

for 4...20 mA two-wire technology,  
with flameproof enclosure



- **Low operating cost**
- **Compact design**
- **Well-proven technology and intelligence**
- **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**
  - flameproof enclosure
  - intrinsically safe
- **For SIL2 safety loops**



**Compact, well-proven, and flexible**



**Short description**

TZIDC-200 is an electronically configurable positioner with communication capabilities, mounting to pneumatic linear or rotary actuators. It features a small and compact design, a flameproof enclosure, 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**

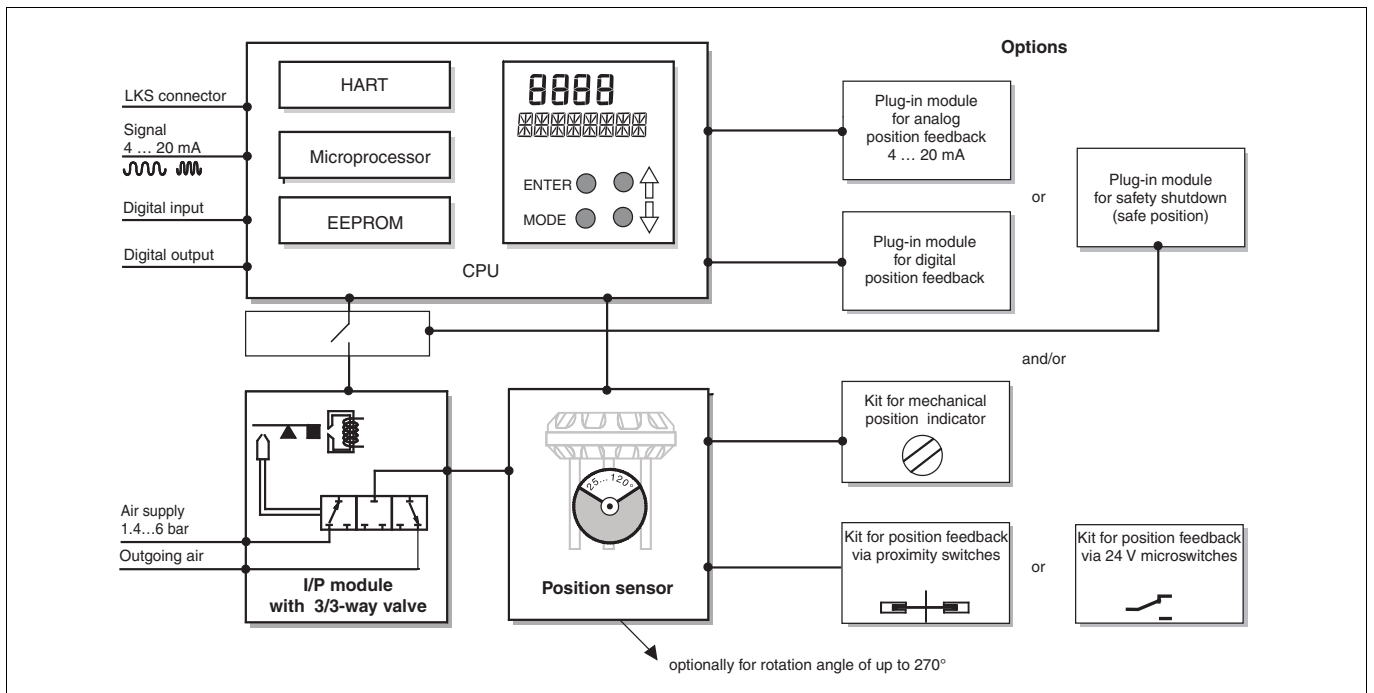
The standard TZIDC-200 model has a local communication interface (LKS connector). Additionally, a “HART communication” option for communication via the 20 mA signal is available. Both communications are based on the HART Protocol.

**Inputs and outputs**

In addition to its input for the analog position set point the positioner TZIDC-200 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-200 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-200 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.

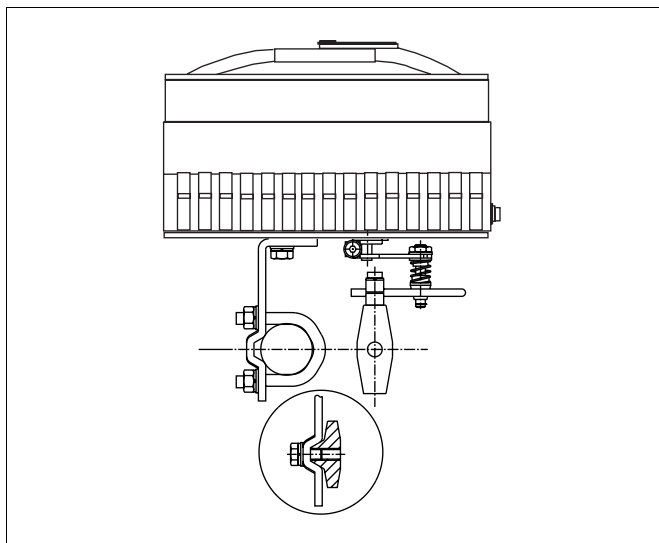
### Integral mounting to control valves

A model of the TZIDC-200 positioner designed for integral mounting with the required threaded holes at the back (see Fig. 12: Front view 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.

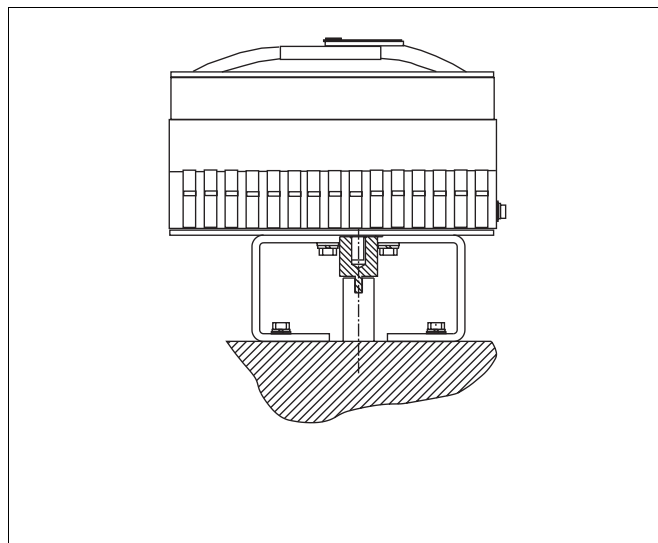
### Special actuator-specific mounting

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

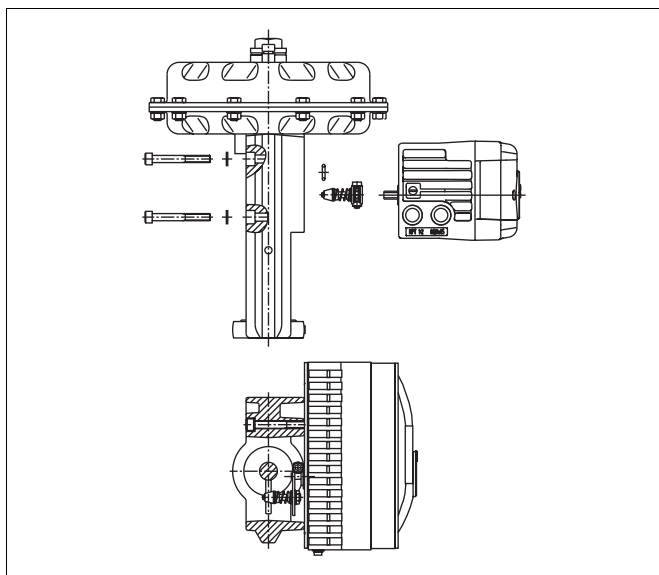
Please contact us for details.



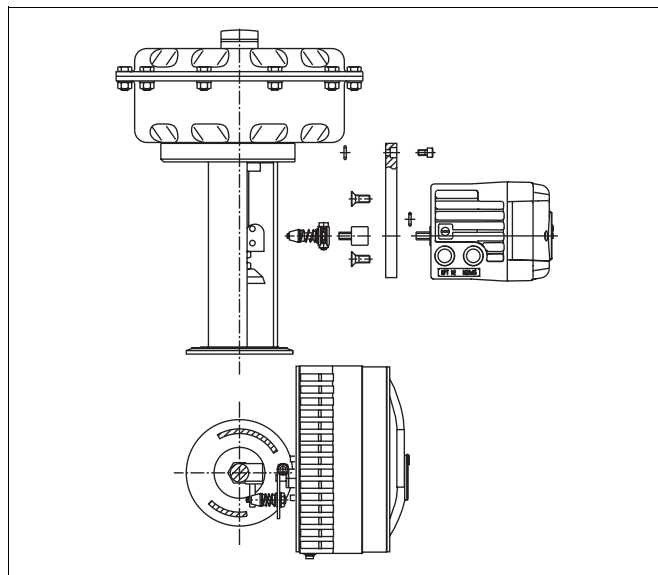
**Fig. 2:** Mounting to linear actuators to DIN/IEC 534 / NAMUR



**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-200 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

The following operating parameters can be set manually if required:

- **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-200 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 DTM.  
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 DTM:

- 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-200 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 (sensitivity)

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).

### • Display 0...100 %

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-200 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 and the DTM.

### Diagnosis parameters

The diagnosis parameters of the TZIDC-200 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, by using the DTM.

### Operator panel



**Fig. 6:** TZIDC-200 with open cover, view of the operator panel

The TZIDC-200 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 hinged cover which can be opened during operation even in hazardous areas, i.e. the positioner can be locally operated any time as required.

### Single-button commissioning

Commissioning the TZIDC-200 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.

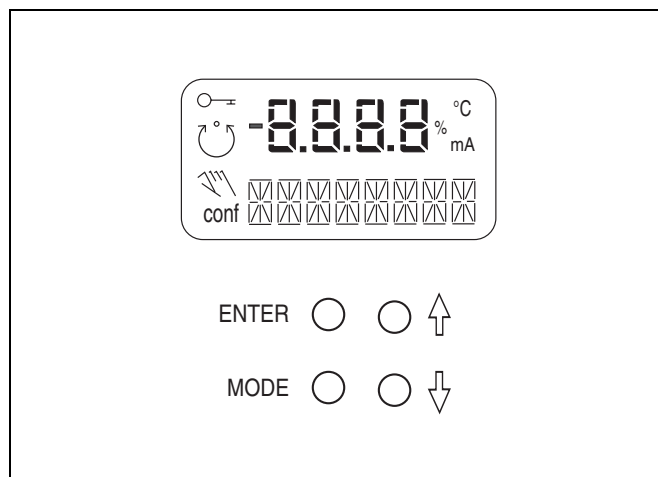
Besides this standard function, a customized *Autoadjust* function is available, which can be started either locally by pressing the respective push-buttons or via HART communication.

### 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-200 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. 7:** TZIDC-200 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-200 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).

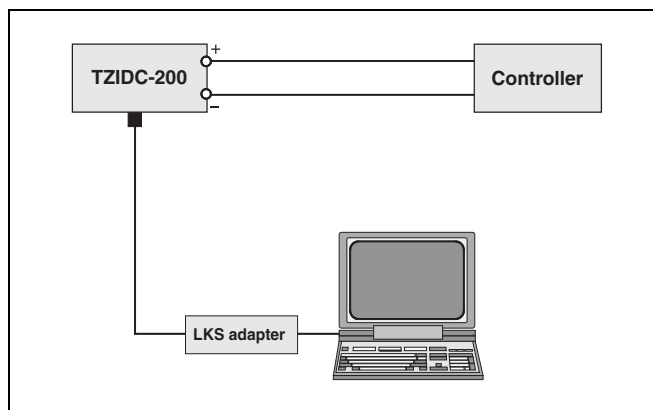
An RS-232 interface converter adapts the signals on the serial PC port to the level of the positioner's LKS.

### FSK Modem

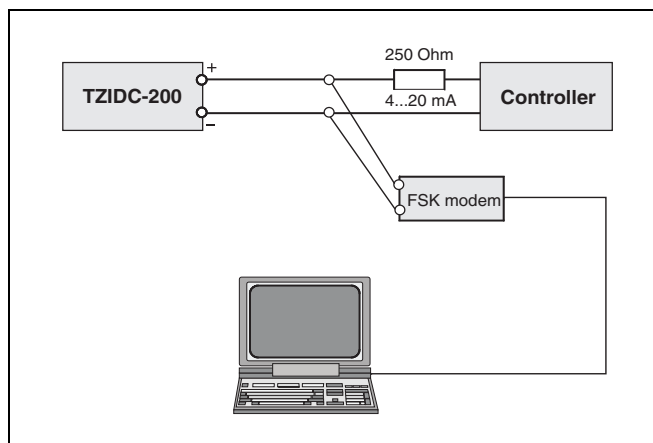
The FSK modem establishes a digital frequency-modulated communication (**F**requency **S**hift **K**eying) with the TZIDC-200 positioner.

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 Nm<sup>3</sup>/h = 2.3 scfm  
at supply pressure of 6 bar (90 psi)  
13 kg/h = 10 Nm<sup>3</sup>/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/m<sup>3</sup>  
oil content: max. concentration 1 mg/m<sup>3</sup>  
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

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

### Transmission data and influences

#### Output OUT 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 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 mm<sup>2</sup> for options, max. 2.5 mm<sup>2</sup> for analog signal  
NOTICE: Do not expose the terminals to strain!  
Cable entry:  
2 threads 1/2-14 NPT or M20x1.5  
(cable gland or pipe plug must be ordered separately)

### Pneumatic connections

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

### Weight

3.0 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-200 and the shutdown module for TZIDC-200 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-200, 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	$\lambda_{dd} + \lambda_s$	$\lambda_{du}$
TZIDC-200	SIL2	85 %	$7.52 \times 10^{-4}$	1011 FIT	172 FIT
Shutdown module for TZIDC-200	SIL2	94 %	$1.76 \times 10^{-4}$	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 Approval HLC 8/02

**3010829**

Explosion proof; enclosure 4X; T5, max. 82°C  
CL I, Div. 1, Group C, D

Intrinsically safe; enclosure 4X; T5, max. 82°C  
CL I, II, III, Div. 1, Group A, B, C, D, E, F, G

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

Dust ignition-proof; enclosure 4X; T5, max. 82°C  
CL II, III, Div. 1, Group E, F, G

### CSA Certificate

**1393920**

Explosion proof; enclosure 4X; T5, max. 85°C  
CL I, Div. 1, Group C, D  
CL II, Div. 1, Group E, F, G  
CL III

Intrinsically safe; enclosure 4X; T5, max. 82°C  
CL I, Div. 1, Group A, B, C, D  
CL II, Div. 1, Group E, F, G  
CL III

### ATEX

Examination certificate  
Type:  
Device class:  
Temperature class:  
Perm. ambient temperature:

 **Ex II 2G EEx d IIC T4/T5/T6**

DMT 02 ATEX E 029 X  
**Flameproof enclosure**  
II 2G (EEx d IIC)  
T4, T5, T6  
T4:  $-40\text{ °C} \leq T_{amb} \leq 85\text{ °C}$   
T5:  $-40\text{ °C} \leq T_{amb} \leq 80\text{ °C}$   
T6:  $-40\text{ °C} \leq T_{amb} \leq 65\text{ °C}$

### ATEX


Examination certificate  
Type:  
Device class:  
Temperature class:  
Perm. ambient temperature:

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

TÜV 98 ATEX 1370 X  
**Intrinsically safe**  
II 2G (EEx ib IIC)  
T4, T5, T6  
T4:  $-40\text{ °C} \leq T_{amb} \leq 85\text{ °C}$   
T5:  $-40\text{ °C} \leq T_{amb} \leq 50\text{ °C}$   
T6:  $-40\text{ °C} \leq T_{amb} \leq 35\text{ °C}$

### IECEx

Examination certificate  
Type:  
Temperature class:  
Perm. ambient temperature:

 **Ex ib IIC T6**

IECEx TUN 04.0015X, Issue No.: 0  
**Intrinsically safe**  
T4, T5, T6  
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 feedback<sup>1</sup>

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 feedback<sup>1</sup>

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 function<sup>2</sup>

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-200 positioner may be exposed to an ambient temperature of  $-25\text{ }^{\circ}\text{C}$  ...  $+85\text{ }^{\circ}\text{C}$ , only.

### Digital position feedback with 24 V microswitches



**WARNING**

Only approved for Ex d version!

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  $\mu\text{m}$  gold (AU)

### Mechanical position indicator

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

## 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

### EEx d cable glands

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 plastic case  $\varnothing 28$  mm, with aluminum connection block, varnished black inclusive of mounting material for attachment to TZIDC-200.

### Filter regulator

All metal version, brass varnished black, bronze filter element, 40  $\mu\text{m}$ , 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-200 (s. data sheet 63-6.71 EN)  
FSK modem for HART communication (s. data sheet 63-6.71 EN)

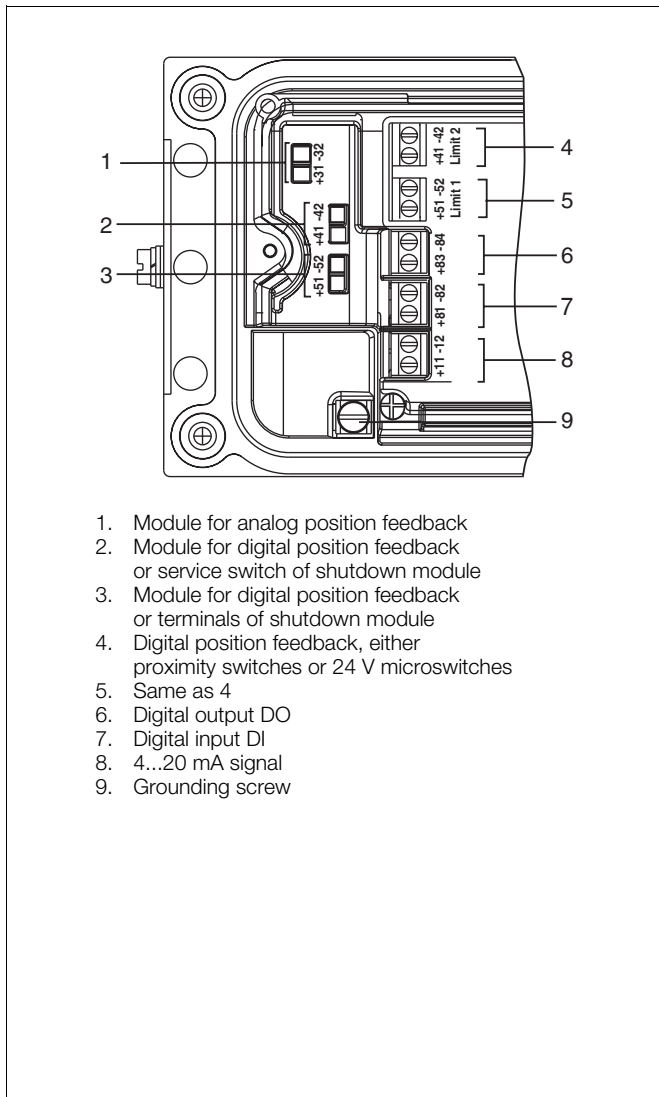
### PC software for remote configuration and operation

DSV401 (SMART VISION) with DTM for TZIDC/TZIDC-200 available on CD ROM (see data sheet 63-1.20 EN)

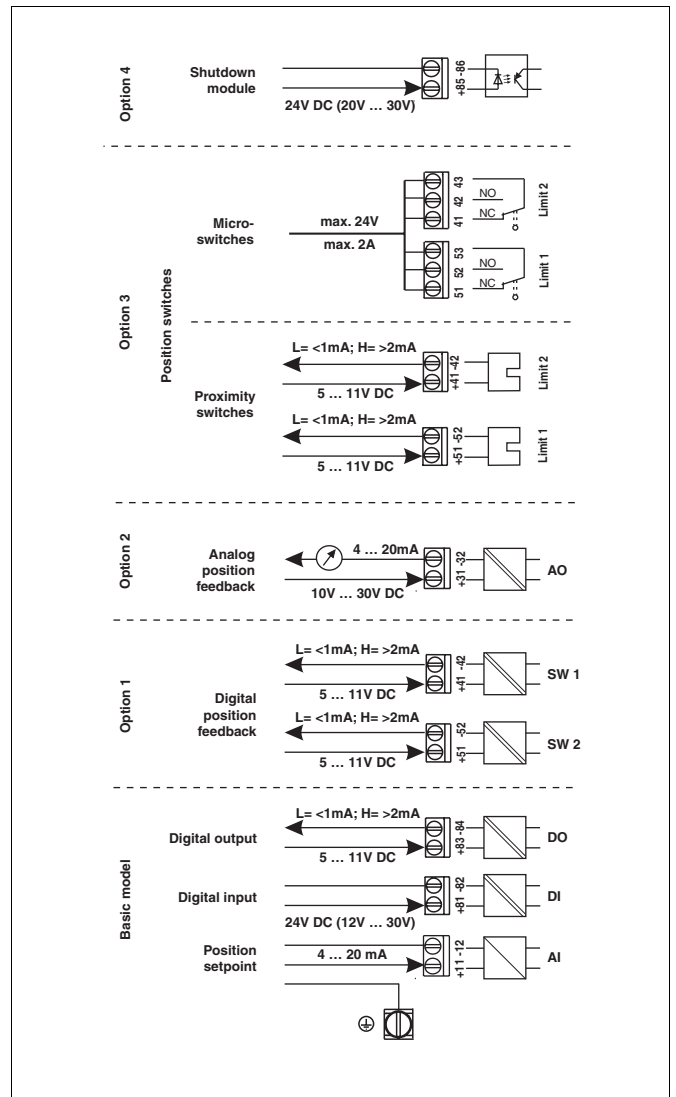
1. The module for analog position feedback and the module for digital position feedback plug in separate slots and can be used together.

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**

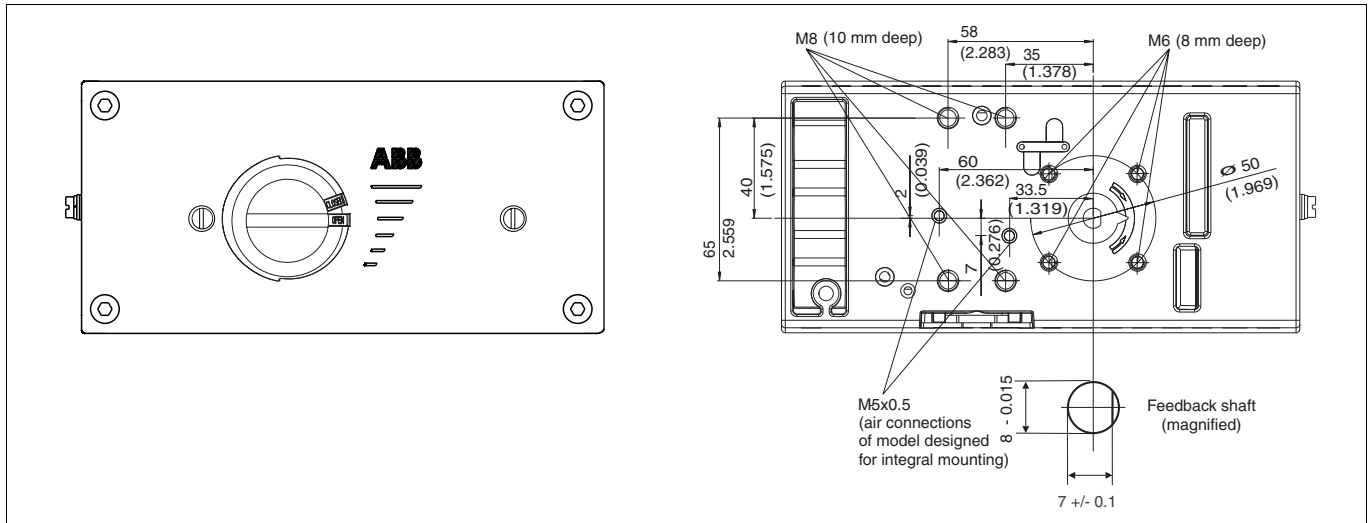


**Fig. 10:** Screw terminals, overview

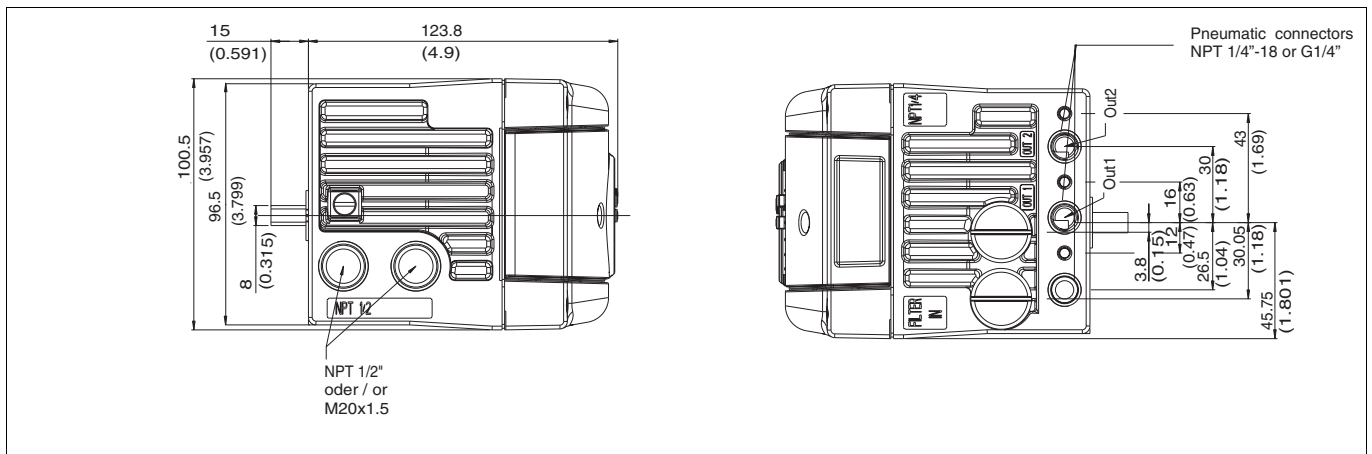


**Fig. 11:** Terminal assignment

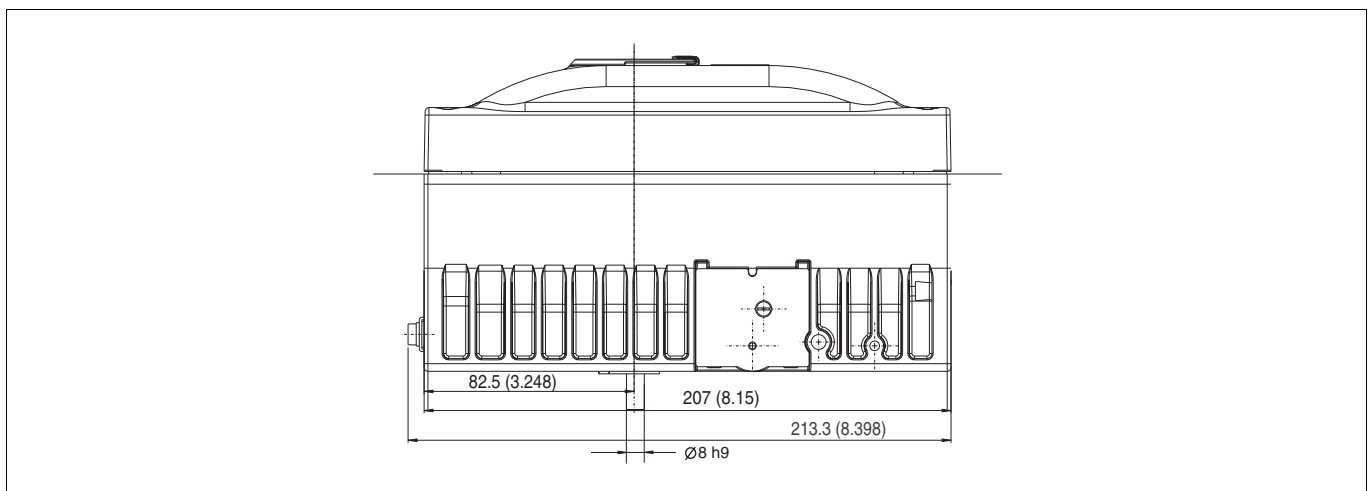
**Dimensional drawings (dimensions in mm (inches))**



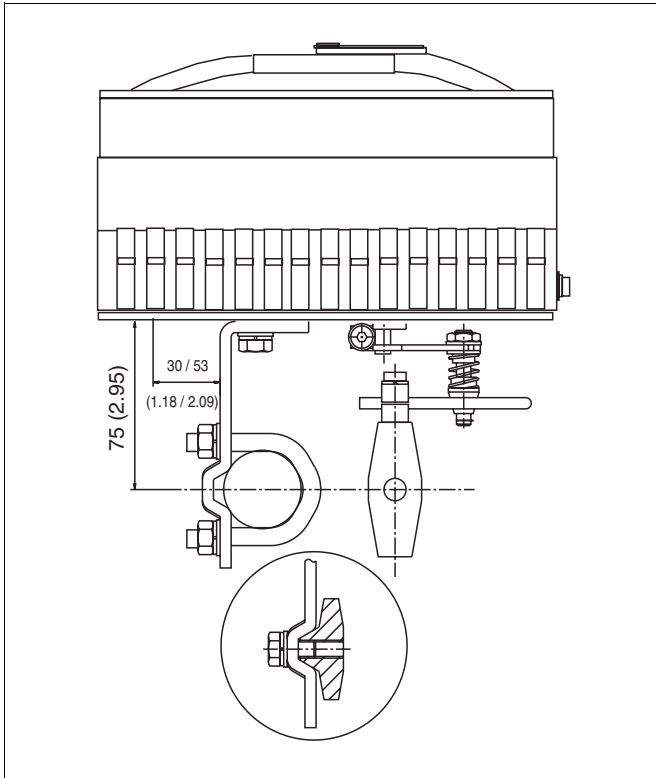
**Fig. 12:** Front view and rear view



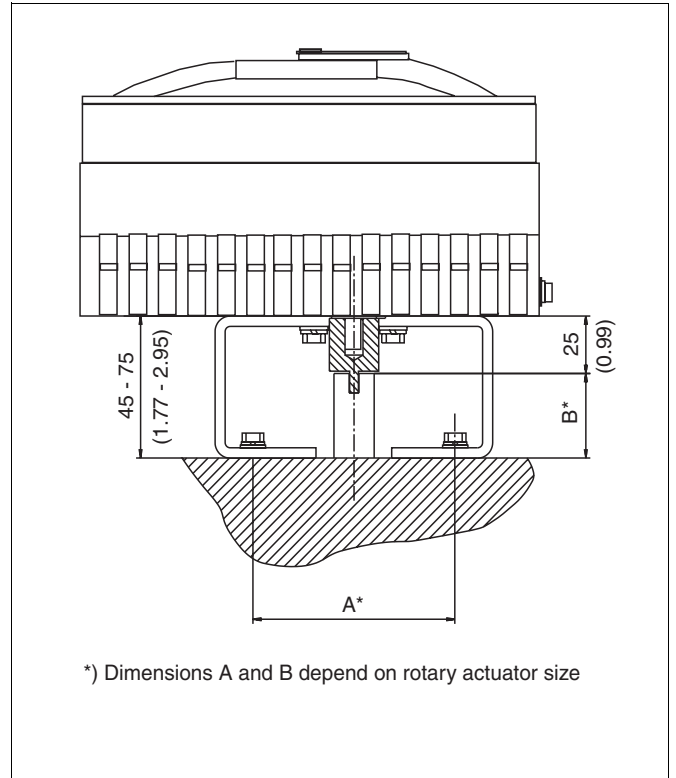
**Fig. 13:** Left and right side view



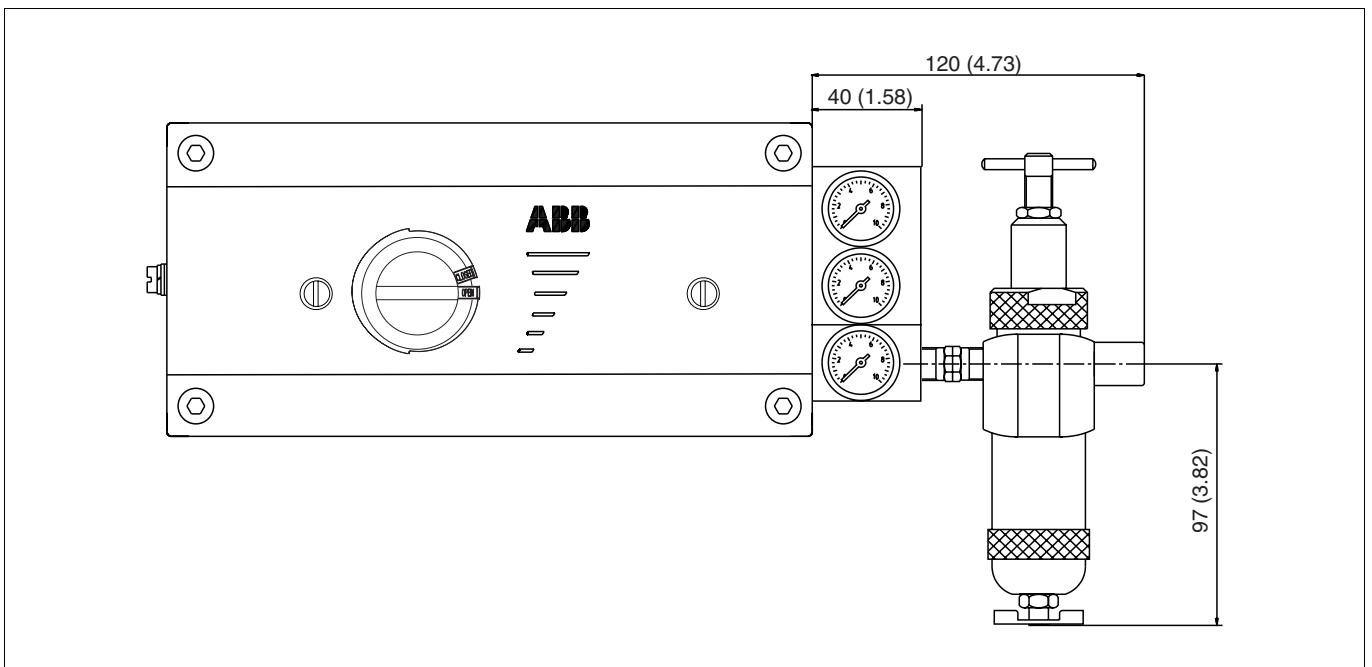
**Fig. 14:** Bottom view



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



**Fig. 16:** Mounting to rotary actuators to VDI/VDE 3845



**Fig. 17:** Positioner TZIDC-200 with pressure gauge block and filter regulator

**Ordering information**

	Catalog No.										Code		
<b>Electro-Pneumatic Positioner TZIDC-200</b> intelligent, software-configurable with local communication interface (LKS) and HART communication	V18348-	0											
<b>Case/Mounting</b> Case made of aluminium, varnished, protection IP 65 / NEMA 4X For mounting to linear actuators acc. to DIN/IEC 534 / NAMUR or to rotary actuators acc. to VDI/VDE 3845 As above, but with mechanical position indicator For integral mounting to control valves As above, but with mechanical position indicator For mounting to rotary actuators acc. to VDI/VDE 3845 with extended rotation angle up to 270° As above, but with mechanical position indicator  See Options/Accessories for customer-specific mounting Please specify the actuator type and type of mounting <b>Note:</b> Special mounting material is required (see "Accessories")		1	2	3	4	5	6						
<b>Operation</b> with operator panel and display integrated in the enclosure cover		1											
<b>Explosion protection</b> ATEX Ex II 2 G EEx d IIC T4, T5, T6 FM/CSA Class 1, Div. 1, Group C-D (explosion-proof) ATEX EEx ib and EEx d IIC T6 FM/CSA intrinsically safe and explosion-proof IECEx Ex ib IIG T6 other explosion protection certificates upon request		1)	2)	3)	4)	5)							
<b>Output/safe position (in case of an electrical power failure)</b> Single acting, fail safe fail freeze Double acting, fail safe fail freeze			1	2	3	4							
<b>Connections</b> Cable: Thread M20 x 1.5      Air pipe: Thread G 1/4 Cable: Thread 1/2-14 NPT      Air pipe: Thread 1/4-18 NPT		2)		1	3								
<b>Option modules for analog or digital position feedback</b> Without Plug-in module for analog position feedback, signal range 4...20 mA, two-wire digital position feedback analog position feedback, sign. range 4...20 mA, two-wire and digital position feedback shutdown module				0	1	3	4	5					
<b>Optional mechanical kit for digital position feedback</b> without Mechanical kit for digital position feedback With proximity switches SJ2-SN (NC or logical 1) With proximity switches SJ2-S1N (NO or logical 0) with 24V DC/AC microswitches (change-over contacts)				0	1	2	3						

1) only with cable connection NPT thread  
2) EEx d cable glands see accessories  
3) only for ambient temperature range -25...+85 °C  
4) only for Ex d version

Continued on next page

**Ordering information (continued)**

	Catalog No.	Code		
<b>Electro-Pneumatic Positioner TZIDC-200</b> intelligent, software-configurable with local communication interface (LKS) and HART communication	<b>V18348-</b>			
<b>Parameter setting/bus address</b> Factory setting for HART devices Customized parameter setting for HART devices			1 2	
<b>Design (varnish/coding)</b> Standard As specified (on request)			1 2	
<b>Device identification label</b> (provide list, if available) without label including text (plain text, max. 16 letters), with separate sticker same as above, but with separate stainless steel label 11.5 x 60 mm			0 1 2	
<b>Certificates</b> 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

**Accessories**

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

Continued on next page

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.		
<b>Pressure gauge block</b>			
Pressure gauge block, including attachment material			
for single acting TZIDC-200, 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-200, 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)			
<b>Filter regulator</b>			
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)			
<b>PC adapter for communication</b>			
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	
<b>Option modules (can be added later)</b>			
	Plug-in module for analog position feedback, signal range 4...20 mA, 2-wire	7959128	
	Plug-in module for digital position feedback	7959129	
	Plug-in module for shutdown function	7959199	
Kit for	mechanical position indicator	7959238	
Kit for	digital position feedback		
	with 24 V DC/AC microswitches (change-over contacts)	1) 7959230	
	with proximity switches SJ2 - SN (NC or logical 1)	7959231	
	SJ2 - S1N (NO or logical 0)	2) 7959232	
Kit for	digital position feedback with existing mechanical position indicator exist		
	with 24 V DC/AC microswitches (change-over contacts)	1) 7959240	
	with proximity switches SJ2 - SN (NC or logical 1)	7959241	
	SJ2 - S1N (NO or logical 0)	2) 7959242	
		3)	
<b>EEx d cable glands</b>			
	1 x EEx d cable gland M20x1.5, 1 pipe plug M20x1.5 and securing adhesive	7959244	
	2 x EEx d cable glands M20x1.5 and securing adhesive	7959245	
	1 x EEx d cable gland 1/2" NPT, 1 pipe plug 1/2" NPT and securing adhesive	7959246	
	2 x EEx d cable glands 1/2" NPT and securing adhesive	7959247	

1) only for Ex d version

2) only for ambient temperature range -25...+85 °C

3) for cable diameter 7.2...11.7 mm

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