the commissioning mode and activate it again. Then you may delete the end positions and reset them again.

LED failure

Fault indication in operation mode REMOTE

Signification: Failure (collective signal): Actuator stops

One of the following individual signals:

- Electronic fault HWR
- Parameter fault
- Wrong operation command. For example, CW and CCW simultaneously or operation command issued from different sources
- Blockage (no rotation in spite of operation command)
- Setpoint invalid (analogue input)

No end positions set

No end positions set, consequently no position indication

Remedy: Set end position. Refer to commissioning.

No return operation possible

It is not possible to return in direction CW (CLOSE)

Remedy: Operate in opposite direction

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