



- Low operating cost
- Compact design
- Well-proven technology
- Robust and environmentally ruggedized
- Wide operating temperature range -40...+85 °C
- Easy to commission, “single push-button” operating philosophy
- Mechanical position indicator
- ATEX, FM, CSA and IECEx approvals
- For SIL2 safety loops



Compact, well-proven, and flexible



Short description

TZIDC is an electronically configurable positioner with communication capabilities, mounting to pneumatic linear or rotary actuators. It features a small and compact design, a modular construction, and an excellent cost-performance ratio. Fully automatic determination of the control parameters and adaptation to the final control element yield considerable time savings and an optimal control behavior.

Pneumatics

An I/P module with subsequent pneumatic amplifier is used to control the pneumatic actuator. The well-proven I/P module proportionally converts the permanent electrical positioning signal from the CPU into a pneumatic signal used to adjust a 3/3-way valve. The air flow for pressurizing or depressurizing the actuator is continuously adjusted. As a result, excellent control is achieved. When reaching the set point, the 3/3-way valve is closed in center position to minimize the air consumption. Four different pneumatics versions are available: for single-acting or double-acting actuators, each with “fail-safe” or “fail-freeze” function.

“Fail-safe” function

If the electrical power supply should fail, the positioner output 1 is depressurized, and the pneumatic actuator’s return spring moves the valve to the defined safe position. In case of a double-acting actuator output 2 is additionally pressurized.

“Fail-freeze” function

If the electrical power supply should fail, the positioner output 1 (and 2, if applicable) is closed and the pneumatic actuator stops (“freezes”) the valve in the current position. If compressed air supply should fail, the positioner depressurizes the actuator.

Operation

The positioner has a built-in operating panel providing a 2-line LCD and 4 push-buttons for optimal local configuration, commissioning and operational monitoring. Alternatively, the appropriate configuration program and the available communication options can be used.

Communication

The standard TZIDC model has a local communication interface (LKS connector). Additionally, a “HART communication” option for communication via the 20 mA signal is available. Both communications are based on the HART Protocol.

Inputs and outputs

In addition to its input for the analog position set point the TZIDC positioner is equipped with a digital input which can be used to activate various protective functions in the device via the process control system. A digital output allows you to output collective alarms or fault messages.

Modular design

The TZIDC basic model can be enhanced at any time by retrofitting optional equipment. Option modules for analog or digital position feedback or a shutdown-module can be installed. Additionally, a mechanical position indicator, proximity switches or 24 V microswitches are available for indicating the position independently of the mother board function.

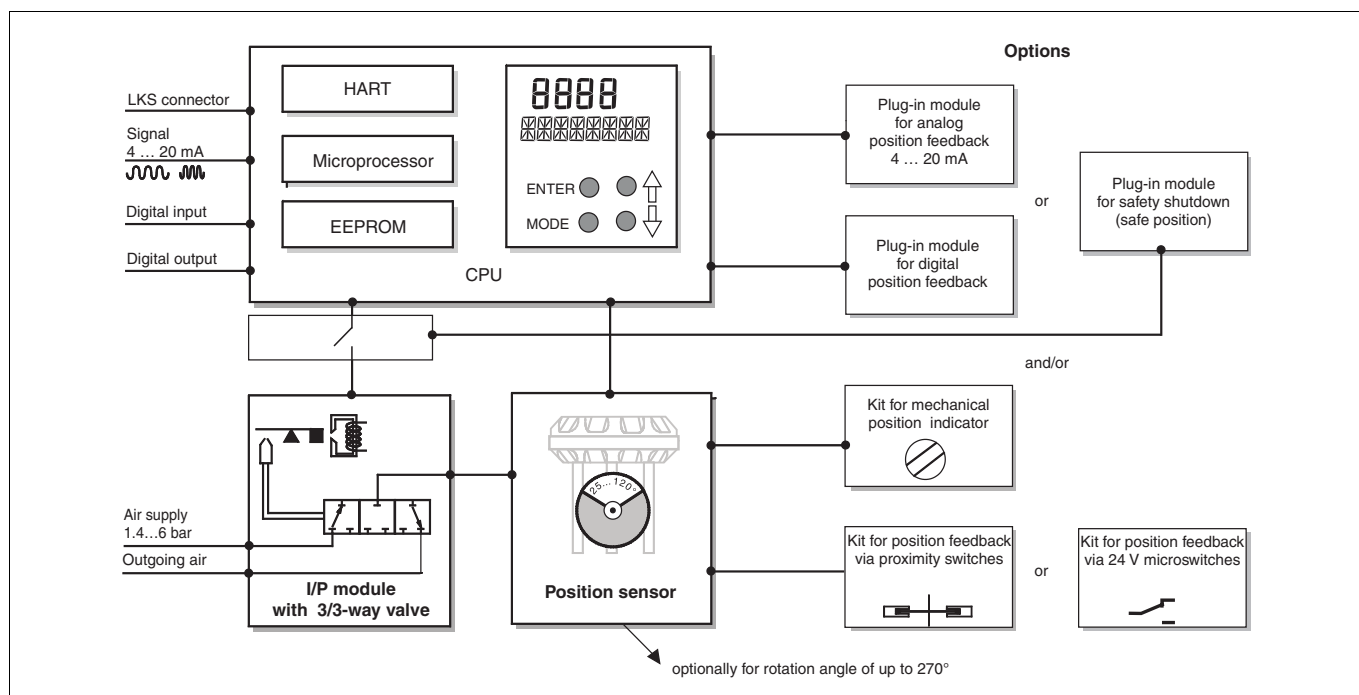


Fig. 1: TZIDC schematic diagram

Mounting

To linear actuators in accordance with the standard

Lateral attachment is in accordance with DIN/IEC 534 (lateral attachment to NAMUR). The required attachment kit is a complete set of attachment material, but does not include the screwed pipe connections and air pipes.

To rotary actuators in accordance with the standard

Attachment to rotary actuators complies with VDI/VDE 3845. The attachment kit contains the bracket and the respective screws for attaching the positioner to the actuator. The adapter for coupling the positioner feedback shaft to the actuator shaft has to be ordered separately. Screwed pipe connections and air pipes have to be provided on site.

Integral mounting to control valves

A model of the TZIDC positioner designed for integral mounting with the required threaded holes at the back (see Fig. 13: Front and rear view) is also available. The benefit of this design is that the point for mechanical stroke measurement is protected and that the positioner and actuator are linked internally. No external tubing is required.

Special actuator-specific mounting

In addition to the mounting methods described above, there are special actuator-specific attachments.

Please contact us for details.

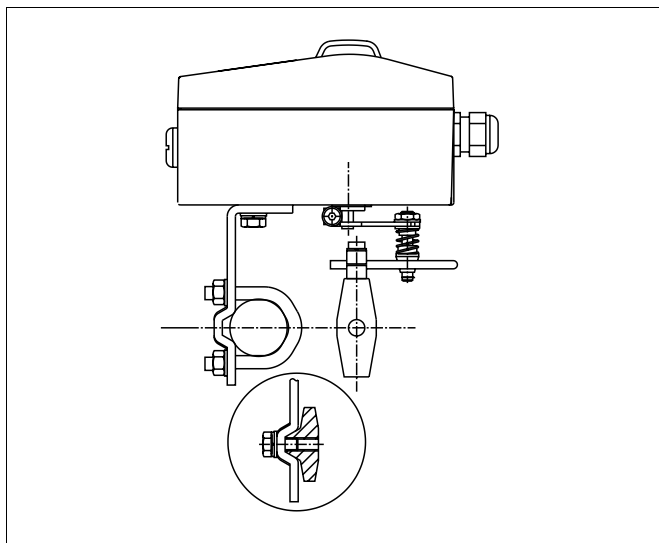


Fig. 2: Mounting to linear actuators to DIN/IEC 534 / NAMUR

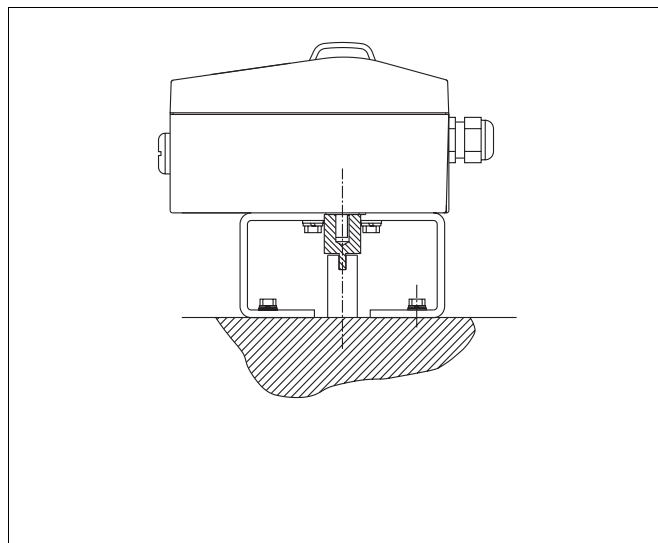


Fig. 4: Mounting to rotary actuators to VDI/VDE 3845

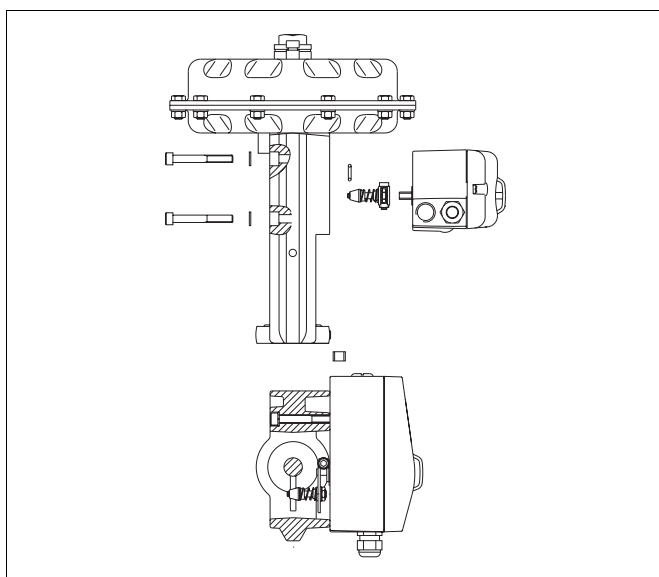


Fig. 3: Integral mounting to control valves

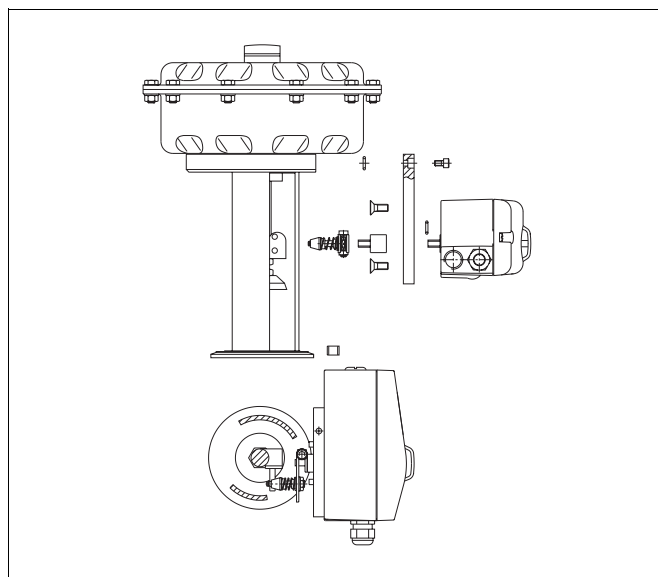


Fig. 5: Integral mounting to control valves by using an adapter panel

Operation

General

Microprocessor-based position control in the TZIDC provides for optimal results. The positioner features high-precision control functions and high operational reliability. Due to their elaborate structure and easy accessibility, the device parameters can be quickly adapted to the respective application.

The total range of parameters includes:

- Operating parameters
- Adjustment parameters
- Monitoring parameters
- Diagnosis parameters
- Maintenance parameters

Operating parameters

• Signal range

Minimum signal 4 mA, maximum signal 20 mA (0...100 %) freely selectable for split-range operation
minimum range 20 % (3.2 mA),
recommended range $\geq 50\%$ (8.0 mA)

• Action (signal)

Direct: Signal 4...20 mA = position 0...100 %
Reverse: Signal 20...4 mA = position 0...100 %

• Characteristic curve (travel = f {signal})

linear,
equal percentage 1:25 or 1:50 or 25:1 or 50:1,
or user-configurable with 20 reference points

• Travel limit

The positioning travel, i.e. the stroke or angle of rotation, can be reduced as required within the full range of 0...100%, provided that a minimum value of 20% is observed.

• Shut-off function

This parameter can be set separately for each end position. When the respective configured limit value is exceeded, the shut-off function causes immediate travel of the actuator until reaching the set end position.
When the shut-off value is set to "0", the position is further controlled, even in the respective end position.

• Travel time prolongation

With this function the max. travel time for full travel can be increased. This time parameter can be set separately for each direction.

• Switching points for the position

This parameter allows you to define two position limits for signalling (see Options: Module for digital position feedback).

• Digital output

The alarms generated in the TZIDC positioner can be polled via the digital output as a collective alarm. The desired information can be selected via the operator panel or remotely via the configuration program. The output can be set to "active high" or "active low", as required.

• Digital input

One of the following protective functions can be selected for the digital input, either via the local operator panel or remotely via the configuration program:

- no function (default setting)
 - move to 0% position
 - move to 100 % position
 - hold last position
 - disable local configuration
 - disable local configuration and operation
 - disable any access (no local or remote access (via a PC))
- The selected function is activated once the 24 V DC signal is no longer applied (< 10 V DC).

Adjustment parameters

The TZIDC positioner has a special function for automatic adjustment of the parameters. Additionally, the control parameters can be set automatically (in adaptive control mode) or manually to optimally adapt them to the process requirements.

• Tolerance band

When reaching the tolerance band the position is considered as corrected. From this point on, the position is further slowly re-adjusted until the dead band is reached. The factory setting for this parameter is 0.3 %.

• Dead band

When reaching the dead band, the position is held. The factory setting for this parameter is 0.1 %.

• Actuator spring action

Selection of the sensor shaft rotating sense (looking into the open case), if the valve is moved to the safe position by the actuator spring (actuator is depressurized via OUT1). For double-acting actuators the actuator spring action corresponds to pressurizing the pneumatic output (OUT2).

• Zero position

Adjusting the display (0...100 %) according to the direction of action for opening or closing the valve.

Monitoring parameters

Various functions for permanent operational monitoring are implemented in the TZIDC operating program. The following states will be detected and indicated:

- 4...20 mA signal out of range
- position out of the adjusted range
- positioning time-out (adjustable time parameter)
- position controller inactive
- counter limits (settable in the diagnosis phase) exceeded

While automatic commissioning is in progress, the current state is continuously indicated on the integrated LC display.

During operation, the LC display shows the most important process variables:

- current position (in %),
- malfunctions, alarms, messages (as code)

Access to extended monitoring parameters is possible via HART communication.

Diagnosis parameters

The diagnosis parameters of the TZIDC program inform the operator about the operating conditions of the valve. From this information the operator can derive which maintenance works are required, and when. Additionally, limit values can be defined for these parameters. When they are exceeded, an alarm is reported.

The following values are e.g. determined:

- Number of movements performed by the valve
- Total travel

The diagnosis parameters and limit values can be called up, set, and reset via HART communication, using the configuration program.

Operator panel

The TZIDC positioner's operator panel with four push-buttons allows for

- operational monitoring
- manual control
- configuration
- fully automatic commissioning

The operator panel is protected by a cover which avoids unauthorized access to the operating elements.

Single-button commissioning

Commissioning the TZIDC positioner is especially easy. The standard *Autoadjust* function for automatic adaptation of the device parameters can be started by simply pressing a single front panel button, and without knowing parameterization details.

Depending on the selected actuator type (linear or rotary), the displayed zero position is automatically adapted: turning counter-clockwise for linear and clockwise for rotary actuators.

Besides this standard function, a customized *Autoadjust* function is available, which can be started either locally by pressing the respective push-buttons or via HART communication.

Display

The information indicated by the 2-line LC display is permanently updated and adapted during operation, to inform the operator in an optimal way.

During control operation (control with or without adaptation) the following TZIDC data can be called up by pressing the push-buttons briefly:

- | | |
|--------------------------|-----------------------------|
| Up arrow button: | Current setpoint (mA) |
| Down arrow button: | Internal device temperature |
| Up + Down arrow buttons: | Current control deviation |



Fig. 6: TZIDC with removed cover, view of the operator panel

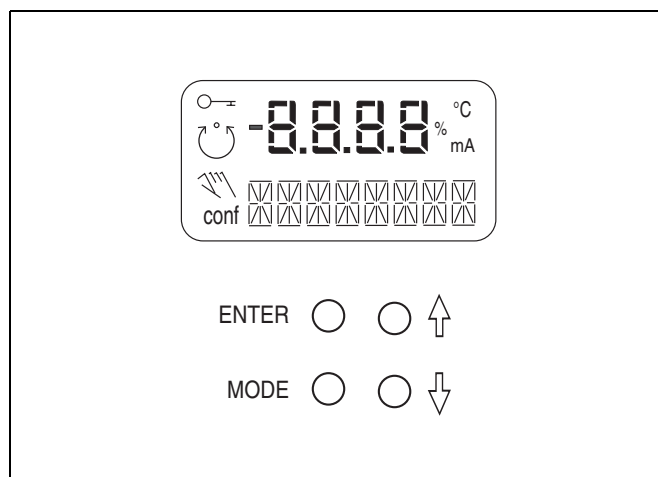


Fig. 7: TZIDC operating elements and display

Communication

DTM

The DTM (Device Type Manager) for TZIDC/TZIDC-200 is based on the FDT/DTM technology (FDT 1.2) and can be integrated in a process control system or loaded in a PC with the DSV401 (SMART VISION) program. This allows you to work with the same user interface in the commissioning phase, during operation, and for service tasks for monitoring the device, setting parameters, and uploading data.

Communication is based on the HART Protocol and can be realized via the local communication interface (LKS) or in frequency-modulated mode via an FSK modem connected at any chosen point of the 20 mA signal line. Communication has no effect on operation. Newly set parameters are saved in the non-volatile memory directly upon the download into the device, and become active immediately.

LKS adapter (RS-232 interface converter)

You can easily connect your TZIDC positioner to a PC, e.g. in the workshop or in the commissioning phase, by using the positioner's LKS adapter (LKS = local communication interface).

An RS-232 interface converter adapts the signals on the serial PC port to the level of the positioner's LKS.

FSK Modem

The FSK modem establishes a digital frequency-modulated communication (**F**requency **S**hift **K**eying) with the TZIDC positioner.

Tapping is possible at any chosen point of the 20 mA signal line.

We recommend to use an electrically isolated FSK modem. It is bus-compatible when used with isolating amplifiers. Even connecting explosion-protected field devices is possible, on condition that the FSK modem is run outside the hazardous area.

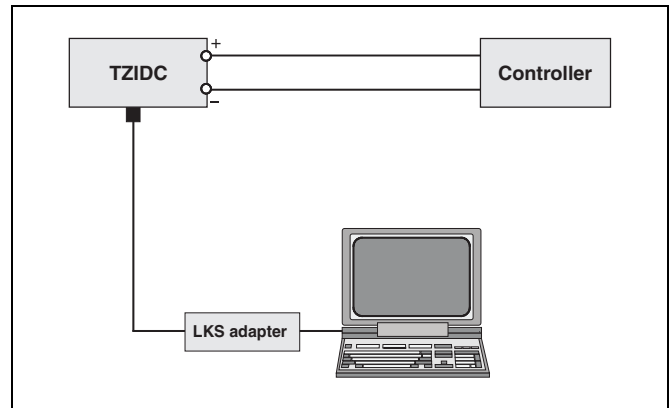


Fig. 8: Local communication via LKS adapter

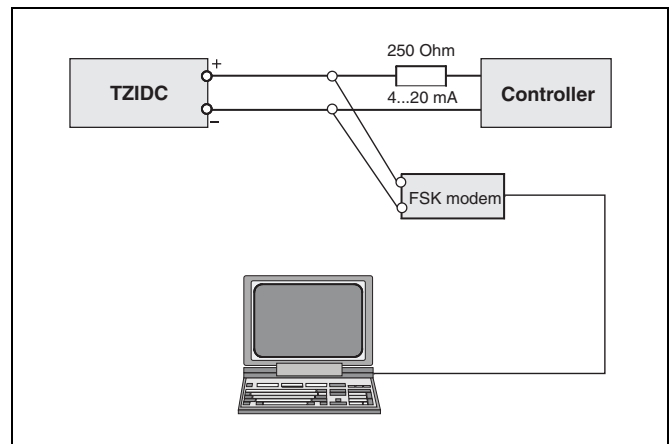


Fig. 9: HART communication with FSK modem via 20 mA signal line

Technical data

Input

Signal

Two-wire technology	
Nominal range	4...20 mA
Split range configuration	between 20% and 100% of the nominal range
Max.	25 mA / 30 V
Min.	3.4 mA (without analog pos. feedback) 3.5 mA (with analog pos. feedback)
Start	from 3.8 mA
Load voltage at 20 mA	8.7 V DC without explosion protection 9.7 V DC for intrinsically safe device
Impedance at 20 mA	435 ohms without explosion protection 485 ohms for intrinsically safe device

Digital input

Control voltage	24 V DC (12...30 V DC) 0...10 V DC: Logical "0" 12...30 V DC: Logical "1"
Current	max. 4 mA

Digital output (control circuit to DIN 19234/NAMUR)

Supply voltage.	5...11 V DC
Current < 1.0 mA	Logical "0"
Current > 2.0 mA	Logical "1"
Effective direction:	normally logical "0" or logical "1" (configurable)

Output

Range

0...6 bar (0...90 psi)

Air capacity

at supply pressure of 1.4 bar (20 psi)
5.0 kg/h = 3.9 Nm³/h = 2.3 scfm
at supply pressure of 6 bar (90 psi)
13 kg/h = 10 Nm³/h = 6.0 scfm (Booster on request)

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 %

Travel

Angle of rotation

Used range	25...120 ° (rotary actuators, optionally 270 °)
	25...60 ° (linear actuators)

Travel limit

Min. and max. limits,
freely configurable within 0...100 % of total travel (min. range > 20 %)

Travel time prolongation

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

Positioning time limit

Range 0...200 seconds (monitoring parameter for control until the deviation reaches the tolerance band)

Air supply

Instrument air

free of oil, water and dust 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)
NOTICE: Do not exceed the max. operating pressure of the actuator!

Air consumption

< 0.03 kg/h / 0.015 scfm (independent of supply pressure)

Transmission data and influences

Output 1

Increasing:	increasing signal 0...100 % increasing output pressure OUT 1
Decreasing:	increasing signal 0...100 % decreasing output pressure OUT 1

Action (signal)

Direct:	signal 4...20 mA = position 0...100 %
Reverse:	signal 20...4 mA = position 0...100 %

Characteristic curve (travel = f {signal})

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

Characteristic deviation

≤ 0.5 %

Tolerance band

0.3...10 %, adjustable

Dead band

0.1...10 %, adjustable

Resolution (A/D conversion)

> 4000 steps

Sample rate

20 msec

Influence of ambient temperature

≤ 0.5 % for every 10 °C change in temperature

Influence of vibration

≤ ± 1 % up 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

No effect

Meets the requirements of the following directives

EMC Directive 89/336/EEC as of May 1989
EC Directive for CE conformity marking

Communication

HART Protocol 5.1
Local connector for LKS (local communication interface) adapter
HART communication via 20 mA signal line with (optional) FSK modem

Environmental capabilities

Ambient temperature

-40 °C to +85 °C for operation, storage and transport
-25 °C to +85 °C with proximity switches SJ2-S1N (NO)

Relative humidity

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

Case

Material/Protections

Aluminum, protection class IP 65 / NEMA 4X

Surface/color

Electrostatic dipping varnish with epoxy resin, stove-hardened
Case varnished black, RAL 9005, matt,
Cap Pantone 420

Electrical connections

Screw terminals:
max. 1.0 mm² for options, max. 2.5 mm² for analog signal
NOTICE: Do not expose the terminals to strain!
Cable entry:
2 threads 1/2-14 NPT or M20x1.5
(1 with cable gland and 1 with pipe plug)

Pneumatic connections

Threads G 1/4 or 1/4-18 NPT

Weight

1.7 kg

Mounting orientation

any orientation allowed

Dimensions

see dimensional drawings

Safety Integrity Level

EXIDA report No.: ABB 03/09-13 R003, Revision R1.0

The positioner TZIDC and the shutdown module for TZIDC meet the requirements regarding

- functional safety in accordance with IEC 61508/IEC 61511-1
- explosion protection (depending on the model)
- electromagnetic compatibility in accordance with EN 61000

In case of a failure of electrical power or compressed air supply or when a positioner malfunction occurs, the actuator is depressurized by the TZIDC, and the return spring in the actuator moves the valve to a pre-defined, safe end position (either OPEN or CLOSED).

SIL specific safety-related characteristics

Device	Category	SFF	PFDav	$\lambda_{dd} + \lambda_s$	λ_{du}
TZIDC	SIL2	85 %	7.52×10^{-4}	1011 FIT	172 FIT
Shutdown module for TZIDC	SIL2	94 %	1.76×10^{-4}	718 FIT	40 FIT

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

Explosion protection



WARNING

The values indicated here have been taken out of the respective approval certificates.
Always observe the specifications and supplements in the certificates (see operating instructions).

FM J.I. 3005029

(3610, 3611)

Intrinsically safe
CL I, Div. 1, Grp. A-B-C-D
CL II, Div. 1, Grp. E-F-G
CL III, Div. 1

Non-incendive
Suitable for use in Div. 2 environment

CSA Certification

1052414

Intrinsically safe; Enclosure 4X; T4, max. 85°C
CL I, Div. 1, Grp. A-B-C-D
CL II, Div. 1, Grp. E-F-G
CL III, Div. 1

Non-incendive; Enclosure 4X, max. 85°C
CL I, Div. 2, Grp. A-B-C-D
CL II, Div. 2, Grp. E-F-G
CL III

ATEX

 **Ex II 2G EEx ib IIC T6**


Examination certificate TÜV 98 ATEX 1370 X
Type: **Intrinsically safe**
Device class: II 2G (EEx ib IIC)
Temperature class: T4, T5, T6
Perm. ambient temperature: T4: $-40\text{ °C} \leq T_{amb} \leq 85\text{ °C}$
T5: $-40\text{ °C} \leq T_{amb} \leq 50\text{ °C}$
T6: $-40\text{ °C} \leq T_{amb} \leq 35\text{ °C}$

ATEX

 **II 3G EEx n A II T6**

Examination certificate TÜV 02 ATEX 1943 X
Type: **Explosion-proof (Zone 2)**
Device class: II 3G (EEx n A II)
Temperature class: T4, T5, T6
Perm. ambient temperature: T4: $-40\text{ °C} \leq T_{amb} \leq 85\text{ °C}$
T5: $-40\text{ °C} \leq T_{amb} \leq 65\text{ °C}$
T6: $-40\text{ °C} \leq T_{amb} \leq 50\text{ °C}$

IECEx

 **Ex ib IIC T6**

Examination certificate IECEx TUN 04.0015X, Issue No.: 0
Type: **Intrinsically safe**
Temperature class: T4, T5, T6
Perm. ambient temperature: T4: $-40\text{ °C} \leq T_{amb} \leq 85\text{ °C}$
T5: $-40\text{ °C} \leq T_{amb} \leq 50\text{ °C}$
T6: $-40\text{ °C} \leq T_{amb} \leq 35\text{ °C}$

Options

Module for analog position feedback¹

Range 4...20 mA (configurable split ranges)
Two-wire circuitry, power supply 24 V DC (10...30 V DC)
48 V DC (20...48 V DC,
no explosion protection)

Action direct or reverse (configurable)
Characteristic deviation $\leq 1\%$

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

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

Current circuits to DIN 19234/NAMUR
Supply voltage 5...11 V DC
Signal current < 1.0 mA Logical "0"
Signal current > 2.0 mA Logical "1"
Effective direction normally logical "0" or log. "1" (configurable)

Module for the shutdown function²

Supply voltage 24 V DC (20...30 V DC)
(el. isolated from input signal)
Safe position is activated when voltage < 5 V
AK approval AK 4 to DIN V 19250
Test report No. 101/S01/148
Explosion protection see certificates (operating instr.)
SIL see page 8

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

Fail-safe:

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 is additionally pressurized.

Fail-freeze:

The pneumatic output 1 is closed, and the valve "freezes" in its current position. In case of a double-acting actuator both outputs are closed.

The 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 switches

Two proximity switches for independent position signaling
Switching points adjustable between 0 and 100 %
Current circuits to DIN 19234/NAMUR
Supply voltage 5...11 V DC
Signal current < 1 mA Logical "0"
Signal current > 2 mA Logical "1"

Direction of action (logical state):

Proximity switch	Position			
	$< \text{Lim. 1}$	$> \text{Lim. 1}$	$< \text{Lim. 2}$	$> \text{Lim. 2}$
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1



NOTICE

When using proximity switch type SJ2-S1N (NO) the TZIDC positioner may be exposed to an ambient temperature of $-25\text{ °C} \dots +85\text{ °C}$, only.

Digital position feedback with 24 V microswitches

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

Mechanical position indicator

Indicator disk in enclosure cover, linked with positioner feedback shaft

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 plastic case $\varnothing 28$ mm,
with aluminum connection block, varnished black
inclusive of mounting material for attachment to TZIDC.

Filter regulator

All metal version, brass varnished black,
bronze filter element, 40 μm , with condensate drain,
max. pre-pressure 16 bar, output adjustable to 1.4...6 bar

PC adapter for communication

LKS adapter for connector on TZIDC (s. data sheet 63-6.71 EN)
FSK modem for HART communication (s. data sheet 63-6.71 EN)

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 EN)

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 shutdown function uses the same space as the module for analog feedback and the module for digital feedback and cannot be plugged in and run together with any of them.

Wiring diagrams

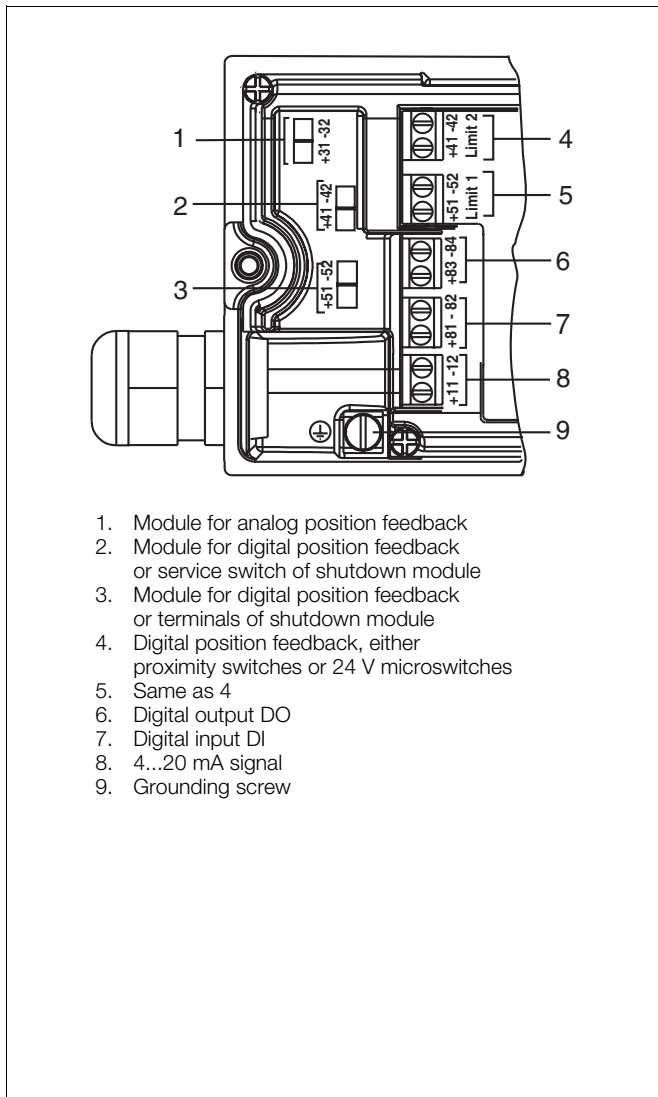


Fig. 10: Screw terminals, overview

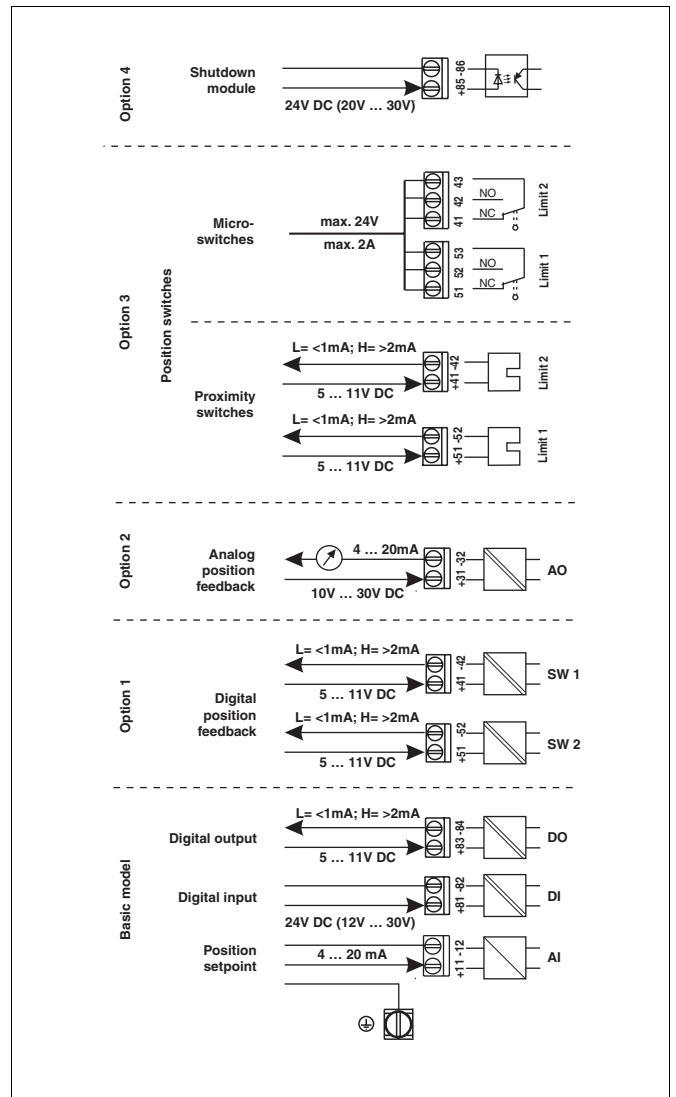


Fig. 11: Terminal assignment

Dimensional drawings (all dimensions in mm)

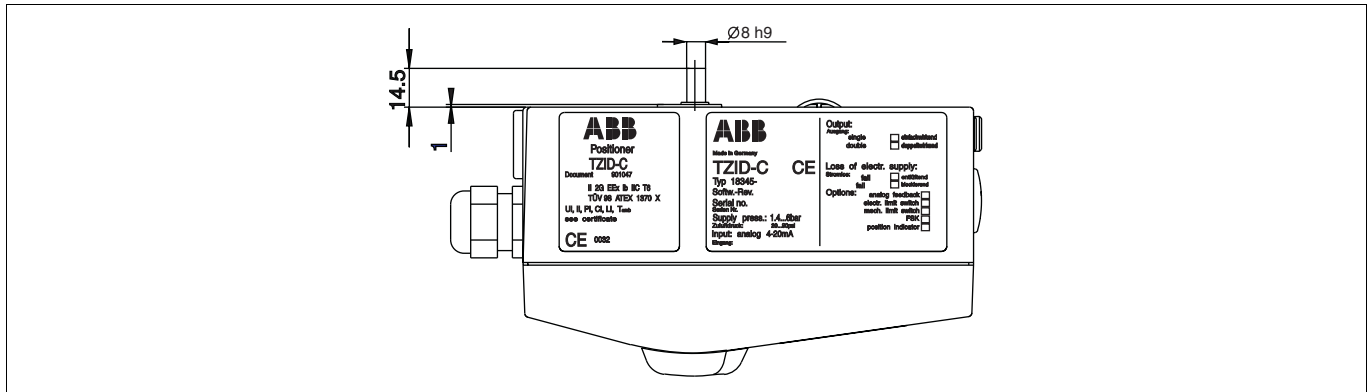


Fig. 12: Top view

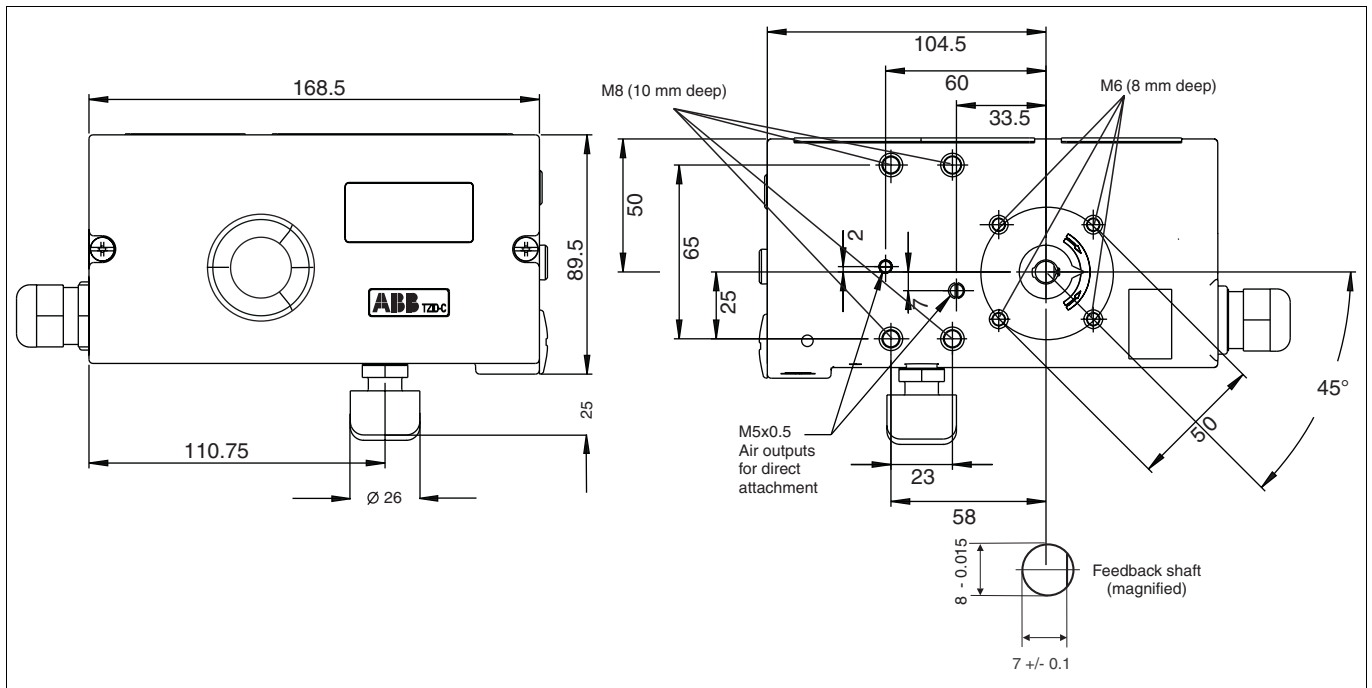


Fig. 13: Front and rear view

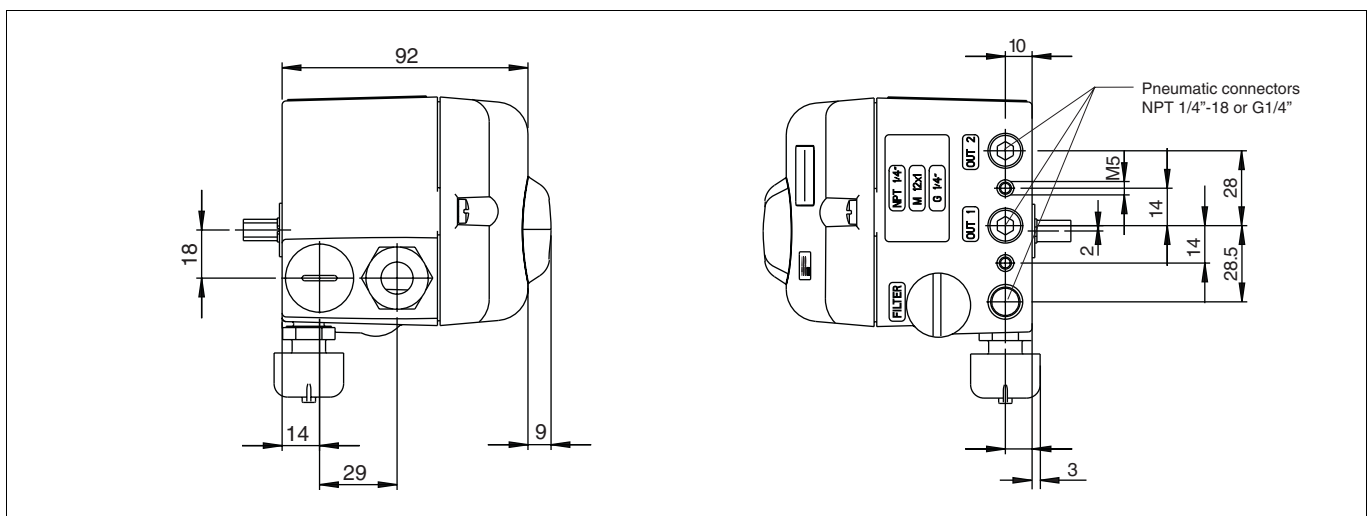


Fig. 14: Left and right side view

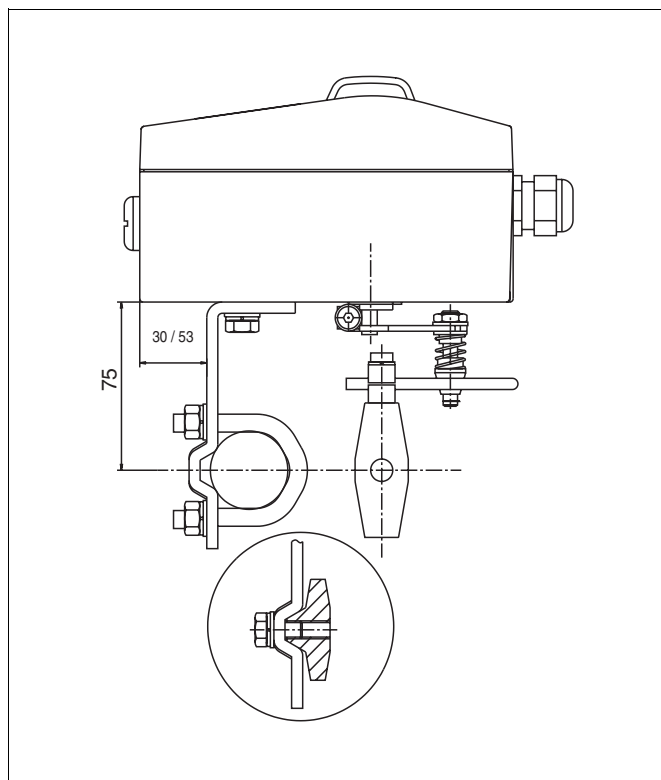
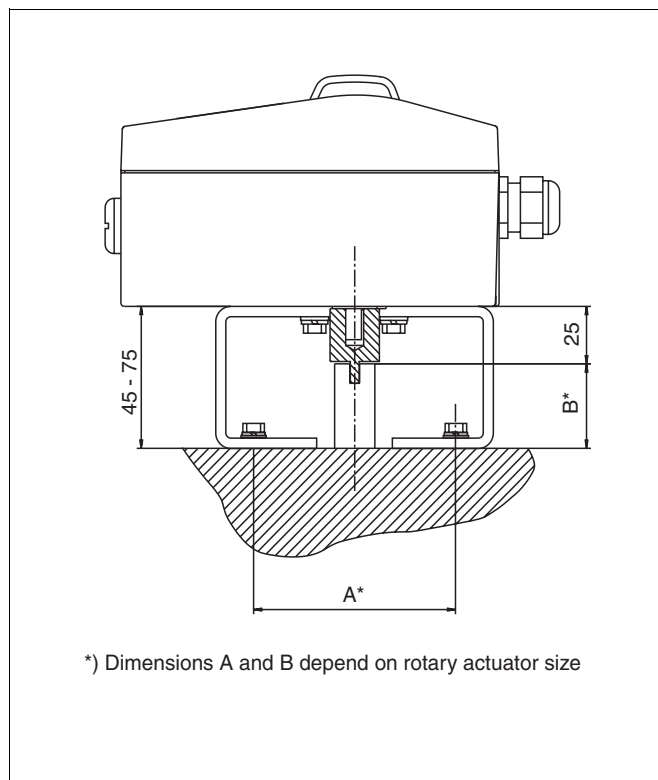


Fig. 15: Mounting to linear actuators to DIN/IEC 534



*) Dimensions A and B depend on rotary actuator size

Fig. 16: Mounting to rotary actuators to VDI/VE 3845

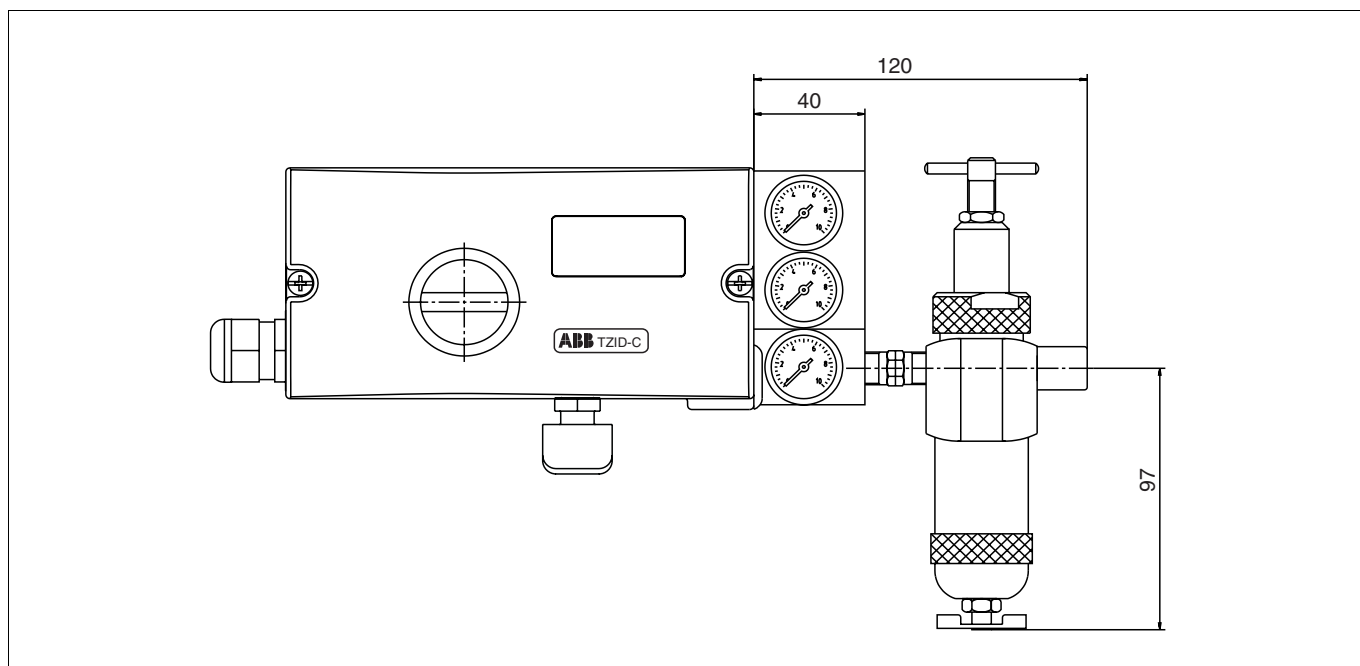


Fig. 17: Positioner TZIDC with pressure gauge block and filter regulator

Ordering information (continued)

	Catalog No.	Code		
Electro-Pneumatic Positioner TZIDC intelligent, configurable with indicator and operator panel	V18345-			
Design (varnish/coding) Standard Special version chemistry (details on request) As specified (on request)		1 E		
Certificates SIL2 - Declaration of conformity Certificate of compliance with the order acc. to EN 10204-2.1 (DIN 50049-2.1) Certificate of compliance with the order acc. to EN 10204-2.1 (DIN 50049-2.1) with item description Test Report acc. to EN 10204-2.2 (DIN 50049-2.2) Constructors test certificate O acc.to DIN 55350-18-4.2.2 Constructors test certificate M acc.to DIN 55350-18-4.2.2 with item description Constructors test certificate M acc.to DIN 55350-18-4.2.2 with item description and diagram Inspection Certificate 3.1B acc. to EN 10204 with max. deviation Inspection Certificate 3.1B acc. to EN 10204 with add. data and item description Test Certificate & Letter of Conformity with item description		CS2 CF1 CF2 CF3 CH1 CH3 CH4 CBA CBB CTC		
Device identification label includes lettering (plain text, max. 16 letters) stainless steel 11.5 x 60 mm sticker 41 x 32 mm sticker 11 x 25 mm		MK1 MK2 MK3		

Accessories

	Catalog No.	Code		
Mounting material and cost				
Attachment kit for linear actuators (lateral attachment to DIN/IEC 534 / NAMUR)				
Stroke 10... 35 mm	7959125			
Stroke 20 ... 100 mm	7959126			
Attachment kit for integral mounting to				
23/24 and 23/25 cont. valve DN 15 up to DN 100, stroke 10...35 mm	7959106			
DN 125 up to DN 150, stroke 25...65 mm	7959107			
23/26 control valve DN 25 up to DN 100, stroke 10...35 mm	7959108			
DN 125 up to DN 162, stroke 25...65 mm	7959109			
Attachment kit for rotary actuators (mounting to VDI/VDE 3845), consisting of				
a) Adapter (shaft coupler)	7959110			
b) Mounting bracket, dimensions A/B = 80/20 mm	319603			
A/B = 80/30 mm	319604			
A/B = 130/30 mm	319605			
A/B = 130/50 mm	319606			
Mounting cost, incl. material and adjustment				
for mounting to linear actuators to DIN/IEC 534 / NAMUR				
or to rotary actuators to VDI/VDE 3845				
External tubing with Plastic tube	319628			
Copper pipe	319629			
Stainless steel pipe	319630			
for integral mounting to 23/24, 23/25 or 23/26 control valves				
Internal tubing	319627			
External tubing with Copper pipe 1)	7959015			
Stainless steel pipe 1)	7959016			

1) External tubing only for 23/24 and 23/25 control valves with "air to close/spring to open" action, otherwise internal tubing only

Accessories (continued)

	Catalog No.		
Pressure gauge block			
Pressure gauge block, including attachment material			
for single acting TZIDC, with 2 pressure gauges Ø 28 mm (1 x for air supply and 1 x for output pressure)			
G 1/4 connections	Supply pressure range 0...10 bar/ 0...140 psi		
	Output pressure range 0...4 bar/ 0...60 psi	7959111	
	Output pressure range 0...10 bar/ 0...140 psi	7959112	
1/4-18 NPT connections	Supply pressure range 0...10 bar/ 0...140 psi		
	Output pressure range 0...4 bar/ 0...60 psi	7959113	
	Output pressure range 0...10 bar/ 0...140 psi	7959114	
for double acting TZIDC, with 3 pressure gauges Ø 28 mm (1 x for air supply and 2 x for output pressure)			
G 1/4 connections	Supply pressure range 0...10 bar/ 0...140 psi		
	Output pressure range 0...4 bar/ 0...60 psi	7959115	
	Output pressure range 0...10 bar/ 0...140 psi	7959116	
1/4-18 NPT connections	Supply pressure range 0...10 bar/ 0...140 psi		
	Output pressure range 0...4 bar/ 0...60 psi	7959117	
	Output pressure range 0...10 bar/ 0...140 psi	7959118	
(Pressure gauge blocks are delivered as separate units for mounting by the customer)			
Filter regulator			
Brass filter regulator, incl. material for mounting to pressure gauge block			
Connections	Thread G 1/4	7959119	
	Thread 1/4-18 NPT	7959120	
(Filter regulators are delivered as separate units for mounting by the customer)			
PC adapter for communication			
LKS adapter		see Data Sheet 10/63-6.71 EN	
FSK modem		see Data Sheet 10/63-6.71 EN	
DSV401 (SMART VISION)	on CD-ROM	see Data Sheet 10/63-1.20 EN	
Option modules (can be added later)			
	Plug-in module for analog position feedback, signal range 4...20 mA, 2-wire	7959128	
	Plug-in module for analog position feedback, 48V, without Ex protection	7959194	
	Plug-in module for digital position feedback	7959129	
	Plug-in module for shutdown function	7959199	
Kit for	mechanical position indicator (including front cover with glass)	7959130	
Kit for	digital position feedback (including front cover with mechanical position indicator)		
	with 24 V DC/AC microswitches (change-over contacts)	7959191	
	with proximity switches SJ2 - SN (NC or logical 1)	7959131	
	SJ2 - S1N (NO or logical 0)	3) 7959132	
Kit for	digital position feedback		
	with 24 V DC/AC microswitches (change-over contacts)	1) 7959190	
	with proximity switches SJ2 - SN (NC or logical 1)	1) 7959133	
	SJ2 - S1N (NO or logical 0)	1) 3) 7959134	
Spare parts			
	Spare parts kit	7959198	
	I/P module (single acting, fail safe)	2) 7958510	
	I/P module (single acting, fail freeze)	2) 7958511	
	I/P module (double acting, fail safe)	2) 7958512	
	I/P module (double acting, fail freeze)	2) 7958513	

- 1) only fits for basic model with mechanical position indicator
2) explosion protected version only
3) only for ambient temperature range -25 °C to +85 °C

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ABB Ltd.

Salterbeck Trading Estate
Workington, Cumbria
CA14 5DS
UK
Tel: +44 (0) 1946 830 611
Fax: +44 (0) 1946 832 661

ABB Inc.

125 E. County Line Road
Warminster, PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Automation Products GmbH

Schillerstr. 72
32425 Minden
Germany
Tel: +49 551 905-534
Fax: +49 551 905-555