

# TZIDC Digital Positioner

For highly precise and reliable valve positioning in all industries



#### Easy Set-Up

- Auto-adjust function
- Simple initialization

#### Easy handling

- ABB common look and feel

#### Control adaptive function

- Automatic adjustment of control parameters during operation

#### High shock and vibration immunity

- Gearless sensor activation

#### Fail save and fail freeze function

- Selectable safe position of valve

#### Low air consumption

- Efficient I/P converter

#### Monitoring of process parameters

- Numerous diagnostic functions available

#### HART-protocol

#### Global approvals for explosion protection

- ATEX
- IECEx
- FM, CSA
- EAC TR-CU-012

#### Wide temperature range

- -40 ... 85 °C (-40 ... 185 °F)

#### Applicable for nearly all actuators and valves

- Suitable for all pneumatic actuators
- Suitable for rotary and linear actuators
- Suitable for all actuator sizes

# TZIDC

## Digital Positioner

### Brief description

The TZIDC is an electronically configurable positioner with communication capabilities designed for mounting to pneumatic linear or part-turn 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 setpoint 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 setpoint, 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 supply power fails, 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 the second output 2 is additionally pressurized.

#### "Fail-freeze" function

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

#### Use

The positioner has a built-in operating panel providing a 2-line LCD display and 4 operating buttons for commissioning, configuration and monitoring during live operation. Alternatively, the appropriate configuration program can be used via the available communication interface.

#### Communication

The positioner has a local communication interface (LCI) as standard. Additionally, a "HART communication" option for communication via the 20 mA signal is available. Both communications are based on the HART Protocol. Alternatively, HART5 or HART7 are available.

#### Inputs / Outputs

In addition to its input for the analog position setpoint, the positioner is equipped with a digital input which can be used to activate control system functions in the device. A digital output allows you to output collective alarms or fault messages.

#### Modular design

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

## Schematic diagram

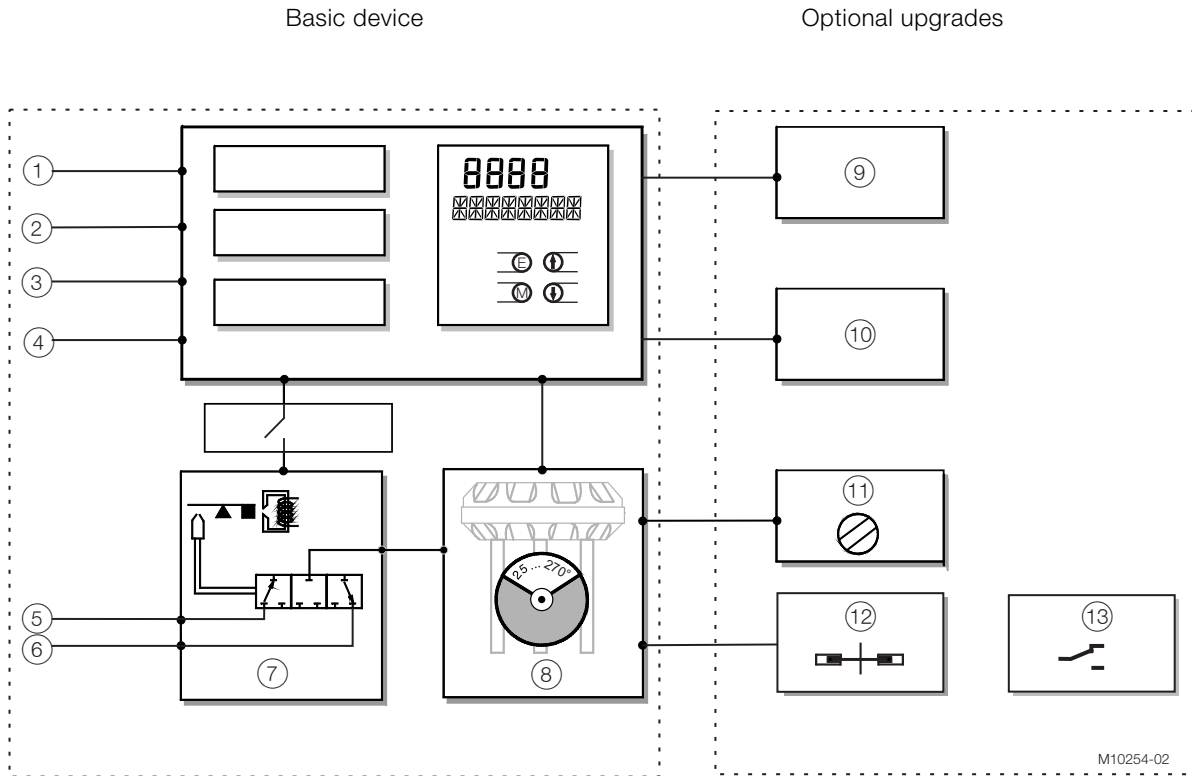


Fig. 1: Schematic diagram of the positioner

- ① LCI connector ② Setpoint signal 4 ... 20 mA ③ Binary input ④ Binary output ⑤ Supply air: 1.4 ... 6 bar (20 ... 90 psi) ⑥ Exhaust air  
 ⑦ I/P module with 3/3-way valve ⑧ Position sensor ⑨ Plug-in module analog feedback (4 ... 20 mA) ⑩ Plug-in module digital feedback  
 ⑪ Installation kit for mechanical position indication ⑫ Limit monitor with proximity switches ⑬ Limit monitor with 24 V microswitches

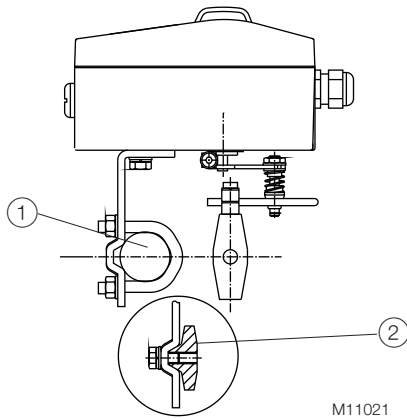
### **i** NOTE

With optional upgrades, either the "Limit monitor with proximity switches" (12) or the "Limit monitor with 24 V microswitches" (13) can be used. In both cases, the "mechanical position indicator" (11) must be installed.

## Mounting versions

### 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.



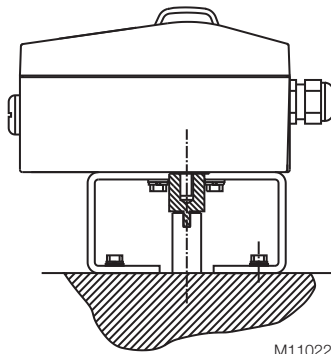
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Fig. 2: Mounting to linear actuators in accordance with DIN/IEC 534

① Columnar yoke ② Cast iron yoke

### To part-turn actuators in accordance with the standard

This attachment is designed for mounting according to the standard VDI/VDE 3845. The attachment kit consists of a console with mounting screws for mounting on a part-turn 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.



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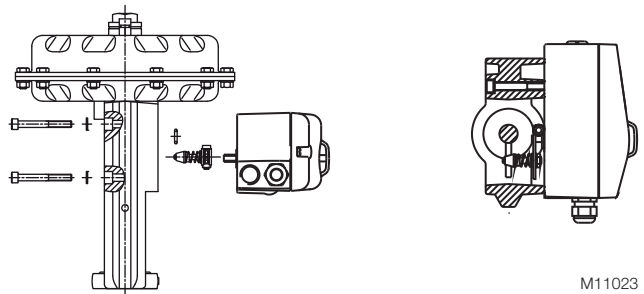
Fig. 3: Mounting to part-turn actuators in accordance with VDI/VDE 3845

### Integral mounting on control valves

The positioner featuring standard pneumatic action is available as an option for integral mounting.

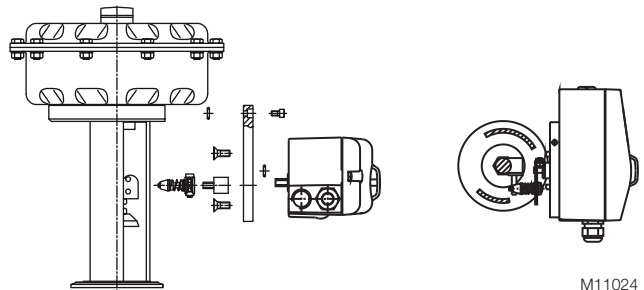
The required holes are found at the back of the device.

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.



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Fig. 4: Integral mounting on control valves



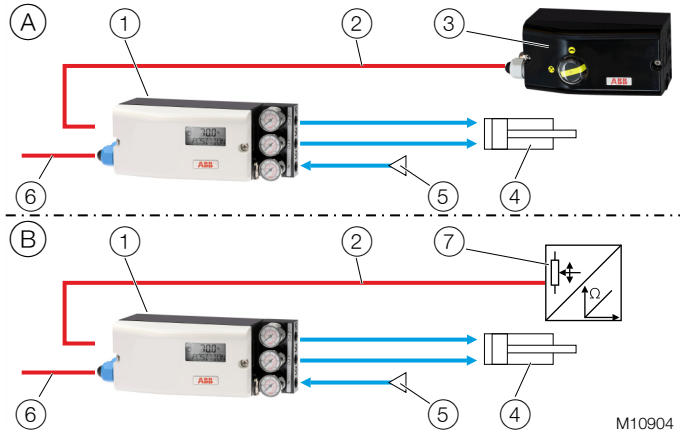
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Fig. 5: Integral mounting on control valves using an adapter plate

### Special actuator-specific mounting

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

## External position sensors



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Fig. 6: TZIDC with external position sensors

- ① TZIDC Control Unit ② Connection cable  
 ③ TZIDC Remote Sensor ④ Actuator ⑤ Compressed air supply  
 ⑥ Setpoint signal ⑦ Remote position sensor

### NOTE

If the device is being operated on a cylinder, for reasons associated with linearity you should run the Auto Adjust function for part-turn actuators

#### Ⓐ TZIDC Control Unit with TZIDC Remote Sensor

In this version, the components are supplied in two housings, which together form one harmonized unit.

The following points should be observed during installation:

- Housing 1 (TZIDC Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- Housing 2 (TZIDC Remote Sensor) contains the position sensor and is mounted on the linear and part-turn actuator.

#### Ⓑ TZIDC Control Unit for remote position sensor

In this version the positioner is supplied without a position sensor.

The following points should be observed during installation:

- Housing 1 (TZIDC Control Unit) contains the electronics and pneumatics and is mounted separately from the actuator.
- The remote position sensor is mounted on the linear and rotary actuator. Follow the operating instructions for the remote position sensor for mechanical mounting!

# TZIDC

## Digital Positioner

### Device parameters

#### General remarks

Microprocessor-based position control in the positioner optimizes control. 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
- Diagnostics parameters
- Maintenance parameters

#### Operating parameters

The following operating parameters can be set manually if required:

#### Setpoint signal

0 ... 100 % freely selectable for split-range operation

For 4 ... 20 mA and HART version:

- Signal min. 4 mA, max. signal 20 mA (0 ... 100%)
- Min. range 20 % (3.2 mA)
- Recommended range > 50 % (8.0 mA)

Action (setpoint signal)

Increasing:

Position value 0 ... 100 % = direction 0 ... 100 %

Decreasing:

Setpoint signal 100 ... 0% = direction 0 ... 100%

Characteristic curve (travel = f {setpoint signal})

Linear, equal percentage 1:25 or 1:50 or 25:1 or 50:1 or freely 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.

If the value "0" is entered for the corresponding parameter, the position is further controlled, even in the respective end position.

#### Travel time prolongation

This function can be used to increase the max. travel time for full travel. This time parameter can be set separately for each direction.

This function can only be used with the pneumatics with the safety function "fail-safe".

#### Switching points for the position

You can use these parameters to define two position limits for signaling (see option "Module for digital position feedback").

#### Digital output

The alarms generated in the 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

For the digital input, one of the following safety options can be selected. You may use the operator's panel or configuration program to select an option.

- No function (default)
- Move to 0 % position
- Move to 100 % position
- Hold previous 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 when the 24 V signal is no longer connected to the digital input (< 11 V DC).

### Adjustment parameters

The 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

Upon reaching the tolerance band, the position is re-adjusted more slowly until the dead band has been reached.

### 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 direction of rotation of the sensor shaft (looking at the open housing), if the safe position is approached as a result of the spring force in the actuator (actuator is depressurized via Y1 / OUT1).

For double-acting actuators, the actuator spring action corresponds to pressurizing the pneumatic output (Y2 / OUT2).

### Display 0 ... 100 %

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

### Operations monitoring parameters

Various functions for continuous device monitoring are implemented in the operating program for the positioner. The following states will be detected and indicated, e.g.:

- Setpoint signal out of range 4 ... 20 mA
- Position out of the adjusted range
- Positioning time-out (adjustable time parameter)
- Positioner inactive
- Counter limits (settable in the diagnosis phase) exceeded

While automatic commissioning is in progress, the current state is continuously indicated on the integrated LCD display. During operation, the LCD 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 diagnostics parameters in the positioner's operating program provide information about the operating conditions of the valve.

From this information the operator can derive what maintenance work is 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 integrated operating panel of the positioner has four operating buttons which allow the device to be operated with an open housing cover. The following functions can be controlled via the function keys:

- operational monitoring
- manual intervention during live operation
- device configuration
- fully automatic commissioning

The operating panel has a cover to protect against unauthorized operation.



Fig. 7: Open TZIDC with a view of the operating panel

# TZIDC Digital Positioner

## "One-button" commissioning

Commissioning the positioner is especially easy. Standard Auto Adjust is triggered by pressing a single operating button. Detailed configuration knowledge is not necessary in order to start the device.

Depending on the selected actuator type (linear or part-turn actuator), the displayed zero position is automatically adapted:

- for linear actuators counter-clockwise (CTCLOCKW)
- for rotary actuators clockwise (CLOCKW).

Besides this standard function, a customized "Autoadjust" function is available. The function is launched either via the operator's panel or HART communication.

## LCD display

The multi-line LCD indicator is automatically updated during operation to provide the user with relevant information as necessary.

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

- Current setpoint SP [mA] (up button)
- Electronics temperature [°C, °F, °R, K] (down button)
- Current control deviation DEV [%] (both direction buttons)

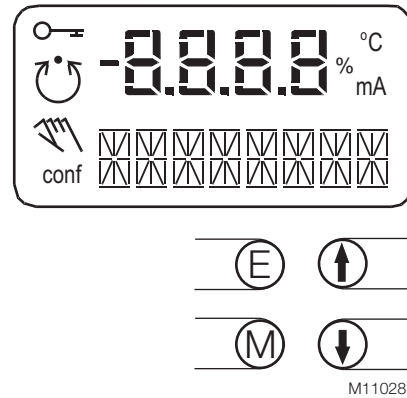


Fig. 8: LCD display with operating buttons



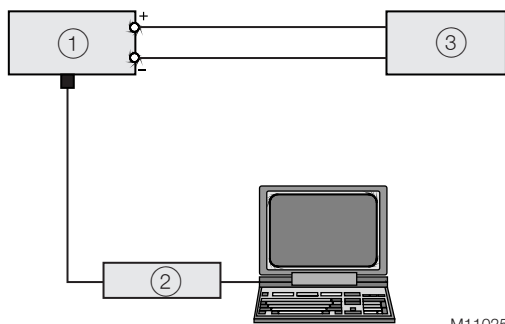
## Communication

### DTM

The DTM (Device Type Manager) for the positioner TZIDC is based on FDT/DTM technology (FDT 1.2/1.2.1) and can be either integrated into a control system or loaded on a PC with DAT200 Asset Vision Basic. This allows you to work with the same user interface in the commissioning phase, during operation, and for service tasks involving monitoring the device, setting parameters, and reading out data. Communication is based on the HART protocol. Communication with the device can take place optionally via an LCI adapter with USB interface or an FSK modem at any point on the 20 mA signal line. Reading out data from the device has no effect on the operation in progress. Newly set parameters are saved in the non-volatile memory directly upon download to the device, and become active immediately.

### LCI adapter

You can easily connect your positioner to a PC, e.g. in the workshop or in the commissioning phase, by using the LCI adapter. The signals at the USB output of the PC are translated via an LCI adapter to the level of the local communication interface (LCI) of the positioner.



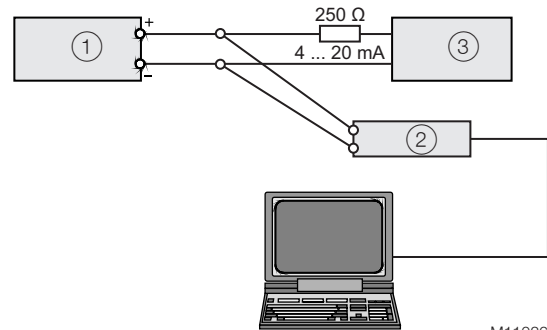
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**Fig. 9: Local communication with LCI adapter**  
 ① TZIDC ② LCI adapter ③ Controller

### FSK modem

The FSK modem establishes digital frequency-modulated communication (Frequency Shift Keying) with the positioner. Tapping is possible at any chosen point of the 20 mA signal line.

We recommend a modem with electrical isolation. This modem is bus-compatible when used with isolating amplifiers. The connection of Ex-field devices is also possible provided the modem is operated outside the Ex area or it corresponds to the Ex approval requirements and the Ex connection data of our device.



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**Fig. 10: HART communication with modem via 20 mA signal line**  
 ① TZIDC ② Modem ③ Controller

### SQUAWK

SQUAWK is a standardized command of the communication standard HART 7. If a SQUAWK command is sent to the device after connection (HART command "0"), the flashing of the lower menu line in the display makes it easier to visually identify the relevant device in a system.

## Specifications

### Travel

Rotation angle	
Measuring range	270°
Working range	Linear actuators min. 25°, max. 45° Rotary actuators min. 25°, max. <270° (cf. Fig. 11)
Travel limit	Min. and max. limits, freely configurable in range 0 ... 100 % of total travel (min. range > 20 %)
Travel time prolongation	Range of 0 ... 200 seconds, separately for each direction
Dead band time limit	Setting range 0 ... 200 seconds (monitoring parameter for control until the deviation reaches the dead band)

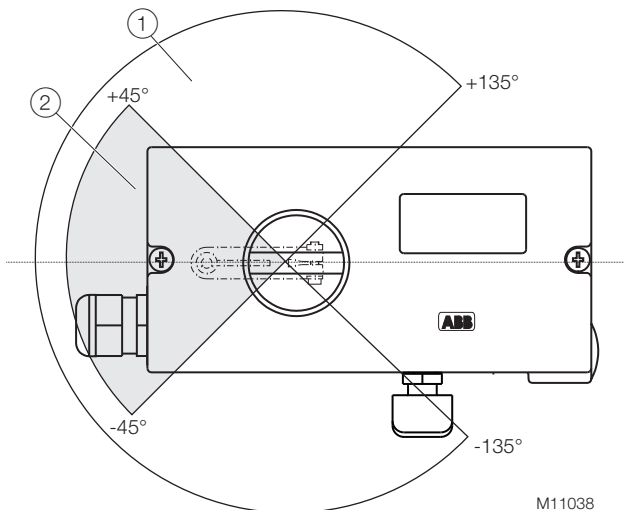


Fig. 11: Measuring and operating range of the positioner

① Measuring range ② Operating range

### Pneumatic connections

Cable	Air Pipe
Thread 1/2-14 NPT	Thread 1/4-18 NPT
Thread M20 x 1.5	Thread 1/4-18 NPT
Thread M20 x 1.5	Thread G 1/4
Thread G 1/2	Thread Rc 1/4

(Optional: with cable gland(s) and blind plugs as necessary)

### Compressed air output

Range	0 ... 6 bar (0 ... 90 psi)
Air capacity	> 5 kg/h = 3.9 Nm <sup>3</sup> /h = 2.3 scfm at 1.4 bar (20 psi) supply air pressure > 13 kg/h = 10 Nm <sup>3</sup> /h = 6 scfm at 6 bar (90 psi) supply air pressure
Output function	For single or double-acting actuators Air is vented from actuator or actuator is blocked in case of (electrical) power failure
Shut-off values	End position 0 % = 0 ... 45 % End position 100 % = 55 ... 100 %

### Instrument air<sup>1)</sup>

Purity	Maximum particle size: 5 µm Maximum particle density: 5 mg/m <sup>3</sup>
Oil content	Maximum concentration 1 mg/m <sup>3</sup>
Pressure dew point	10 K below operating temperature
Supply pressure <sup>2)</sup>	1.4 ... 6 bar (20 ... 90 psi)
Air consumption <sup>3)</sup>	< 0.03 kg/h / 0.015 scfm

1) Free of oil, water and dust in accordance with DIN / ISO 8573-1. Pollution and oil content according to Class 3

2) Do not exceed the maximum output pressure of the actuator

3) Independent of supply pressure

### Accessories

#### Mounting material

- Attachment kit for linear actuators in accordance with DIN / IEC / NAMUR
- Attachment kit for part-turn actuators in accordance with VDI / VDE 3845
- Attachment kit for integral mounting
- Attachment kit for actuator-specific mounting

### Pressure gauge block

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

### Filter regulator

All metal version in brass, varnished black, bronze filter element (40  $\mu$ m), with condensate drain.

Max. pre-pressure 16 bar (232 psi), output adjustable to 1.4 ... 6 bar (20 ... 90 psi).

The filter regulator may only be installed in combination with the pressure gauge block (accessory).

### PC adapter for communication

- LCI adapter (HART USB) for plug connection to positioner
- HART USB modem for HART communication

### PC software for remote configuration and operation

DAT200 Asset Vision Basic with DTM for TZIDC / TZIDC-200 on CD-ROM

### Housing

Material / IP rating	
Aluminum with $\leq$ 0.1% copper	
IP rating	IP 65 / NEMA 4X (NEMA 4X does not permit overhead mounting), (IP 66, optional)
Surface/color	
Dipping varnish	With epoxy resin, stove-hardened
Housing varnished matt black	RAL 9005
Case cover	Pantone 420
Weight	
Aluminum	1.7 kg (3.75 lb)

### Mounting orientation

Any

### Transmission data and influences

Output Y1	
Increasing setpoint signal	0 ... 100 % Increasing pressure at output
Decreasing setpoint signal	0 ... 100 % Decreasing pressure at output

Action (setpoint signal)	
Increasing setpoint	4 ... 20 mA = actuator position 0 ... 100 %
Decreasing setpoint	20 ... 4 mA = actuator position 0 ... 100 %

Characteristic curve (travel = f (setpoint signal))	
Linear	Equal percentage 1:25 or 1:50 or 25:1 or 50:1 <sup>1)</sup>
Characteristic curve deviation	$\leq$ 0.5 %
Tolerance band	0,3 ... 10%, adjustable
Configurable dead zone	0.1 ... 10 %, adjustable
Resolution (A/D conversion)	$>$ 16,000 steps
Sampling frequency	20 ms
Ambient temperature effect	$\leq$ 0.5 % per 10 K
Reference temperature	20 °C
Influence of vibration	$\leq$ 1 % to 10 g and 80 Hz

1) Freely configurable with 20 reference points

### Seismic vibration

Meets requirements of DIN/IEC 60068-3-3 Class III for strong and strongest earthquakes.

### Influence of mounting orientation

Not measurable.

### Noise emissions

Max. 100 db (A)

Noise-reduced version max. 85 db (A)

### Communication

- HART protocol 5.9 (standard); optionally HART 7.4
- Local connector for LCI adapter (not in explosion protection area)
- HART communication via 20 mA signal line with ABB LCI adapter with  $U_m \leq$  30 V DC.

# TZIDC

## Digital Positioner

### Environmental conditions

Ambient temperature range	
During operation, storage, and transport	-40 ... 85 °C (-40 ... 185 °F)
	-25 ... 85 °C (-13 ... 185 °F)
	-40 ... 100 °C (-40 ... 212 °F) <sup>1)</sup>

1) Increased temperature range only with TZIDC Remote Sensor.

Relative humidity	
During operation with housing closed and air supply switched on	95 % (annual average), condensation permissible
Transport and storage	75 % (annual average)

### Safety Integrity Level

Applies to applications with single-acting and depressurizing pneumatics.

The positioner meets the following requirements:

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

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

SIL specific safety-related characteristics:

Product	SSF	PFD <sub>av</sub>	$\lambda_{dd} + \lambda_s$	$\lambda_{du}$
TZIDC with supply current 0 mA	94 %	1.76 * 10 <sup>-4</sup>	651 FIT	40 FIT

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

## Electrical connections

### Connection diagram for positioner / TZIDC Control Unit

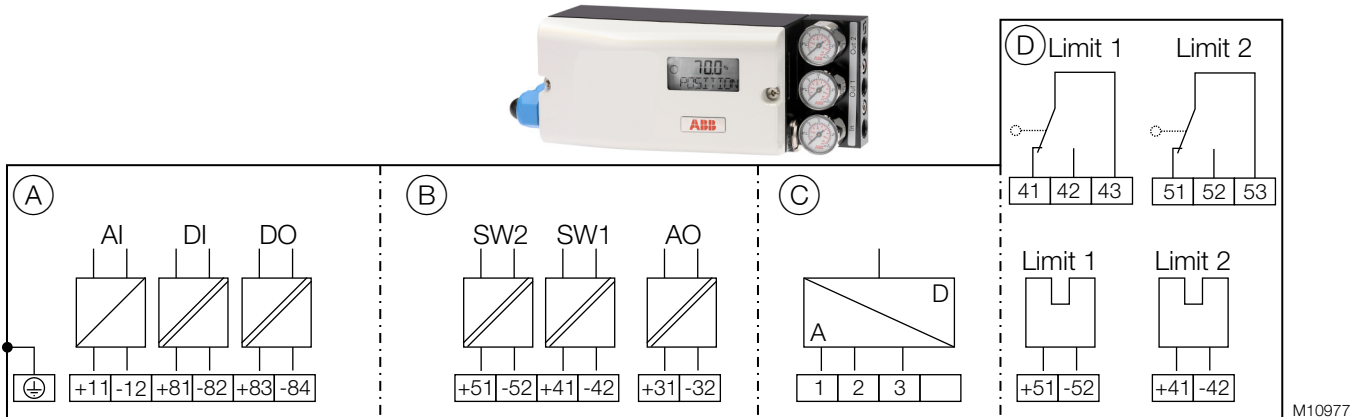


Fig. 12: TZIDC connection diagram

- (A) Basic device (B) Options (C) Connection TZIDC Remote Sensor / remote position sensor (only for TZIDC Control Unit version)  
 (D) Options, limit monitor with proximity switches or microswitches (not for TZIDC Control Unit version)

### Connections for inputs and outputs

Terminal	Function / comments
+11 / -12	Analog input
+81 / -82	Binary input DI
+83 / -84	Binary output DO2
+51 / -52	Digital feedback SW1 (Option module)
+41 / -42	Digital feedback SW2 (Option module)
+31 / -32	Analog feedback AO (Option module)
1 / 2 / 3	TZIDC remote sensor (Only for options TZIDC Remote Sensor or TZIDC for remote position sensor)

Terminal	Function / comments
+51 / -52	Limit switch Limit 1 with proximity switch (optional)
+41 / -42	Limit switch Limit 2 with proximity switch (optional)
41 / 42 / 43	Limit switch Limit 1 with microswitch (optional)
51 / 52 / 53	Limit switch Limit 2 with microswitch (optional)

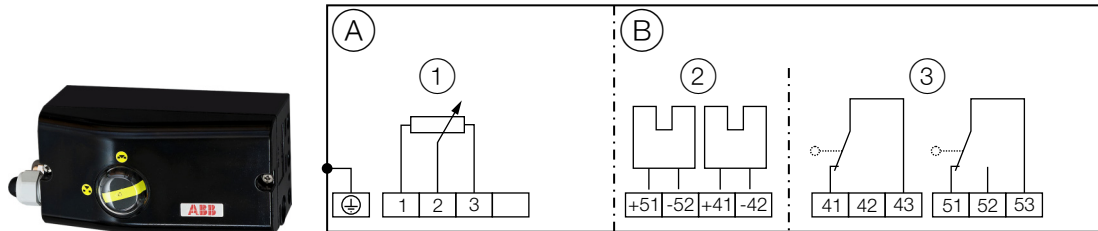
### **i** NOTE

The TZIDC can be fitted either with proximity switches or microswitches as limit switches. It is not possible to combine both variants. For the version TZIDC Control Unit with TZIDC Remote Sensor, the limit switches are located in the TZIDC Remote Sensor.

# TZIDC

## Digital Positioner

### Connection diagram for TZIDC Remote Sensor



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Fig. 13: TZIDC Remote Sensor connection diagram

(A) Basic device (B) Options

(1) Position sensor (2) Limit monitor with proximity switches (option) (3) Limit monitor with microswitches (option)

### Connections for inputs and outputs

Terminal	Function / comments
1 / 2 / 3	TZIDC control unit
+51 / -52	Proximity switches Limit 1 (Option)
+41 / -42	Proximity switches Limit 2 (Option)
41 / 42 / 43	Microswitches Limit 1 (Option)
51 / 52 / 53	Microswitches Limit 2 (Option)

### **i** NOTE

The TZIDC Remote Sensor can be fitted either with proximity switches or microswitches as limit switches. It is not possible to combine both variants.

### Electrical data for inputs and outputs

#### Analog input

Setpoint signal analog (two-wire technology)	
Terminals	+11 / -12
Nominal range	4 ... 20 mA
Split range configuration between	20 ... 100 % of the nominal operating range is configurable
Maximum	50 mA
Minimum	3.6 mA
Starting at	3.8 mA
Load voltage	9.7 V at 20 mA
Impedance at 20 mA	485 Ω

#### Digital input

Input for the following functions:

- no function
- move to 0 %
- move to 100 %
- hold previous position
- block local configuration
- block local configuration and operation
- block any access (local or via PC)

#### Binary input DI

Terminals	+81 / -82
Supply voltage	24 V DC (12 ... 30 V DC)
Input "logical 0"	0 ... 5 V DC
Input "logical 1"	11...30 V DC
Power consumption	Maximum 4 mA

#### Binary output

Output configurable as alarm output by software.

#### Binary output DO

Terminals	+83 / -84
Supply voltage	5 ... 11 V DC (Control circuit to DIN 19234/NAMUR)
Output "logical 0"	> 0.35 mA ... < 1.2 mA
Output "logical 1"	> 2.1 mA
Effective direction	Configurable "logical 0" or "logical 1"

### Module for analog feedback AO<sup>1)</sup>

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

Terminals	+31 / -32
Signal range	4 ... 20 mA (configurable split ranges)
— in the event of an error	> 20 mA (alarm level)
Supply voltage, two-wire technology	24 V DC (11 ... 30 V DC)
Characteristic curve	rising or falling (configurable)
Characteristic curve deviation	< 1 %

### Module for digital feedback SW1, SW2<sup>1)</sup>

Terminals	+41 / -42, +51 / -52
Supply voltage	5 ... 11 V DC (Control circuit to DIN 19234/NAMUR)
Output "logical 0"	< 1.2 mA
Output "logical 1"	> 2.1 mA
Effective direction	Configurable "logical 0" or "logical 1"
Description	Two software switches for binary position feedback (position adjustable within the range of 0 ... 100 %, ranges cannot overlap)

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

### Assembly kits for limit monitor

Two proximity switches or microswitches for independent position signaling, switching points adjustable between 0 ... 100%

#### Limit monitor with proximity switches Limit 1, Limit 2

Terminals	+41 / -42, +51 / -52	
Supply voltage	5 ... 11 V DC (Control circuit to DIN 19234/NAMUR)	
Effective direction	Slot sensor in proximity switch	Slot sensor outside proximity switch
Type SJ2-SN (NC; log 1)	< 1.2 mA	> 2.1 mA

#### Limit monitor with 24 V microswitches Limit 1, Limit 2

Terminals	+41 / -42, +51 / -52
Supply voltage	maximum 24 V AC/DC
Load rating	Maximum 2 A
Contact surface	10 µm Gold (AU)

### Mechanical position indicator

Indicator disk in enclosure cover linked with device feedback shaft.

These options are also available for retrofitting by Service.

# TZIDC

## Digital Positioner

### Wire cross-sectional areas

#### Basic device

Electrical connections	
4 ... 20 mA input	Screw terminals max. 2.5 mm <sup>2</sup> (AWG 14)
Options	Screw terminals max. 1.0 mm <sup>2</sup> (AWG 18)

cross section	
Rigid / flexible wires	0.14 ... 2.5 mm <sup>2</sup> (AWG 26 ... AWG 14)
Flexible with wire end sleeve	0.25 ... 2.5 mm <sup>2</sup> (AWG 23 ... AWG 14)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm <sup>2</sup> (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.14 ... 0.75 mm <sup>2</sup> (AWG 26 ... AWG 20)

#### Multi-wire connection capacity (two wire with the same cross-section)

Rigid / flexible wires	0.14 ... 0.75 mm <sup>2</sup> (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.75 mm <sup>2</sup> (AWG 23 ... AWG 20)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1.5 mm <sup>2</sup> (AWG 21 ... AWG 17)

### Option modules

Cross section	
Rigid / flexible wires	0.14 ... 1.5 mm <sup>2</sup> (AWG 26 ... AWG 17)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 1.5 mm <sup>2</sup> (AWG 23 ... AWG 17)
Flexible with wire end sleeve with plastic sleeve	0.25 ... 1.5 mm <sup>2</sup> (AWG 23 ... AWG 17)

#### Multi-wire connection capacity (two wire with the same cross-section)

Rigid / flexible wires	0.14 ... 0.75 mm <sup>2</sup> (AWG 26 ... AWG 20)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.5 mm <sup>2</sup> (AWG 23 ... AWG 22)
Flexible with wire end sleeve with plastic sleeve	0.5 ... 1 mm <sup>2</sup> (AWG 21 ... AWG 18)

#### Limit switch with proximity switches or 24 V microswitches

Rigid wire	0.14 ... 1.5 mm <sup>2</sup> (AWG 26 ... AWG 17)
Flexible wire	0.14 ... 1.0 mm <sup>2</sup> (AWG 26 ... AWG 18)
Flexible with wire end sleeve no plastic sleeve	0.25 ... 0.5 mm <sup>2</sup> (AWG 23 ... AWG 22)
Flexible with wire end sleeve with plastic sleeve	0.25 ... 0.5 mm <sup>2</sup> (AWG 23 ... AWG 22)



## Dimensions

All dimensions in mm (inch)

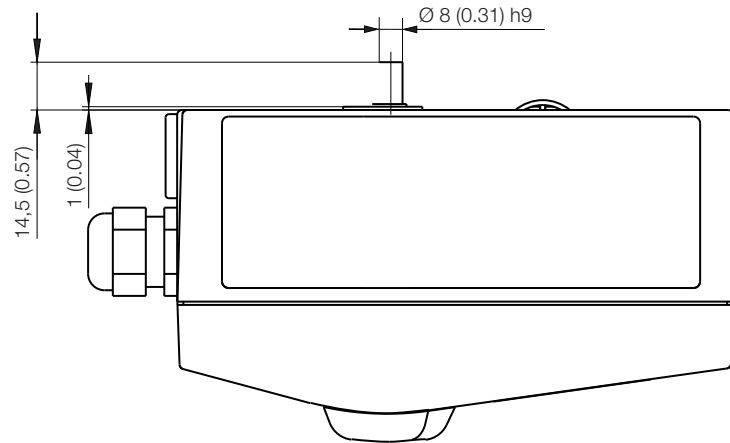


Fig. 14: View from above

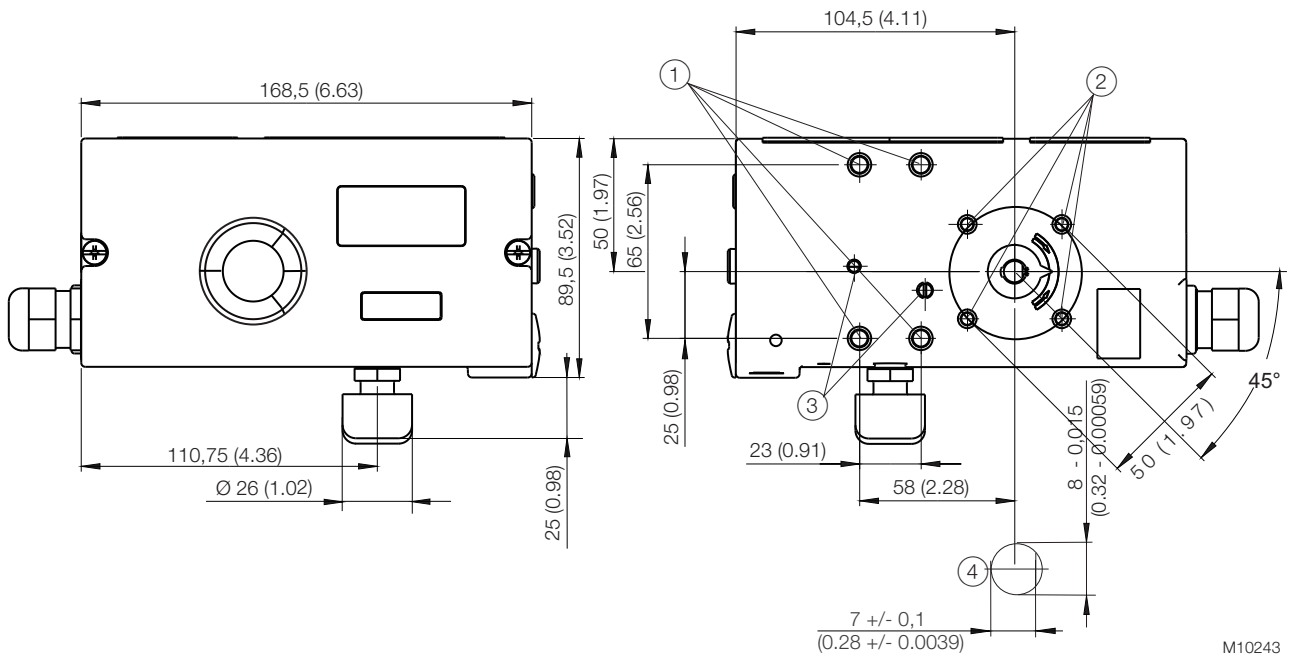


Fig. 15: View from the front and rear

- ① Tapped bore M8 (10 mm (0.39 inch) deep)
- ② Tapped bore M6 (8 mm deep (0.31 inch))
- ③ Tapped bore M5 x 0.5 (air vents for direct mount)
- ④ Sensor shaft (shown enlarged)

M10243

# TZIDC Digital Positioner

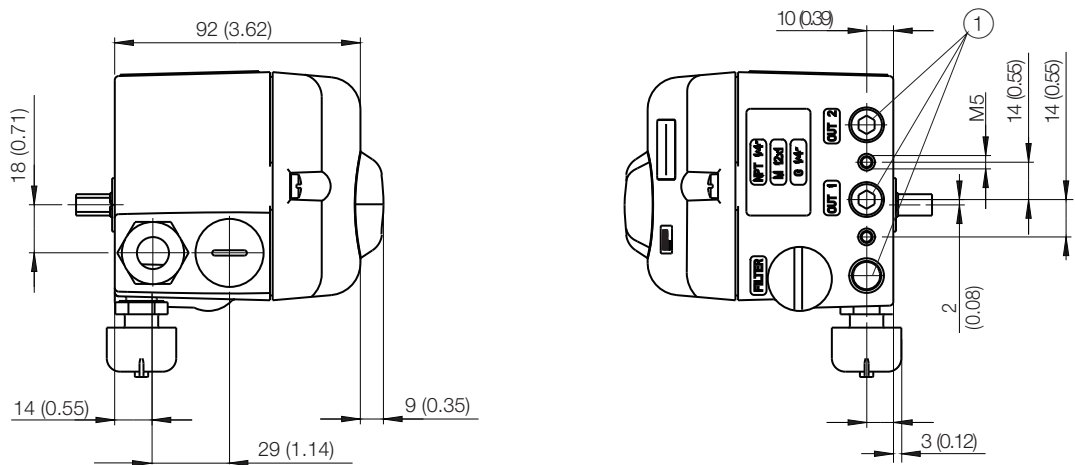


Fig. 16: Side view (from left to right)  
 ① Pneumatic connections, NPT 1/4"-18 or G1/4

M10244

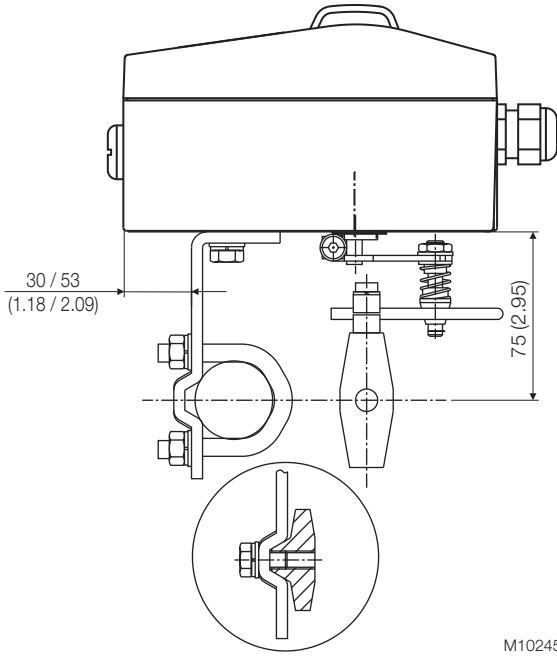
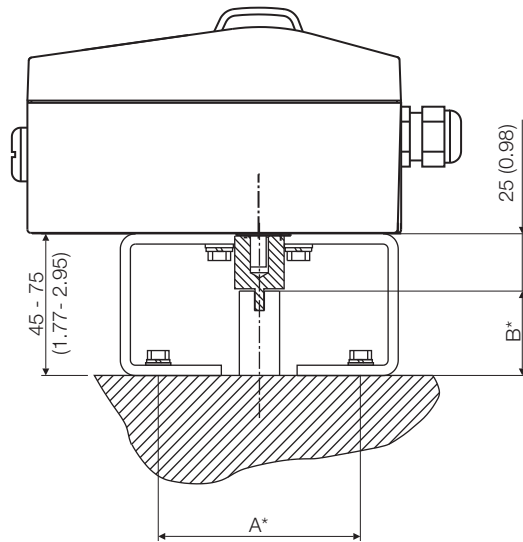


Fig. 17: Mounting to linear actuators to DIN/IEC 534

M10245

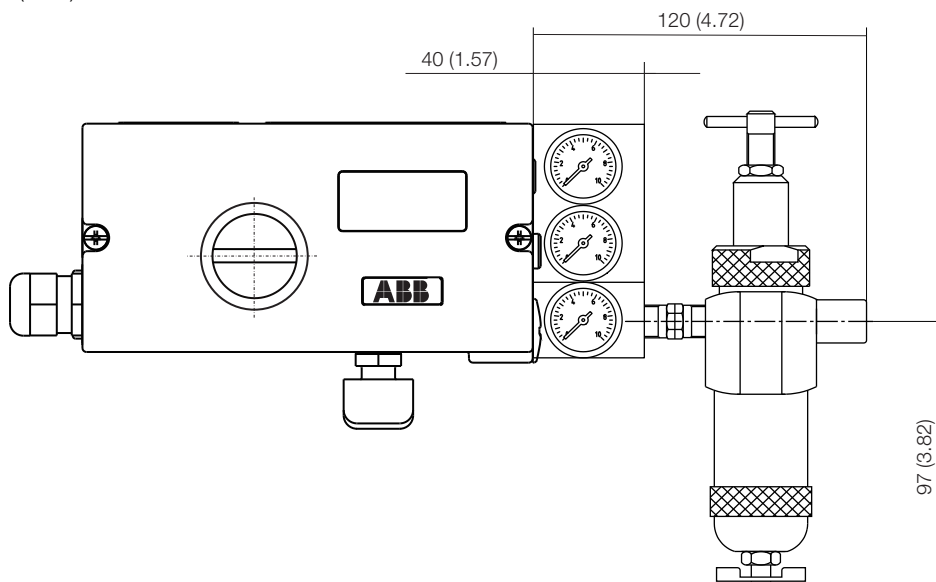


M10246

**Fig. 18: Mounting to part-turn actuators to VDI/VDE 3845**

\*) Dimensions A and B are dependent on the part-turn actuator

All dimensions in mm (inch)



M10529

**Fig. 19: Positioner TZIDC with mounted pressure gauge block and filter regulator**

# TZIDC

## Digital Positioner

### Use in potentially explosive atmospheres

#### General requirements

- The ABB positioner has only been approved for its appropriate and intended use in standard industrial atmospheres. Any breach of this rule leads to a cancellation of warranty and manufacturer's responsibility!
- It has to be ensured that only such equipment is installed that complies with the types of protection relevant to the applicable zones and categories!
- All electrical equipment has to be suitable for the respective intended use.

#### Commissioning, installation

The ABB positioner has to be mounted in a major system. Depending on the degrees of IP-protection, an interval for cleaning the equipment (dust settlement) has to be defined. Strict care has to be taken that only such equipment is installed that complies with the types of protection relevant to the applicable zones and categories. When installing the equipment, the locally applicable rules on erection, e.g. EN 60079-14, have to be observed.

Other important facts to be observed:

- In all zones, the circuits of the positioner have to be put into service by a person qualified according to TRBS 1203. The details on the type label are mandatory for doing this.
- The equipment is constructed for IP 65 (optional IP 66) and has to be protected accordingly in adverse ambient conditions.
- The EC-Type Examination Certificates have to be taken into account including any special conditions defined therein.
- The equipment shall only be used as intended.
- The equipment is only to be connected when de-energized.
- The potential equalization of the system has to be established according to the regulations of erection applicable in the respective country of use (VDE 0100, part 540; IEC 364-5-54).

- Circulating currents shall not be led via the enclosures!
- It has to be ensured that the enclosure is properly installed and that its IP protection is not impaired.
- Inside the potentially explosive atmospheres' assembly shall only be performed taking the locally applicable rules of erection into account. The following conditions have to be observed (incomplete):
  - Assembly and maintenance to be done only if atmosphere is Ex-free and a permit for hot works is in place.
  - The TZIDC is only to be operated in a fully mounted and intact enclosure.

#### Notes for operation

- The positioner shall be included in the local equipotential bonding system
- Either only intrinsically or non-intrinsically safe circuits shall be connected. A combination is not permitted.
- When the Positioner is operated with non-intrinsically safe circuits, the subsequent use for type of protection Intrinsic Safety is not permitted.

#### Use, operation

The TZIDC is only approved for intended and appropriate use. In case of non-compliance, the warranty and manufacturer's liability do no longer apply!

- In explosive atmospheres only such auxiliary components shall be used that meet all requirements of the European and the national standards.
- The ambient conditions specified in the instruction manual have to be adhered to strictly.
- The TZIDC has only been approved for its appropriate and intended use in standard industrial atmospheres. Where aggressive substances are present in the air, the manufacturer has to be consulted.

## Maintenance, repair

Definition of terms according to IEC 60079-17:

### Maintenance

Defines a combination of any actions carried out to retain an item in, or restore it to, conditions in which it is able to meet the requirements of the relevant specification and perform its required functions.

### Inspection

Defines any action comprising careful scrutiny of an item carried out either without dismantling, or with the addition of partial dismantling as required, supplemented by means such as measurement, in order to arrive at reliable conclusion as to the condition of an item.

### Visual inspection

Defines an inspection which identifies, without the use of access equipment and tools, those defects, such as missing bolts, which will be apparent to the eye.

### Close inspection

Defines an inspection which encompasses those aspects covered by a visual inspection and, in addition, identifies those defects, such as loose bolts, which will be apparent only by the use of access equipment, for example steps, where necessary, and tools.

### Detailed inspection

Defines an inspection which encompasses those aspects covered by a close inspection and, in addition, identifies those defects, such as loose terminations, which will only be apparent by opening the enclosure, and / or using, where necessary, tools and test equipment.

- Maintenance or replacement works are to be carried out by qualified personnel only, i.e. personnel qualified according to TRBS 1203 or similar.
- Only such auxiliary components may be used in explosive atmospheres which meet all requirements of European and national directives and legislation.
- Maintenance works that require a dismantling of the system shall only be performed if the atmosphere is Ex-free. If that is not possible, however, the usual precautions have to be ensured according to local regulations.
- Components shall only be replaced by original spare parts which are therefore approved for the use in explosive atmospheres.
- Inside the Ex-atmosphere the equipment has to be cleaned regularly. The intervals are to be defined by the user in compliance with the environmental conditions present at the place of operation.
- After maintenance and repair works have been performed, all barriers and notes removed for that purpose have to be put back in their original place.
- The flameproof joints differ from the tables of IEC 60079-1 and should only be repaired by the manufacturer.

Activity	Visual inspection (every 3 months)	Close inspection (every 6 months)	Detailed inspection (every 12 months)
Visual inspection of positioner for intactness, removal of dust settlements.	●		
Check of electrical system for intactness and functionality			●
Check of entire system	User's responsibility		

# TZIDC

## Digital Positioner

### Product identification

Depending on the type of explosion protection, Ex-marking is attached to the positioner on the right, next to the main name plate.

This indicates the level of explosion protection and the device's relevant Ex certificate.

### Marking (type label)

TÜV 04 ATEX 2702 X	TÜV 04 ATEX 2702 X
CE 0044 Ex II 2G	Ex ia IIC T6 / T4 Gb

$-40\text{ °C} \leq T_a \leq 40\text{ °C} / 85\text{ °C}$

M11061

Fig. 20

### NOTE

It is essential, that the equipment is provided with a legible marking of the type of protection required for the intended field of application – before it is put into operation for the first time.

### Preconditions for safe operation of the positioner

#### **⚠ DANGER**

##### **Risk of explosion due to hot parts**

Hot parts inside the housing may pose a risk of explosion. Never open the device immediately after switch-off. Always wait at least four minutes before opening the unit.

When using in hazardous areas, observe the following points:

- Observe the specifications applicable to the device and special conditions in accordance with the relevant certificate.
- Manipulation of the device by the user is not permitted. Only the manufacturer or an explosion protection specialist may modify the device
- The splash guard cap must be screwed in place to achieve the IP 65 / NEMA 4x IP rating. Operating the unit without splash guard cap is prohibited.
- The device may only be operated with instrument air that is free of oil, water, and dust. The use of flammable gas, oxygen, or oxygen-enriched gas is not permitted.

### Cable gland

Limited temperature range of the M20 x 1.5 plastic cable gland for explosion protection variants.

The permissible ambient temperature range of the cable gland is  $-20 \dots 80\text{ °C}$  ( $-4 \dots 176\text{ °F}$ ). When using the cable gland, make sure that the ambient temperature is within this range.

The cable gland must be installed in the housing with a tightening torque of 3.8 Nm. When installing the connection of the cable gland and cable, check for tightness to ensure that the required IP rating is met.

## ATEX / EAC TR-CU-012

(limited functionality with EAC TR-CU-012)

### ATEX Ex i

Ex-marking	
Labeling	II 2 G Ex ia IIC T6 resp. T4 Gb II 2 G Ex ib IIC T6 resp. T4 Gb
Type examination certificate	TÜV 04 ATEX 2702 X
Type	Intrinsically safe equipment
Device class	II 2 G
Standards	EN 60079-0:2012 EN 60079-11:2012

### Temperature Data

Device group II 2 G	
Temperature class	Ambient temperature $T_a$
T4	-40 ... 85 °C
T5	-40 ... 50 °C
T6 <sup>1)</sup>	-40 ... 40 °C <sup>1)</sup>

1) When using the plug-in module "Limit Monitor" in Temperature Class T6, the maximum permissible ambient temperature range is -40 ... 35 °C.

### Electrical data

In intrinsically safe explosion protection types

Ex ib IIC / Ex ia IIC or Ex ia IIIC, only for connection to a certified intrinsically safe circuit.

Current circuit (terminal)	Electrical data (maximum values)	
Signal circuit (+11 / -12)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 6.6 \text{ nF}$ $L_i = \text{negligibly small}$
Contact input (+81 / -82)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 4.2 \text{ nF}$ $L_i = \text{negligibly small}$
Switch output (+83 / -84)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 500 \text{ mW}$	$C_i = 4.2 \text{ nF}$ $L_i = \text{negligibly small}$
Mechanical limit monitor, (Pepperl & Fuchs SJ2-SN) (Limit1: +51 / -52), (Limit2: +41 / -42)	$U_i = 20 \text{ V}$ $C_i = \leq 30 \text{ nF}$ $L_i = \leq 100 \mu\text{H}$ $I_i = 25 \text{ mA}$ $P_i = 1.1 \text{ W}$	
Plug-in module for limit monitor (+51 / -52) (+41 / -42)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 500 \text{ mW}$	$C_i = 3.7 \text{ nF}$ $L_i = \text{negligibly small}$
Plug-in module for analog position feedback (+31 / -32)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 6.6 \text{ nF}$ $L_i = \text{negligibly small}$
Interface with the TZIDC Remote Sensor (X2-2: +Uref, X3-2: GND, X3-1: signal)	$U_0 = 5.4 \text{ V}$ $I_0 = 74 \text{ mA}$ $P_0 = 100 \text{ mW}$ $C_i = \text{negligibly small}$ $L_i = \text{negligibly small}$	Ex ia or Ex ib type of ignition protection IIC: $L_0 = 5 \text{ mH}$ $C_0 = 2 \mu\text{F}$ IIB: $L_0 = 5 \text{ mH}$ $C_0 = 10 \mu\text{F}$
Local communication interface (LCI)	Only for connection to a programming device using an ABB LCI adapter ( $U_m \leq 30 \text{ V DC}$ ) outside the hazardous area.	

### Special conditions

- Prevent electrostatic charging due to propagating brush discharge when the equipment is used for applications involving combustible dust.

# TZIDC

## Digital Positioner

### IECEX Ex i

Ex-marking	
Labeling	Ex ia IIC T6 resp. T4 Gb Ex ib IIC T6 resp. T4 Gb
Type examination certificate	IECEX TUN 04.0015X
Type	Intrinsic safety "i"
Standards	IEC 60079-0:2011 IEC 60079-11:2011

### Temperature Data

Temperature class	Ambient temperature $T_a$	
	TZIDC Ex ia IIC	TZIDC Ex ib IIC
T4	-40 ... 85 °C	-40 ... 85 °C
T6 <sup>1)</sup>	-40 ... 40 °C <sup>1)</sup>	-40 ... 40 °C <sup>1)</sup>

1) When using the plug-in module "Limit Monitor" in Temperature Class T6, the maximum permissible ambient temperature range is -40 ... 35 °C.

### Electrical data

In intrinsically safe explosion protection types Ex ib IIC / Ex ia IIC, only for connection to a certified intrinsically safe circuit.

Current circuit (terminal)	Electrical information (maximum values)	
Signal circuit (+11 / -12)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 6.6 \text{ nF}$ $L_i = \text{negligibly small}$
Contact input (+81 / -82)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 4.2 \text{ nF}$ $L_i = \text{negligibly small}$
Switch output (+83 / -84)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 500 \text{ mW}$	$C_i = 4.2 \text{ nF}$ $L_i = \text{negligibly small}$
Local communication interface (LCI)	Only for connection to a programming device using an ABB LCI adapter ( $U_m \leq 30 \text{ V DC}$ ) outside the hazardous area.	

The following modules may be operated as an option:

Current circuit (terminal)	Electrical information (maximum values)	
Plug-in module for limit monitor (+51 / -52) (+41 / -42)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 500 \text{ mW}$	$C_i = 3.7 \text{ nF}$ $L_i = \text{negligibly small}$
Plug-in module for analog position feedback (+31 / -32)	$U_i = 30 \text{ V}$ $I_i = 320 \text{ mA}$ $P_i = 1.1 \text{ W}$	$C_i = 6.6 \text{ nF}$ $L_i = \text{negligibly small}$

### Special Requirements

- For the "Limit monitor with proximity switches" circuit, external measures must be implemented to prevent the rated voltage from being exceeded by more than 40 % in the event of transient disturbances.
- It is only permissible to connect, disconnect, and switch live circuits during installation or maintenance, or for the purpose of carrying out repairs. Note: It is considered very unlikely that a potentially explosive atmosphere would be present in zone 2 at the same time that installation or maintenance/repair work was being carried out
- Only non-flammable gases may be used for the pneumatic power supply.
- Only use suitable cable entries that meet the requirements of EN 60079-15 .



## FM / CSA

(limited functionality)

## CSA International

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

## Electrical data

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner	
For use in	Class I, Div 2, Groups A, B, C and D Class II, Div 2, Groups E, F, and G Class III, Enclosure Type 4X
Input rated	30 V DC; max. 4 ... 20 mA
Max output pressure	90 psi
Max. ambient temperature	85 °C

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner intrinsically safe with entity parameters of:	
For use in	Class I, Div 1, Groups A, B, C and D; Class II, Div 1, Groups E, F and G Class III, Enclosure Type 4X:
Terminals 11 / 12	V max = 30 V      C <sub>i</sub> = 6.6 nF I max = 104 mA    L <sub>i</sub> = 0 μH
Terminals 81 / 82	V max = 30 V      C <sub>i</sub> = 4.2 nF I max = 110 mA    L <sub>i</sub> = 0 μH
Terminals 83 / 84	V max = 30 V      C <sub>i</sub> = 4.2 nF I max = 90 mA      L <sub>i</sub> = 0 μH
Terminals 31 / 32	V max = 30 V      C <sub>i</sub> = 6.6 nF I max = 110 mA    L <sub>i</sub> = 0 μH
Terminals 41 / 42 and 51 / 52	V max = 30 V      C <sub>i</sub> = 3.7 nF I max = 96 mA      L <sub>i</sub> = 0 μH
Terminals Limit 2 41 / 42 and Limit 1 51 / 52	V max = 155 V     C <sub>i</sub> = 20 nF I max = 52 mA      L <sub>i</sub> = 30 μH

## Note

- The “x” in P/N denotes minor mechanical variations or optional features.
- Local communication interface (LCI) shall not be used in hazardous location.
- Each pair of conductors of each intrinsic safety circuit shall be shielded.
- See FM installation drawing No. 901064 for Details.

# TZIDC

## Digital Positioner

### CSA Certification Record

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

### Electrical data

Model TZIDC, P/N V18345-x0x2x2xx0x Intelligent Positioner	
For use in	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
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	$C_i = 6.6 \text{ nF}$ $L_i = 0 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$
Terminals 81 / 82	V max = 30 V I max = 110 mA	$C_i = 3.7 \text{ nF}$ $L_i = 0 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$
Terminals 83 / 84	V max = 30 V I max = 90 mA	$C_i = 3.7 \text{ nF}$ $L_i = 0 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$
Terminals 31 / 32	V max = 30 V I max = 110 mA	$C_i = 6.6 \text{ nF}$ $L_i = 0 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$
Terminals 41 / 42 and 51 / 52	V max = 30 V I max = 96 mA	$C_i = 3.7 \text{ nF}$ $L_i = 0 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$
Terminals Limit 2 41 / 42 and Limit 1 51 / 52	V max = 155 V I max = 52 mA	$C_i = 20 \text{ nF}$ $L_i = 30 \text{ } \mu\text{H}$ $P_i = 1 \text{ W}$

#### When installed per installation Drawing No 901064:

Temperature Code	T4
Max. Ambient temperature	85 °C

### Note

- The “x” in P/N denotes minor mechanical variations or optional features.
- Local communication interface LCI shall not be used in hazardous location.
- Each pair of conductors of each intrinsic safety circuit shall be shielded.
- See FM installation drawing No. 901064 for Details.

### FM Approvals

TZIDC Positioner, Model V18345-a0b2c2de0f  
IS/I,II,III/1/ABCDEFG/T4 Ta = 85 °C – 901064/7/4; Entity;  
NI/I/2/ABCD/T4 Ta = 85 °C;  
S/II,III/2/FG/T4 Ta =85 °C; Type 4X  
Max Entity Parameters: Per Control Drawings

- Case/mounting – 1, 2, 3, 4 or 9
- Input/communication port – 1 or 2
- Output/safe protection – 1, 2, 4 or 5
- Option modules for analog or digital position feedback – 0, 1, 3 or 5
- Mechanical kit (proximity switches) for digital position feedback (option) – 0, 1 or 3
- Design (varnish/coding) – 1 or 2

See FM installation drawing No. 901064 for Details.

## Ordering Information

### Main ordering information TZIDC

Base model	V18345	XX	X	X	X	X	X	X	XX	X
TZIDC digital positioner, intelligent, configurable, with indicator and operator panel										
<b>Case / Mounting</b>										
Case made of aluminium, varnished, for mounting to linear actuators acc. DIN / IEC 534 / NAMUR or to rotary actuators acc. VDI / VDE 3845	10									Continued see next page
Case made of aluminium, varnished, with mechanical position indicator, for mounting to linear actuators acc. DIN / IEC 534 / NAMUR or to rotary actuators acc. VDI / VDE 3845	20									
Case made of aluminium, varnished, for integral mounting to control valves (see dimensional drawing)	30									
Case made of aluminium, varnished, with mechanical position indicator, for integral mounting to control valves (see dimensional drawing)	40									
Remote sensor control unit	1) 70									
<b>Input / Communication Port</b>										
Input 4 ... 20 mA, two-wire, with connector plug for LCI adapter										1
Input 4 ... 20 mA, two-wire, with connector plug for LCI adapter and FSK module for HART communication										2
<b>Explosion Protection</b>										
Without										0
ATEX II 2 G Ex ib IIC T6 resp. T4 Gb										1
FM / CSA										2)
IECEX Ex ib IIC T6 resp. T4 Gb										5
ATEX II 2 G Ex ia IIC T6 resp. T4 Gb										7
EAC TR-CU-012 Ex ia IIC T6/T4 Gb										2) H
EAC TR-CU-012 Ex ib IIC T6/T4 Gb										2) J
IECEX ia IIC T6 resp. T4 Gb										K
NEPSI Ex ia II CT4/T5/T6 Gb										U
NEPSI Ex ib II CT4/T5/T6 Gb										V
INMETRO Ex ia IIC Gb / Ex ib IIC Gb										P
<b>Output / Safe Position (in case of an electrical power failure)</b>										
Single acting, fail safe										1
Single acting, fail freeze										2
Double acting, fail safe										3) 4
Double acting, fail freeze										3) 5
<b>Connections</b>										
Cable: Thread 1/2-14 NPT, air pipe: Thread 1/4-18 NPT										2
Cable: Thread M20 x 1.5, air pipe: Thread 1/4-18 NPT										5
Cable: Thread M20 x 1.5, air pipe: Thread G 1/4										6
Cable: Thread G 1/2, air pipe: Thread Rc 1/4										7

# TZIDC

## Digital Positioner

Main ordering information TZIDC		X	XX	X
<b>Option Modules for Analog or Digital Position Feedback</b>				
Without		0		
Plug-in module for analog position feedback, signal range 4 ... 20 mA, two-wire		1		
Plug-in module for digital position feedback		3		
Plug-in module for analog position feedback, signal range 4 ... 20 mA, two-wire, and digital position feedback		5		
<b>Optional Mechanical Kit for Digital Position Feedback</b>				
Without			00	
Mechanical kit for digital position feedback with proximity switches SJ2-SN (NC or logical 1)		4)	10	
Mechanical kit for digital position feedback with 24 V AC / DC microswitches (change-over contacts)		5)	50	
<b>Design (Varnish / Coding)</b>				
Standard				1
Higher Stiffness + Lower Air Capacity			6)	H
Protection Class IP 66 / NEMA 4X				P
Increased Corrosion Protection				S

### Additional ordering information TZIDC

		XX
<b>Documentation Language</b>		
German		M1
Italian		M2
Spanish		M3
French		M4
English		M5
Swedish		M7
Finnish		M8
Polish		M9
Portuguese		MA
Russian		MB
Czech		MC
Dutch		MD
Danish		MF
Greek		MG
Croatian		MH
Latvian		ML
Hungarian		MM
Estonian		MO
Bulgarian		MP
Romanian		MR
Slovak		MS
Lithuanian		MU
Slovenian		MV

Additional ordering information TZIDC	XXX	XXX	XXX	XXX	XXX	XX	XX	XX	XX	XX	XX
<b>SIL2 - Declaration of Conformity</b>											
SIL2 - Declaration of Conformity	7)	CS2									
<b>Certificate of Compliance</b>											
Certificate of compliance with the order acc. EN 10204-2.1 (DIN 50049-2.1) with item description		CF2									
Test report 2.2 acc. EN 10204 (DIN 50049-2.2)		CF3									
<b>Inspection Certificate</b>											
Inspection certificate 3.1 acc. EN 10204				CBA							
<b>Device Identification Label</b>											
Stainless steel 18.5 x 65 mm (0.73 x 2.56 in.)			8)	MK1							
Sticker 11 x 25 mm (0.43 x 0.98 in.)				MK3							
<b>Special Option Cable Gland</b>											
With cable gland					ZG1						
<b>Remote Sensor</b>											
Basic unit						9)	RS				
Basic unit with position indicator						9)	RD				
<b>Remote Sensor Temperature Range</b>											
Extended ambient temperature range -40 ... 100 °C (-40 ... 212 °F)						9)	RT				
<b>Remote Sensor Vibration Resistance</b>											
Advanced vibration range 2 g @ 300 Hz						9)	RV				
<b>Remote Sensor Protection Class</b>											
Protection class IP 67								9)	RP		
<b>Remote Sensor Cable</b>											
5 m cable enclosed									9)	R5	
10 m cable enclosed									9)	R6	

- 1) With standard characteristic curve, if delivered without remote sensor
- 2) Reduced Functionality
- 3) Not for for integral mounting
- 4) Only for model with mechanical position indicator, no IECEx
- 5) Not for explosion protected version and only for model with mechanical position indicator
- 6) Only with Type Double Acting
- 7) With single acting, fail safe pneumatic only
- 8) Plain text, max. 16 letters
- 9) Only with remote sensor control unit

# TZIDC

## Digital Positioner

### Accessories

Accessories	Order number
<b>Mounting bracketole</b>	
EDP300 / TZIDC Mounting bracket for rotary actuators (mounting to VDI / VDE 3845), dimension A/B = 80/20 mm	319603
EDP300 / TZIDC Mounting bracket for rotary actuators (mounting to VDI / VDE 3845), dimension A/B = 80/30 mm	319604
EDP300 / TZIDC Mounting bracket for rotary actuators (mounting to VDI / VDE 3845), dimension A/B = 130/30 mm	319605
EDP300 / TZIDC Mounting bracket for rotary actuators (mounting to VDI / VDE 3845), dimension A/B = 130/50 mm	319606
<b>Montage Kit</b>	
EDP300 / TZIDC Mounting Kit Uhde Type 4 Stroke 400 mm cropped	7959500
<b>Attachment kit for linear actuators</b>	
EDP300 / TZIDC Attachment kit for linear actuators, stroke 10 ... 35 mm	7959125
EDP300 / TZIDC Attachment kit for linear actuators, stroke 20 ... 100 mm	7959126
<b>Lever</b>	
EDP300 / TZIDC Lever 30 mm	7959151
EDP300 / TZIDC Lever 100 mm	7959152
<b>Adapter</b>	
EDP300 / TZIDC Adapter (shaft coupler) for rotary actuators (mounting to VDI / VDE 3845)	7959110
EDP300 / TZIDC Form - locking shaft adapter	7959371
<b>Pressure gauge block</b>	
TZIDC Pressure gauge block, single acting, black, 2 pressure gauges 28 mm, connectors G 1/4 in., 1 x 0 ... 10 bar / 0 ... 140 psi for air supply, 1 x 0 ... 10 bar / 0 ... 140 psi for output pressure, including attachments	7959112
TZIDC Pressure gauge block, 0.6 MPa, single acting, G 1/4 connection	7959364
TZIDC Pressure gauge block, 0.6 MPa, single acting, Rc 1/4 connection	7959358
TZIDC Pressure gauge block, 0.6 MPa, single acting, NPT 1/4 connection	7959360
TZIDC Pressure gauge block, single acting, black, 2 pressure gauges 28 mm, connectors 1/4 in. NPT, 1 x 0 ... 10 bar / 0 ... 140 psi for air supply, 1 x 0 ... 10 bar / 0 ... 140 psi for output pressure, including attachments	7959114
TZIDC Pressure gauge block, double acting, black, 3 pressure gauges 28 mm, connectors G 1/4 in., 1 x 0 ... 10 bar / 0 ... 145 psi for air supply, 2 x 0 ... 10 bar / 0 ... 145 psi for output pressure, including attachments	7959116
TZIDC Pressure gauge block, 0.6 MPa, double acting, G 1/4 connection	7959365
TZIDC Pressure gauge block, 0.6 MPa, double acting, Rc 1/4 connection	7959359
TZIDC Pressure gauge block, 0.6 MPa, double acting, NPT 1/4 connection	7959361
TZIDC Pressure gauge block, double acting, black, 3 pressure gauges 28 mm, connectors 1/4 in. NPT, 1 x 0 ... 10 bar / 0 ... 140 psi for air supply, 2 x 0 ... 10 bar / 0 ... 140 psi for output pressure, including attachments	7959118
TZIDC Pressure gauge block, double acting, black, 3 pressure gauges stainless steel 28 mm, connectors 1/4 in. NPT, 1 x 0 ... 10 bar / 0 ... 140 psi for air supply, 2 x 0 ... 10 bar / 0 ... 140 psi for output pressure, incl. attachments	7959185
TZIDC Filter regulator, brass, connections thread G 1/4, incl. material for mounting to pressure gauge block	7959119
TZIDC Filter regulator, brass, connections thread 1/4-18 NPT, incl. material for mounting to pressure gauge block	7959120
TZIDC Pressure gauge block black, 2 pressure gauges stainless steel 28mm, Connectors G1/4 in., 1 x 0...10 bar / 0...140 psi for air supply, 1 x 0...10 bar / 0...140 psi for output press, single acting, G 1/4, 0...10 bar, incl. attachments	7959179
TZIDC Pressure gauge block black, 2 pressure gauges stainless steel 28mm, Connectors G1/4 in., 1 x 0...10 bar / 0...140 psi for air supply, 1 x 0...10 bar / 0...140 psi for output press, double acting, G 1/4, 0...10 bar, incl. attachments	7959183

Accessories	Order number
<b>Attachment kit</b>	
EDP300 / TZIDC Attachment kit for Fisher 1051-30, 1052-30	7959214
EDP300 / TZIDC Attachment kit for Fisher 1061 size 130	7959206
EDP300 / TZIDC Attachment kit for Fisher 471	7959195
EDP300 / TZIDC Attachment kit for Fisher 657 / 667 Size 10 ... 90 mm	7959177
EDP300 / TZIDC Attachment kit for Fisher Gulde 32/34	7959344
EDP300 / TZIDC Attachment kit for Gulde DK	7959161
EDP300 / TZIDC Attachment kit for Keystone 79U/E-002(S) ... 79U/E-181(S)	7959147
EDP300 / TZIDC Attachment kit for Masoneilan CAMFLEX II, VARIMAX, MINITORK II	7959144
EDP300 / TZIDC Attachment kit for Masoneilan VariPak 28000 series	7959163
EDP300 / TZIDC Attachment kit for MaxFlo MaxFlo	7959140
EDP300 / TZIDC Attachment kit for NAF 791290	7959207
EDP300 / TZIDC Attachment kit for NAMUR stroke 100 ... 170 mm	7959339
EDP300 / TZIDC Attachment kit for NELES BC6-20, B1C6-20, BJ8-20, B1J8-20	7959146
EDP300 / TZIDC Attachment kite, lever for linear stroke, length 150 ... 250 mm	7959210
TZIDC Attachment kit for Valves Nuovo Pignone, pressure gauge block with 2 manometers, material stainless steel single acting, 1/4 in. NPT, 0...10 bar	7959181
EDP300 / TZIDC Attachment kit for Samson 241, 271, 3271	7959145
EDP300 / TZIDC Attachment kit for Samson 3277	7959136
EDP300 / TZIDC Attachment kit for Schubert&Salzer GS 8020 / 8021 / 8023	7959200
EDP300 / TZIDC Attachment kit for SED SED stroke 100 mm	7959141
EDP300 / TZIDC Attachment for remote sensor control unit (for wall or pipe mounting)	7959381
TZIDC Mounting kit TZIDC-200 Lever 30 mm	7959262
TZIDC Attachment Kent Introl 170 mm	7959376
TZIDC Attachment Kent Introl 250 mm	7959377

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