EN

English

Commissioning Instructions

Electro-Pneumatic Positioner
D400

SIL 2

Ex

HART
COMMUNICATION PROTOCOL

PROFI
BUS

Fieldbus
Foundation

VAC

Electro-Pneumatic Positioner
D400

Commissioning Instruction - EN

CI/TZIDC/110/120-EN

06.2009

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Contents

1   Safety

1.1   General information and notes for the reader

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 later use.

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 in case 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 a safe, maintenance-free state. 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 information 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

D400 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.

ATTENTION – <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 (NOTICE)

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.

1.6 Safety information for electrical installation

The electrical connections may only be performed by authorized specialist personnel according to the electrical plans.

Comply with electrical connection information in the instruction. Otherwise, the electrical protection class can be affected.

The secure separation of contact-dangerous electrical circuits is only ensured when the connected devices fulfil the requirements of the DIN EN 61140 (VDE 0140 Part 1) (basic requirements for secure separation).

For secure separation, run the supply lines separated from contact-dangerous electrical circuits or additionally insulate them.

1.7 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.

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 the positioner:

i **Important**

Observe with the unit's relevant technical data and the special conditions in accordance with the relevant certificate.

- Manipulation of the device by users is not permitted. Modifications to the unit 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 unit without 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 nor oxygen or oxygen-enriched gas.

i **Important – 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 ≥ IP 65.

- Avoid hazardous sliding brush discharges.

3 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 D400 positioner that was used at another
location, the device must always be reset to factory settings. Never start Autoadjust before restoring factory settings.

3.1 Operating conditions at installation site

ℹ **Important**
Before installation, check whether the D400 positioner meets the
control and safety requirements for the installation location (actuator or valve).
See the „Specifications" chapter in the operating instructions or on the data sheet.

3.2 Mechanical mount

3.2.1 General
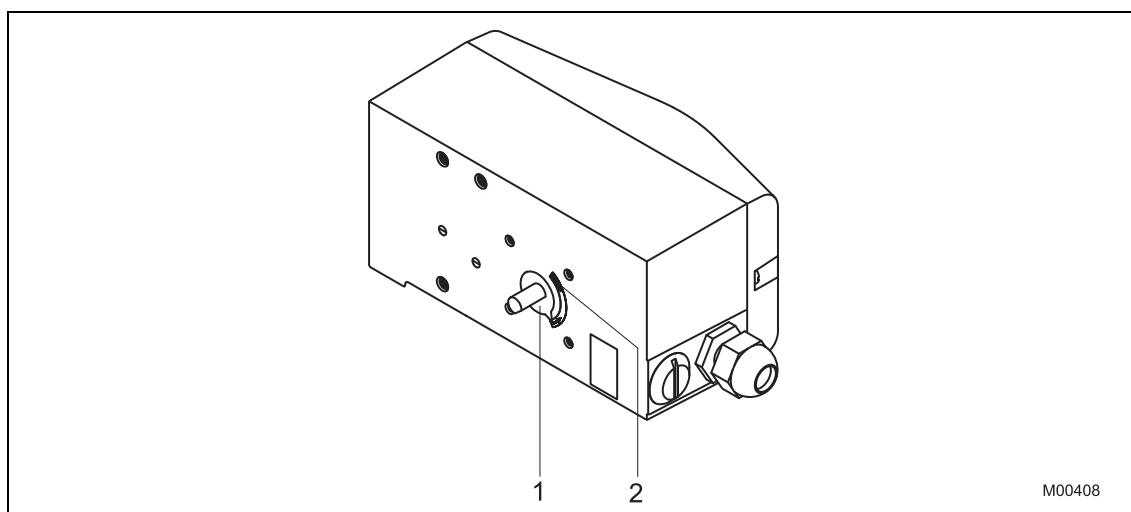
Fig. 1: Operating range

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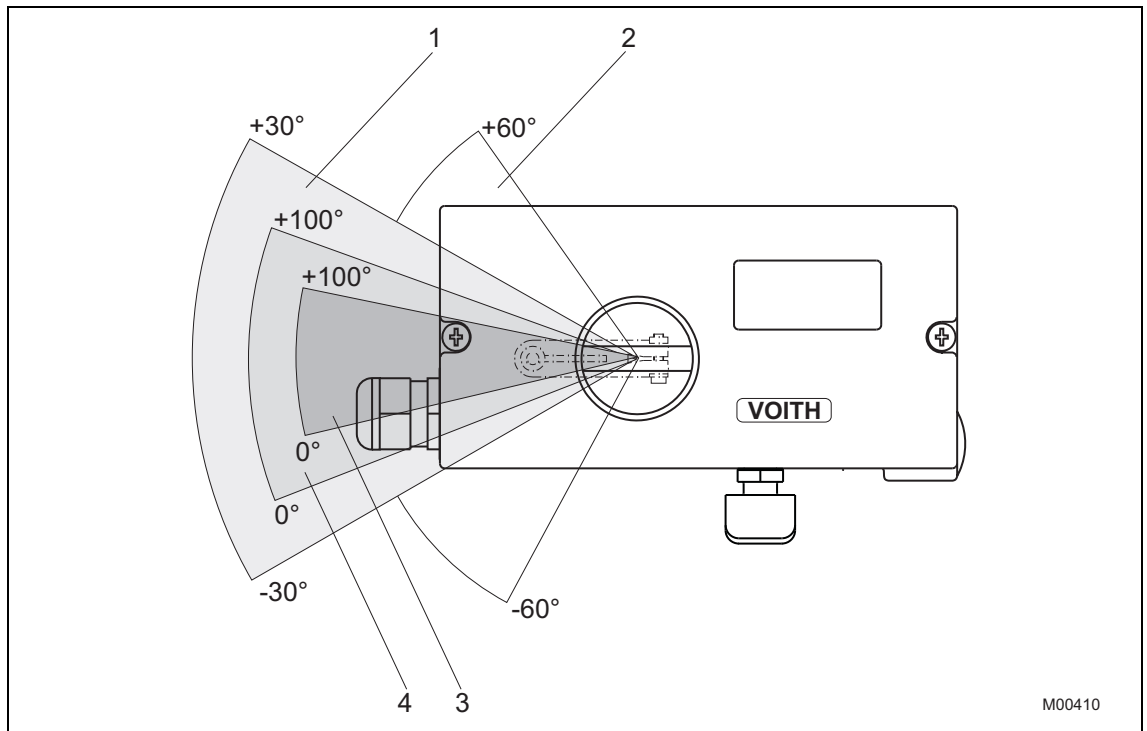
Fig. 2: Positioner range

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**

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°.

3.2.2 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:
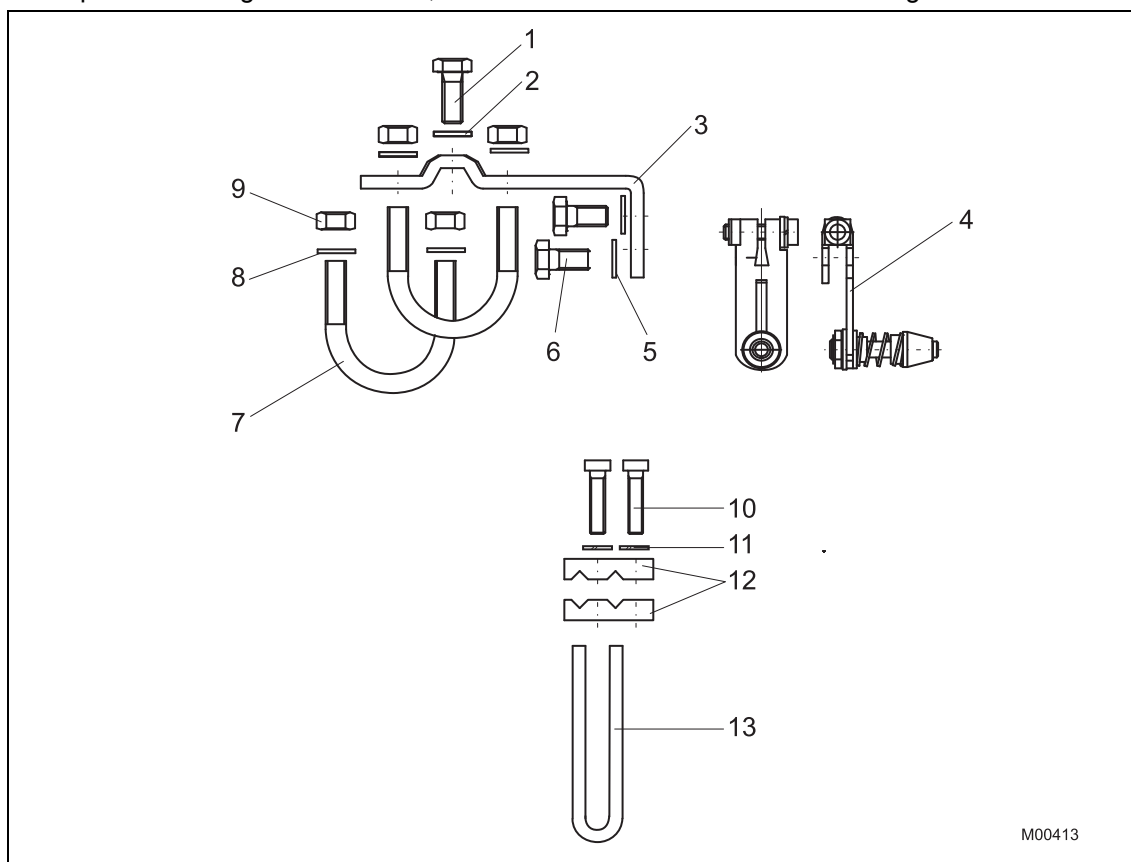
Fig. 3: Mounting kit for linear actuators

- 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 to cast iron yoke

- Two U-bolts (7) with two shims (8) and two nuts (9) for mounting to columnar yoke

Required tools:

- Wrench, size 10 / 13

- Allen key, size 4

Procedure:

1. Attach follower guide to actuator

Fig. 4

i **Important**

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. Mount the lever and bracket on the positioner
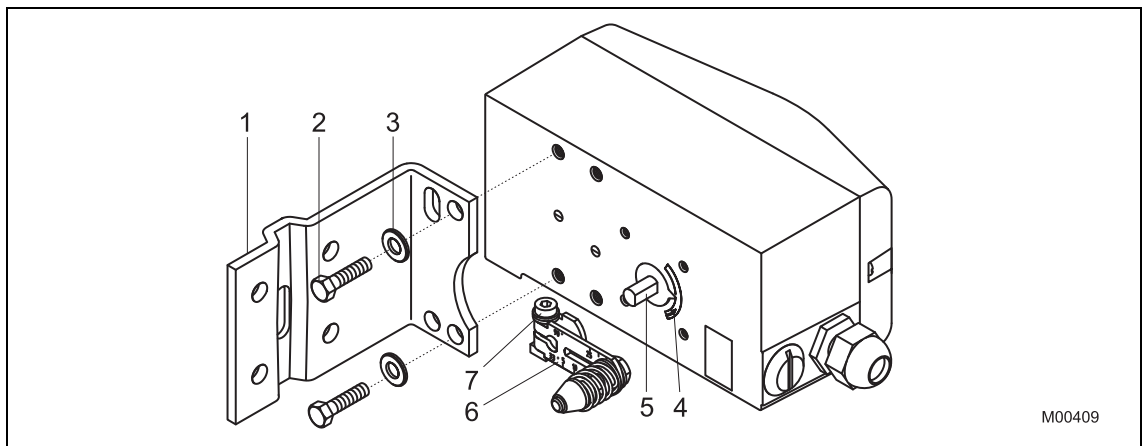
Fig. 5

- 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)

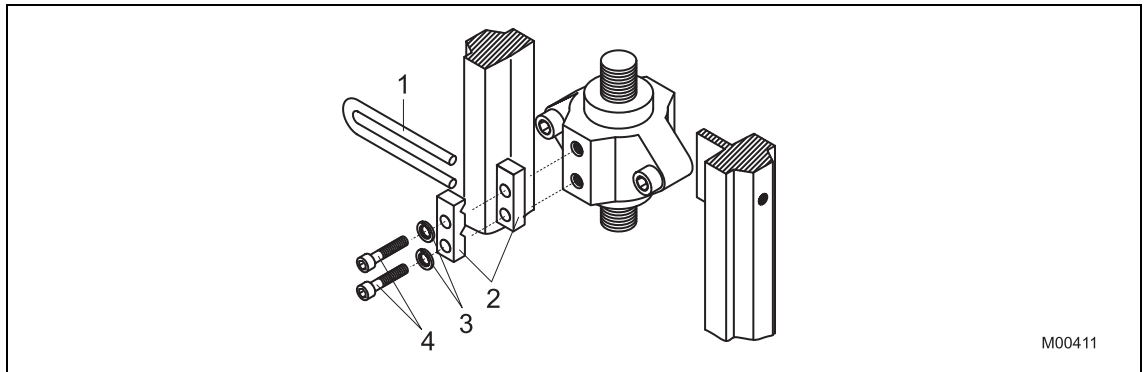- Using the arrow marks (4) check whether the lever moves within the operating range (between the arrows)

- 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))

3.a Mounting on cast iron yoke
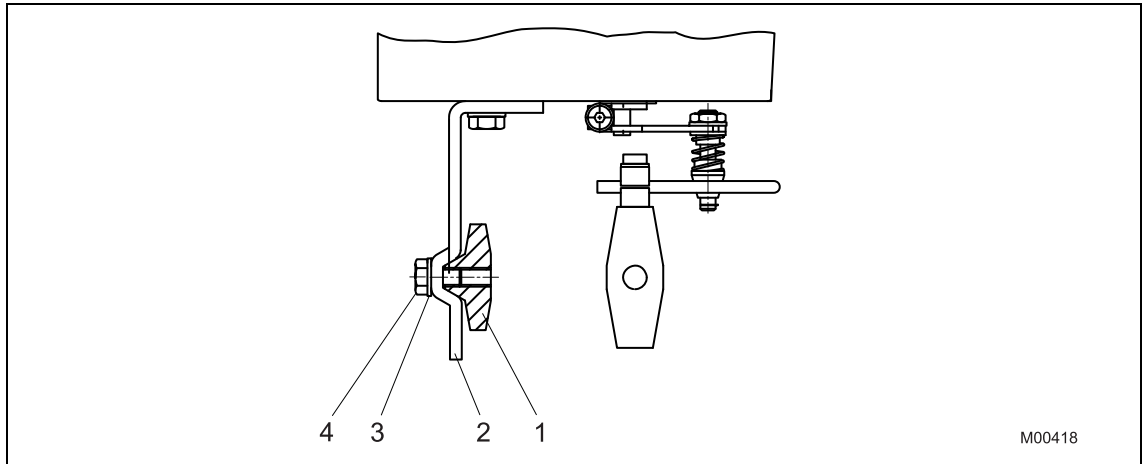
Fig. 6

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

or

3.b Mounting on columnar yoke
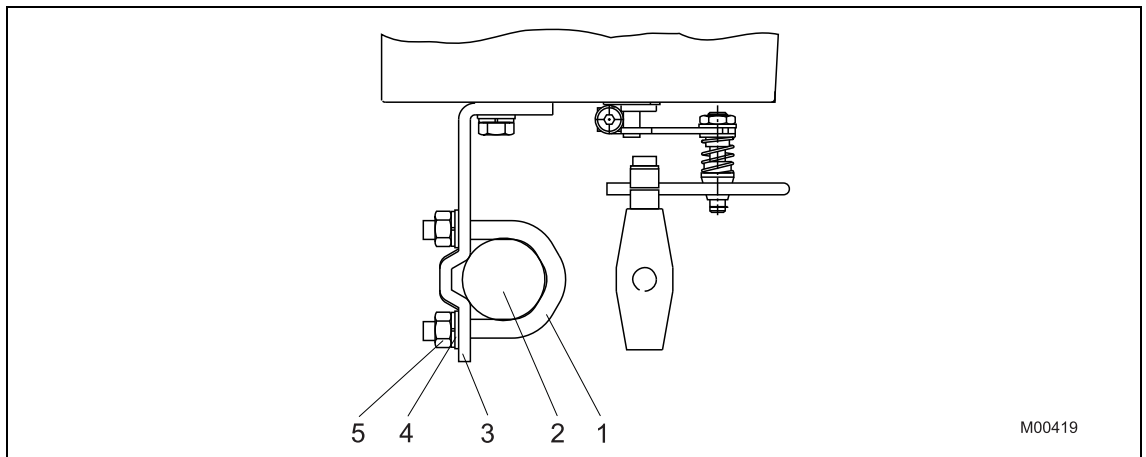
Fig. 7

• Hold the mount bracket (3) in the proper position on the columnar yoke (2)

• Insert the U-bolts (1) from the inside of the columnar yoke (2) through the holes for the mount bracket

• Add the washers (4) and nuts (5). Hand tighten the nuts

i **Important**
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.
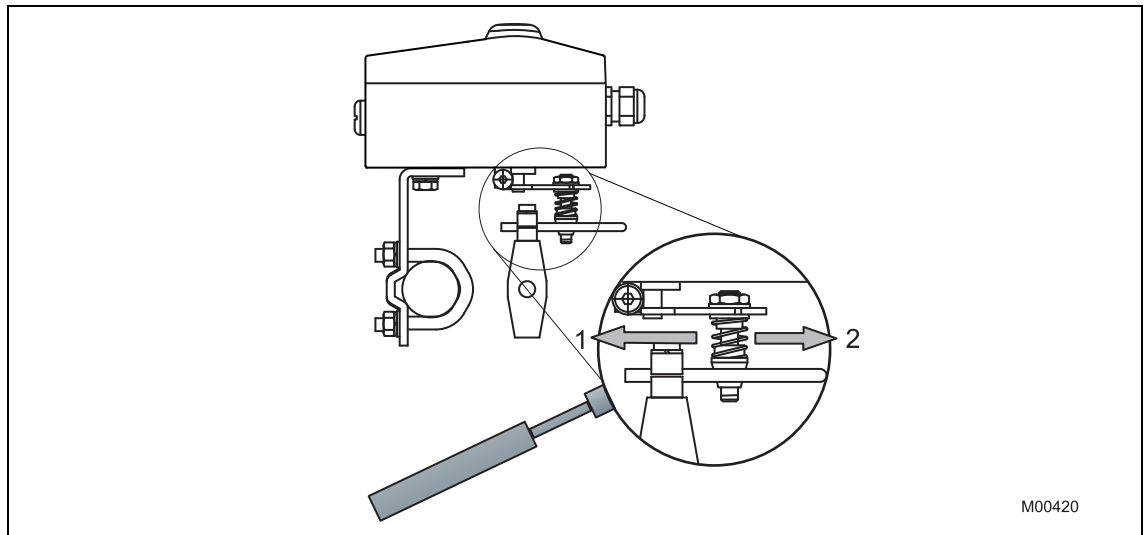
Fig. 8: Linkage for positioner
1 larger
2 smaller

The scale on the lever indicates the link point for the various stroke ranges of the valve.
Move the bolt with the follower guide into the oblong hole of the lever to adjust the stroke range of the valve to the operating range for the position sensor.
Moving the link point inward increases the rotation angle of the sensor. Moving the link point outward reduces the sensor's rotation angle.

Adjust the actuator stroke to make use of as large an angle of rotation as possible (symmetrical around the center position).

Recommended range for linear actuators:	between -28 ... 28°
Minimum angle:	25°

Important

After mounting the unit check whether the positioner is operating within the sensor range.

3.2.3 Mounting on rotary actuators

For mounting on rotary actuators in accordance with VDI / VDE 3845, the following mounting kit is available:
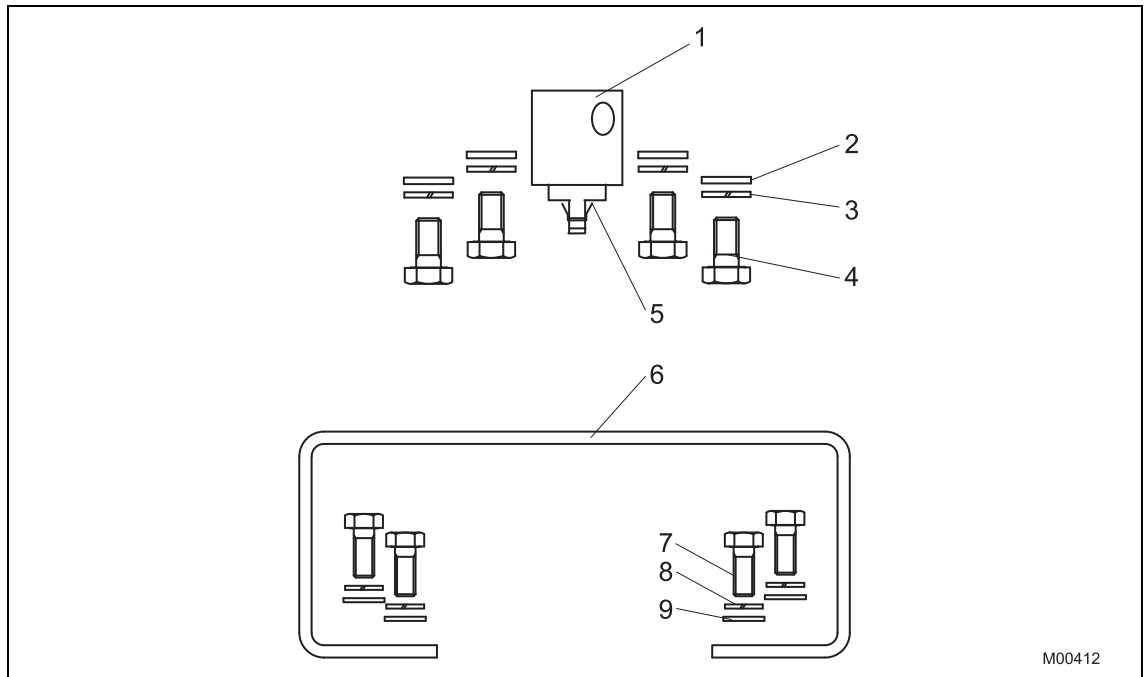
Fig. 9

- Adapter (1) with spring (5)

- each four screws M6 (4), spring washers (3) and shim (2) to attach the mounting bracket (6) on the positioner

- each four screws M5 (7), spring washers (8) and shim (9) to attach the mounting bracket on the actuator

Required tools:

- Wrench, size 10 / 13

- Allen key, size 3

Procedure:

1. Mounting the adapter on the positioner
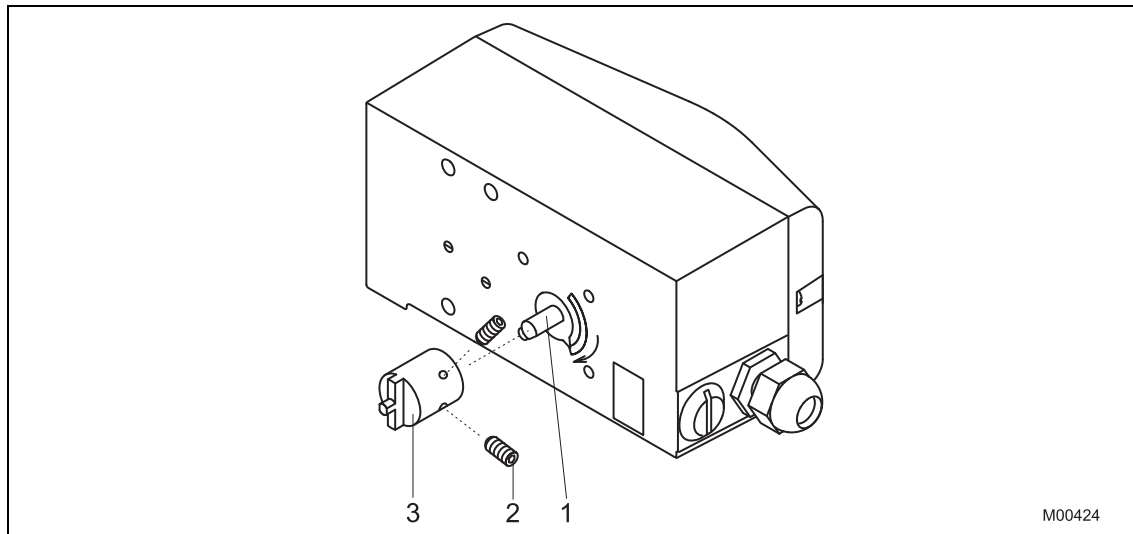
Fig. 10

- Determine the mounting position (parallel to actuator or at 90° angle)

- Calculate the rotational direction of the actuator (right or left)

- Move the rotary 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. 1)

- 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. Attach mounting bracket on the positioner
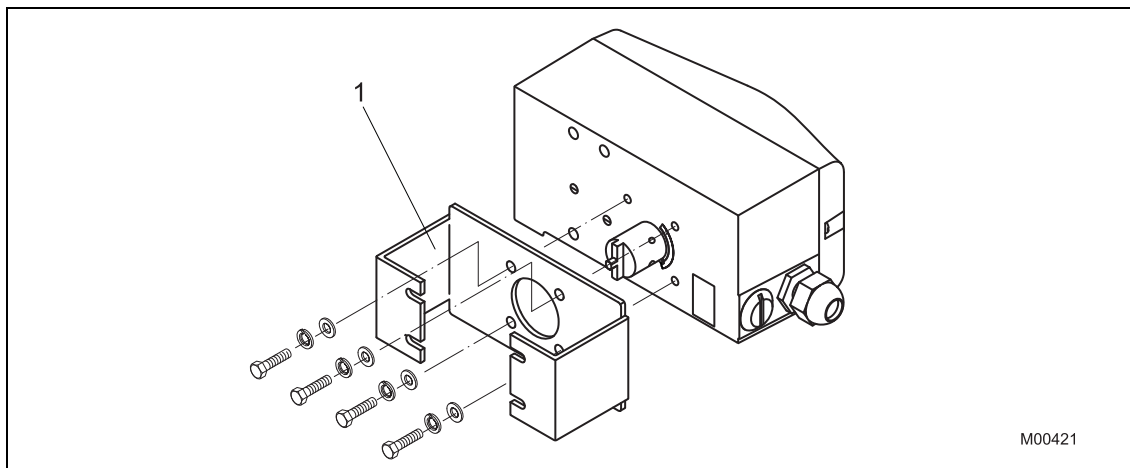
Fig. 11
1   Mounting bracket

3. Attach positioner to the actuator
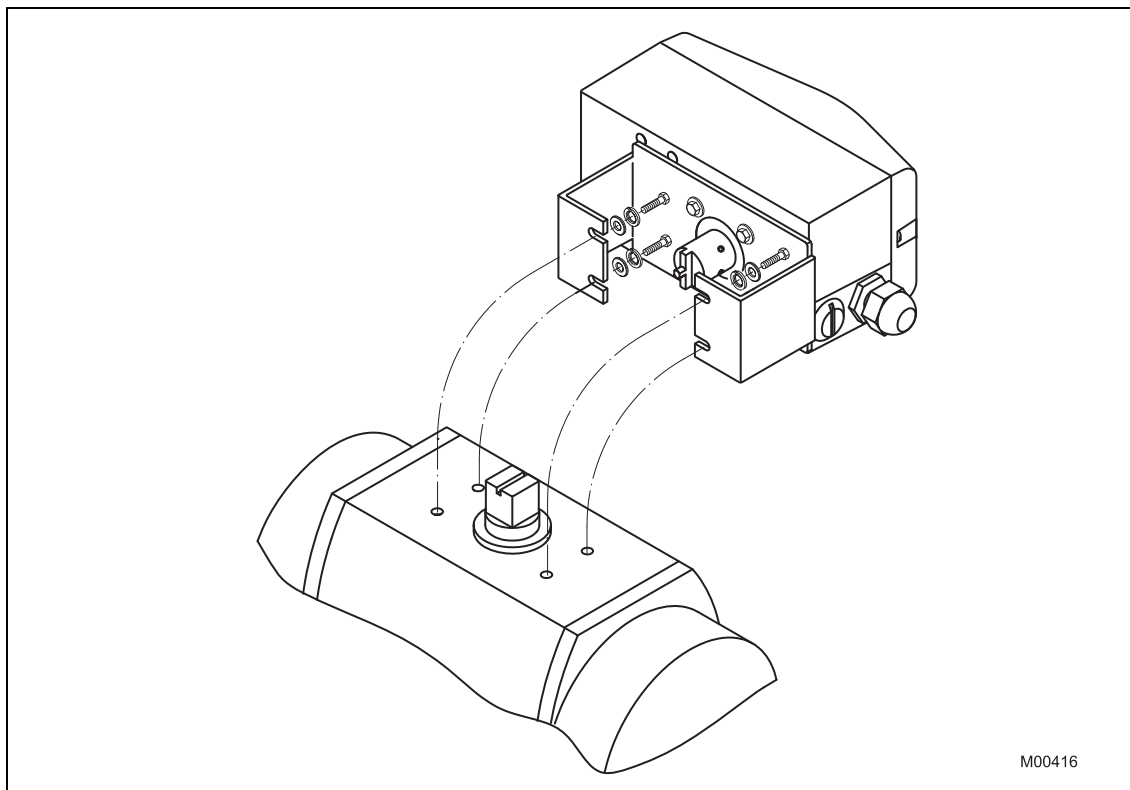
Fig. 12

i   **Important**

After mounting the unit check whether the operating range for the actuator matches the sensor range on the positioner.

4 Electrical connection

> ⚠️ **Warning! Risk of explosion! (TZIDC only)**
>
> It is prohibited to use the integrated communication interface (LKS) in an Ex area.
>
> Never use the integrated communication interface (LKS) on the mainboard with a positioner that is being used in an explosion risk area.

1. Strip the wire by approx. 6 mm (0.24 inch).

2. To connect the signal lines, the emergency shutdown module and the proximity switches or micro switches, 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).
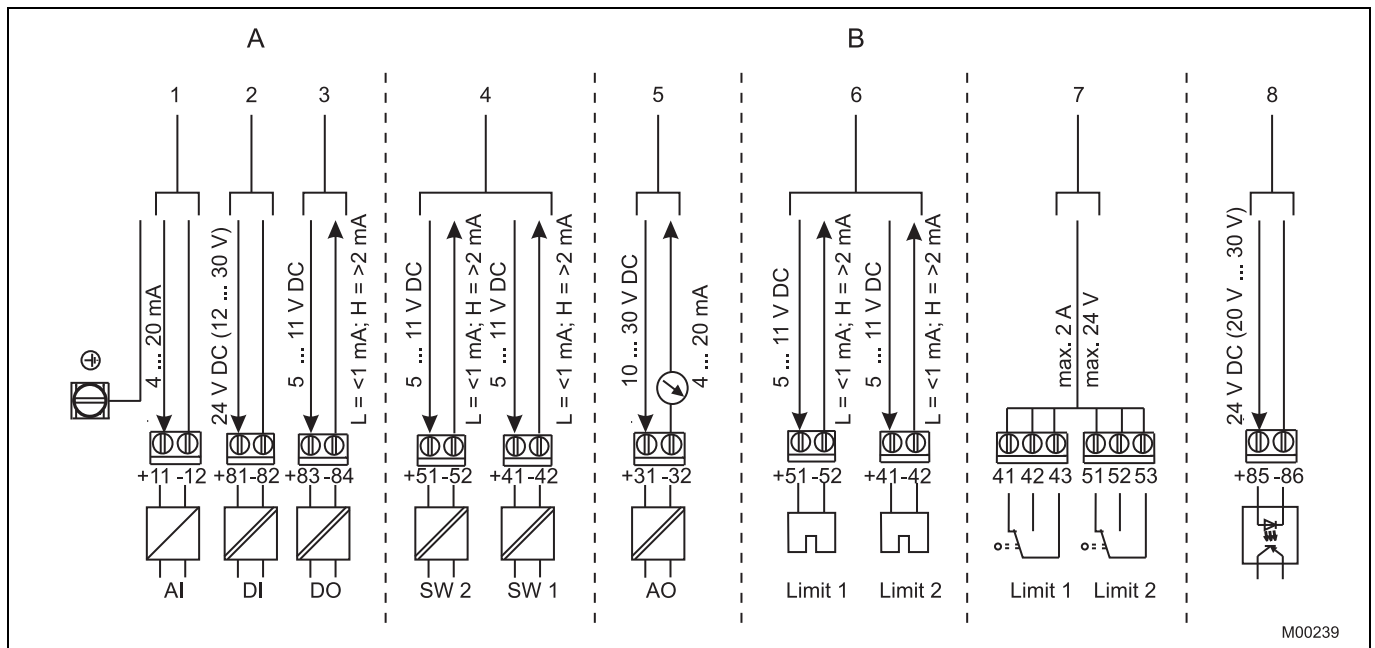
Fig. 13: Terminal connection diagram

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 only

> ℹ️ **Important**
>
> Keep cable shields as short as possible and connect on both sides.

4.1 Screw terminal assignments
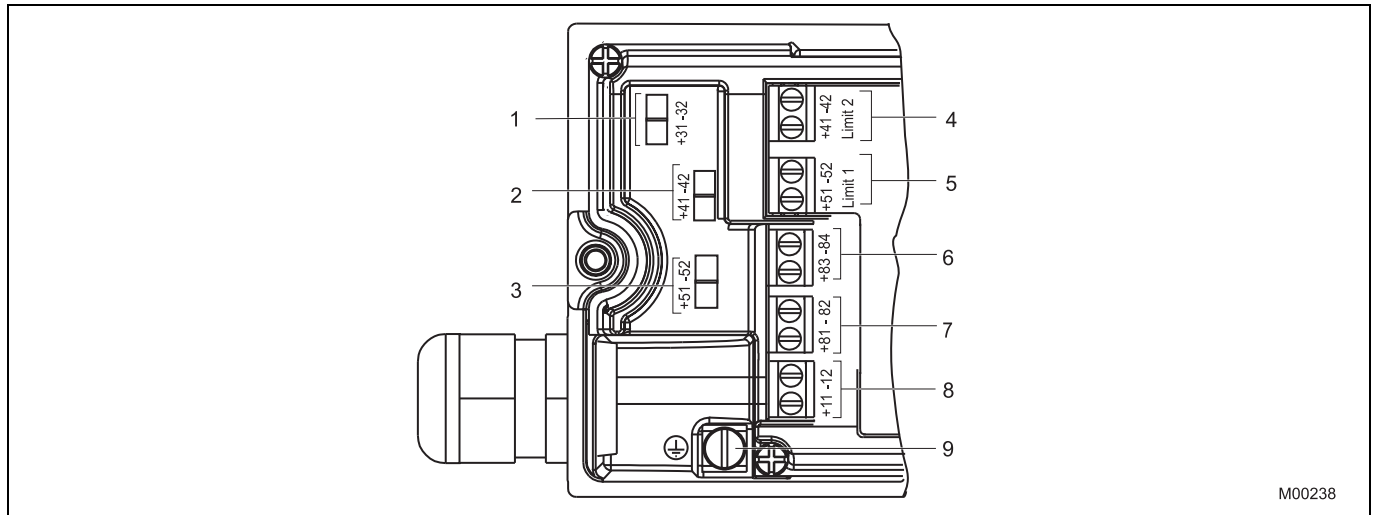
Fig. 14

1   Module for analog position feedback [1]
2   Module for digital feedback [1] or service switch of emergency shutdown module
3   Module for digital position feedback [1] or terminals of the shutdown module
4   Installation kit for digital position feedback, either proximity switches or 24 V microswitches
5   Same as 4

6   Digital output DO [1]
7   Digital input DI [1]
8   Signal 4 ... 20 mA / Bus connector
9   Grounding screw

1) TZIDC only

4.2 Jumper configuration on mainboard (TZIDC-120 only)
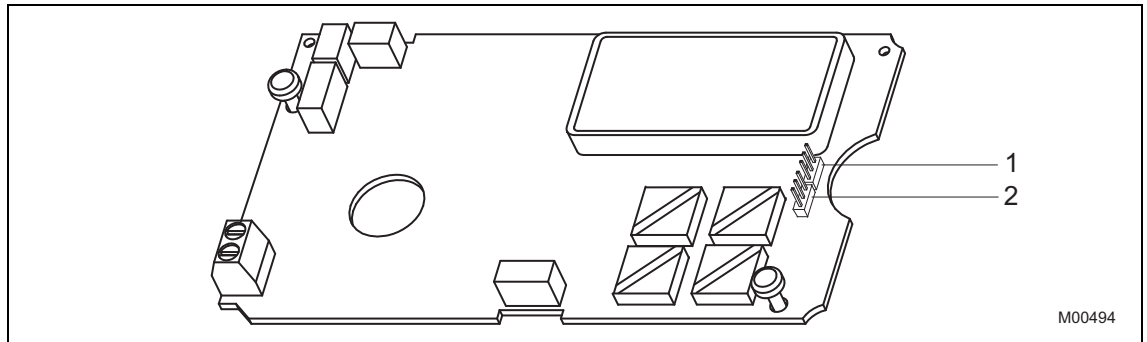
Fig. 15
1 Simulation
2 Write access

There are two jumpers on the mainboard that can be used to activate or block simulation mode and write access. Set the jumpers as shown below:
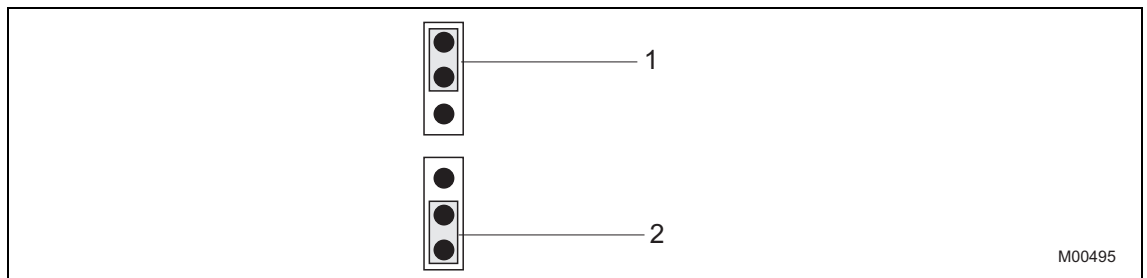
Fig. 16
1 Block (Simulation blocked [1])
2 Activate (Write access enabled [1])

1) Default setting (complies with Fieldbus Foundation standard)

4.3 Cable entry

ℹ️ **Important**

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

For the cable entry in the housing, there are two tap holes 1/2 - 14 NPT or M20 x 1.5 on the left side of the housing. One of these holes has a cable gland, the other a pipe plug.

M00423
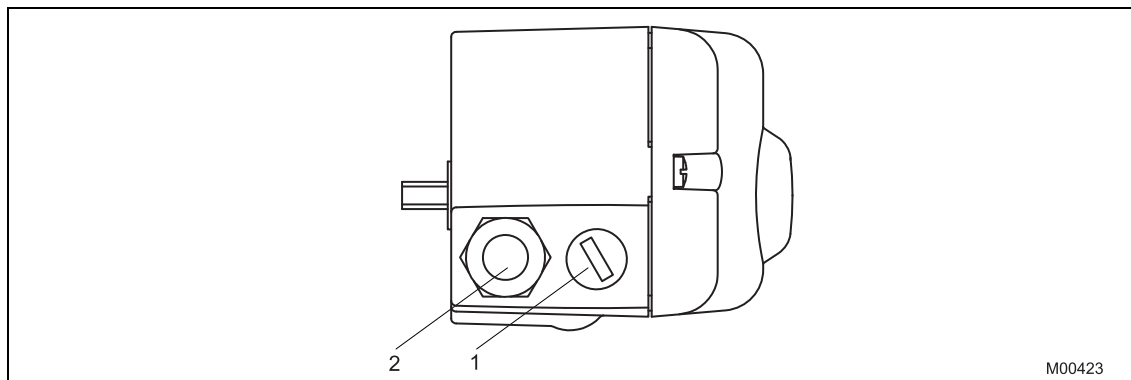
Fig. 17: Cable entry
1 Pipe plug
2 Cable gland

5 Pneumatic connection

i Important

The TZIDC, TZIDC-110, TZIDC-120 positioner 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.

The recommended pipe dimension is 6 x 1 mm. Dust, splinters or any other particles must be blown off the pipe before connecting.

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

! Notice - Potential damage to parts!

Pressure above 6 bar (90 psi) can damage the positioner or actuator.

Provisions should be made to ensure that in the event of an error the pressure does not rise above 6 bar (90 psi).
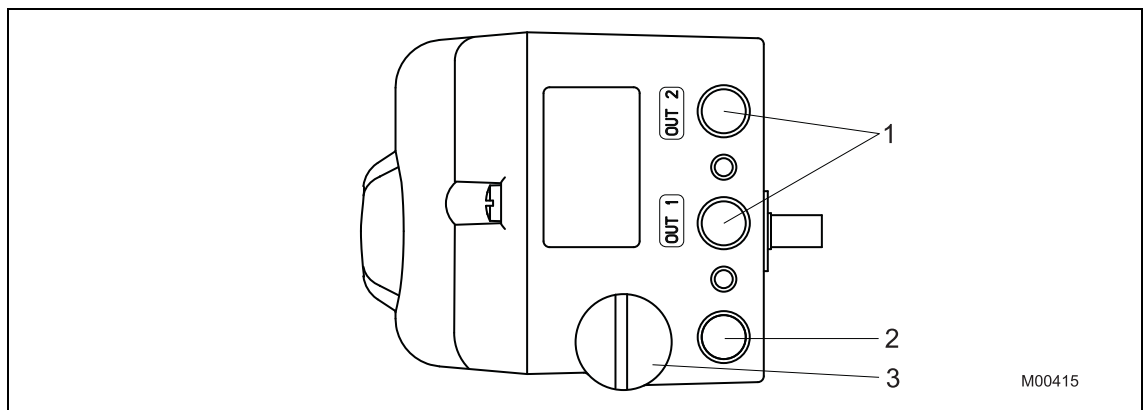
Fig. 18: Pneumatic connections

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)

6 Commissioning

6.1 TZIDC

1. Feed in pneumatic supply power

2. Feed in electrical supply power

   • Feed in setpoint current 4 ... 20 mA (terminals +11 / -12)

3. Check mount:

   • Press **MODE** and hold. 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. The 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. Run Autoadjust

i **Important**
Autoadjust is available for software version 2.XX and higher.

For linear actuators [1]:

   • Press **MODE** and hold until **ADJ_LIN** is displayed. Release the control button

   • Press **MODE** again and hold until the countdown ends

   • Release **MODE**. This starts the Autoadjust

For rotary actuators [1]:

   • Press **ENTER** and hold until **ADJ_ROT** is displayed. Release the control button

   • Press **ENTER** and hold till the countdown ends

   • Release **ENTER**. This starts the Autoadjust

With a successful Autoadjust, the parameters are stored automatically and the positioner returns to operating mode 1.1.

If an error occurs during Autoadjust, the action is terminated with an error message. In this event, press and hold ⬆ or ⬇ for approximately three seconds. The unit switches to the operating level, mode 1.3 (manual adjustment within the sensor range). Check the mount and, if necessary, correct. Afterwards repeat the Autoadjust.

5. Set potential dead bands and tolerance bands.

   This step is only required for critical (e.g., very small) actuators. In a standard situation, it is not necessary.

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

6.1.1 Operating modes

Selection from the operating level:

- Press **MODE** and hold
- 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)	1.0 CTRL_ADP	🔄 50.0 % POSITION
1.1 Control mode [1] without adaptation (the control parameter)	1.1 CTRL_FIX	🔄 50.0 % POSITION
1.2 Manual adjustment [2] in the operating range. Adjust via ⬆ or ⬇ [3]	1.2 MANUAL	50.0 % ✋ POSITION
1.3 Manual adjustment [2] in the sensor range. Adjust via ⬆ or ⬇ [3]	1.3 MAN_SENS	-15.0 ° ✋ SENS_POS

1) Since self-optimization in operating mode 1.0 is subject to several factors during operation and mismatches could result over a longer period, we recommend that this operating mode only be activated over several hours and be followed by the mode 1.1

2) Position not active

3) For high speed mode: Press ⬆ and ⬇ simultaneously

6.2   TZIDC-110 / TZIDC-120

1. Feed in pneumatic auxiliary power

2. Connect the bus to the bus terminals with any polarity (or auxiliary power 9 ... 32 V DC),

    | 20.0 % |
    | REMOTE | is displayed

3. Check mount:

    - Press and hold down **MODE** and **ENTER**. On completion of the countdown 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. The 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**. On completion of the countdown from 3 to 0, release **MODE** and **ENTER**,

    | 20.0 % |
    | REMOTE | 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 ↟ or ↡ for approximately three seconds. The unit will switch to the operating level, mode 1.3 (manual adjustment within the sensor range). Check the mount and correct if necessary. Then run Autoadjust again.

6. Set potential dead bands and tolerance bands.

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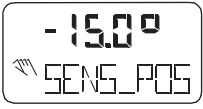
   It is not necessary under normal circumstances.

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

6.2.1 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	1.1 CTRL_FIX	50.0 % POSITION
1.2 Manual adjustment [1] in the operating range Adjust with ↟ or ↡ [2]	1.2 MANUAL	50.0 % POSITION
1.3 Manual adjustment [1] in the sensor range Adjust with ↟ or ↡ [2]	1.3 MAN_SENS	-15.0 ° SENS_POS

1) Positioning not active.
2) for high-speed mode: Press ↟ and ↡ simultaneously.

7   Ex relevant specifications

i   **Important**

The values indicated here are taken from the respective certificates. Always observe the specifications and supplements in the explosion protection certificates.

7.1   TZIDC

7.1.1   ATEX

ATEX	**II 2G Ex ia IIC T6**
	II 2G Ex ib IIC T6
	II 2G Ex iaD 21 T51 °C
Type-Examination Test Certificate:	TÜV 04 ATEX 2702 X
Type:	Intrinsically safe equipment
Device class:	II 2G (EEx ia IIC)
	II 2G (Eex ib IIC)
Standards:	EN 60079-0:2006
	EN 60079-11:2007
	EN 61241-0:2006
	EN 61241-11:2006

Temperature class	Ambient temperature range (II 2 G)
T4	-40 ... 85 °C
T5	-40 ... 50 °C
T6 [1]	-40 ... 40 °C

1) When using the plug-in module for "Digital Feedback" in temperature class T6, the maximum allowable ambient temperature range is -40 ... 35 °C.

Housing surface temperature	Ambient temperature range (II 2 D)
T81 °C	-40 ... 70 °C
T61 °C	-40 ... 50 °C
T51 °C	-40 ... 40 °C

Electrical data

	In intrinsically safe explosion protection types Ex ib IIC / Ex ia IIC or Ex iaD, only for connection to a certified intrinsically safe circuit
Signal circuit (Terminal +11 / -12)	Maximum values: U_i = 30 V I_i = 320 mA P_i = 1.1 W C_i = 6.6 nF L_i negligibly small
Contact input (Terminal +81 / -82)	Maximum values: U_i = 30 V I_i = 320 mA P_i = 1.1 W C_i = 4.2 nF L_i negligibly small
Contact output (Terminal +83 / -84)	Maximum values: U_i = 30 V I_i = 320 mA P_i = 500 mW C_i = 4.2 nF L_i negligibly small
Mechanical digital feedback (Terminals Limit1 +51 / -52 or Limit2 +41 / -42)	For max. values, see EC-type-examination test certificate number PTB 00 ATEX 2049 X Proximity switches manuf. by Pepperl & Fuchs
Plug-in module for digital position feedback (Terminal +51 / -52) or +41 / -42)	Maximum values: U_i = 30 V I_i = 320 mA P_i = 500 mW C_i = 3.7 nF L_i negligibly small
Plug-in module for analog position feedback (Terminal +31 / -32)	Maximum values: U_i = 30 V I_i = 320 mA P_i = 1.1 W C_i = 6.6 nF L_i negligibly small
Plug-in module for shutdown contact input (Terminal +51 / -52) or +85 / -86)	U_i = 30 V I_i = 320 mA P_i = 1.1 W C_i = 3.7 nF L_i negligibly small
Local communication interface (LKS)	Only for connection to a programmer outside the potentially explosive area.

Important

- The local communication interface (LKS) may only be operated at Um ≤ 30 V DC outside the potentially explosive area.

- The equipment may only be used as a II 2 D type device in areas where the level of mechanical hazard is "low".

Cable entries which meet the requirements of EN 61241-11 for category II 2 D as well as the ambient temperature range have to be used.

Variants, which also comply with the type of protection "Flameproof Enclosure" according to a separate certificate, may not be operated in the type of protection "Intrinsically Safe" after use as apparatus in the type of protection "Flameproof Enclosure".

7.1.2   IECEx Issue No. 3

IECEx	**Ex ia IIC T6**
	Ex nA II T6
	Ex nL IIC T6

Certificate No.:	IECEx TUN 04.0015X
Issue No.:	3
Typ:	Intrinsic safety "i", Type of protection "n"
Standards:	IEC 60079-0:2000
	IEC 60079-11:1999
	IEC 60079-15:2001
	IEC 60079-27:2005-04

Type and marking	TZIDC	TZIDC
	Ex ia IIC resp. Ex ib IIC	**Ex nA IIC resp. Ex nL IIC**
Temperature Class	Ambient temperature range	
T4	-40 ... 85 °C	-40 ... 85 °C
T5	-40 ... 50 °C	-40 ... 65 °C
T6	-40 ... 40 °C	-40 ... 50 °C

Electrical data for type TZIDC with marking Ex ia IIC resp. Ex ib IIC

	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit with the following maximum values:
Signal circuit (Terminals +11 / -12)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 6.6 nF The effective internal inductance is negligibly small.
Switch input (Terminals +81 / -82)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 4.2 nF The effective internal inductance is negligibly small.
Switch output (Terminals +83 / -84)	U_i = 30 V I_i = 320 mA P_i = 500 mW effective internal capacitance: C_i = 4.2 nF The effective internal inductance is negligibly small.
Local interface for communication (LKS)	For the connection to a programmer outside of the explosiv hazardous area only.

Optionally the following modules are allowed to be used:

	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit with the following maximum values:
Plug-In module for digital feedback (Terminals +51 / -52 resp. +41 / -42)	U_i = 30 V I_i = 320 mA P_i = 500 mW effective internal capacitance: C_i = 3.7 nF The effective internal inductance is negligibly small.
Plug-In module for analogue feedback (Terminals +31 / -32)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 6.6 nF The effective internal inductance is negligibly small.
Plug-In module for shutdown-function (Terminals +51 / -52 resp. +85 / -86)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 3.7 nF The effective internal inductance is negligibly small.

i **Notice**

• The intrinsically safe circuits are galvanically separated up to a voltage of 60 V. The local communication interface (LKS) is connected with the signal circuit.

Electrical data for type TZIDC with marking Ex nA IIC T6	
Signal circuit (Terminals +11 / -12)	U = 9.7 VDC; 4 ... 20 mA, max. 21.5 mA
Switch input (Terminals +81 / -82)	U = 12 ... 24 VDC; 4 mA
Switch output (Terminals +83 / -84)	U = 11 VDC

Optionally the following modules are allowed to be used with type TZIDC	
Plug-In module for digital feedback (Terminals +51 / -52 resp. +41 / -42)	U = 5 ... 11 VDC
Plug-In module for analogue feedback (Terminals +31 / -32)	U = 10 ... 30 VDC; 4 ... 20 mA, max. 21.5 mA

Additionally the following modules are allowed to be used with all types marked Ex nA IIC T6	
Plug-In module for shutdown-function (Terminals +51 / -52 resp. +85, -86)	U = 20 ... 30 VDC
Mechanical digital feedback (Terminals Limit1 +51 / -52 resp. Limit2 +41 / -42)	U = 5 ... 11 VDC

7.1.3 CSA International

Certificate:	1052414
Class 2258 02	PROCESS CONTROL EQUIPMENT –For Hazardous Locations
Class 2258 04	PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity – For Hazardous Locations

Class I, Div 2, Groups A, B, C and D;

Class II, Div 2, Groups E, F, and G,

Class III, Enclosure Type 4X:

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner	
Input rated	30 V DC; max. 4 ... 20 mA
Max output pressure	90 psi
Max. ambient	85 Deg C

Class I, Div 1, Groups A, B, C and D;

Class II, Div 1, Groups E, F and G

Class III, Enclosure Type 4X:

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner intrinsically safe with entity parameters of:	
Terminals 11 / 12	V max = 30 V I max = 104 mA C_i = 6.6 nF L_i = 0 uH
Terminals 81 / 82	V max = 30 V I max = 110 mA C_i = 4.2 nF L_i = 0 uH
Terminals 83 / 84	V max = 30 V I max = 90 mA C_i = 4.2 nF L_i = 0 uH
Terminals 31 / 32	V max = 30 V I max = 110 mA C_i = 6.6 nF L_i = 0 uH
Terminals 41 / 42 and 51 / 52	V max = 30 V I max = 96 mA C_i = 3.7 nF L_i = 0 uH
Terminals Limit2 41 / 42 and Limit1 51 / 52	V max = 15.5 V I max = 52 mA C_i = 20 nF L_i = 30 uH

When installed per installation Drawing No 901064	
Temperature Code	T4
Max. Ambient	85 Deg C

i **Notice**

- The "x" in P/N denotes minor mechanical variations or optional features.

- Do not use the local communication interface (LKS) in hazardous areas.

- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.1.4 CSA Certification Record

Certificate: Class 2258 04	1649904 (LR 20312) PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity – For Hazardous Locations

Class I, Div 1, Groups A, B, C and D;

Class II, Div 1, Groups E, F, and G,

Class III, Div 1, Enclosure Type 4X:

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner	
Input rated	30 V DC; max.4 … 20 mA
Output pressure	Max. 90 psi
Intrinsically safe with entity parameters of:	
Terminals 11 / 12	$V_{max} = 30$ V $I_{max} = 104$ mA $C_i = 6.6$ nF $L_i = 0$ uH
Terminals 81 / 82	$V_{max} = 30$ V $I_{max} = 110$ mA $C_i = 3.7$ nF $L_i = 0$ uH
Terminals 83 / 84	$V_{max} = 30$ V $I_{max} = 96$ mA $C_i = 3.7$ nF $L_i = 0$ uH
Terminals 31 / 32	$V_{max} = 30$ V $I_{max} = 110$ mA $C_i = 6.6$ nF $L_i = 0$ uH
Terminals 41 / 42 and 51 / 52	$V_{max} = 30$ V $I_{max} = 96$ mA $C_i = 3.7$ nF $L_i = 0$ uH
Terminals Limit2 41 / 42 and Limit1 51 / 52	$V_{max} = 15.5$ V $I_{max} = 52$ mA $C_i = 20$ nF $L_i = 30$ uH

When installed per installation Drawing No 901064	
Temperature Code	T4
Max. Ambient	85 Deg C

i **Notice**

- The "x" in P/N denotes minor mechanical variations or optional features.
- Do not use the local communication interface (LKS) in hazardous areas.
- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.2   TZIDC-110

7.2.1   EC-Type-Examination Test Certificate

Designation:	II 2 G EEx ia IIC T6
Type-Examination Test Certificate:	TÜV 02 ATEX 1831 X
Type:	Intrinsically safe equipment
Standards:	EN 50014:1997
	EN 50020:1994

Temperature class	Ambient temperature range
T4	-40 ... 85 °C
T5	-40 ... 55 °C
T6	-40 ... 40 °C

Electrical data

Signal circuit (Terminal +11 / -12 or + / -)	In intrinsically safe explosion protection types EEx ia IIC or EEx ib IIC, only for connection to a certified intrinsically safe circuit (e.g. FISCO supply unit) with max. values based on the following table:		
	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	17.5 V	17.5 V	24 V
Current	380 mA	360 mA	250 mA
Power	5.32 W	2.52 W	1.2 W
Characteristic	rectangular	trapezoidal	linear

L_i negligibly small
C_i negligibly small

	In intrinsically safe explosion protection types EEx ia IIC or EEx ib IIC, only for connection to a certified intrinsically safe circuit with max. values
Shutdown contact input (Terminal +85 / -86)	U_i = 30 V C_i = 3.7 nF L_i negligibly small
Mechanical digital feedback (Terminals Limit1 +51 / -52 or Limit2 +41 / -42)	For max. values, see EC-type-examination test certificate number PTB 00 ATEX 2049 X
Local communication interface (LKS) and program interface (X5)	Only for connection to a programmer or PC outside the potentially explosive area.

i

Important

• The local communication interface (LKS) and program interface (X5) may only be operated outside the potentially explosive area.

7.2.2 IECEx Issue No. 3

IECEx	**Ex ia IIC T6**
	Ex nA II T6
	Ex nL IIC T6
Certificate No.:	IECEx TUN 04.0015X
Issue No.:	3
Typ:	Intrinsic safety "i", Type of protection "n"
Standards:	IEC 60079-0:2000
	IEC 60079-11:1999
	IEC 60079-15:2001
	IEC 60079-27:2005-04

Type and marking	TZIDC-110 Ex ia IIC resp. Ex ib IIC	TZIDC-110 Ex nA IIC resp. Ex nL IIC
Temperature Class	Ambient temperature range	
T4	-40 ... 85 °C	-40 ... 85 °C
T5	-40 ... 55 °C	-40 ... 65 °C
T6	-40 ... 40 °C	-40 ... 50 °C

Electrical data for type TZIDC-110 with marking Ex ia IIC T6 resp. Ex ib IIC T6

Input circuit (terminals +11, -12 or +, -)	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit (e.g. FISCO power supply) with the following maximum values according to the following table:	
	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 = 24 V
Current	I_i = 380 mA	I_i = 250 mA
Power	P_i = 5.32 W	P_i = 1.2 W
Characteristic line		Linear
Local interface for communication (LKS) and programming interface (X5)	For the connection to a programmer resp. a PC outside of the explosive hazardous area only.	

Optionally the following modules are allowed to be used:

	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit with the following maximum values:
Plug-In module for shutdown-function (terminals +51 / -52 resp. +85 / -86)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 3.7 nF The effective internal inductance is negligibly small.

i **Notice**

- The intrinsically safe circuits are galvanically separated up to a voltage of 60 V. The local communication interface (LKS) and program interface (X5) are connected with the signal circuit.

Electrical data for type TZIDC-110 with marking Ex nA IIC T6	
Input circuit (terminals +11 / -12)	U = 9 ... 32 VDC; 10.5 mA

Additionally the following modules are allowed to be used with all types marked Ex nA IIC T6	
Plug-In module for shutdown-function (terminals +51 / -52 resp. +85 / -86)	U = 20 ... 30 VDC
Mechanical digital feedback (terminals Limit1 +51 / -52 resp. Limit2 +41 / -42)	U = 5 ... 11 VDC

Electrical data for type TZIDC-110 with marking Ex nL IIC T6	
Input circuit (terminals +11 / -12)	FNICO field device

7.2.3 CSA International

Certificate: 1649904 (LR 20312)
Class 2258 04   PROCESS CONTROL EQUIPMENT –
                                           Intrinsically Safe, Entity – For Hazardous
                                           Locations
Class 2258 02   PROCESS CONTROL EQUIPMENT – For
                                           Hazardous Locations

Class I, Div 2, Groups A, B, C and D;

Class II, Div 2, Groups E, F, and G,

Class III, Enclosure Type 4X:

Model TZIDC-110, P/N V18346-x032x2xx0x Intelligent Positioner	
Input rated	32 V DC; max.15 mA (powered by a SELV circuit)
Intrinsically safe with entity parameters of:	
Terminals 11 / 12	V max = 24 V I max = 250 mA C_i = 2.8 nF L_i = 7.2 uH
Terminals 85 / 86	U max = 30 V I max = 50 mA C_i = 3.8 nF L_i = 0 uH
Terminals 41 / 42	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH
Terminals 51 / 52	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH

When installed per installation Drawing No 901265	
Temperature Code	T4
Max. Ambient	85 Deg C

i   **Notice**

- The "x" in P/N denotes minor mechanical variations or optional features.

- Do not use the local communication interface (LKS) in hazardous areas.

- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.2.4 CSA Certification Record

Certificate:	1649904 (LR 20312)
Class 2258 04	PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity – For Hazardous Locations

Class I, Div 1, Groups A, B, C and D;

Class II, Div 1, Groups E, F, and G,

Class III, Div 1, Enclosure Type 4X:

Model TZIDC-110, P/N V18346-x032x2xx0x Intelligent Positioner	
Input rated	32 V DC; max. 15 mA (powered by a SELV Circuit)
Intrinsically safe with entity parameters of:	
Terminals 11 / 12	V max = 24 V I max = 250 mA C_i = 2.8 nF L_i = 7.2 uH
Terminals 85 / 86	U max = 30 V I max = 50 mA C_i = 3.8 nF L_i = 0 uH
Terminals 41 / 42	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH

When installed per installation Drawing No 901265	
Temperature Code	T4
Max. Ambient	85 Deg C

Notice

- The "x" in P/N denotes minor mechanical variations or optional features.
- Do not use the local communication interface (LKS) in hazardous areas.
- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.2.5 FM Approvals

TZIDC-110 Positioner, Model V18346-a032b2cd0e

IS/I,II,III/1/ABCDEFG/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C-901265 Entity, FISCO

Terminals	Type	Groups	Parameters				
			Vmax	Imax	Pi	Ci	Li
+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

Entity and FISCO Parameters

NI/I/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, 5 or 6

b = Output/safe protection – 1, 2, 4 or 5

c = Option modules (shutdown) – 0 or 4

d = Optional mechanical kit for digital position feedback – 0, 1 or 3

e = Design (varnish/coding) – 1 or E

Equipment Ratings:

TZIDC-110

Intrinsically safe, Entity and FISCO, for Class I, II and III, Division 1,

Applicable Groups A, B, C, D, E, F, G; nonincendive for Class I, Division 2,

Group E, F and G hazardous (classified) indoor and outdoort NEMA 4x locations.

The following temperature code ratings were assigned for the equipment and protection methods described above:
T6 in ambient temperatures of 40 °C
T5 in ambient temperatures of 55 °C
T4 in ambient temperatures of 85 °C

7.3 TZIDC-120

7.3.1 EC-Type-Examination Test Certificate

Designation: II 2 G EEx ia IIC T6
Type-Examination Test Certificate: TÜV 02 ATEX 1834 X
Type: Intrinsically safe equipment
Standards: EN 50014:1997
     EN 50020:1994

Temperature class	Ambient temperature range
T4	-40 ... 85 °C
T5	-40 ... 55 °C
T6	-40 ... 40 °C

Electrical data

Signal circuit (Terminal +11 / -12 or + / -)	In intrinsically safe explosion protection types EEx ia IIC or EEx ib IIC, only for connection to a certified intrinsically safe circuit (e.g. FISCO supply unit) with max. values based on the following table:		
	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	17,5 V	17,5 V	24 V
Current	380 mA	360 mA	250 mA
Power	5.32 W	2.52 W	1.2 W
Characteristic	rectangular	trapezoidal	Linear

L_i negligibly small
C_i negligibly small

	In intrinsically safe explosion protection types EEx ia IIC or EEx ib IIC, only for connection to a certified intrinsically safe circuit with max. values
Shutdown contact input (Terminal +85 / -86)	U_i = 30 V C_i = 3.7 nF L_i negligibly small
Mechanical digital feedback (Terminals Limit1 +51 / -52 or Limit2 +41 / -42)	For max. values, see EC-type-examination test certificate number PTB 00 ATEX 2049 X
Local communication interface (LKS) and program interface (X5)	Only for connection to a programmer or PC outside the potentially explosive area.

i

Important

- The local communication interface (LKS) and program interface (X5) may only be operated outside the potentially explosive area.

7.3.2 IECEx Issue No. 3

IECEx	**Ex ia IIC T6**
	Ex nA II T6
	Ex nL IIC T6
Certificate No.:	IECEx TUN 04.0015X
Issue No.:	3
Typ:	Intrinsic safety "i", Type of protection "n"
Standards:	IEC 60079-0:2000
	IEC 60079-11:1999
	IEC 60079-15:2001
	IEC 60079-27:2005-04

Type and marking	TZIDC-120 Ex ia IIC resp. Ex ib IIC	TZIDC-120 Ex nA IIC resp. Ex nL IIC
Temperature Class	Ambient temperature range	
T4	-40 … 85 °C	-40 … 85 °C
T5	-40 … 55 °C	-40 … 65 °C
T6	-40 … 40 °C	-40 … 50 °C

Electrical data for type TZIDC-120 with marking Ex ia IIC T6 resp. Ex ib IIC T6

Input circuit (terminals +11 / -12 or (+ / -)	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit (e.g. FISCO power supply) with the following maximum values according to the following table:	
	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 = 24 V
Current	I_i = 380 mA	I_i = 250 mA
Power	P_i = 5.32 W	P_i = 1.2 W
Characteristic line		Linear
Local interface for communication (LKS) and programming interface (X5)	For the connection to a programmer resp. a PC outside of the explosive hazardous area only.	

Optionally the following modules are allowed to be used:

	In type of protection "Intrinsic Safety" (Ex ia IIC resp. Ex ib IIC) only for the connection to a certified intrinsically safe circuit with the following maximum values:
Plug-In module for shutdown-function (terminals +51 / -52 resp. +85 / -86)	U_i = 30 V I_i = 320 mA P_i = 1.1 W effective internal capacitance: C_i = 3.7 nF The effective internal inductance is negligibly small.

ℹ️ **Notice**

- The intrinsically safe circuits are galvanically separated up to a voltage of 60 V. The local communication interface (LKS) and program interface (X5) are connected with the signal circuit.

Electrical data for type TZIDC-120 with marking Ex nA IIC T6	
Input circuit (terminals +11 / -12)	U = 9 … 32 VDC; 11.5 mA

Additionally the following modules are allowed to be used with all types marked Ex nA IIC T6	
Plug-In module for shutdown-function (terminals +51 / -52 resp. +85 / -86)	U = 20 … 30 VDC
Mechanical digital feedback (terminals Limit1 +51 / -52 resp. Limit2 +41 / -42)	U = 5 … 11 VDC

Electrical data for type TZIDC-120 with marking Ex nL IIC T6	
Input circuit (terminals +11 / -12)	FNICO field device

7.3.3 CSA International

Certificate: 1649904 (LR 20312)

Class 2258 04 PROCESS CONTROL EQUIPMENT – Intrinsically Safe, Entity – For Hazardous Locations

Class 2258 02 PROCESS CONTROL EQUIPMENT – For Hazardous Locations

Class I, Div 2, Groups A, B, C and D;

Class II, Div 2, Groups E, F, and G,

Class III, Enclosure Type 4X:

Model TZIDC-120, P/N V18347-x042x2xx0x Intelligent Positioner	
Input rated	32 V DC; max.15 mA (powered by a SELV circuit)
Intrinsically safe with entity parameters of:	
Terminals 11 / 12	V max = 24 V I max = 250 mA C_i = 2.8 nF L_i = 7.2 uH
Terminals 85 / 86	U max = 30 V I max = 50 mA C_i = 3.8 nF L_i = 0 uH
Terminals 41 / 42	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH
Terminals 51 / 52	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH

When installed per installation Drawing No 901265	
Temperature Code	T4
Max. Ambient	85 Deg C

i **Notice**

- The "x" in P/N denotes minor mechanical variations or optional features.

- Do not use the local communication interface (LKS) in hazardous areas.

- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.3.4 CSA Certification Record

Certificate: 1649904 (LR 20312)
Class 2258 04   PROCESS CONTROL EQUIPMENT –
                                    Intrinsically Safe, Entity – For Hazardous
                                    Locations

Class I, Div 1, Groups A, B, C and D;

Class II, Div 1, Groups E, F, and G,

Class III, Div 1, Enclosure Type 4X:

Model TZIDC-120, P/N V18347-x042x2xx0x Intelligent Positioner	
Input rated	32 V DC; max. 15 mA (powered by a SELV Circuit)
Intrinsically safe with entity parameters of:	
Terminals 11 / 12	V max = 24 V I max = 250 mA C_i = 2.8 nF L_i = 7.2 uH
Terminals 85 / 86	U max = 30 V I max = 50 mA C_i = 3.8 nF L_i = 0 uH
Terminals 41 / 42	U max = 16 V I max = 20 mA C_i = 60 nF L_i = 100 uH

When installed per installation Drawing No 901265	
Temperature Code	T4
Max. Ambient	85 Deg C

i

Notice

- The "x" in P/N denotes minor mechanical variations or optional features.

- Do not use the local communication interface (LKS) in hazardous areas.

- Each pair of conductors for each intrinsic safety circuit must be shielded.

7.3.5 FM Approvals

TZIDC-120 Positioner, Model V18347-a042b2cd0e

IS/I,II,III/1/ABCDEFG/T6,T5,T4 Ta = 40 °C, 55 °C, 85 °C-901265 Entity, FISCO

Terminals	Type	Groups	Parameters				
			Vmax	**Imax**	**Pi**	**Ci**	**Li**
+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

Entity and FISCO Parameters

NI/I/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, 5 or 6

b = Output/safe protection – 1, 2, 4 or 5

c = Option modules (shutdown) – 0 or 4

d = Optional mechanical kit for digital position feedback – 0, 1 or 3

e = Design (varnish/coding) – 1 or E

Equipment Ratings:

TZIDC-120 Positioners

Intrinsically safe, Entity and FISCO, for Class I, II and III, Division 1,

Applicable Groups A, B, C, D, E, F, G; nonincendive for Class I, Division 2,

Group E, F and G hazardous (classified) indoor and outdoort NEMA 4x locations.

The following temperature code ratings were assigned for the equipment and protection methods described above:
T6 in ambient temperatures of 40 °C
T5 in ambient temperatures of 55 °C
T4 in ambient temperatures of 85 °C

ABB

EG-KONFORMITÄTSERKLÄRUNG
EC DECLARATION OF CONFORMITY
ATTESTATION DE CONFORMITE C.E.

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

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:

89/336/EWG **EMV-Richtlinie ***
89/336/EEC *Electromagnetic Compatibility Directive **
89/336/C.E.E. *Directives concernant la compatibilité électromagnétique **

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:

⟨Ex⟩

94/9/EG **ATEX-Richtlinie**
94/9/EEC *ATEX Directive*
94/9/C.E.E. *ATEX Directive*

* 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 cocernant 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 61000-6-2 / EN 61000-6-3
Ex: EN 50 014 / EN 50 284 / EN 50 018 / EN 50 020

23.01.2007	*Schol*	
Datum	**Dr. Wolfgang Scholz**	**Manfred Klüppel**
Date	**Innovation**	**Qualitätssicherung**
Date	Innovation	Qualityassurance
	Innovation	Assurance de la Qualité