

Electro-Pneumatic Positioner TZIDC-200, TZIDC-210, TZIDC-220

for 4 ... 20 mA two-wire technology,
HART, PROFIBUS PA,
FOUNDATION Fieldbus



HART 
COMMUNICATION PROTOCOL

PROFI
BUS

Fieldbus
Foundation

Electro-Pneumatic Positioner TZIDC-200, TZIDC-210, TZIDC-220

Operating Instruction

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1	Safety	5
1.1	General information and notes for the reader	5
1.2	Intended use.....	5
1.3	Target groups and qualifications	6
1.4	Warranty provisions.....	6
1.5	Plates and symbols	7
1.5.1	Safety-/ warning symbols, note symbols.....	7
1.5.2	Name plate.....	8
1.6	Transport safety information.....	8
1.7	Storage conditions.....	8
1.8	Installation safety information.....	9
1.9	Safety information for electrical installation.....	9
1.10	Operating safety information	9
1.11	Returning devices.....	10
1.12	Integrated management system.....	10
1.13	Disposal.....	11
1.13.1	Information on WEEE Directive 2002/96/EC (Waste Electrical and Electronic Equipment).....	11
1.13.2	RoHS Directive 2002/95/EC	11
2	Ex relevant safety instructions	12
3	Design and function	13
4	Mounting	14
4.1	Operating conditions at installation site.....	14
4.2	Mechanical mount	14
4.2.1	General	14
4.2.2	Mounting on linear actuators.....	16
4.2.3	Mounting on part-turn actuator.....	21
5	Electrical connections	24
5.1	Screw terminal assignments	25
5.2	Cable entry	26
5.3	Setting the mechanical feedback	26
5.3.1	Mechanical position indicator.....	26
5.3.2	Mechanical digital feedback with proximity switches	27
5.3.3	Mechanical feedback with micro switches for 24 V	27
6	Pneumatic connection	28
7	Commissioning	30
7.1	TZIDC-200.....	30
7.1.1	Operating modes.....	31
7.1.2	Sample parameters.....	32
7.2	TZIDC-210 / TZIDC-220.....	34
7.2.1	Setting the bus address	36
7.2.2	Request information	37
7.2.3	Operating modes.....	37
7.2.4	Sample parameters.....	38
8	Maintenance	39
8.1	Functional check for emergency shutdown module.....	40
9	Specifications	41
9.1	TZIDC-200.....	41

Contents

9.1.1	Input	41
9.1.2	Output	41
9.1.3	Travel	41
9.1.4	Air supply	41
9.1.5	Transmission data and influences	42
9.1.6	Environmental capabilities	42
9.1.7	Housing	42
9.1.8	Safety Integrity Level.....	42
9.1.9	Options.....	43
9.1.10	Accessories.....	44
9.2	TZIDC-210.....	44
9.2.1	Communication	44
9.2.2	Description	44
9.2.3	Output	44
9.2.4	Travel	44
9.2.5	Air supply	44
9.2.6	Transmission data and influences	45
9.2.7	Environmental capabilities	45
9.2.8	Housing	45
9.2.9	Options.....	46
9.2.10	Accessories.....	46
9.3	TZIDC-220.....	47
9.3.1	Communication	47
9.3.2	Device name	47
9.3.3	Output	47
9.3.4	Travel	47
9.3.5	Air supply	47
9.3.6	Transmission data and influences	48
9.3.7	Environmental capabilities	48
9.3.8	Housing	48
9.3.9	Options.....	49
9.3.10	Accessories.....	49
10	Ex relevant specifications	50
10.1	TZIDC-200.....	50
10.2	TZIDC-210.....	51
10.3	TZIDC-220.....	52
11	Appendix	53
11.1	Other applicable documents.....	53
11.2	Approvals and certifications	53
12	Index	56

1 Safety

1.1 General information and notes for the reader

You must read these instructions carefully prior to installing and commissioning the device.

These instructions are an important part of the product and must be kept for future reference.

These instructions are intended as an overview and do not contain detailed information on all designs for this product or every possible aspect of installation, operation and maintenance.

For additional information or if specific problems occur that are not discussed in these instructions, contact the manufacturer.

The content of these instructions is neither part of any previous or existing agreement, promise or legal relationship nor is it intended to change the same.

This product is built based on state-of-the-art technology and is operationally safe. It has been tested and left the factory in perfect working order from a safety perspective. The information in the manual must be observed and followed in order to maintain this state throughout the period of operation.

Modifications and repairs to the product may only be performed if expressly permitted by these instructions.

Only by observing all of the safety instructions and all safety/warning symbols in these instructions can optimum protection of both personnel and the environment, as well as safe and fault-free operation of the device, be ensured.

Information and symbols directly on the product must be observed. They may not be removed and must be fully legible at all times.

1.2 Intended use

TZIDC-200, TZIDC-210, TZIDC-220 positioners are electro-pneumatic positioning devices for use with pneumatically controlled actuators.

The device may only be used for the applications listed in these operating instructions and in the data sheet.

- The maximum operating temperature must not be exceeded.
- The permissible operating temperature must not be exceeded.
- The housing protection type must be observed during operation.

1.3 Target groups and qualifications

Installation, commissioning, and maintenance of the product may only be performed by trained specialist personnel who have been authorized by the plant operator to do so. The specialist personnel must have read and understood the manual and comply with its instructions.

Prior to using corrosive and abrasive materials for measurement purposes, the operator must check the level of resistance of all parts coming into contact with the materials to be measured. ABB Automation Products GmbH will gladly support you in selecting the materials, but cannot accept any liability in doing so.

The operators must strictly observe the applicable national regulations with regards to installation, function tests, repairs, and maintenance of electrical products.

1.4 Warranty provisions

Using the device in a manner that does not fall within the scope of its intended use, disregarding this instruction, using underqualified personnel, or making unauthorized alterations releases the manufacturer from liability for any resulting damage. This renders the manufacturer's warranty null and void.

1.5 Plates and symbols

1.5.1 Safety-/ warning symbols, note symbols



DANGER – <Serious damage to health / risk to life>

This symbol in conjunction with the signal word "Danger" indicates an imminent danger. Failure to observe this safety information will result in death or severe injury.



DANGER – <Serious damage to health / risk to life>

This symbol in conjunction with the signal word "Danger" indicates an imminent electrical hazard. Failure to observe this safety information will result in death or severe injury.



WARNING – <Bodily injury>

This symbol in conjunction with the signal word "Warning" indicates a possibly dangerous situation. Failure to observe this safety information may result in death or severe injury.



WARNING – <Bodily injury>

This symbol in conjunction with the signal word "Warning" indicates a potential electrical hazard. Failure to observe this safety information may result in death or severe injury.



CAUTION – <Minor injury>

This symbol in conjunction with the signal word "Caution" indicates a possibly dangerous situation. Failure to observe this safety information may result in minor or moderate injury. This may also be used for property damage warnings.



NOTICE – <Property damage>!

The symbol indicates a potentially damaging situation.

Failure to observe this safety information may result in damage to or destruction of the product and/or other system components.



IMPORTANT (NOTE)

This symbol indicates operator tips, particularly useful information, or important information about the product or its further uses. It does not indicate a dangerous or damaging situation.

1.5.2 Name plate

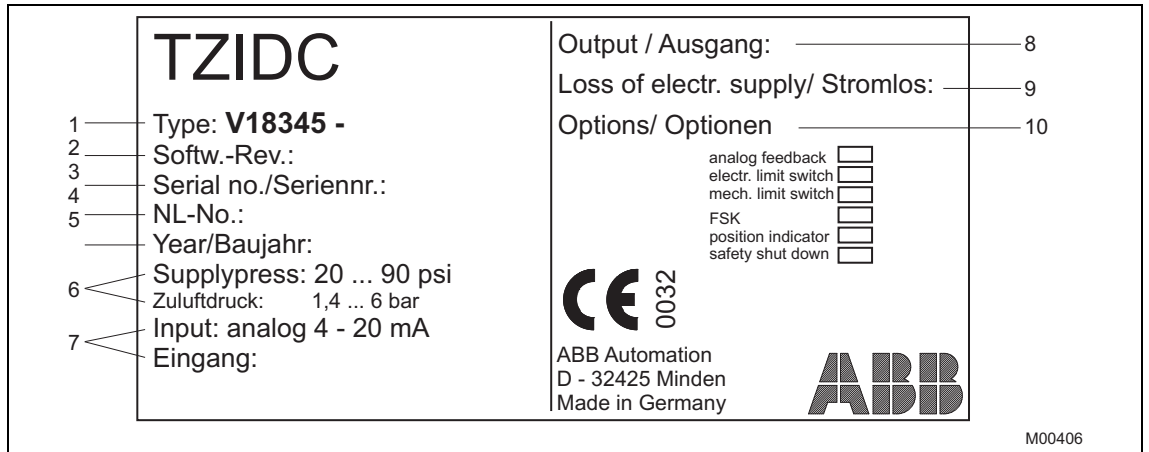


Fig. 1: Name plate

- | | |
|-----------------------|-------------------|
| 1 Complete model name | 6 Supply pressure |
| 2 Software version | 7 Input |
| 3 Serial number | 8 Output |
| 4 NL number | 9 Dead |
| 5 Year | 10 Options |

1.6 Transport safety information

Check the devices for possible damage that may have occurred during transport. Damages in transit must be recorded on the transport documents. All claims for damages must be claimed without delay against the shipper and before the installation.

1.7 Storage conditions

The unit must be stored in dry and dust-free conditions. The unit is also protected by a dessicant in the packaging.

The storage temperature should be between -40 ... 85 °C (-40 ... 185 °F).

The storage time is basically indefinite. However, the warranty conditions stipulated in the order confirmation of the supplier are valid.

1.8 Installation safety information



CAUTION - Risk of injury!

Incorrect parameter values can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.

Before recommissioning a TZIDC-200, TZIDC-210, TZIDC-220 positioner that was used at another location, the device must always be reset to factory settings. Never start Autoadjust before restoring factory settings.

- Only qualified specialists who have been trained for these tasks are authorized to mount and adjust the unit, and to make the electrical connection.
- When working on the unit always observe the locally valid accident prevention regulations and the regulations concerning the construction of technical installations.

1.9 Safety information for electrical installation

- The electrical connection may only be made by authorized specialist personnel and in accordance with the electrical circuit diagrams.
- The electrical connection information in the manual must be observed; otherwise, the type of electrical protection may be adversely affected.
- Safe isolation of electrical circuits which are dangerous if touched is only guaranteed if the connected devices satisfy the requirements of DIN EN 61140 (VDE 0140 Part 1) (basic requirements for safe isolation).
- To ensure safe isolation, install supply lines so that they are separate from electrical circuits which are dangerous if touched, or implement additional isolation measures for them.

1.10 Operating safety information

Before switching on the unit make sure that your installation complies with the environmental conditions listed in the chapter "Technical data" or in the data sheet.

If there is a chance that safe operation is no longer possible, take the unit out of operation and secure against unintended startup.

When mounting the unit in areas that may be accessed by unauthorized persons, take the required protective measures.

Prior to installation, check the devices for any damage that may have occurred as a result of improper transport. Details of any damage that has occurred in transit must be recorded on the transport documents. All claims for damages must be submitted to the shipper without delay and before installation.

1.11 Returning devices

Use the original packaging or suitably secure shipping containers if you need to return the device for repair or recalibration purposes. Fill out the return form (see the Appendix) and include this with the device.

According to EC guidelines for hazardous materials, the owner of hazardous waste is responsible for its disposal or must observe the following regulations for shipping purposes:

All devices delivered to ABB Automation Products GmbH must be free from any hazardous materials (acids, alkalis, solvents, etc.).

Please contact Customer Center Service acc. to page 2 for nearest service location.

1.12 Integrated management system

ABB Automation Products GmbH operates an integrated management system, consisting of:

- Quality management system to ISO 9001:2008
- Environmental management system to ISO 14001:2004
- Occupational health and safety management system to BS OHSAS 18001:2007 and
- Data and information protection management system

Environmental awareness is an important part of our company policy.

Our products and solutions are intended to have a minimal impact on the environment and on people during manufacturing, storage, transport, use, and disposal.

This includes the environmentally-friendly use of natural resources. We conduct an open dialog with the public through our publications.

1.13 Disposal

This product is manufactured from materials that can be reused by specialist recycling companies.

1.13.1 Information on WEEE Directive 2002/96/EC (Waste Electrical and Electronic Equipment)

This product is not subject to WEEE Directive 2002/96/EC or relevant national laws (e.g., ElektroG in Germany).

The product must be disposed of at a specialist recycling facility. Do not use municipal garbage collection points. According to the WEEE Directive 2002/96/EC, only products used in private applications may be disposed of at municipal garbage facilities. Proper disposal prevents negative effects on people and the environment, and supports the reuse of valuable raw materials.

If it is not possible to dispose of old equipment properly, ABB Service can accept and dispose of returns for a fee.

1.13.2 RoHS Directive 2002/95/EC

With the Electrical and Electronic Equipment Act (ElektroG) in Germany, the European Directives 2002/96/EC (WEEE) and 2002/95/EC (RoHS) are translated into national law. ElektroG defines the products that are subject to regulated collection and disposal or reuse in the event of disposal or at the end of their service life. ElektroG also prohibits the marketing of electrical and electronic equipment that contains certain amounts of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) (also known as hazardous substances with restricted uses).

The products provided by ABB Automation Products GmbH do not fall within the current scope of the directive on waste from electrical and electronic equipment according to ElektroG. If the necessary components are available on the market at the right time, in the future these substances will no longer be used in new product development.

2 Ex relevant safety instructions

Depending on the type of explosion protection, an Ex label is attached to the left of the positioner beside the main name plate. It shows the explosion protection and the unit's relevant EX certificate.

Requirements/preconditions for safe operation of positioners:



IMPORTANT (NOTE)

Observe the units' relevant technical data and special conditions in accordance with the applicable certificate.

- Manipulation of the devices by users is not permitted. Modifications to the units may only be performed by the manufacturer or an explosion-protection specialist.
- The splash guard cap must be screwed in place to achieve IP 65 / NEMA 4x protection class. Operating the units without the splash guard cap is prohibited.
- The unit must be supplied with instrument air that is free of oil, water, and dust. Do not use flammable gas, oxygen, or oxygen-enriched gas.



IMPORTANT (NOTE) – Use in areas with combustible dust

- To prevent loss of its ignition-proof classification, the housing may not be opened.
- Use only cable glands that conform to protection type \geq IP 65.
- Avoid hazardous sliding brush discharges.

3 Design and function

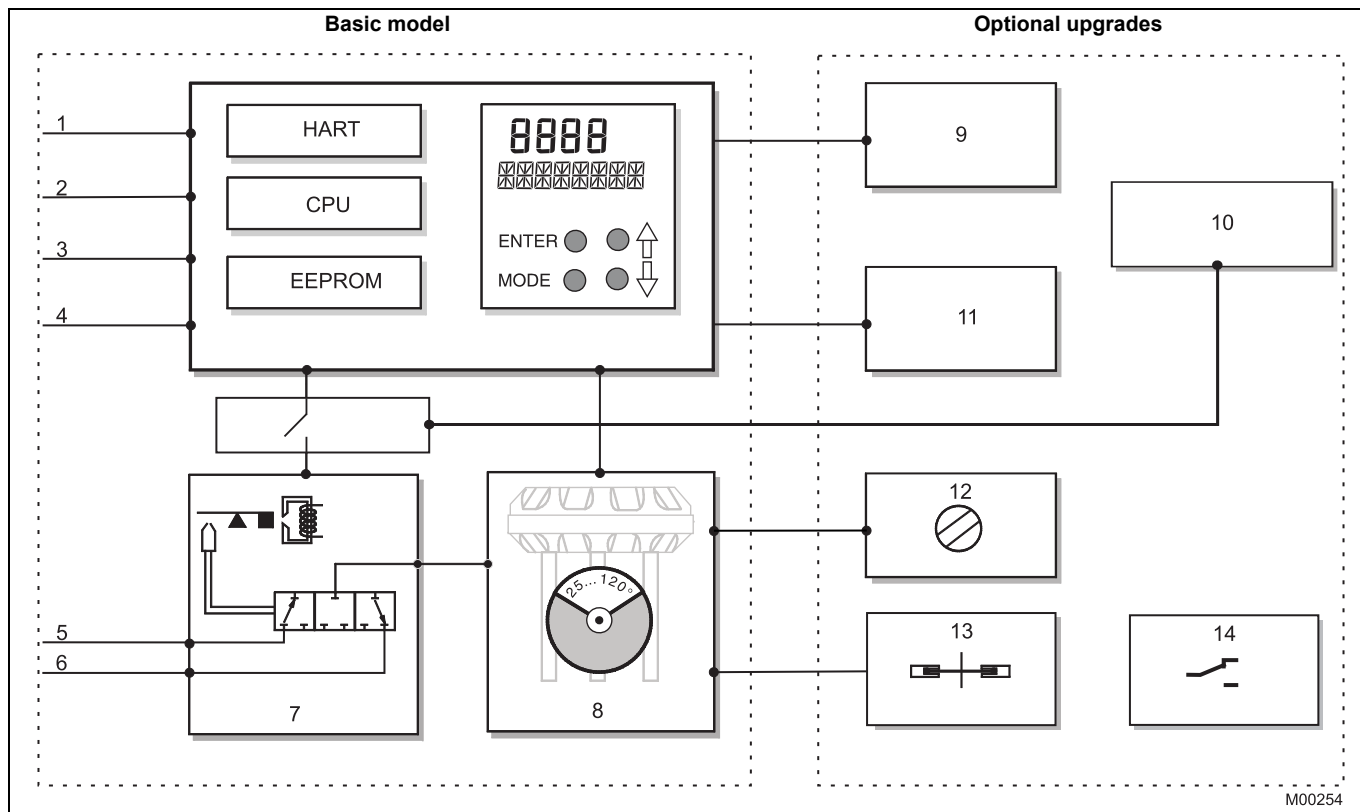


Fig. 2: TZIDC-200, TZIDC-210, TZIDC-220 schematic diagram

Basic model

- 1 LKS plug ¹⁾
- 2 Setpoint signal 4 ... 20 mA / bus connection
- 3 Digital input ¹⁾
- 4 Digital output ¹⁾
- 5 Air supply, 1.4 ... 6 bar (20 ... 90 psi)
- 6 Exhaust
- 7 I/P module with 3/3-way valve
- 8 Position sensor (optional up to 270° rotation angle)

Optional upgrades

- 9 Plug module for analog feedback (4 ... 20 mA) ¹⁾
- 10 Plug-in module for safety shutdown (forced depressurization)
- 11 Plug module for digital feedback ¹⁾
- 12 Installation kit for mechanical position indicator
- 13 Installation kit for digital feedback with proximity switches
- 14 Installation kit for digital feedback with 24 V microswitches

1) TZIDC-200 only



IMPORTANT (NOTE)

With optional upgrades either the “Installation kit for digital feedback with proximity switches” (13) **or** the “Installation kit for digital feedback with microswitches 24 V” (14) can be used. In both cases, the “mechanical position indicator” (8) must be installed.

Functionality

TZIDC-200, TZIDC-210, TZIDC-220 positioners are electronically configurable positioners with communication capabilities designed for mounting on pneumatic linear or rotary actuators. Fully automatic determination of the control parameters and adaptation to the final control element yield considerable time savings and an optimal control behavior.

4 Mounting



CAUTION - Risk of injury!

Incorrect parameter values can cause the valve to move unexpectedly. This can lead to process failures and result in injuries.

Before recommissioning a TZIDC-200, TZIDC-210, TZIDC-220 positioner that was used at another location, the device must always be reset to factory settings. Never start Autoadjust before restoring factory settings.

4.1 Operating conditions at installation site



IMPORTANT (NOTE)

Before installation, check whether the TZIDC-200, TZIDC-210, TZIDC-220 positioner meets the control and safety requirements for the installation location (actuator or valve). See chapter Specifications page 41.

4.2 Mechanical mount

4.2.1 General

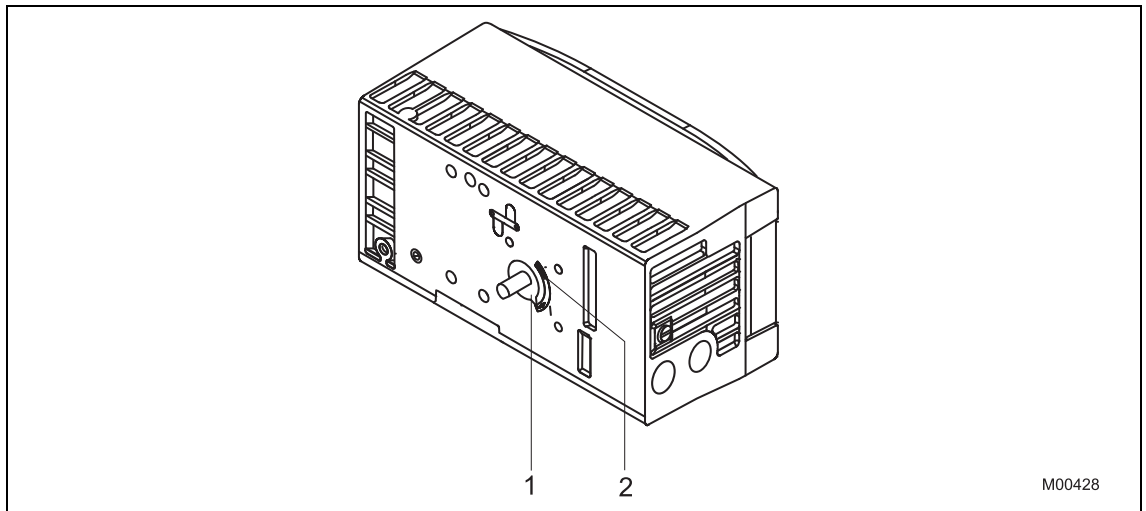


Fig. 3: Operating range

The arrow (1) on the positioner feedback shaft (and the lever) must move through the area marked by the arrows (2).

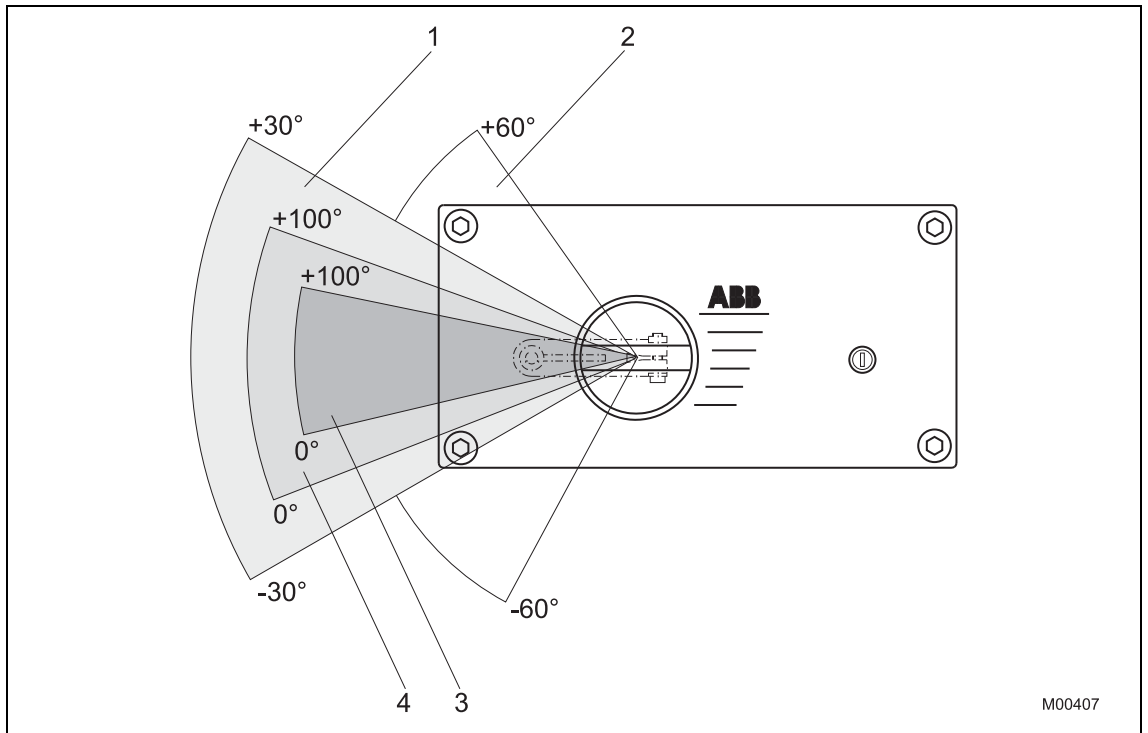


Fig. 4: Positioner range

- 1 Sensor range for linear actuators
- 2 Sensor range for rotary actuators
- 3 Operating range for linear actuators
- 4 Operating range for rotary actuators

i

IMPORTANT (NOTE)

During installation make sure that the actuator travel or rotation angle for position feedback is implemented correctly.

The maximum rotation angle for position feedback is 60° when installed on linear actuators and 120° on rotary actuators. The minimum angle is always 25°.

4.2.2 Mounting on linear actuators

For mounting on a linear actuator in accordance with DIN / IEC 534 (lateral mount per NAMUR) a complete mounting kit is available, and consists of the items in the following table:

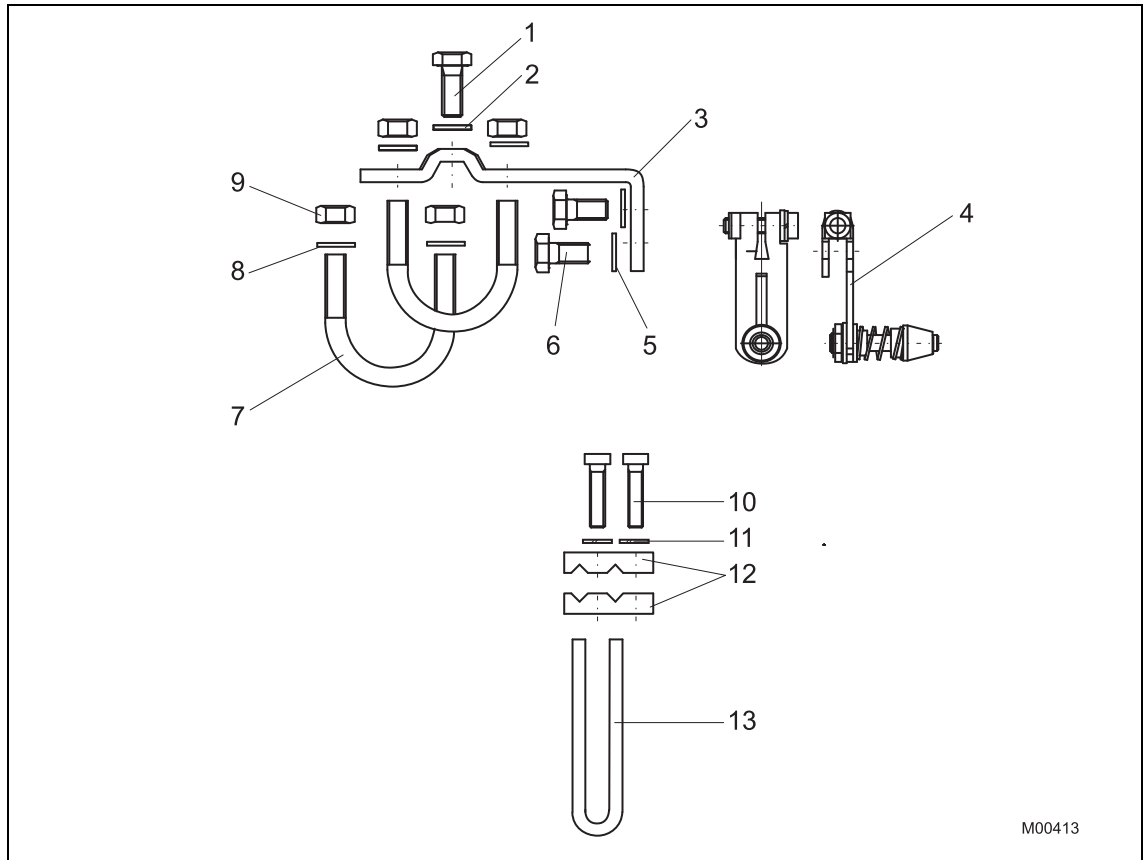


Fig. 5: Mounting kit for linear actuators

- Lever (4) with follower pin, for stroke adjustment 10 ... 35 mm (0.39 ... 1.38 inch) or 20 ... 100 mm (0.79 ... 3.94 inch).
- Follower guide (13) with two screws (10), spring washers (11), and clamp plates (12).
- Mount bracket (3) with two screws (6) and two shims (5).
- Screw (1) and shim (2) for mounting on cast iron yoke.
- Two U-bolts (7) each with two shims (8) and two nuts (9) for mounting on columnar yoke.

Required tools:

- Wrench, size 10 / 13
- Allen key, size 4

Procedure:

1. Attaching follower guide to actuator

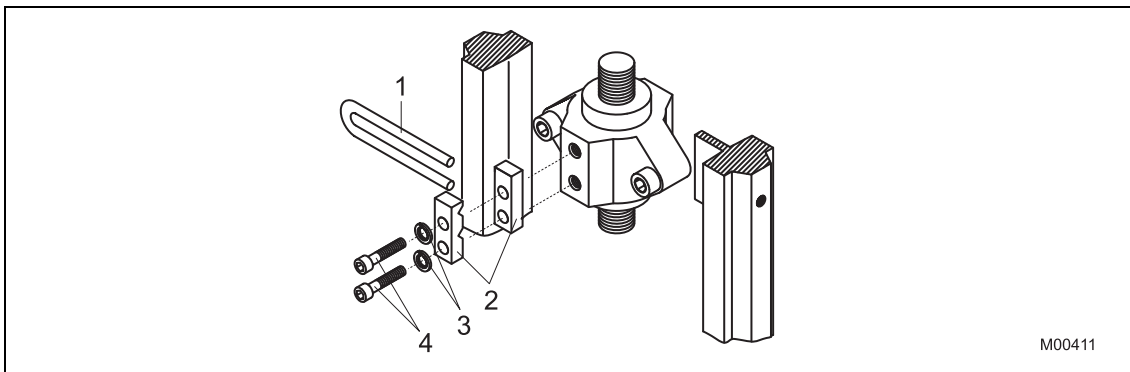


Fig. 6



IMPORTANT (NOTE)

Hand tighten the screws.

- Attach the follower guide (1) and clamp plates (2) with screws (4) and spring washers (3) to the actuator stem.

2. Assemble the lever (unless preassembled)

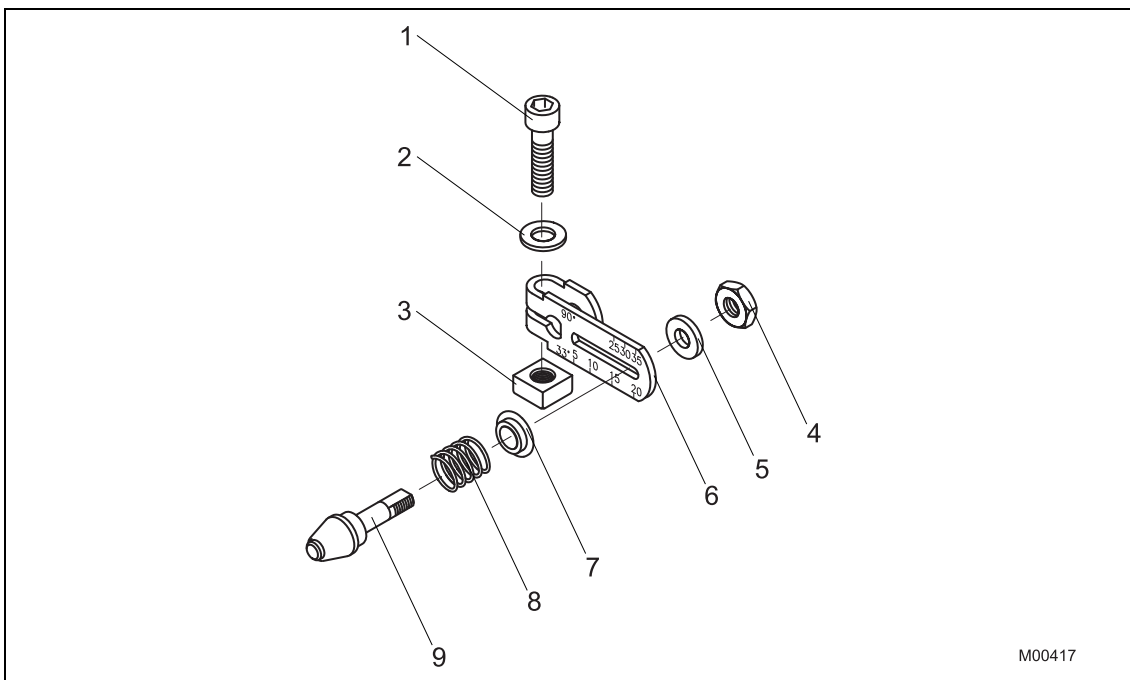


Fig. 7

- Insert spring (8) on bolt with follower pin (9).
- Slip the plastic washer (7) onto the bolt and compress the spring with it.
- Insert the bolt with compressed spring into the oblong hole in the lever (6) and fasten it in the desired position using the plain washer (5) and nut (4) at the lever. The scale on the lever indicates the link point for the stroke range.
- Place the washer (2) on the screw (1). Insert the screw in the lever and lock with the nut (3).

3. Mounting lever and bracket on positioner

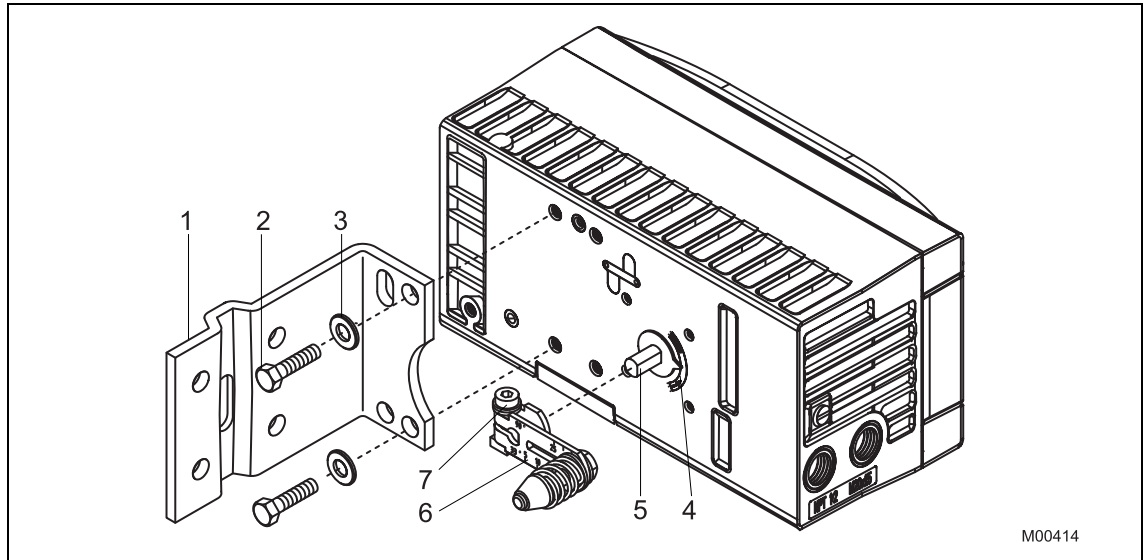


Fig. 8

- Attach the lever (6) to the feedback shaft (5) of the positioner (can only be mounted in one position due to the flat on the side of the shaft).
- Using the arrow marks (4) check whether the lever moves within the operating range (between the arrows).
- Hand-tighten the screw (7) on the lever.
- Hold the prepared positioner with loose mount bracket (1) to the actuator so that the follower pin for the lever enters the follower guide to determine which holes on the positioner must be used for the mount bracket.
- Attach the mount bracket (1) with screws (2) and shims (3) to the proper holes on the positioner housing. Tighten the screws as evenly as possible to ensure subsequent linearity. Align the mount bracket in the oblong hole to ensure that the operating range is symmetrical (lever moves between the arrows (4)).

4.a Mounting on cast iron yoke

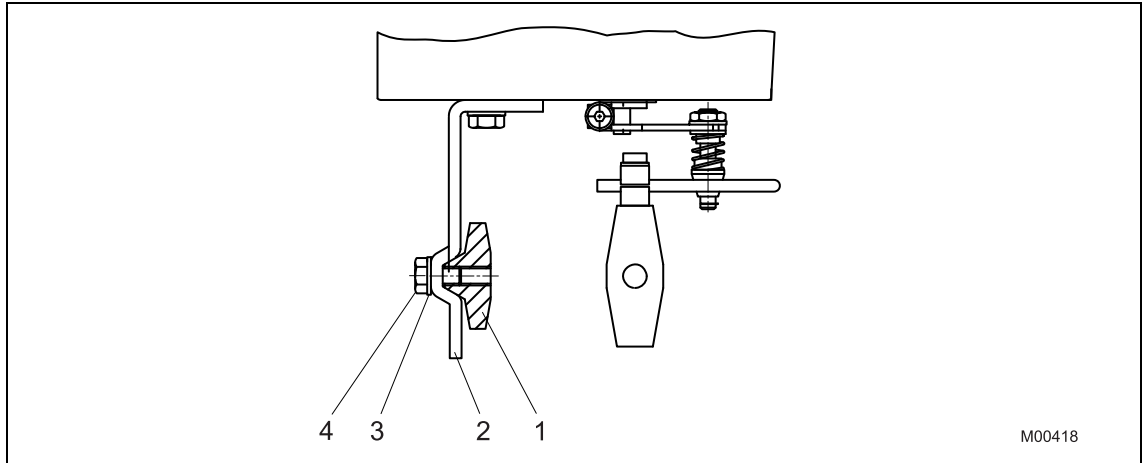


Fig. 9

- Attach the mount bracket (2) with screw (4) and shim (3) to the cast iron yoke (1)
- or

4.a Mounting on columnar yoke

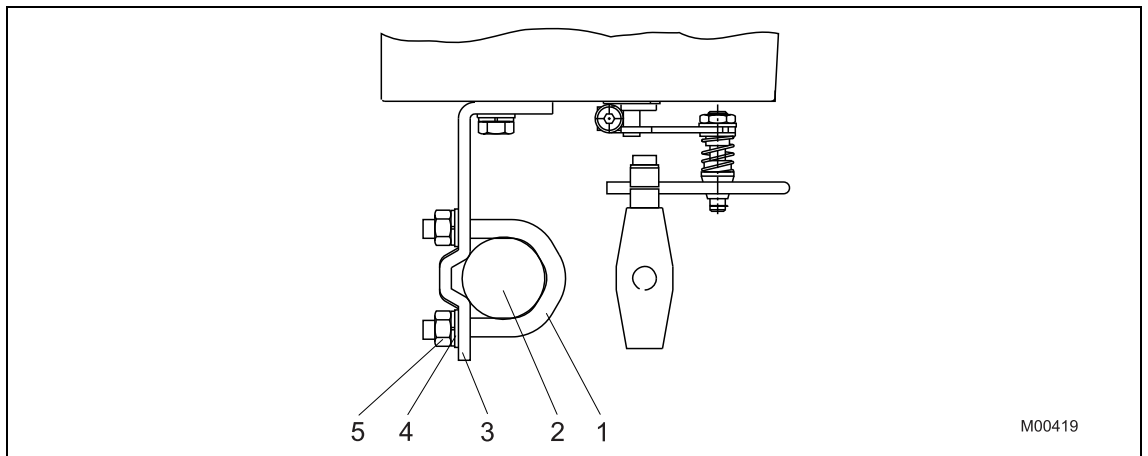


Fig. 10

- Hold the mount bracket (3) in the proper position on the columnar yoke (3).
- Insert the U-bolts (2) from the inside of the columnar yoke (3) through the holes for the mount bracket.
- Add the washers (5) and nuts (6). Hand tighten the nuts.



IMPORTANT (NOTE)

Adjust the height of the positioner on the cast iron yoke or columnar yoke until the lever is horizontal (based on visual check) at half stroke of the valve.

4.2.3 Mounting on part-turn actuator

For mounting on part-turn actuators in accordance with VDI / VDE 3845, the following mounting kit is available:

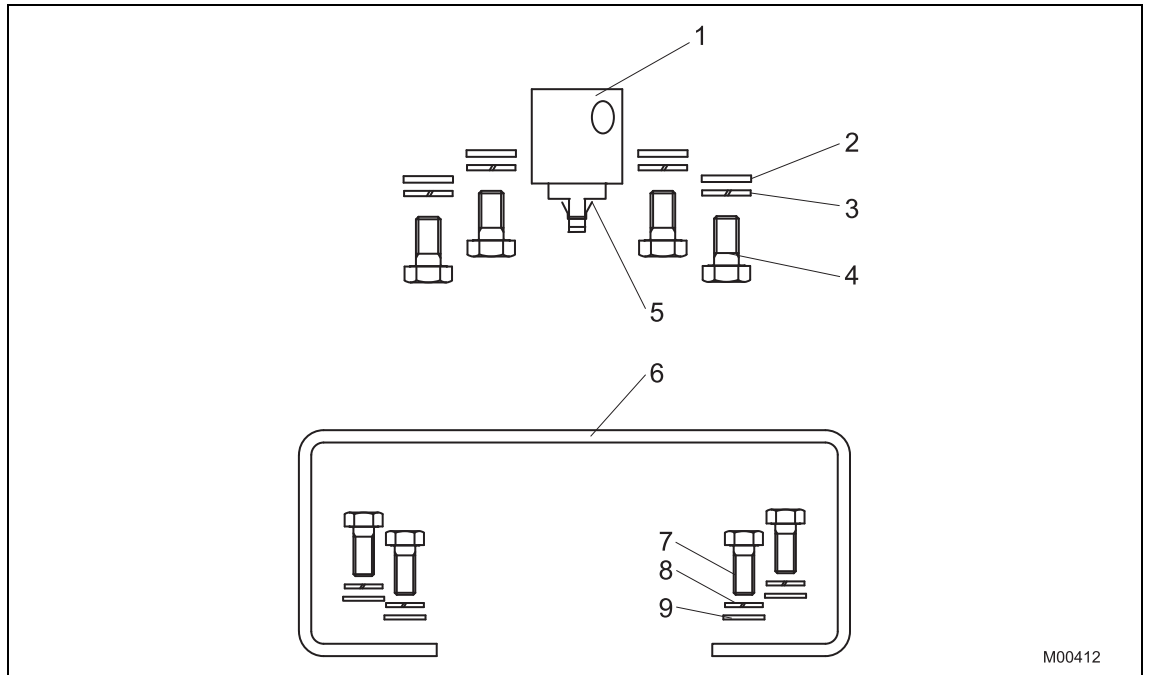


Fig. 12

- Adapter (1) with spring (5).
- Four screws M6 (4), four spring washers (3), and four shims (2) for attaching the mounting bracket (6) to the positioner.
- Four screws M5 (7), four spring washers (8), and four shims (9) for attaching the mounting bracket to the actuator.

Required tools:

- Wrench, size 10 / 13
- Allen key, size 3

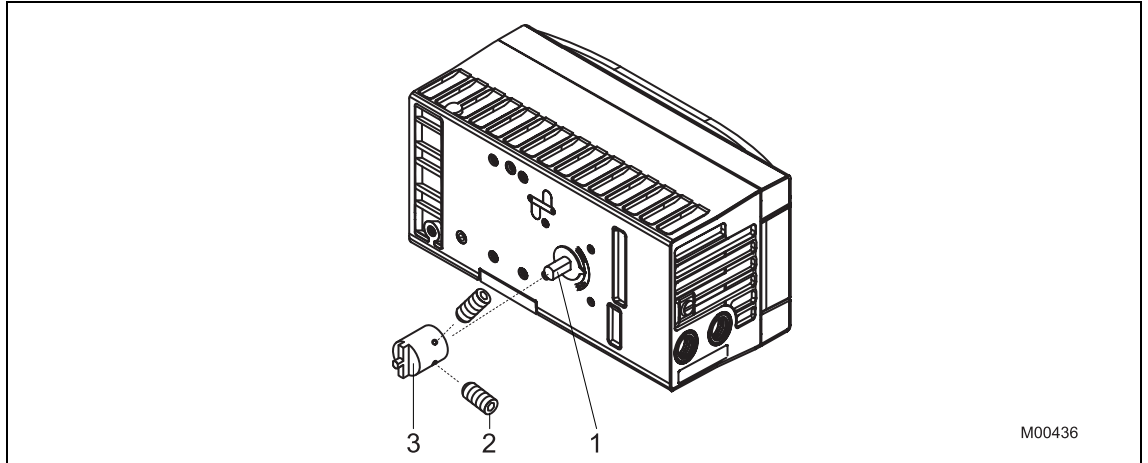
Procedure:**1. Mounting the adapter on the positioner**

Fig. 13

- Determine the mounting position (parallel to actuator or at 90° angle)
- Calculate the rotational direction of the actuator (right or left).
- Move the part-turn actuator into home position.
- Based on the mounting position as well as the home position and rotational direction of the actuator, determine in which position the feedback shaft (1) for the positioner must be pre-adjusted and in which position the adapter (2) must be placed to enable the positioner to travel within the proper range (the arrow on the rear of the device must travel within the admissible range, see Fig. 3).
- Pre-adjust feedback shaft.
- Place the adapter in the proper position on the feedback shaft and fasten with set screws (3). One of the set screws must be locked in place on the flat side of the feedback shaft.

2. Screwing mounting bracket on to positioner

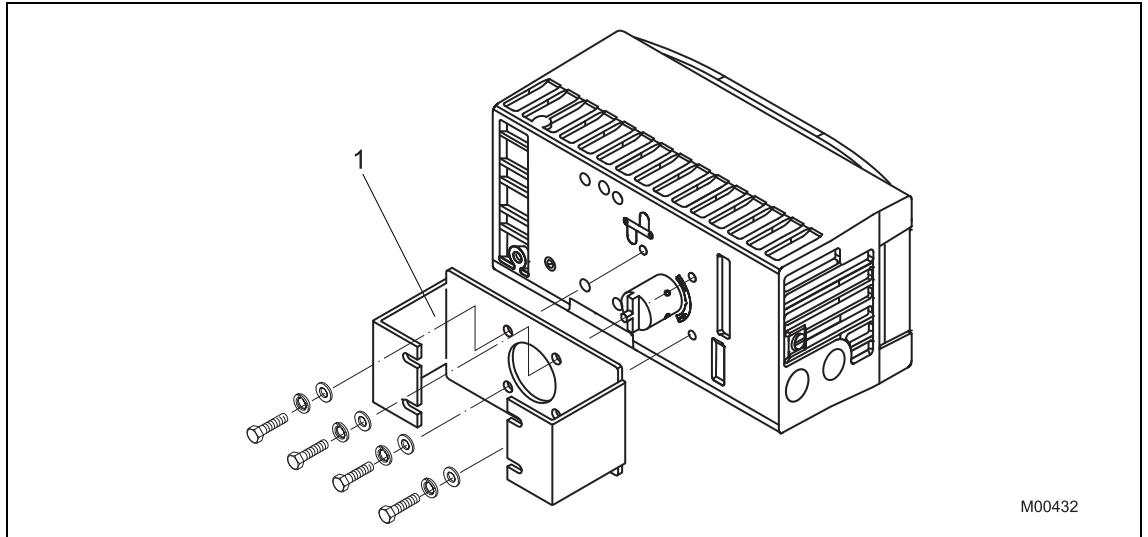


Fig. 14

1 Mounting bracket

3. Screwing positioner on to actuator

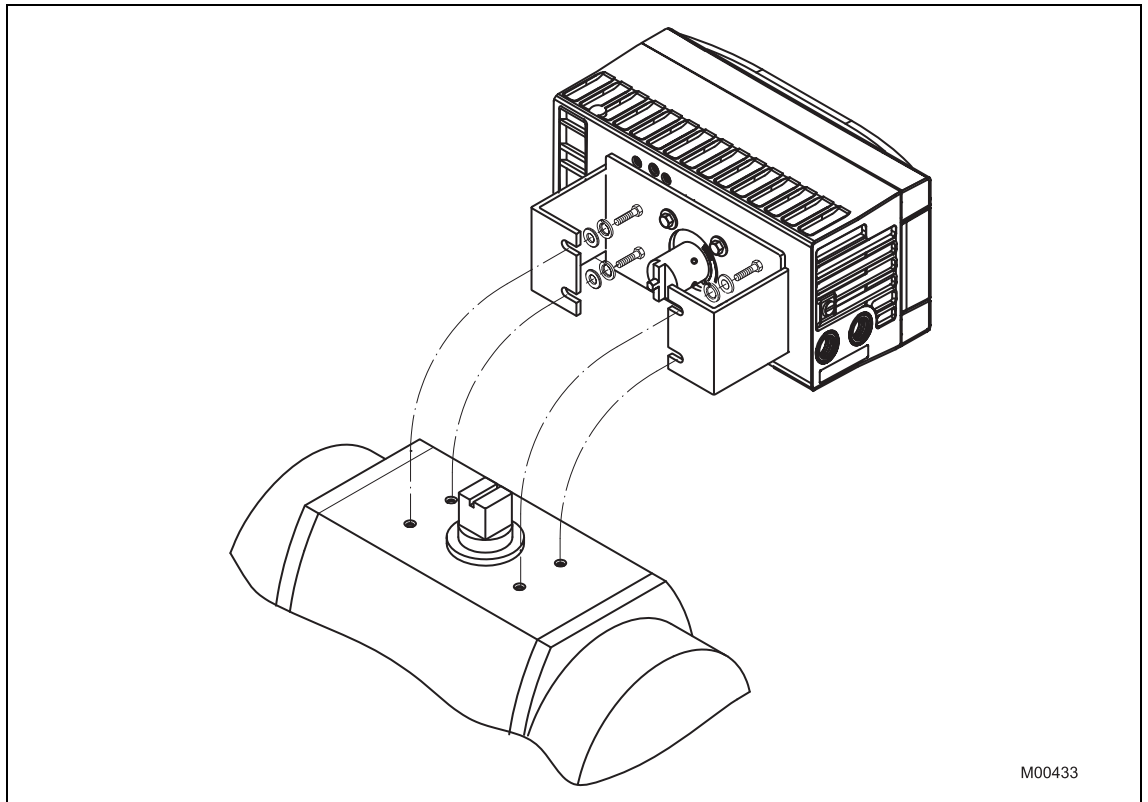


Fig. 15



IMPORTANT (NOTE)

After mounting, check whether the working range for the actuator matches the sensor range for the positioner.

5 Electrical connections



DANGER – Risk of explosion (TZIDC-200 only)

It is prohibited to use the integrated communication interface (LKS) in an Ex area.

Never use the integrated communication interface (LKS) on the main board with a positioner that is being used in an explosion risk area.

1. Strip the wire by approx. 8 mm (0.32 inch).
2. To connect the signal lines, the emergency shutdown module and the proximity switches or microswitches, insert the wire ends from the left into the respective screw terminals and hand-tighten the screws (access from above). To connect a plug-in module, insert the wire ends from above in the appropriate screw terminals and hand-tighten the screws (access from the side).

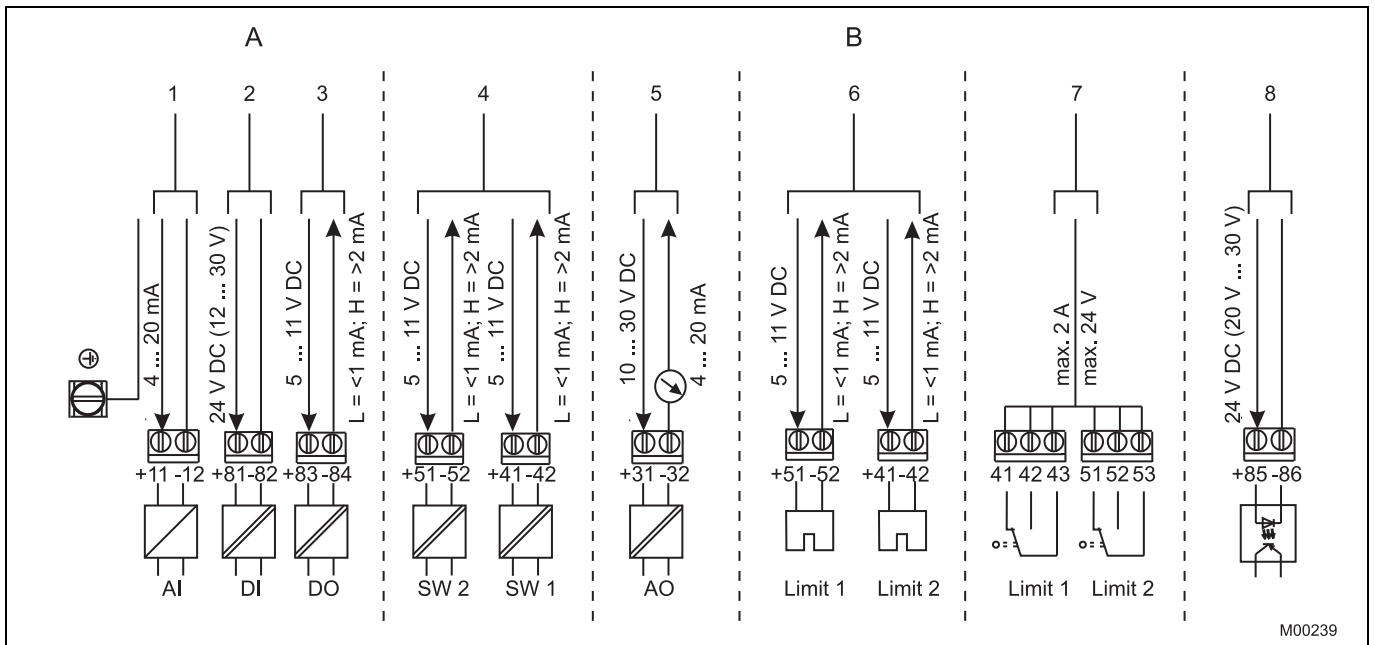


Fig. 16: Electrical connection

- A Basic model
- B Options

- 1 Analog input / Bus connector
- 2 Digital input ¹⁾
- 3 Digital output ¹⁾
- 4 Digital feedback ¹⁾
- 5 Analog feedback ¹⁾
- 6 Proximity switches
- 7 Microswitches
- 8 Emergency shutdown module

1) TZIDC-200 only



IMPORTANT (NOTE)

Keep cable shields as short as possible and connect on both sides.

5.1 Screw terminal assignments

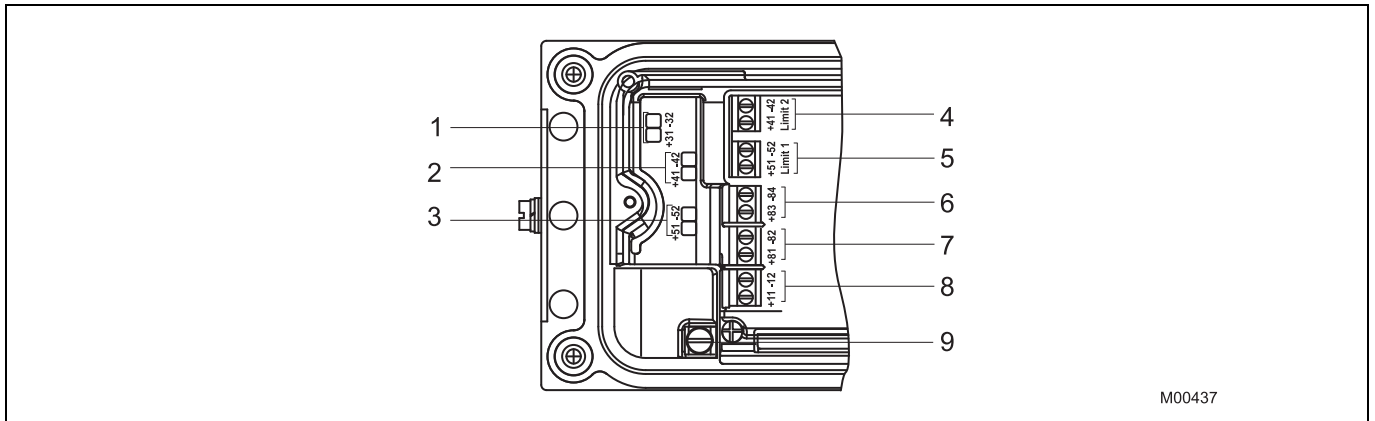


Fig. 17

- | | | | |
|---|---|---|---------------------------------|
| 1 | Module for analog position feedback ¹⁾ | 6 | Digital output DO ¹⁾ |
| 2 | Module for digital feedback ¹⁾ or service switch of emergency shutdown module | 7 | Digital input DI ¹⁾ |
| 3 | Module for digital position feedback ¹⁾ or terminals of the shutdown module | 8 | Signal 4 ... 20 mA |
| 4 | Installation kit for digital position feedback, either proximity switches or 24 V microswitches | 9 | Grounding screw |
| 5 | Same as 4 | | |

1) TZIDC-200 only

5.2 Cable entry



IMPORTANT (NOTE)

The cable terminals are delivered closed and must be unscrewed before inserting the cable.

For the cable entry into the housing, on the left-hand side of the housing there are two tap holes in four thread combinations to accommodate the cable entry and pneumatic connection.

- Cable: thread 1/2-14NPT, air pipe: thread 1/4-18 NPT
- Cable: thread M20 x 1,5, air pipe: thread 1/4-18 NPT
- Cable: thread M20 x 1,5, air pipe: thread G 1/4
- Cable: thread G 1/2, air pipe: thread Rc 1/4

As an option, one thread can be fitted with a cable gland and the other with a pipe plug if necessary.

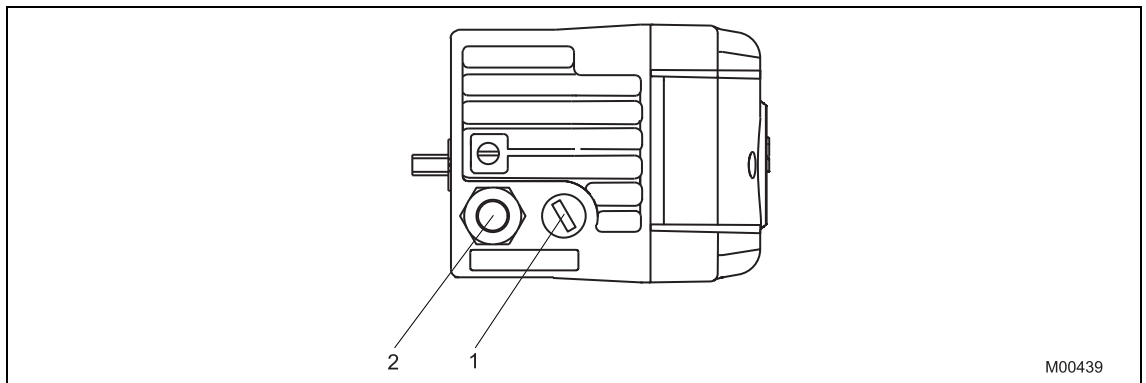


Fig. 18: Cable entry

- 1 Pipe plug
- 2 Cable gland

5.3 Setting the mechanical feedback

5.3.1 Mechanical position indicator

1. Loosen the screws for the housing cover and remove it.
2. Rotate the position indicator on the shaft to the desired position.
3. Attach the housing cover.
4. Affix the symbol label to mark the minimum and maximum valve positions on the housing cover.



IMPORTANT (NOTE)

The adhesive labels are located on the inside of the cover.

5.3.2 Mechanical digital feedback with proximity switches



1. Loosen the screws for the housing cover and remove it.

CAUTION - Risk of injury!

The device includes slot sensors with sharp edges. Use a screwdriver to adjust slot sensors.

2. Set the upper and lower switching points for digital feedback as follows:
 - Select operating mode 1.2 (see page 37) and move the valve by hand into the lower switching position.
 - Use a screwdriver to adjust the slot sensor for proximity switch 1 (lower contact) until it closes the contact (i.e. until shortly before entering the proximity switch) on the feedback shaft; the slot sensor enters proximity switch 1 when rotating to the right of the feedback shaft (viewed from the front).
 - Move the valve by hand into the upper switching position.
 - Use a screwdriver to adjust the slot sensor for proximity switch 2 (upper contact) until it closes the contact (i.e. until shortly before entering the proximity switch) on the feedback shaft; the slot sensor enters proximity switch 2 when rotating to the left of the feedback shaft (viewed from the front).
3. Attach the housing cover and screw onto housing; hand-tighten screws.

5.3.3 Mechanical feedback with micro switches for 24 V

1. Set max. contact (1, lower washer); fasten the upper washer with the special adjustment retainers and rotate lower disk manually to adjust.
2. Set min. contact (2, upper washer); fasten the lower washer with the special adjustment retainers and rotate upper disk manually to adjust.
3. Connect the micro switch.
4. Attach the housing cover and screw onto housing; hand-tighten screws.

6 Pneumatic connection



IMPORTANT (NOTE)

The TZIDC-200, TZIDC-210, TZIDC-220 positioners must be supplied with instrument air that is free of oil, water, and dust.

The purity and oil content should meet the requirements of Class 3 according to DIN / ISO 8573-1.



NOTICE - Potential damage to parts!

Impurities on the pipe and positioner can damage components.

Dust, splinters, and any other particles of dirt must be blown off the pipe before it is connected.

To connect the air pipes, G1/4 or 1/4-18 NPT tap holes are provided. We recommend that you use a line with dimensions of 6 x 1 mm.



NOTICE - Potential damage to parts!

Pressure above 6 bar (90 psi) can damage positioners or actuators.

Provisions should be made to ensure that, in the event of an error, the pressure does not rise above 6 bar (90 psi).

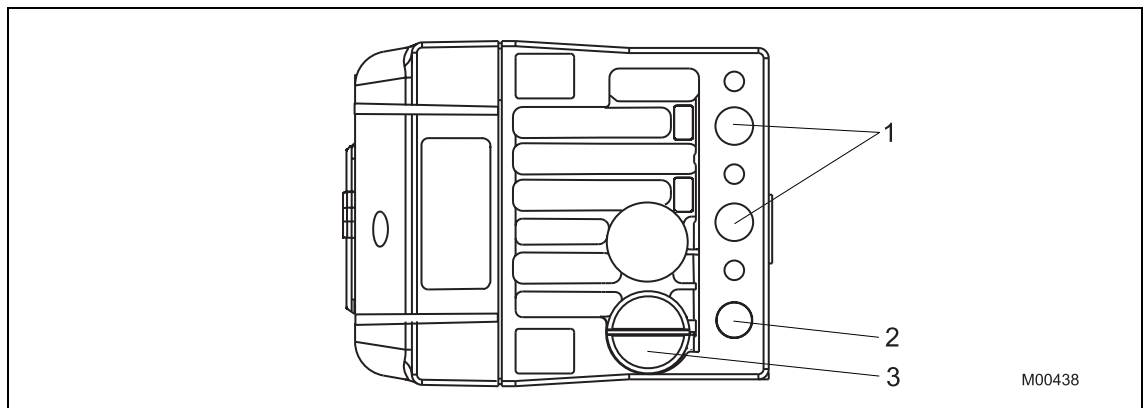


Fig. 19: Pneumatic connections

- 1 Pneumatic outputs
- 2 Supply air
- 3 Filter screw

All pneumatic piping connections are located on the right side of the positioner. To connect the pneumatic pipes, G1/4 or 1/4-18 NPT tap holes are provided. The positioner is labeled according to the tap holes available. The corresponding pipe connections must be included.

The level of supply pressure must be adjusted to the output pressure in the actuator required to provide increased actuating force. The operating range for the positioner is between 1.4 ... 6 bar (20 ... 90 psi).

Arrange the connections according to their marks:

Designation	Pipe connection
-	Air supply, pressure 1.4 ... 6 bar (20 ... 90 psi)
OUT1	Output pressure for actuator
OUT2	Output pressure for actuator (2nd connection with double-acting actuator)

7 Commissioning

7.1 TZIDC-200

1. Feed in pneumatic auxiliary power.
2. Feed in electrical supply power.
 - Feed in setpoint current 4 ... 20 mA (terminals +11 / -12)
3. Check mount:
 - Press and hold **MODE**, and press **▲** or **▼** until operating mode 1.3 (manual adjustment within the sensor range) is displayed. Release **MODE**.
 - Press **▲** or **▼** to move the actuator into the mechanical end position; check the end positions; rotation angle is displayed in degrees; for high-speed mode, press **▲** and **▼** simultaneously.

Recommended range:
 - between -28 ... 28° for linear actuators
 - between -57 ... 57° for part-turn actuatorsMinimum angle: 25°
4. Run Autoadjust.

For linear actuators ¹⁾:

- Press and hold **MODE** until **ADJ_LIN** is displayed; release the control button.
- Press **MODE** again and hold down until the countdown ends.
- Release **MODE**; this starts Autoadjust.

For part-turn actuators ¹⁾:

- Press and hold **ENTER** until **ADJ_ROT** is displayed; release the control button.
- Press **ENTER** again and hold it down until the countdown ends.
- Release **ENTER**; this starts Autoadjust.

If Autoadjust is successful, the parameters will be stored automatically and the positioner will revert to operating mode 1.1.

If an error occurs during Autoadjust, the process will be terminated with an error message. If this happens, press and hold down **▲** or **▼** for approximately three seconds. The unit will switch to the operating level, mode 1.3 (manual adjustment within the sensor range). The mount is checked and corrected if necessary. Autoadjust then runs again.



IMPORTANT (NOTE)









Autoadjust does not always result in optimum control conditions.

1) The zero position is determined automatically and saved during Autoadjust (counter-clockwise (CTCLOCKW) for linear actuators and clockwise (CLOCKW) for part-turn actuators).

7.1.1 Operating modes

Selection from the operating level:

- Press and hold down **MODE**.
- Press and release **▲** rapidly as often as required. The selected operating mode is displayed.
- Release **MODE**.
- The position is displayed in % or as a rotation angle.

Operating mode	Mode indicator	Position indicator
1.0 Control mode ¹⁾ with adaptation (the control parameter)		
1.1 Control mode ¹⁾ without adaptation (the control parameter)		
1.2 Manual adjustment ²⁾ in the operating range. Adjust with ▲ or ▼ ³⁾		
1.3 Manual adjustment ²⁾ in the sensor range. Adjust with ▲ or ▼ ³⁾		

1) Since self-optimization in operating mode 1.0 is subject to several factors during control operation with adaptation, incorrect adjustments could be made over an extended period.

2) Position not active

3) For high-speed mode: Press **▲** and **▼** simultaneously

7.1.2 Sample parameters

"Change the zero position of the LCD screen from clockwise (CLOCKW) to counter-clockwise stop (CTCLOCKW)"

Starting position: The positioner operates in mode 1.1 in the operating level.

1. Switch to the configuration level:

- Press and hold **▲** and **▼** simultaneously
- Press **ENTER** briefly
- Wait until the countdown goes from 3 to 0
- Release **▲** and **▼**



is displayed

2. Switch to parameter group 3._:

- Press and hold **MODE** and **ENTER** simultaneously
- Press **▲** twice briefly



is displayed

- Release **MODE** and **ENTER**



is displayed

3. Select parameter 3.2:

- Press **MODE** and hold
- Press **▲** twice briefly



is displayed

- Release **MODE**

4. Change parameter settings:

- Press **▲** briefly to select **CTCLOCKW**

5. Switch to parameter 3.3 (Return to operating level) and save the new setup:

- Press **MODE** and hold
- Press **▲** twice briefly



is displayed

- Release **MODE**
- Press **▲** briefly to select **NV_SAVE**
- Press **ENTER** and hold till the countdown goes from 3 to 0

The new parameter setting is saved and the positioner automatically returns to the working level and continues to run in the operating level that was active before calling up the configuration level.

7.2 TZIDC-210 / TZIDC-220

1. Feed in pneumatic supply power
2. Connect the bus to the bus terminals with any polarity (or supply power 9 ... 32 V DC)



is displayed

3. Check mount:
 - Press and hold down **MODE** and **ENTER**; once the countdown has gone from 3 to 0, release **MODE** and **ENTER**; the unit switches to the operating level, mode 1.x
 - Press and hold down **MODE** and **ENTER**.
 - Additionally, press **▲** or **▼** until operating mode 1.3 (manual adjustment within the sensor range) is displayed. Release **MODE**
 - Press **▲** or **▼** to move the actuator into the mechanical end position; check the end positions; rotation angle is displayed in degrees (for high-speed mode, press **▲** and **▼** simultaneously)

Recommended range:

- between -28 ... 28° for linear actuators
- between -57 ... 57° for rotary actuators

Minimum angle: 25°

4. Go back to the bus level:

- Press and hold down **MODE** and **ENTER**; once the countdown has gone from 3 to 0, release **MODE** and **ENTER**



is displayed.

5. Run Autoadjust

- Check that the unit is on the bus level ("REMOTE")

For linear actuators ¹⁾:

- Press and hold down **MODE** until **ADJ_LIN** is displayed. Release the control button
- Press **MODE** again and hold down until the countdown ends
- Release **MODE**; this starts Autoadjust

For rotary actuators ¹⁾:

- Press and hold down **ENTER** until **ADJ_ROT** is displayed. Release the control button
- Press **ENTER** again and hold down until the countdown ends
- Release **ENTER**; this starts Autoadjust

If Autoadjust is successful, the parameters will be stored automatically and the positioner will revert to operating mode 1.1.

If an error occurs during Autoadjust, the process will be terminated with an error message. If this happens, press and hold down \blacktriangle or \blacktriangledown for approximately three seconds. The unit will switch to the operating level, mode 1.3 (manual adjustment within the sensor range). The mount is checked and corrected if necessary. Autoadjust then runs again.

6. Set potential dead band and tolerance band

This step is only required for critical (e.g., very small) actuators. It is not necessary under normal circumstances.

- 1) The zero position is determined automatically and saved during Autoadjust (counter-clockwise (CTCLOCKW) for linear actuators and clockwise (CLOCKW) for rotary actuators).

7.2.1 Setting the bus address

1. Switch to the configuration level:
 - Press and hold down **↑** and **↓** simultaneously.
 - Press and release **ENTER**.
 - Wait for the countdown to go from 3 to 0.
 - Release **↑** and **↓**;



2. Switch to parameter group 1.5:
 - Press and hold down **MODE** and **ENTER** simultaneously.
 - Press **↑** or **↓**;



- Release **MODE**;



3. Setting the bus address
 - Press **↑** or **↓** to set the correct value.
 - Press and hold down **ENTER**.
 - Wait for the countdown to go from 3 to 0.
 - Release **ENTER**.

The new bus address is saved.

4. Switch to parameter 1.6 (Return to operating level) and save the new setting:
 - Press and hold down **MODE**.
 - Press and release **↑** twice;








- Release **MODE**.
- Press and release **↑** to select **NV_SAVE**.
- Press and hold down **ENTER** for the countdown to go from 3 to 0.

The new parameter setting is saved and the positioner automatically returns to the working level, continuing to run on the operating level that was active prior to the configuration level being called up.


7.2.2 Request information













When the unit is in bus operation, a variety of information can be called up.
Press the following control buttons to access this information:

Control buttons		Action
		Cyclic communication: Displays the setpoint in % and the setpoint status. Acyclic communication: Displays the communication status.
		Displays the bus address and operating mode.
ENTER		Displays the software revision.

7.2.3 Operating modes

Selection from the operating level:

- Press and hold down **MODE**
- Press and release  as often as required to display the selected operating mode
- Release **MODE**
- The position is displayed in % or as a rotation angle

Operating mode	Mode indicator	Position indicator
1.1 Positioning with fixed setpoint Use  or  to adjust the setpoint		
1.2 Manual adjustment ¹⁾ in the operating range Adjust with  or  ²⁾		
1.3 Manual adjustment ¹⁾ in the sensor range Adjust with  or  ²⁾		

1) Positioning not active.

2) for high-speed mode: Press  and  simultaneously.

7.2.4 Sample parameters

"Change the zero position of the LCD screen from clockwise (CLOCKW) to counter-clockwise stop (CTCLOCKW)"

Starting position: The positioner is in bus operation on the operating level

1. Switch to the configuration level:

- Press and hold down **↑** and **↓** simultaneously
- Press and release **ENTER**
- Wait for the countdown to go from 3 to 0
- Release **↑** and **↓**,



is displayed

2. Switch to parameter group 3._:

- Press and hold down **MODE** and **ENTER** simultaneously
- Press and release **↑** twice,



is displayed

- Release **MODE** and **ENTER**,



is displayed

3. Select parameter 3.2:

- Press and hold down **MODE**
- Press and release **↑** twice,



is displayed

- Release **MODE**

4. Change parameter settings:

- Press and release **↑** to select **CTCLOCKW**

5. Switch to parameter 3.3 (Return to operating level) and save the new setting:

- Press and hold down **MODE**
- Press and release **↑** twice,



is displayed

- Release **MODE**
- Press and release **↑** to select **NV_SAVE**
- Press and hold down **ENTER** until the countdown goes from 3 to 0

The new parameter setting is saved and the positioner automatically returns to the working level, continuing to run on the operating level that was active prior to the configuration level being called up.

8 Maintenance



IMPORTANT (NOTE)

In case of manipulation by users, the warranty for the device is no longer valid.

Note that the supplied instrument air must be free of oil, water and dust according to DIN/ISO 8573-1 to ensure trouble-free operation.

Essentially, no maintenance is required for the positioners.

We recommend that you regularly check the built-in filter for pollution.



IMPORTANT (NOTE)

Perform a functional check of the emergency shutdown module (option) at least every 2 years.

8.1 Functional check for emergency shutdown module

**IMPORTANT (NOTE)**

When using the emergency shutdown module, a functional check must be performed at least every two years.

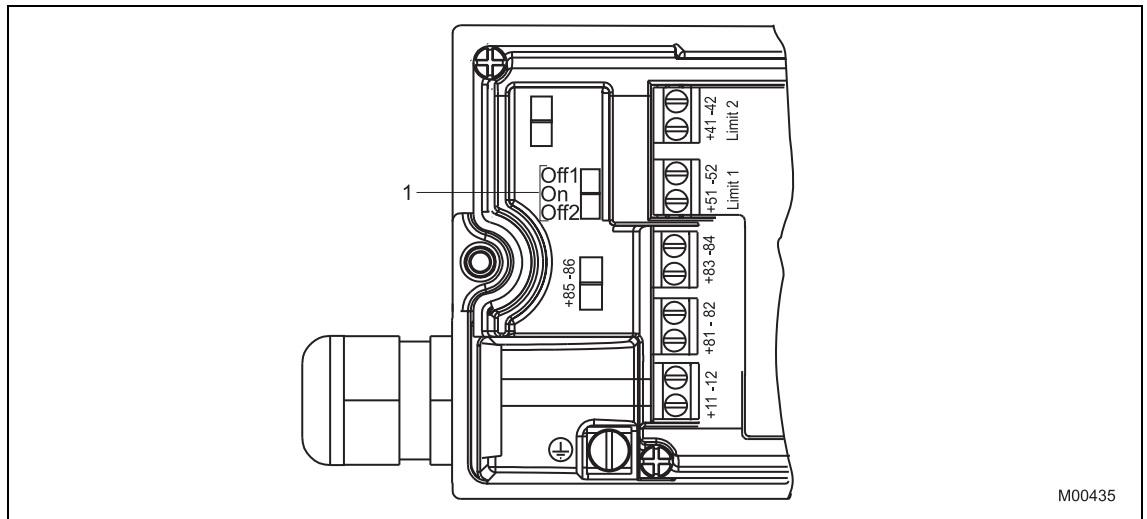
Procedure:

Fig. 20: Slide switch for emergency shutdown module

1. Open the housing cover.
2. Move the slide switch (1) from center position "On" to the upper and lower switch positions ("Off1" or "Off2"), and check whether the actuator is depressurized.
3. Reset the slide switch to the center position ("On") after the functional check.
4. Replace the housing cover.

9 Specifications

9.1 TZIDC-200

9.1.1 Input

Setpoint signal (two-wire technology)

Nominal range	4 ... 20 mA
Split range configuration between	20 ... 100 % of the nominal range
Max.	50 mA
Min.	3.6 mA
Starting at	3.8 mA
Load voltage at 20 mA	9.7 V
Impedance at 20 mA	485 Ω

Digital input

Control voltage	0 ... 5 V DC logical switching state "0" 11 ... 30 V DC logical switching state "1"
Current	max. 4 mA

9.1.2 Output

Compressed air output

Range	0 ... 6 bar (0 ... 90 psi)
Air capacity	5.0 kg/h = 3.9 Nm ³ /h = 2.3 sfc at 1.4 bar (20 psi) supply pressure 13 kg/h = 10 Nm ³ /h = 6.0 sfc at 6 bar (90 psi) supply pressure
Output function	For single or double-acting actuators, air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	End position 0 % = 0 ... 45 % End position 100 % = 55 ... 100 %

Digital output (control circuit to DIN 19234 / NAMUR)

Supply voltage	5 ... 11 V DC
Current > 0.35 mA ... < 1.2 mA	Switching state logical "0"
Current > 2.1 mA	Switching state logical "1"
Effective direction (configurable)	normally logical "0" or logical "1"

9.1.3 Travel

Rotation angle

Used range 25 ... 120° (rotary actuators, optional 270°)

Travel limit

25 ... 60° (linear actuators)
Min. and max. limits, freely configurable between 0 ... 100 % of total travel (min. range > 20 %)

Travel time prolongation

Range of 0 ... 200 s, separately for each direction

Dead band time limit

Setting range 0 ... 200 s (monitoring parameter for control until the deviation reaches the dead band)

9.1.4 Air supply

Instrument air

free of oil, water and dust acc. to DIN / ISO 8573-1
pollution and oil content according to Class 3 (purity: max. particle size: 5 μm, max. particle density: 5 mg / m³; oil content: max. concentration: 1 mg / m³; pressure dew point: 10 K below operating temperature)

Supply pressure

1.4 ... 6 bar (20 ... 90 psi)



IMPORTANT (NOTE)

Do not exceed the maximum operating pressure of the actuator!

Air consumption

< 0.1 kg/h / 0.05 scfm (independent of supply pressure)

Specifications

9.1.5 Transmission data and influences

Output Y1

Increasing Increasing setpoint signal 0 ... 100 %
 Increasing pressure at output

Decreasing Increasing setpoint signal 0 ... 100 %
 Decreasing pressure at output

Action (setpoint signal)

Increasing Signal 4 ... 20 mA = actuator position 0 ... 100 %

Decreasing Signal 20 ... 4 mA = actuator position 0 ... 100 %

Characteristic curve (travel = f {setpoint signal})

Linear, equal percentage 1:25 or 1:50 or 25:1 or 50:1 and freely configurable with 20 reference points.

Deviation	≤ 0,5 %
Tolerance band	0.3 ... 10 %, adjustable
Dead band	0.1 ... 10 %, adjustable
Resolution (A/D conversion)	> 16000 steps
Sample rate	20 ms
Influence of ambient temperature	≤ 0.5 % per 10 K
Influence of vibration	≤ 1 % to 10 g and 80 Hz

Seismic vibration

Meets requirements of DIN / IEC 68-3-3 Class III for strong and strongest earthquakes.

Influence of mounting orientation

Not measurable.

Complies with the following directives

- EMC Directive 2004/108/EC as of December 2004
- EC Directive for CE conformity marking

Communication

- HART Protocol 5.9
- Local connector for LKS (not in Ex area)
- HART communication via 20 mA signal line with (optional) FSK modem

9.1.6 Environmental capabilities

Ambient temperature

For operation, storage and transport: -40 ... 85 °C (-40 ... 185 °F)

When using proximity switches
 SJ2-S1N (NO): -25 ... 85 °C (-13 ... 185 °F)

Relative humidity

Operational (with closed housing
 and air supply switched on): 95 % (annual average),
 condensation permissible

Transport and storage: 75 % (annual average), non-
 condensing

9.1.7 Housing

Material / Degree of protection

Aluminum, protection class IP 65 (optional IP 66) / NEMA 4X

Surface / Color

Electrostatic dipping varnish with epoxy resin, stove-hardened. Case varnished black, RAL 9005, matte, housing cover Pantone 420.

Electrical connections

Screw terminals: Max. 1.0 mm² (AWG 17) for options
 Max. 2.5 mm² (AWG 14) for
 4 ... 20 mA input signal

i IMPORTANT (NOTE)

Do not expose the terminals to strain.

Four thread combinations for cable entry and pneumatic connection

- Cable: thread 1/2-14NPT, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread G 1/4
 - Cable: thread G 1/2, air pipe: thread Rc 1/4
- (Optional: With cable gland(s) and pipe plugs if necessary)

Weight

3,0 kg (1,36 lb)

Mounting orientation

Any

Dimensions

See "Dimensions"

9.1.8 Safety Integrity Level

i IMPORTANT (NOTE)

Applies to applications with single-acting and depressurizing pneumatics.

The positioner TZIDC / TZIDC-200 and the emergency shutdown module for meet the requirements regarding:

- functional safety acc. to IEC 61508
- explosion protection (depending on the model)
- electromagnetic compatibility in accordance with EN 61000

Without the input signal, the pneumatic module in the positioner vents the drive and the installed spring in it moves the valve in a predetermined end position (OPEN or CLOSED).

SIL specific safety-related characteristics:

Device	SFF	PFDav	$\lambda_{dd} + \lambda_s$	λ_{du}
TZIDC / TZIDC-200 as shutdown module	94 %	1.76 * 10 ⁻⁴	718 FIT	40 FIT
TZIDC / TZIDC-200 with supply current 0 mA	94 %	1.76 * 10 ⁻⁴	651 FIT	40 FIT

For details refer to the Management Summary in the SIL-Safety Instructions 37/18-79XA.

9.1.9 Options

Module for analog position feedback¹⁾

Signal range	4 ... 20 mA (configurable split ranges)
Supply, 2-wire circuitry	24 V DC (10 ... 30 V DC) 48 V DC (20 ... 48 V DC, no ignition protection)
Characteristic curve (configurable)	Increasing or decreasing
Deviation	< 1 %

IMPORTANT (NOTE)

Without a signal from the positioner (e.g., "no energy" or "initializing") the module sets the output to > 20 mA (alarm level).

Module for digital position feedback¹⁾

Two switches for digital position feedback (position adjustable within the range of 0 ... 100%, ranges cannot overlap)

Current circuits acc. to DIN 19234 / NAMUR

Supply voltage	5 ... 11 V DC
Signal current < 1.2 mA	Switching state logical "0"
Signal current > 2.1 mA	Switching state logical "1"
Direction of action	normally logical "0" or logical "1" (configurable)

Module for the emergency shutdown function²⁾

Supply voltage	24 V DC (20 ... 30 V DC) (electrically isolated from input signal)
Safe position is activated when	Voltage < 5 V
Explosion protection	see certificate (operating instructions)
SIL	See "Safety Integrity Level"

A separate 24 V DC signal is normally applied to the emergency shutdown module, which connects through the signal from the microprocessor to the I/P module. When the 24 V DC signal is interrupted, the pneumatic module executes the respective safety function, depending on the mechanical construction:

The positioner output 1 is depressurized, and the valve is moved to the safe position. In case of a double-acting actuator the second output 2 is additionally pressurized.

IMPORTANT (NOTE)

The emergency shutdown module can only be used with pneumatics with the safe position "fail-safe".

The emergency shutdown module works independently of the mother board, i.e., all information from the final control element is available in the supervisory process control system at any time.

- 1) The module for analog position feedback and the module for digital position feedback plug in separate slots and can be used together.
- 2) The module for the emergency shutdown function uses the same space as the module for analog feedback and the module for analog or digital feedback and cannot be plugged in and run together with any of them.

Digital position feedback with proximity switches

Two proximity switches for independent position signaling. Switching points adjustable between 0 ... 100%

Current circuits acc. to DIN 19234 / NAMUR

Supply voltage	5 ... 11 V DC
Signal current < 1.2 mA	Switching state logical "0"
Signal current > 2.1 mA	Switching state logical "1"

Direction of action (logical state)

Proximity switch	Position			
	< Lim. 1	> Lim. 1	< Lim. 2	> Lim. 2
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1

IMPORTANT (NOTE)

When using proximity switch SJ2_S1N (NO), the positioner may only be used at an ambient temperature range of -25 ... 85 °C (-13 ... 185 °F).

Digital position feedback with 24 V microswitches

IMPORTANT (NOTE)

Only approved for Ex d version!

Two microswitches for independent position signaling. Switching points adjustable between 0 ... 100 %.

Voltage	max. 24 V AC / DC
Load rating	max. 2 A
Contact surface	10 µm Gold (AU)

Mechanical position indicator

Indicator disk in enclosure cover, linked with positioner feedback shaft through magnetic coupling.

IMPORTANT (NOTE)

These options are also available for retrofitting by Service.

Specifications

9.1.10 Accessories

Mounting material

Attachment kit for linear actuators to DIN / IEC 534 / NAMUR

Attachment kit for part-turn actuators to VDI / VDE 3845

Attachment kit for integral mounting to control valves

Attachment kit for actuator-specific attachment upon request

Ex d cable entry

Cable gland and pipe plug approved for Ex d, securing adhesive

Pressure gauge block

With pressure gauges for supply and output pressure. Pressure gauges with housing \varnothing 28 mm (1.10 inch), with connection block in aluminum, black with installation material for mounting on positioner

Filter regulator

All metal version in brass, varnished black, bronze filter element, 40 μ m, with condensate drain.

Max. pre-pressure 16 bar (232 psi), output adjustable to 1.4 ... 6 bar (20.31 ... 87.02 psi)

PC adapter for communication

LKS adapter f. plug conn. to positioner

FSK modem for HART communication

(see data sheet 63_6.71)

PC software for remote configuration and operation

DSV401 (SMART VISION) with DTM for TZIDC / TZIDC-200 available on CD ROM (see data sheet 63_1.20)

9.2 TZIDC-210

9.2.1 Communication

Profiles	Profibus PA profile for process devices
Block types	Electro-pneumatic actuators V3.0 1 AO Functional block 1 Transducer block 1 physical block
Physical Layer	In compliance with IEC 61158-2
Transmission rate	31.25 Kbit/s
Supply voltage	Power feed from the PA bus, 9.0 ... 32.0 V DC
Max. permissible voltage	35 V DC
Power consumption	10.5 mA
Current in the event of an error	15 mA (10.5 mA + 4.5 mA)

9.2.2 Description

Device name	TZIDC-X10
PNO ID no.	0x0639
Dev. ID	0X3200028xyz
Bus address	Between 0 and 126, default address 126

9.2.3 Output

Range	0 ... 6 bar (0 ... 90 psi)
Air capacity	at 1.4 bar (20 psi) supply pressure 5.0 kg/h = 3.9 Nm ³ /h = 2.3 scfm at supply pressure of 6 bar (90 psi) 13 kg/h = 10 Nm ³ /h = 6.0 scfm
Output function	For single or double-acting actuators, air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	end position 0 % = 0 ... 45 % end position 100 % = 55 ... 100 %

9.2.4 Travel

Rotation angle	
Used range	
25 ... 120°	rotary actuators, optionally 270°
25 ... 60°	linear actuators

Travel time prolongation

Setting range
0 ... 200 seconds, separately for each direction

9.2.5 Air supply

Instrument air	free of oil, water and dust acc. to DIN / ISO 8573-1 pollution and oil content according to Class 3 (purity: max. particle size: 5 μ m, max. particle density: 5 mg / m ³ ; oil content: max. concentration: 1 mg / m ³ ; pressure dew point: 10 K below operating temperature
Supply pressure	1.4 ... 6 bar (20 ... 90 psi)

IMPORTANT (NOTE)

i Do not exceed the maximum operating pressure of the actuator!

Air consumption	< 0.1 kg/h / 0.05 scfm (independent of supply pressure)
------------------------	---

9.2.6 Transmission data and influences

Output Y1

Increasing: Increasing output signal 0 ... 100 %
 Increasing pressure at output Y1
 Decreasing: Increasing output signal 0 ... 100 %
 Decreasing pressure at output Y1

Characteristic deviation ≤ 0,5 %
 Tolerance band 0.3 ... 10 %, adjustable
 Dead band 0,1 ... 10 %, adjustable
 Resolution (A/D conversion) > 16000 steps
 Sample rate 20 ms
 Influence of ambient temperature ≤ 0.5 % per 10 K
 Influence of vibration ≤ ± 1 % to 10 g and 80 Hz

Seismic requirements

Meets requirements of DIN / IEC 68-3-3 Class III for strong and strongest earthquakes.

Influence of mounting orientation

Not measurable.

Meets the requirements of the following directives

- EMC Directive 2004/108/EC
- EC Directive for CE conformity marking

9.2.7 Environmental capabilities

Ambient temperature

For operation, storage and transport: -40 ... 85 °C (-40 ... 185 °F)
 When using proximity switches SJ2-S1N (NO): -25 ... 85 °C (-13 ... 185 °F)

Relative humidity

Operational (with closed housing and air supply switched on): 95 % (annual average), condensation permissible
 Transport and storage: 75 % (annual average), non-condensing

9.2.8 Housing

Material / Degree of protection

Aluminum, protection class IP 65 (optional IP 66) / NEMA 4X

Surface / Color

Electrostatic dipping varnish with epoxy resin, stove-hardened. Case varnished black, RAL 9005, matte, housing cover Pantone 420.

Electrical connections

Screw terminals: Max. 1.0 mm² (AWG 17) for options
 Max. 2.5 mm² (14 AWG) for bus connector



IMPORTANT (NOTE)

Do not expose the terminals to strain.

Four thread combinations for cable entry and pneumatic connection

- Cable: thread 1/2-14NPT, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread G 1/4
 - Cable: thread G 1/2, air pipe: thread Rc 1/4
- (Optional: With cable gland(s) and pipe plugs if necessary)

Weight

3,0 kg (1,36 lb)

Mounting orientation

Any

Dimensions

See "Dimensions"

Specifications

9.2.9 Options

Module for the emergency shutdown function

Supply voltage	24 V DC (20 ... 30 V DC) (electrically isolated from input signal)
Safe position is activated when	Voltage < 5 V
Explosion protection	see certificate (operating instructions)

A separate 24 V DC signal is normally applied to the emergency shutdown module, which connects through the signal from the microprocessor to the I/P module.

When the 24 V DC signal is interrupted, the pneumatic module executes the respective safety function, depending on the mechanical construction:

The positioner output Y1 is depressurized, and the valve is moved to the safe position. In case of a double-acting actuator the second output Y2 is additionally pressurized.

i IMPORTANT (NOTE)
The emergency shutdown module can only be used with pneumatics with the safe position "fail-safe".

The emergency shutdown module works independently of the mother board, i.e. all information from the final control element is available in the supervisory process control system at any time.

Digital position feedback with proximity switches¹⁾

Two proximity switches for independent position signaling. Switching points adjustable between 0 ... 100%

Current circuits acc. to DIN 19234 / NAMUR

Supply voltage	5 ... 11 V DC
Signal current < 1 mA	Switching state logical "0"
Signal current > 2 mA	Switching state logical "1"

Direction of action (logical state)

Proximity switch	Position			
	< Lim. 1	> Lim. 1	< Lim. 2	> Lim. 2
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1

i IMPORTANT (NOTE)
When using SJ2_S1N (NO), the TZIDC positioner may only be used at an ambient temperature range from -25 ... 85 °C.

Digital position feedback with 24 V microswitches¹⁾

Two microswitches for independent position signaling. Switching points adjustable between 0 ... 100 %.

Voltage	max. 24 V AC / DC
Load rating	max. 2 A
Contact surface	10 µm Gold (AU)

Mechanical position indicator

Indicator disk in enclosure cover, linked with positioner feedback shaft through magnetic coupling.

i IMPORTANT (NOTE)
These options are also available for retrofitting by Service.

- 1) The proximity switches or 24 V microswitches for digital feedback are activated directly via the positioner axis and can only be used in combination with the optionally available mechanical position indicator.

9.2.10 Accessories

Mounting material

- Attachment kit for linear actuators to DIN/IEC 534 / NAMUR
- Attachment kit for rotary actuators to VDI / VDE 3845
- Attachment kit for integral mounting to control valves
- Attachment kit for actuator-specific attachment upon request

Pressure gauge block

- With pressure gauges for supply and output pressure.
- Pressure gauges with housing ø 28 mm (1.1 inch), with connection block in aluminum, black
- Installation material for mounting on positioner

Filter regulator

All metal version in brass, varnished black, bronze filter element (40 µm) and condensate drain.

Max. pre-pressure 16 bar (232.06 psi), output adjustable to 1.4 ... 6 bar (20 ... 90 psi)

PC software for configuration and operation

DSV401 (SMART VISION) with DTM available on CD-ROM

9.3 TZIDC-220

9.3.1 Communication

Specification	FOUNDATION Fieldbus, version 1.5
Physical Layer	Model 113, 121 (IEC 61158-2)
Transmission rate	31.25 Kbit/s
Block types	1 AO Function block 1 PID block 1 Resource block 1 Transducer block 1 physical block
Block class	AO block: standard PID block: enhanced Resource block: enhanced Transducer block: custom
Number of linkage objects	22
Device description (DD)	Rev. No. 1 (file name 0201.ffo, 0201.sym)
File	Common file format (file name: 020101.cff)
Max. execution time	AO block: 40 milliseconds PID block: 50 milliseconds
Supply voltage	Power feed from the fieldbus 9.0 ... c 32.0 V DC
Max. permissible voltage	35 V DC
Power consumption	11.5 mA
Current in the event of an error	15 mA (11.5 mA + 3.5 mA)
FF Certification	Registered with ITK 4.51, Dec.2003 IT Camp. Number IT023200
Device name	ABB TZIDC-200, TZIDC-210, TZIDC-220-TAG
Dev. ID	0003200028-TZIDC-200, TZIDC-210, TZIDC-220XXXXXXXXXX
Device address	Between 10 and 247, default address 23
ATEX certificate for FISCO	Yes
Insensitive to reversed polarity	Yes
Class	LM profile 32L, 31 PS
Factory default	The positioner is not delivered in an aligned state. To adjust the operating range and control parameters, an automatic configuration must be run on the unit. Otherwise, the transducer block remains in out-of-service mode.
Diagnostic functions	Self-diagnostics for the positioner hardware and software, valve diagnostics with enhanced alarm handling

9.3.2 Device name

Device name	ABB TZID-C220XXXXXXXXXX
Dev. ID	0X3200028-TZID-C220XXXXXXXXXX

9.3.3 Output

Range	0 ...6 bar (0 ... 90 psi)
Air capacity at 1.4 bar (20 psi) supply pressure	5.0 kg/h = 3.9 Nm ³ /h=2.3 scfm
at 6 bar (90 psi) supply pressure	13 kg/h = 10 Nm ³ /h = 6.0 scfm
Output function	For single or double-acting actuators, air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	End Position 0 % = 0 ... 45 % End position 100 % = 55 ... 100 %

9.3.4 Travel

Rotation angle Used range	
25 ... 120°	rotary actuators, optionally 270°
25 ... 60°	linear actuators
Travel time prolongation Setting range	0 ... 200 seconds, separately for each direction

9.3.5 Air supply

Instrument air	free of oil, water and dust acc. to DIN / ISO 8573-1 pollution and oil content according to Class 3 (purity: max. particle size: 5 µm, max. particle density: 5 mg / m ³ ; oil content: max. concentration: 1 mg / m ³ ; pressure dew point: 10 K below operating temperature
Supply pressure	1.4 ... 6 bar (20 ... 90 psi)

IMPORTANT (NOTE)
Do not exceed the maximum operating pressure of the actuator!

Air consumption	< 0.1 kg/h / 0.05 scfm (independent of supply pressure)
------------------------	---

Specifications

9.3.6 Transmission data and influences

Direction of action (output signal or pressure in actuator)	
Increasing	Increasing output signal 0 ... 100 % Increasing pressure y1 in the actuator
Decreasing	Increasing output signal 0 ... 100 % Decreasing pressure y1 in the actuator

Characteristic deviation	< 0.5 %
Tolerance band	0.3 ... 10 %, adjustable
Dead band	0.1 ... 5 %, adjustable
Resolution (A/D conversion)	> 16000 steps
Sample rate	20 ms
Influence of ambient temperature	< 0.5 % for each 10 K
Influence of vibration	≤ ± 1 % to 10 g and 80 Hz

Seismic requirements

Meets requirements of DIN / IEC 68-3-3 Class III for strong and strongest earthquakes.

Influence of mounting orientation

Not measurable.

Meets the requirements of the following directives

- EMC Directive 2004/108/EC as of December 2004
- EC Directive for CE conformity marking

9.3.7 Environmental capabilities

Ambient temperature

For operation, storage and transport:	-40 ... 85 °C (-40 ... 185 °F)
When using proximity switches SJ2-S1N (NO):	-25 ... 85 °C (-13 ... 185 °F)

Relative humidity

Operational (with closed housing and air supply switched on):	95 % (annual average), condensation permissible
Transport and storage:	75 % (annual average), non-condensing

9.3.8 Housing

Material / Degree of protection

Aluminum, protection class IP 65 (optional IP 66) / NEMA 4X

Surface / Color

Electrostatic dipping varnish with epoxy resin, stove-hardened. Case varnished black, RAL 9005, matte, housing cover Pantone 420.

Electrical connections

Screw terminals: Max. 1.0 mm² (AWG 17) for options
Max. 2.5 mm² (14 AWG) for bus connector



IMPORTANT (NOTE)

Do not expose the terminals to strain.

Four thread combinations for cable entry and pneumatic connection

- Cable: thread 1/2-14NPT, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread 1/4-18 NPT
 - Cable: thread M20 x 1,5, air pipe: thread G 1/4
 - Cable: thread G 1/2, air pipe: thread Rc 1/4
- (Optional: With cable gland(s) and pipe plugs if necessary)

Weight

3,0 kg (1,36 lb)

Mounting orientation

Any

Dimensions

See "Dimensions"

9.3.9 Options

Module for the emergency shutdown function

Supply voltage 24 V DC (20 ... 30 V DC)
(electrically isolated from input signal)
Safe position is activated when Voltage < 5 V
Explosion protection Ex ia IIC

Without the separate 24 V DC feed, the positioner moves into safe position independent of the processor by depressurizing the actuator. In addition, the feed for the I/P module is isolated via an optocoupler. Communication and feedback remain active because the positioner is fed via a bus line. The shutdown switching input is electrically isolated from the setpoint signal.

The emergency shutdown function can save use of additional solenoid valves and has a safety certificate from TÜV Rheinland acc. to AK4. The plug-in module also has an Ex certificate for use in intrinsically safe circuits.

Mechanical position indicator

- Indicator disk
- Cover with transparent dome
- Symbol label
- Extension shaft

Digital position feedback with proximity switches

Two proximity switches for independent position signaling. Switching points adjustable between 0 ... 100%
Current circuits acc. to DIN 19234 / NAMUR
Supply voltage 5 ... 11 V DC
Signal current < 1.0 mA Switching state logical "0"
Signal current > 2.0 mA Switching state logical "1"
(function dependent on software and electronics for actuator)

Direction of action (logical state)

Proximity switch	Position			
	< Lim. 1	> Lim. 1	< Lim. 2	> Lim. 2
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1

Digital position feedback with 24 V microswitches*

Two microswitches for independent position signaling. Switching points adjustable between 0 ... 100 %.
Voltage max. 24 V AC / DC
Load rating max. 2 A
Contact surface 10 µm Gold (AU)

Mechanical position indicator

Indicator disk in enclosure cover, linked with positioner feedback shaft through magnetic coupling.

* The "digital feedback" is activated directly from the axis of rotation for the variable pick-off and can only be used with the "mechanical position indicator".



IMPORTANT (NOTE)

These options are also available for retrofitting by Service.

9.3.10 Accessories

Mounting material

- Attachment kit for linear actuators to DIN/IEC 534 / NAMUR
- Attachment kit for rotary actuators to VDI/VDE 3845
- Attachment kit for integral mounting to control valves
- Attachment kit for actuator-specific attachment upon request

Pressure gauge block

- Pressure gauges for supply and output pressure
- Pressure gauges with housing ø 28 mm
- Aluminum connection block in black
- Installation material for mounting on positioner

Filter regulator

All metal version in brass, varnished black, bronze filter element (40 µm) and condensate drain.
Max. pre-pressure 16 bar (232 psi), output adjustable to 1.4 ... 6 bar (20.31 ... 90 psi)

10 Ex relevant specifications

10.1 TZIDC-200

FM Approval HLC 8/02 3010829

Explosion Proof; enclosure 4X; T5, max. 82 °C
CL I; Div 1; Grp. C-D

Intrinsic Safety; enclosure 4X; T5, max. 82 °C
CL I, II, III; Div 1; Grp. A-B-C-D-E-F-G

Non-Incendive; enclosure 4X ; T4, max. 85 °C
CL I; Div 2; Grp. A-B-C-D
CL II, III; Div 2; Grp. F-G

Dust-Ignition Proof; enclosure 4X; T5, max. 82 °C
CL II, III; Div 1; Grp. E-F-G

CSA Certification 1393920

Explosion Proof; enclosure 4X; T5, max. 85 °C
CL I; Div 1; Grp. C-D

CL II; Div 1; Grp. E-F-G

CL III

Intrinsic Safety; enclosure 4X; T5, max. 82 °C

CL I; Div 1; Grp. A-B-C-D

CL II; Div 1; Grp. E-F-G

CL III

ATEX / GOST Russia / GOST Ukraine

Type-Examination Test Certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature:

II 2G EEx d II C T4/T5/T6

DMT 02 ATEX E 029 X

Flameproof enclosure

II 2G (EEx ib IIC)

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 80 °C

T6: -40 °C < T_{amb} < 65 °C

ATEX

Type-Examination Test Certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature:

II 2G EEx ib IIC T6

TÜV 98 ATEX 1370 X

Intrinsically safe equipment

II 2G (EEx ib IIC)

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 50 °C

T6: -40 °C < T_{amb} < 35 °C

IECEX

Type-Examination Test Certificate:

Type:

Temperature class:

Permissible ambient temperature:

Ex ib IIC T6

IECEX TUN 04.0015X,
Issue no.: 4

Intrinsic safety

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 50 °C

T6: -40 °C < T_{amb} < 40 °C

IECEX Ex d

Type-Examination Test Certificate:

Type:

Temperature class:

Permissible ambient temperature:

Ex d IIC T4/T5/T6

IECEX BVS 07.0030X,
Issue No.: 0

Flameproof enclosures 'd'

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 80 °C

T6: -40 °C < T_{amb} < 65 °C

10.2 TZIDC-210

FM Approval

TZIDC-210 Positioner, Model V18349-a014b3cd3ef
 IS/I,II,III/1/ABCDEF/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C-901265
 Entity, FISCO

Entity and FISCO Parameters							
Terminals	Type	Groups	Parameters				
			Vmax	I _{max}	P _i	C _i	L _i
+11 / -12	Entity	A-G	24 V	250 mA	1.2 W	2.8 nF	7.2 uH
+11 / -12	FISCO	A-G	17.5 V	360 mA	2.52 W	2.8 nF	7.2 uH
+11 / -12	FISCO	C-G	17.5 V	380 mA	5.32 W	2.8 nF	7.2 uH
+51 / -52	Entity	A-G	16 V	20 mA	-	60 nF	100 uH
+41 / -42	Entity	A-G	16 V	20 mA	-	60 nF	100 uH
+85 / -86	Entity	A-G	30 V	-	-	3.7 nF	< 1 uH

NI/II/2/ABCD/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C
 S/II,III/2/EFG/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C
 Enclosure type 4x

- a = Case/mounting – 1, 2, 3, 4, 5 or 6
- b = Output/safe protection – 1, 2, 3 or 4
- c = Option modules (shutdown) – 0 or 5
- d = Optional mechanical kit for digital position feedback – 0, 1 or 2
- e = Design (varnish/coding) – 1 or 2
- f = Device identification label – 0, 1 or 2

TZIDC-210 Positioner, Model V18349-a012b3cd3ef
 XP/II/2/CD/T6, T5, T4 TA = 82 °C
 DIP/II, III/2/FG/T6, T5, T4 Ta = 82 °C
 Enclosure type 4x

- a = Case/mounting – 1, 2, 3, 4, 5 or 6
- b = Output/safe protection – 1, 2, 3 or 4
- c = Option modules (shutdown) – 0 or 5
- d = Optional mechanical kit for digital position feedback – 0, 1 or 2
- e = Design (varnish/coding) – 1 or 2
- f = Device identification label – 0, 1 or 2

CSA Certification 1555690
 Explosion proof; enclosure 4X
 Temperature range: -40 ... 85 °C
 T5, max. 85 °C ; T6, max. 70 °C
 CL I; Div 1; Grp. C-D
 CL II; Div 1; Grp. E-F-G
 CL III

ATEX / GOST Ukraine

Type-Examination Test Certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

II 2G Ex d II C T4/T5/T6

DMT 02 ATEX E 029 X

Flameproof enclosure

II 2G (Ex ib IIC)

T4, T5, T6

T5: -40 °C < T_{amb} < 80 °C

T6: -40 °C < T_{amb} < 65 °C

ATEX

Type-Examination Test Certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

II 2G Ex ia II C T6

TÜV 02 ATEX 1831 X

Intrinsically safe equipment

II 2G (Ex ia IIC)

T4, T5, T6

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

IECEX

Type-Examination Test Certificate:

Type:

Temperature class:

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

Ex ia IIC T6

IECEX TUN 04.0015X, Issue no.: 0

Intrinsically safe

T4, T5, T6

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

Signal circuit for PROFIBUS PA only for connecting to a certified intrinsically-safe circuit (e.g., FISCO power supply unit or barriers) with max. values acc. to:

	FISCO power supply ia/ib for Grp. IIB/IIC	FISCO power supply ia/ib for Grp. IIB/IIC	Barriers or power supply ia/ib for Grp. IIB/IIC
Voltage	U _i = 17.5 V	U _i = 17.5 V	U _i = 24 V
Current	I _i = 380 mA	I _i = 360 mA	I _i = 250 mA
Power	P _i = 5.32 W	P _i = 2.52 W	P _i = 1.2 W
Characteristic curve	rectangular	trapezoidal	Linear

Ex relevant specifications

10.3 TZIDC-220

FM Approval

TZIDC-220 Positioner, Model V18350-a014b3cd4ef
IS/I,II,III/1/ABCDEF/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C-901265
Entity, FISCO

Entity and FISCO Parameters							
Terminals	Type	Groups	Parameters				
			Vmax	I _{max}	P _i	C _i	L _i
+11 / -12	Entity	A-G	24 V	250 mA	1.2 W	2.8 nF	7.2 uH
+11 / -12	FISCO	A-G	17.5 V	360 mA	2.52 W	2.8 nF	7.2 uH
+11 / -12	FISCO	C-G	17.5 V	380 mA	5.32 W	2.8 nF	7.2 uH
+51 / -52	Entity	A-G	16 V	20 mA	-	60 nF	100 uH
+41 / -42	Entity	A-G	16 V	20 mA	-	60 nF	100 uH
+85 / -86	Entity	A-G	30 V	-	-	3.7 nF	< 1 uH

NI/II/2/ABCD/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C
S/II,III/2/EFG/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C
Enclosure type 4x

a = Case/mounting – 1, 2, 3, 4, 5 or 6
b = Output/safe protection – 1, 2, 3 or 4
c = Option modules (shutdown) – 0 or 5
d = Optional mechanical kit for digital position feedback – 0, 1 or 2
e = Design (varnish/coding) – 1 or 2
f = Device identification label – 0, 1 or 2

TZIDC-220 Positioner, Model V18350-a012b3cd4ef
XP/II/2/CD/T6, T5, T4 TA = 82 °C
DIP/II, III/2/FG/T6, T5, T4 Ta = 82 °C
Enclosure type 4x

a = Case/mounting – 1, 2, 3, 4, 5 or 6
b = Output/safe protection – 1, 2, 3 or 4
c = Option modules (shutdown) – 0 or 5
d = Optional mechanical kit for digital position feedback – 0, 1 or 2
e = Design (varnish/coding) – 1 or 2
f = Device identification label – 0, 1 or 2

CSA Certification 1555690

Explosion proof; enclosure 4X
Temperature range: -40 ... 85 °C
T5, max. 85 °C ; T6, max. 70 °C
CL I; Div 1; Grp. C-D
CL II; Div 1; Grp. E-F-G
CL III

ATEX / GOST Ukraine

Type-Examination Test Certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature:

II 2G Ex d II C T4/T5/T6

DMT 02 ATEX E 029 X

Flameproof enclosure for equipment

II 2G (Ex ib IIC)

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 80 °C

T6: -40 °C < T_{amb} < 65 °C

ATEX

Prototype test certificate:

Type:

Device class:

Temperature class:

Permissible ambient temperature:

II 2G Ex ia II C T6

TÜV 02 ATEX 1831 X

Intrinsically safe equipment

II 2G (Ex ia IIC)

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

IECEX

Prototype test certificate:

Type:

Temperature class:

Permissible ambient temperature:

Ex ia IIC T6

IECEX TUN 04.0015X, Issue no.: 0

Intrinsically safe

T4, T5, T6

T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

Signal circuit for FOUNDATION fieldbus only for connecting a certified intrinsically safe circuit (e.g., FISCO power supply or barriers) with max. values acc. to:






	FISCO power supply ia/ib for Grp. IIB/IIC	FISCO power supply ia/ib for Grp. IIB/IIC	Barriers or power supply ia/ib for Grp. IIB/IIC
Voltage	U _i = 17.5 V	U _i = 17.5 V	U _i = 24 V
Current	I _i = 380 mA	I _i = 360 mA	I _i = 250 mA
Power	P _i = 5.32 W	P _i = 2.52 W	P _i = 1.2 W
Characteristic curve	rectangular	trapezoidal	Linear

11 Appendix

11.1 Other applicable documents

- TZIDC-200, TZIDC-210, TZIDC-220 Commissioning Instructions (CI/TZIDC-200/210/220)
- TZIDC Configuration-, Parameterization Instruction TZIDC, TZIDC-1x0, TZIDC-2x0 (45/18-79)
- TZIDC-200 Data Sheet (10/18-0.32)
- TZIDC-210 Data Sheet (10/18-0.33)
- TZIDC-220 Data Sheet (10/18-0.34)

11.2 Approvals and certifications

CE mark		<p>The version of the meter in your possession meets the requirements of the following European directives:</p> <ul style="list-style-type: none"> - EMC directive 2004/108/EC - ATEX directive 94/9/EC
Explosion Protection	   	<p>Identification for intended use in potentially explosive atmospheres according to:</p> <ul style="list-style-type: none"> - ATEX directive (marking in addition to CE marking) - IEC standards - FM Approvals (US) - CSA International (Canada)



IMPORTANT (NOTE)

All documentation, declarations of conformity, and certificates are available in ABB's download area.

www.abb.com/instrumentation



EG-KONFORMITÄTSERKLÄRUNG

EC DECLARATION OF CONFORMITY
ATTESTATION DE CONFORMITE C.E.

Hersteller:	ABB Automation Products GmbH
<i>Manufacturer / Fabricant:</i>	Minden
Anschrift:	Schillerstraße 72
<i>Address / Adresse:</i>	D-32425 Minden
Produktbezeichnung:	Elektropneumatische Stellungsregler - TZIDC, TZIDC-110, TZIDC-120, TZIDC-200, TZIDC-210, TZIDC-220
<i>Product name:</i>	<i>Electro-Pneumatic Positioners - TZIDC, TZIDC-110, TZIDC-120, TZIDC-200, TZIDC-210, TZIDC-220</i>
<i>Désignation du produit:</i>	<i>Positionneur Electro-Pneumatique - TZIDC, TZIDC-110, TZIDC-120, TZIDC-200, TZIDC-210, TZIDC-220</i>

Das Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein:

*This product meets the requirements of the following European directives:
Les produits répondent aux exigences des Directives C.E. suivantes:*

2004/108/EG	EMV-Richtlinie *
<i>2004/108/EC</i>	<i>Electromagnetic Compatibility Directive *</i>
<i>2004/108/CE</i>	<i>Directives concernant la compatibilité électromagnétique *</i>

Für Geräte in Ex-Ausführung gemäß Kennzeichnung auf Typschild gilt zusätzlich:

*For products in Ex design according to identification on nameplate the following is additionally applicable:
Pour des produits en exécution Ex selon marque sur plaque signalétique le suivant est aussi applicable:*



94/9/EG	ATEX-Richtlinie
<i>94/9/EEC</i>	<i>ATEX Directive</i>
<i>94/9/C.E.E.</i>	<i>ATEX Directive</i>

* einschließlich Änderungen und deutscher Umsetzung durch das EMVG und Gerätesicherheitsgesetz

* including alterations and German realization by the EMC law and the instruments safety law

* y compris les modifications et la réalisation allemande par la loi concernant la compatibilité électromagnétique et la sécurité d'appareils

Die Übereinstimmung mit den Vorschriften dieser Richtlinien wird nachgewiesen durch die vollständige Einhaltung folgender Normen:

*Conformity with the requirements of these Directives is proven by complete adherence to the following standards:
La conformité avec les exigences de ces directives est prouvée par l'observation complète des normes suivantes:*

EN 61 000-6-1 / EN 61 000-6-2 / EN 61 000-6-3 / EN 61 000-6-4

Ex: Es gelten die Normen der entsprechenden EG-Baumusterprüfbescheinigungen

*The standards of the relevant type-examination certificates shall apply
Il convient d'appliquer les normes des certificats d'homologation CE*

02.07.2009

Datum
Date
Date

Dr. Wolfgang Scholz
Leiter R&D
Head of R&D
Responsable R&D

Bernhard Kruse
Leiter Qualitätsmanagement
Head of Quality Management
Responsable Management de la Qualité

EG-Konformität-TZIDC_07.2009.doc

Statement on the contamination of devices and components

Repair and / or maintenance work will only be performed on devices and components if a statement form has been completed and submitted.

Otherwise, the device / component returned may be rejected. This statement form may only be completed and signed by authorized specialist personnel employed by the operator.

Customer details:

Company: _____

Address: _____

Contact person: _____ Telephone: _____

Fax: _____ E-mail: _____

Device details:

Type: _____ Serial no.: _____

Reason for the return/description of the defect: _____

Was this device used in conjunction with substances which pose a threat or risk to health?

Yes No

If yes, which type of contamination (please place an X next to the applicable items)?

Biological Corrosive / irritating Combustible (highly / extremely combustible)

Toxic Explosive Other toxic substances

Radioactive

Which substances have come into contact with the device?

1. _____

2. _____

3. _____

We hereby state that the devices / components shipped have been cleaned and are free from any dangerous or poisonous substances.

Town/city, date

Signature and company stamp

12 Index

A	
Accessories.....	44, 46, 49
Actuator stroke, adjust.....	20
Air supply.....	41, 44, 47
Appendix.....	53
Approvals and certifications.....	53
C	
Cable entry.....	26
Claims for damages.....	9
Commissioning.....	30
Communication interface.....	24
Contamination of devices.....	55
Control mode.....	31
D	
Damage in transit.....	9
Dead band.....	35
Design and function.....	13
Disposal.....	11
E	
Environmental capabilities.....	42, 45, 48
Ex relevant safety instructions.....	12
Ex relevant specifications.....	50
F	
Functional check for emergency shutdown module	40
G	
General.....	14
General information and notes for the reader.....	5
H	
Hazardous materials.....	10
Housing.....	42, 45, 48
I	
Information on WEEE Directive 2002/96/EC.....	11
Installation location.....	14
Installation safety information.....	9
Instrument air.....	28
Integrated management system.....	10
Intended use.....	5
M	
Maintenance.....	39
Mechanical digital feedback with proximity switches	27
Mechanical feedback with micro switches for 24 V.....	27
Mechanical mount.....	14
Mechanical position indicator.....	26
Minimum angle.....	20
Mounting.....	14
Mounting kit.....	16
Mounting on linear actuators.....	16
Mounting on part-turn actuator.....	21
N	
Name plate.....	8
Note symbols.....	7
O	
Operating conditions at installation site.....	14
Operating mode.....	31, 37
Operating range.....	14, 29
Operating safety information.....	9
Options.....	43, 46, 49
Other applicable documents.....	53
Output.....	41, 44, 47
P	
Pipe connection.....	29
Piping connections.....	29
Plates and symbols.....	7
Pneumatic connection.....	28
Position indicator.....	31, 37
R	
Returning devices.....	10
RoHS Directive 2002/95/EC.....	11
Rotation angle.....	30, 34
S	
Safety.....	5
Safety information for electrical installation.....	9
Safety Integrity Level.....	42
Screw terminal assignments.....	25
Sensor range.....	15
Setpoint current.....	30
Setting the mechanical feedback.....	26
Specifications.....	41
Storage conditions.....	8
T	
Target groups and qualifications.....	6
Tolerance band.....	35
Transmission data and influences.....	42, 45, 48
Transport safety information.....	8
Travel.....	41, 44, 47

W	Z
Warranty6	Zero position32, 38
Warranty provisions6	

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