Data Sheet
10/18-0.24 EN

# Electro-Pneumatic Positioner TZIDC-120

for FOUNDATION Fieldbus

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


FOUNDATION

## Compact, well-proven, and flexible

ABB

## Short description

TZIDC-120 is an electronically configurable positioner with communication capabilities, mounting to pneumatic linear or rotary actuators. It features a small and compact design, a modular construction, and an excellent cost-performance ratio.

Fully automatic determination of the control parameters and adaptation to the final control element yield considerable time savings and an optimal control behavior.

### Pneumatics

An I/P module with subsequent pneumatic amplifier is used to control the pneumatic actuator. The well-proven I/P module proportionally converts the permanent electrical positioning signal from the CPU into a pneumatic signal used to adjust a 3/3-way valve.

The air flow for pressurizing or depressurizing the actuator is continuously adjusted. As a result, excellent control is achieved. When reaching the set point, the 3/3-way valve is closed in center position to minimize the air consumption.

Four different pneumatics versions are available: for single-acting or double-acting actuators, each with “fail-safe” or “fail-freeze” function.

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

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

### Operation

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

### Communication

Communication with the TZIDC-120 positioner is realized via a FOUNDATION Fieldbus.

### Modular design

The TZIDC-120 basic model can be enhanced at any time by retrofitting optional equipment. Besides the optional shutdown-module a mechanical position indicator, proximity switches or 24 V microswitches indicating the position independently of the mother board function are available.

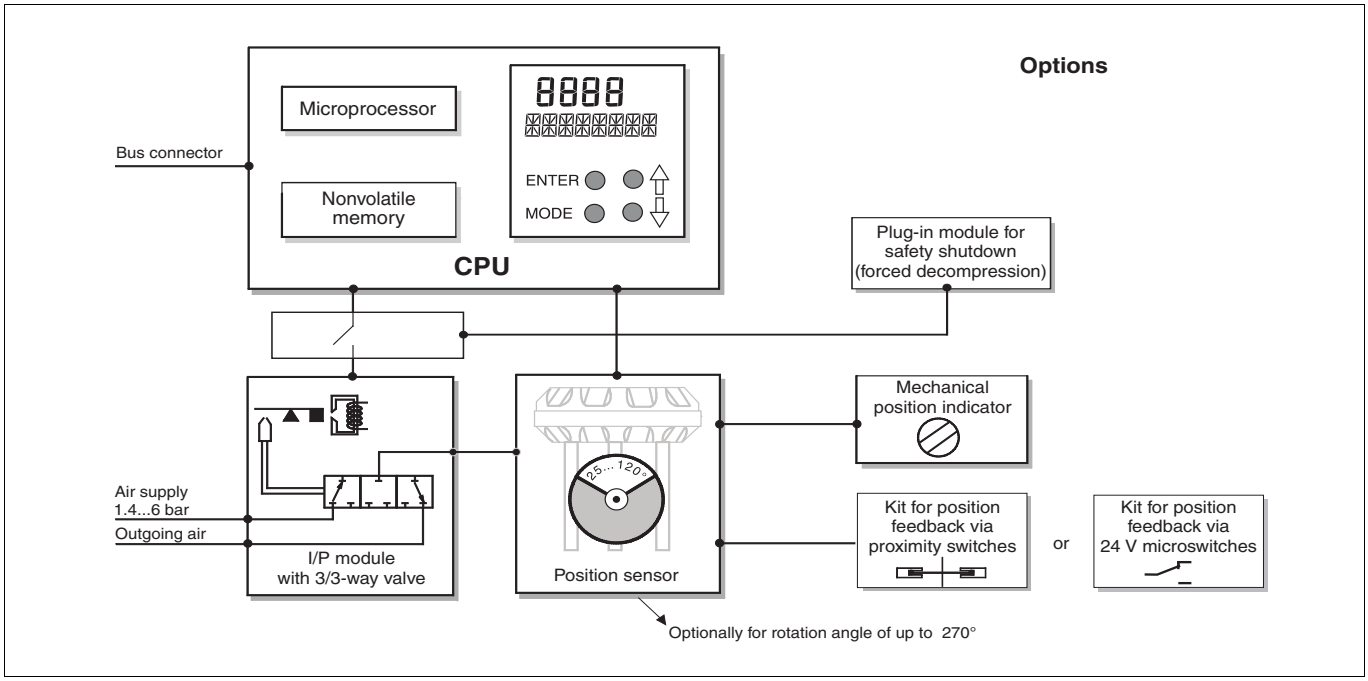



**Fig. 1:** TZIDC-120 schematic diagram

## 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-120 positioner designed for integral mounting with the required threaded holes at the back (see Fig. 12: Front and rear view) is also available. The benefit of this design is that the point for mechanical stroke measurement is protected and that the positioner and actuator are linked internally. No external tubing is required.

### Special actuator-specific mounting

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

Please contact us for details.

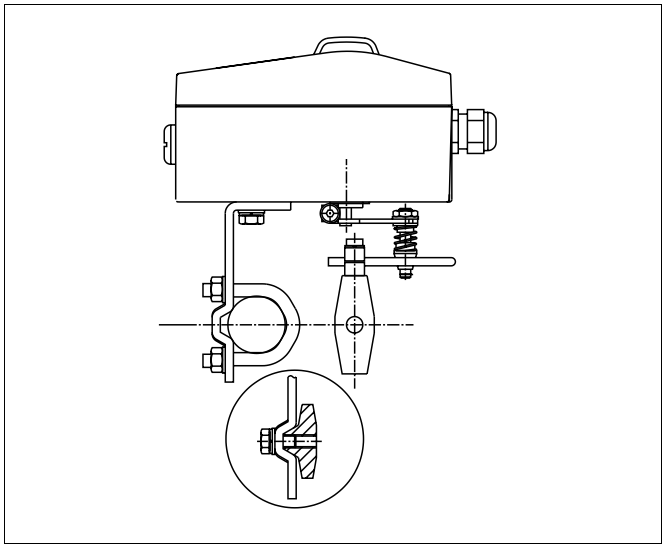


**Fig. 2:** Mounting to linear actuators to DIN/IEC 534 / NAMUR

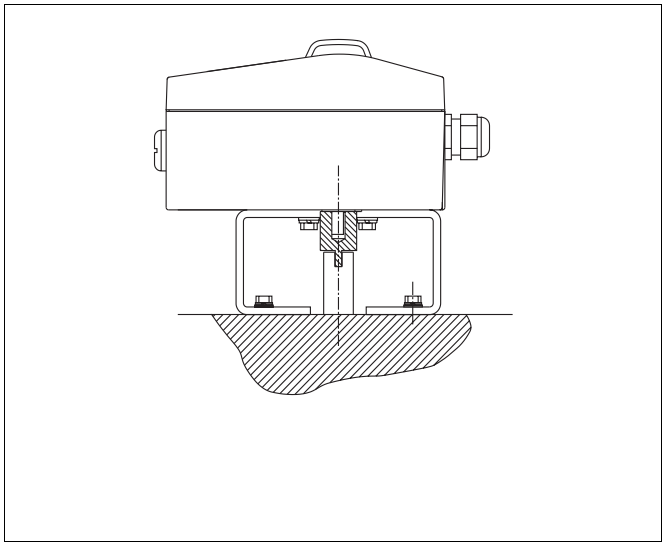


**Fig. 4:** Mounting to rotary actuators to VDI/VDE 3845

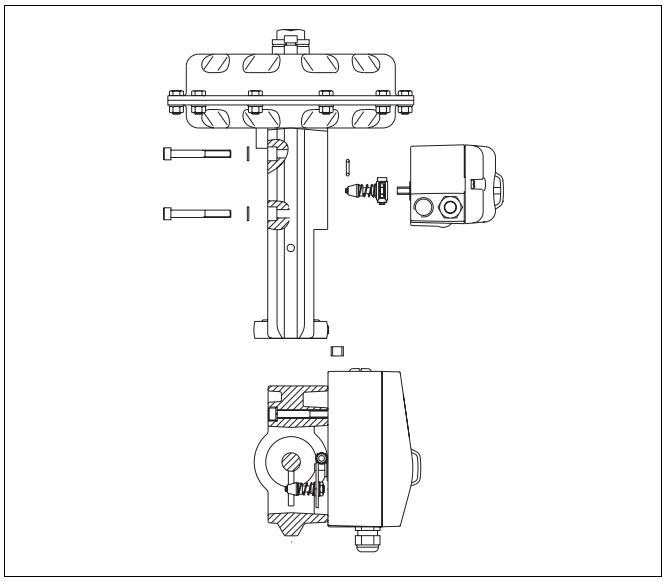


**Fig. 3:** Integral mounting to control valves

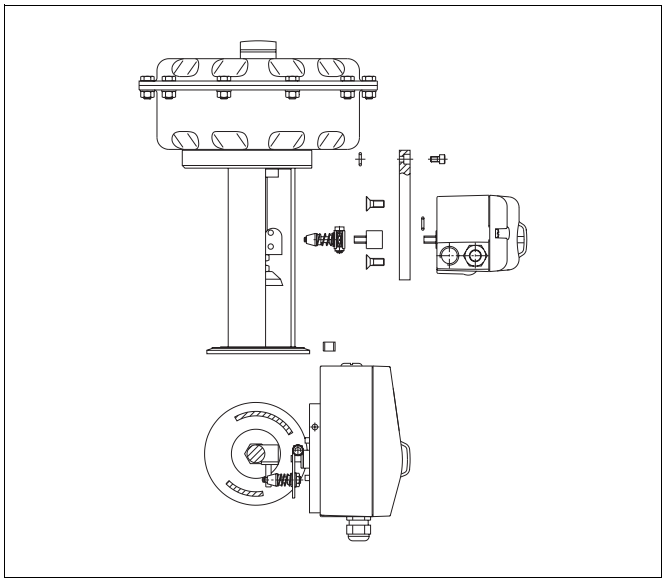


**Fig. 5:** Integral mounting to control valves by using an adapter panel

# Operation

## General

Microprocessor-based position control in the TZIDC-120 provides for optimal results. The positioner features high-precision control functions and high operational reliability. Due to their elaborate structure and easy accessibility, the device parameters can be quickly adapted to the respective application.

**The total range of parameters includes:**
- Operating parameters
- Adjustment parameters
- Monitoring parameters
- Diagnosis parameters
- Maintenance parameters

## Operating parameters

- **Signal range 100 %**
  The signal range is freely adjustable for split-range operation minimum range 20 %, recommended range > 50%
- **Action (signal)**
  Direct: Signal 0...100% = position 0...100 %
  Reverse: Signal 0...100% = position 100...0 %
- **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.
- **End position behavior**
  Parameter allowing to define the positioner's behavior when moving to the end position. The positioner either continues to pressurize the actuator such that full actuator force is applied in the end position, or it only pressurizes the actuator to the extent required to hold the current 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).

## Adjustment parameters

The TZIDC-120 positioner has a special function for automatic adjustment of the parameters. Additionally, the control parameters can be set manually to optimally adapt them to the process requirements.

- **Tolerance band**
  When reaching the tolerance band the position is considered as corrected. From this point on, the position is further slowly re-adjusted until the dead band is reached. The factory setting for this parameter is 0.3 %.
- **Dead band**
  When reaching the dead band, the position is held. The factory setting for this parameter is 0.1 %.
- **Actuator spring action**
  Selection of the sensor shaft rotating sense (looking into the open case), if the valve is moved to the safe position by the actuator spring (actuator is depressurized via OUT1). For double-acting actuators the actuator spring action corresponds to pressurizing the pneumatic output (OUT2).
- **Zero position**
  Adjusting the display (0...100 %) according to the direction of action for opening or closing the valve.

## Monitoring parameters

Various functions for permanent operational monitoring are implemented in the TZIDC-120 operating program. The following states will be detected and indicated:
- internal output circuit monitoring
- position out of the adjusted range
- positioning time-out (adjustable time parameter)
- 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 plain text)

Extended monitoring is possible via the fieldbus. The most important process variables like the output signal (in %), the position (in %), the deviation (in %), and troubles occurring during operation are indicated as plain text in a special line.

## Diagnosis parameters

The diagnosis parameters of the TZIDC-120 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 control actions performed by the valve
- Total travel

The diagnosis parameters and limit values can be called up, set, and reset via the fieldbus.

## Operator panel

The TZIDC-120 positioner's operator panel with four push-buttons allows for

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

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


**Fig. 6:** TZIDC-120 with removed cover, view of the operator panel

## 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 the following TZIDC-120 data can be called up by pressing the push-buttons briefly:

- Up arrow button:
  The display shows the last valid setpoint value (as a percentage) and setpoint state (as a code).
- Down arrow button:
  The display shows the current mode of the AO function block and the transducer block for approx. two seconds, each.
- ENTER: Show software revision and device type

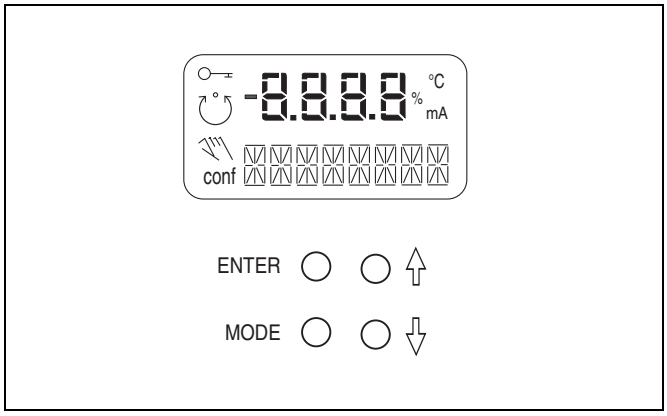



**Fig. 7:** TZIDC-120 operating elements and display

## Single-button commissioning

Commissioning the TZIDC-120 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 by pressing the respective push-buttons.

## Communication

### General

FOUNDATION fieldbus is an open bus standard which allows to integrate devices from different vendors in one system and, if required, interchange them as required (interoperability).

Communication in an FF system is realized via the fast, higher-level HSE (High-Speed Ethernet) bus and the slow, intrinsically safe H1 bus. The FOUNDATION fieldbus layered communications model is based on the ISO/OSI (International Standards Organization's Open System Interconnect) reference model.

A vendor-supplied Device Description (DD) file provides all relevant information about an FF device and its functionality.

### FOUNDATION Fieldbus H1

The FOUNDATION Fieldbus H1 has been designed primarily for process automation applications. The transmission technology (physical layer in the ISO/OSI reference model) is in accordance with IEC 61158. The field instruments are powered via the fieldbus line, i.e. the bus is used for both power supply and signal data transmission. FOUNDATION Fieldbus H1is also suitable for use in plants with explosion protection.

### User benefits from using FOUNDATION Fieldbus

- Problem-free use of devices from different vendors through standardized function blocks and interoperability tests.
- Acyclic access to the device data (also during operation) for parameter setting, diagnostics and maintenance.
- High plant availability through detailed device and bus diagnostics and substitute value strategies used in case of errors.
- Key contributions to asset management through provision of operating data.

### Communicating with the TZIDC-120 positioner

The TZIDC-120 can be easily monitored, configured or polled via the FOUNDATION fieldbus. This is realized via the appropriate configuration program integrated in the process control system. Once newly set parameters have been downloaded into the device, they are directly saved in the non-volatile memory and become immediately active.

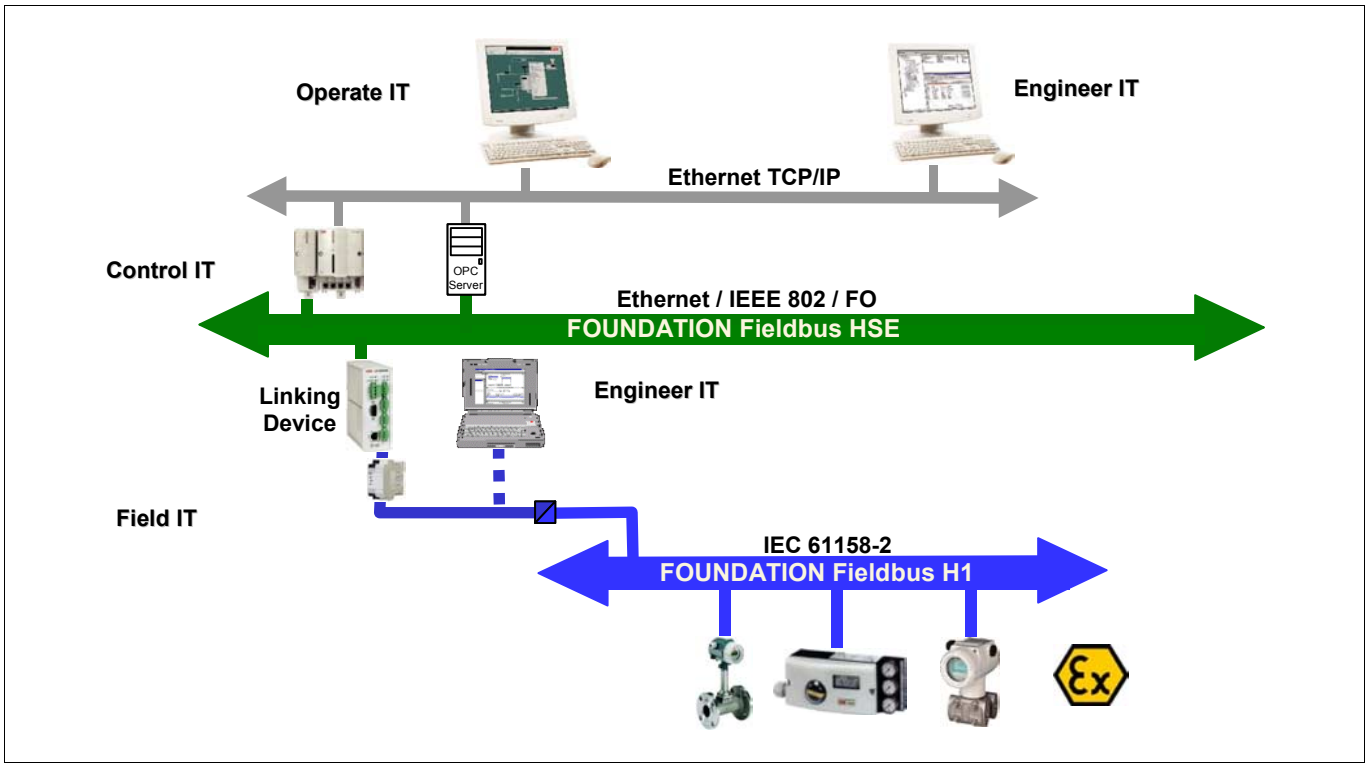



**Fig. 8:** Communication via the FOUNDATION fieldbus

# Technical data

## Communication

**Fieldbus Specifications**

**Physical**

| | |
|---|---|
| Specification | FOUNDATION Fieldbus™ Revision 1.5 |
| Physical layer, profile class | Device type 113, 121 (IEC 61158-2) |
| Communication speed | 31.25 Kbit/second |
| Current rating | 11.5 mA |
| Fault current | 15 mA (11.5 mA + 3.5 mA) |
| Operating voltage | Bus-powered: 9.0 V DC to 32.0 V DC |
| Max. withstand voltage | 35 V DC |
| ATEX-certified for FISCO | Yes |
| Polarity-sensitiveness | Not sensitive to polarity reversal |

**Communications**

| | |
|---|---|
| Class | LM profile 32L, 31PS |
| Number of free VCRs | 23 (No. of VCRs of which the application can be changed, except for the VCR used for management) |

**User layer**

| | |
|---|---|
| Function blocks provided | 1 AO Function Block, 1 PID Block |
| Execution time | AO Block: 40 ms; PID Block: 50 ms |
| Block class | AO Block: standard<br>PID Block: enhanced<br>Resource Block: enhanced<br>Transducer Block: custom |
| Number of linkage objects | 22 |
| Device description (DD) | Rev. No. 1<br>(file name: 0201.ffo, 0201.sym) |
| File | Common file format<br>(file name: 020101.cff) |
| FF Certification | Registered with ITK 4.51, Dec. 2003<br>IT Camp. Number IT023200 |
| Documentation | Configuration and parameter setting instructions, 45/18-82 EN |
| Support of “Incremental DD” | No |
| Calibration and diagnostic information defined in DD | Yes |
| Support of self-tuning | Supports self-tuning of the working range on the valve. Control loop “self-tuning” through the PID function block is not supported. |
| Delivery state | The positioner is delivered in an unadjusted state. The standard autoadjustment function has to be run to adapt the working range and control parameters. Otherwise the transducer block will remain in “Out of service” mode. |
| Diagnostic capabilities | Self-diagnostic of positioner hardware and software. Basic valve diagnostics incl. extended alarm handling |

**Name**

**Device tag**
ABB POSITIONER TZID-C120 xxxxxx

**Device ID**
0003200028_____TZIDC-120 xxxxxx

**Device address**
Between 10 and 247, standard node address 23

## 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 $Nm^3/h$ = 2.3 scfm
at supply pressure of 6 bar (90 psi)
13 kg/h = 10 $Nm^3/h$ = 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 °)<br>25...60 ° (linear actuators) |

**Travel time prolongation**
Range of 0...200 seconds, separately for each direction

## 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 $mg/m^3$
oil content: max. concentration 1 $mg/m^3$
pressure dew point: 10 K below operating temperature

**Supply pressure**
1.4...6 bar (20...90 psi)
NOTICE: Do not exceed the max. operating pressure of the actuator!

**Air consumption**
< 0.03 kg/h / 0.015 scfm (independent of the supply pressure)

## Transmission data and influences

**Output OUT 1**

| | |
|---|---|
| Increasing: | increasing signal 0...100 %<br>increasing output pressure OUT 1 |
| Decreasing: | increasing signal 0...100 %<br>decreasing output pressure OUT 1 |

**Action (signal)**

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

**Characteristic deviation**
≤ 0.5 %

**Tolerance band**
0.3...10 %, adjustable

**Dead band**
0.1...10 %, adjustable

**Resolution (A/D conversion)**
> 16,000 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

## 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 case 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 $mm^2$ for options, max. 2.5 $mm^2$ for bus connection
NOTICE: Do not expose the terminals to strain!
Cable entry:
2 threads 1/2-14 NPT or M20x1.5
(1 with cable gland and one with pipe plug)

**Pneumatic connections**
Threads G 1/4 or 1/4-18 NPT

**Weight**
1.7 kg

**Mounting orientation**
any orientation allowed

**Dimensions**
see dimensional drawings

## 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/CSA**
(pending)

**ATEX** ⟨Ex⟩

| | |
|---|---|
| | II 2G EEx ia II C T6 |
| Examination certificate | TÜV 02 ATEX 1834 X |
| Type: | Intrinsically safe equipment |
| Device group: | II 2G (EEx ia IIC) |
| Temperature class: | T4, T5, T6 |
| Perm. ambient temperature: | T4: -40 °C ≤ $T_{amb}$ ≤ 85 °C |
| | T5: -40 °C ≤ $T_{amb}$ ≤ 55 °C |
| | T6: -40 °C ≤ $T_{amb}$ ≤ 40 °C |

**ATEX** ⟨Ex⟩

| | |
|---|---|
| | II 3G EEx n A II T6 |
| Examination certificate | TÜV 02 ATEX 1943 X |
| Type: | Explosionproof equipment (Zone 2) |
| Device group: | II 3G (EEx n A II) |
| Temperature class: | T4, T5, T6 |
| Perm. ambient temperature: | T4: -40 °C ≤ $T_{amb}$ ≤ 85 °C |
| | T5: -40 °C ≤ $T_{amb}$ ≤ 65 °C |
| | T6: -40 °C ≤ $T_{amb}$ ≤ 50 °C |

**IECEx** ⟨Ex⟩ **Ex ia IIC T6**

| | |
|---|---|
| Examination certificate | IECEx TUN 04.0015X, Issue No.: 0 |
| Type: | **Intrinsically safe** |
| Temperature class: | T4, T5, T6 |
| Perm. ambient temperature: | T4: -40 °C ≤ $T_{amb}$ ≤ 85 °C |
| | T5: -40 °C ≤ $T_{amb}$ ≤ 55 °C |
| | T6: -40 °C ≤ $T_{amb}$ ≤ 40 °C |

Signal current circuit for FOUNDATION Fieldbus, only for connection to a certified intrinsically safe circuit (e.g. FISCO power unit or barrier) with the following max. values:

| | **FISCO power supply ia/ib for group IIB/IIC** | **FISCO power supply ia/ib for group IIB/IIC** | **Barrier or power supply ia/ib for group IIB/IIC** |
|---|---|---|---|
| Voltage | Ui = 17.5 V | Ui = 17.5 V | Ui = 24 V |
| Current | Ii = 380 mA | Ii = 360 mA | Ii = 250 mA |
| Power | Pi = 5.32 W | Pi = 2.52 W | Pi = 1.2 W |
| Charact. line | rectangular | trapezoidal | linear |

## Options

**Module for the shutdown function**

| | |
|---|---|
| Supply voltage | 24 V DC (20...30 V DC)<br>(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.) |

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 moves 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 [1]**

2 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 |
| Control current < 1 mA | Logical "0" |
| Control current > 2 mA | Logical "1" |
| Explosion protection | EEx ia IIC T6 |

Direction of action (logical state):

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

**NOTICE**

When using proximity switch type SJ2-S1N (NO) the TZIDC-120 positioner may be exposed to an ambient temperature of -25 °C ... +85 °C, only.

**Digital position feedback with 24 V microswitches [1]**

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

| | |
|---|---|
| Voltage | max. 24 V AC / DC |
| Current load | max. 2 A |
| Contact surface | 10 µm gold (AU) |

**Mechanical position indicator**

Indicator disk in enclosure cover, linked with positioner feedback shaft

1. The 'digital position feedback' option is directly actuated by the rotating shaft of the positioner and can only be used together with the (optional) mechanical position indicator.

## Accessories

**Mounting material**

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

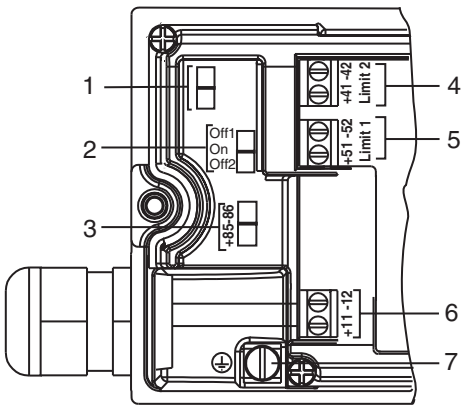
**Pressure gauge block**

With pressure gauges for supply and output pressure,
pressure gauges with plastic case ∅ 28 mm,
with aluminum connection block, varnished black
inclusive of mounting material for attachment to TZIDC-120.

**Filter regulator**

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

## Wiring diagrams




1. Not used
2. Service switch for the shutdown module
3. Terminals of the shutdown module
4. Digital position feedback, either proximity switches or 24 V microswitches
5. Same as 4
6. Bus terminals
7. Grounding screw

**Fig. 9:** Screw terminals, overview

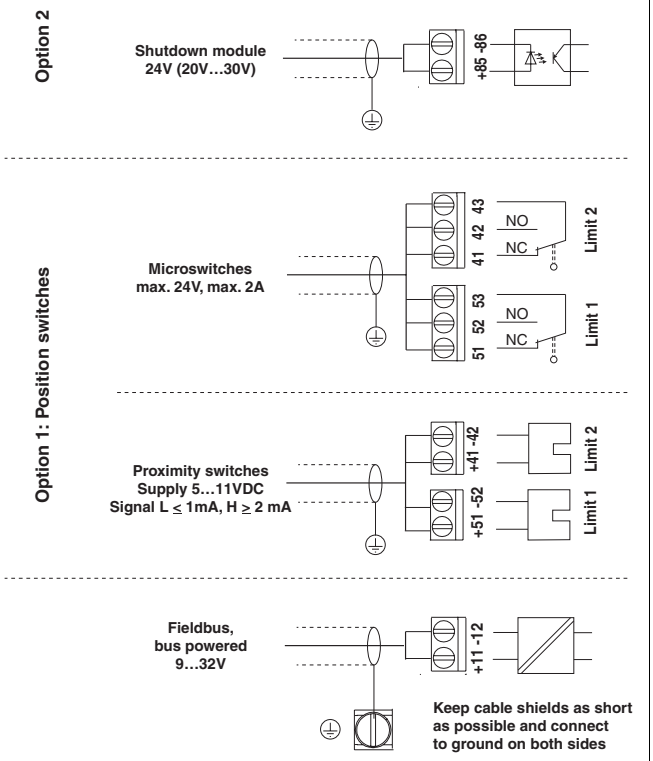



**Fig. 10:** Terminal assignment

## **Dimensional drawings** (all dimensions in mm)

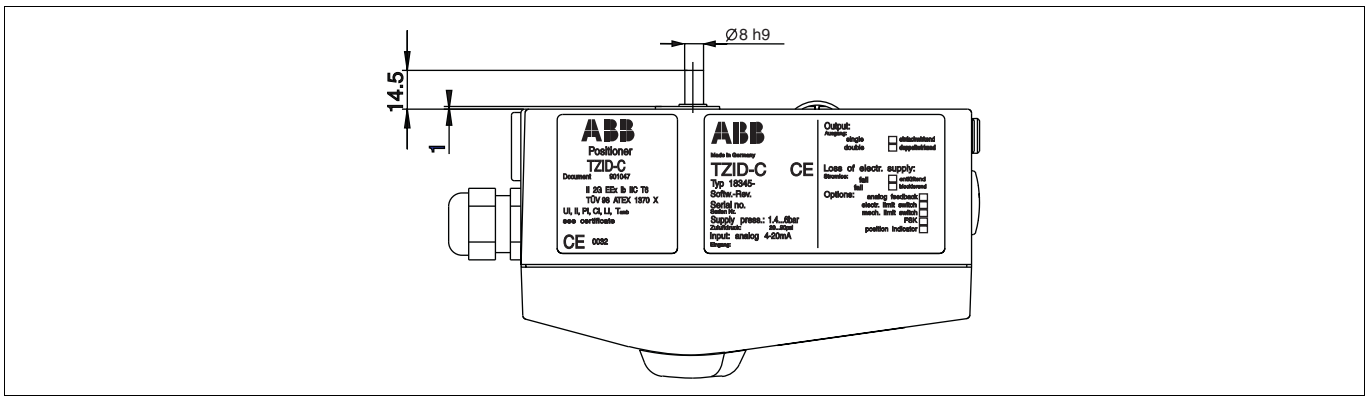



**Fig. 11:** Top view

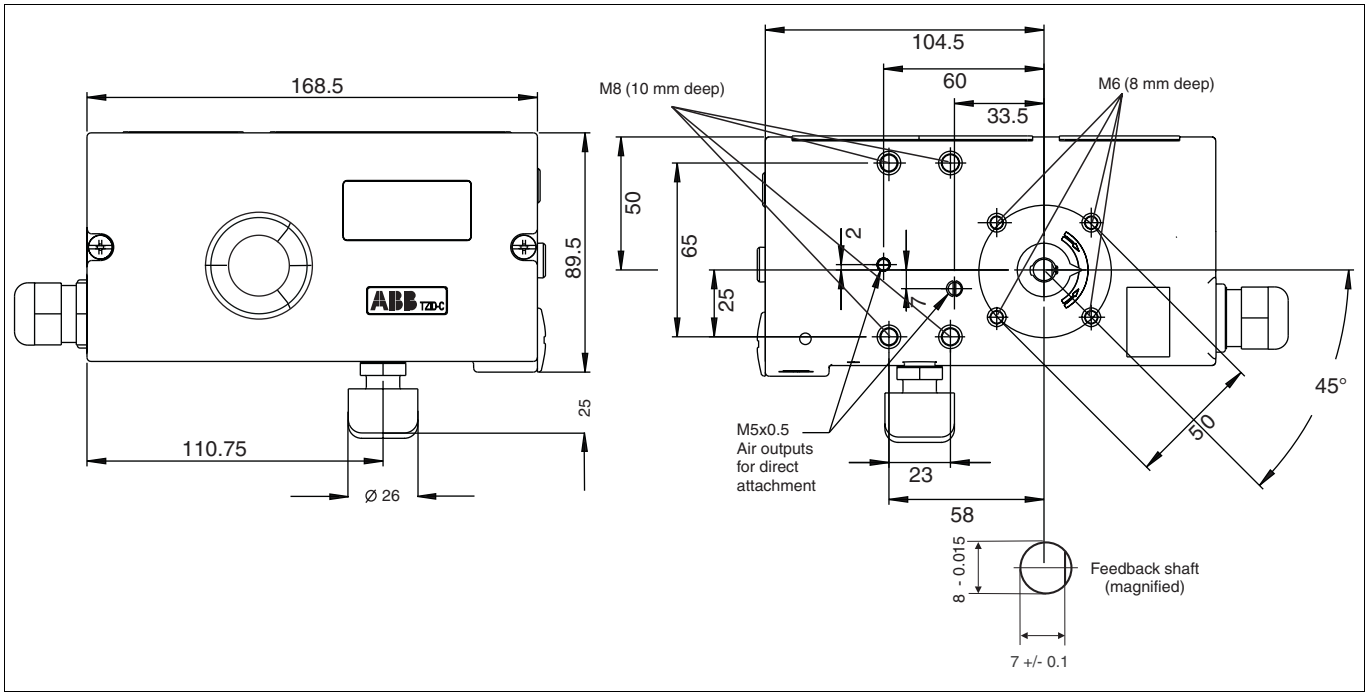



**Fig. 12:** Front and rear view

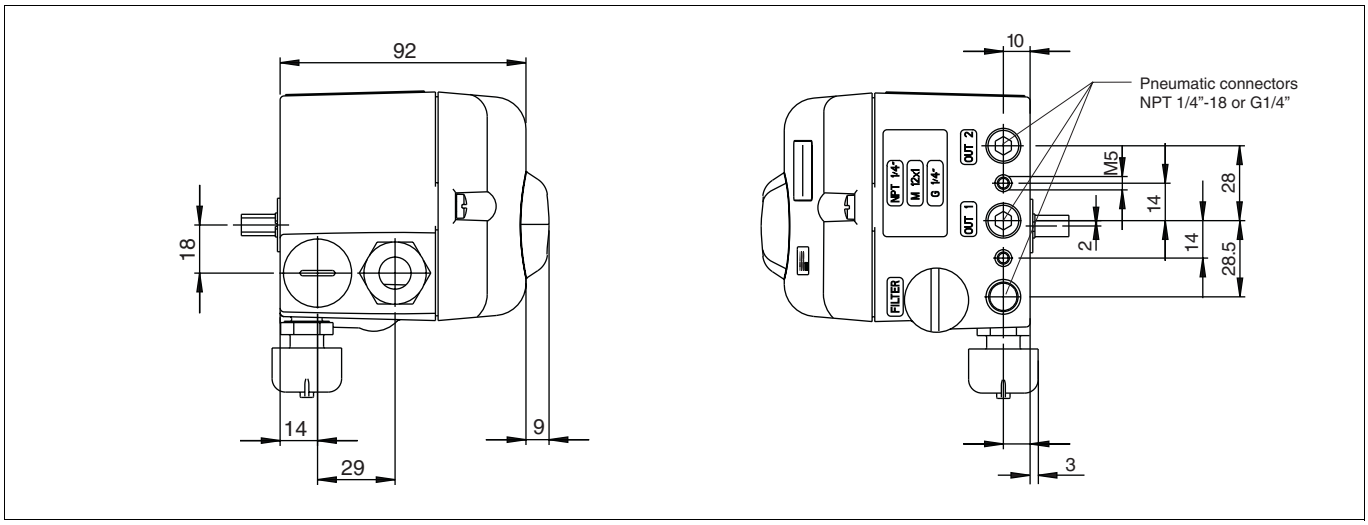



**Fig. 13:** Left and right side view

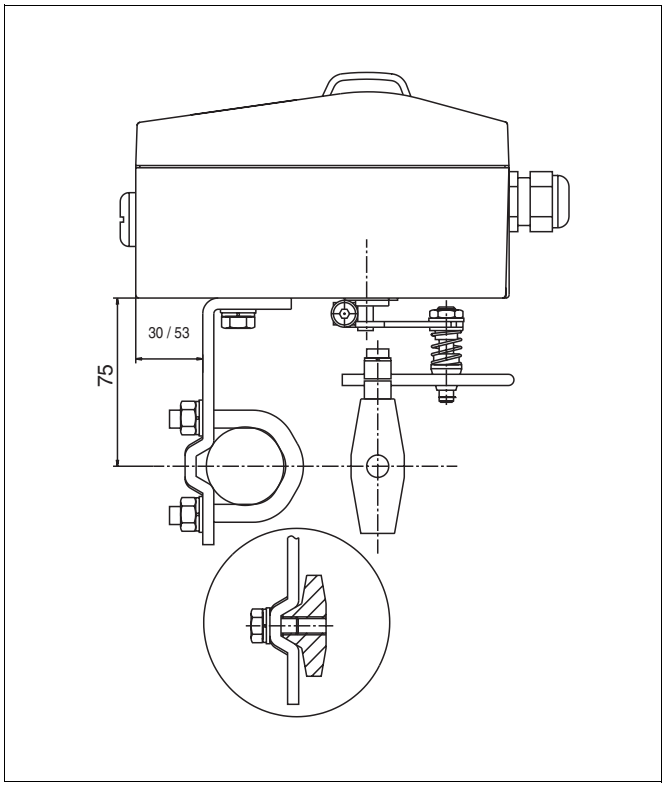



**Fig. 14:** Mounting to linear actuators to DIN/IEC 534

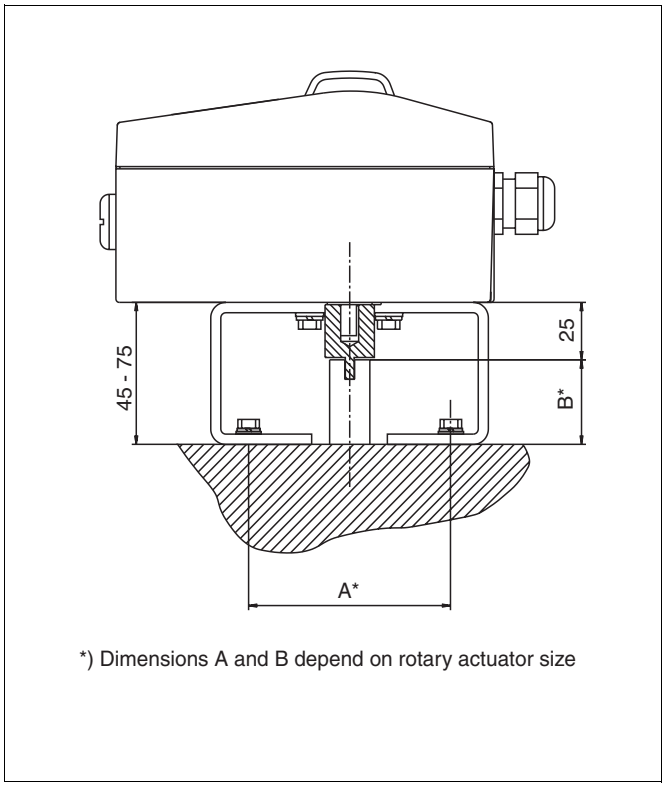



**Fig. 15:** Mounting to rotary actuators to VDI/VDE 3845

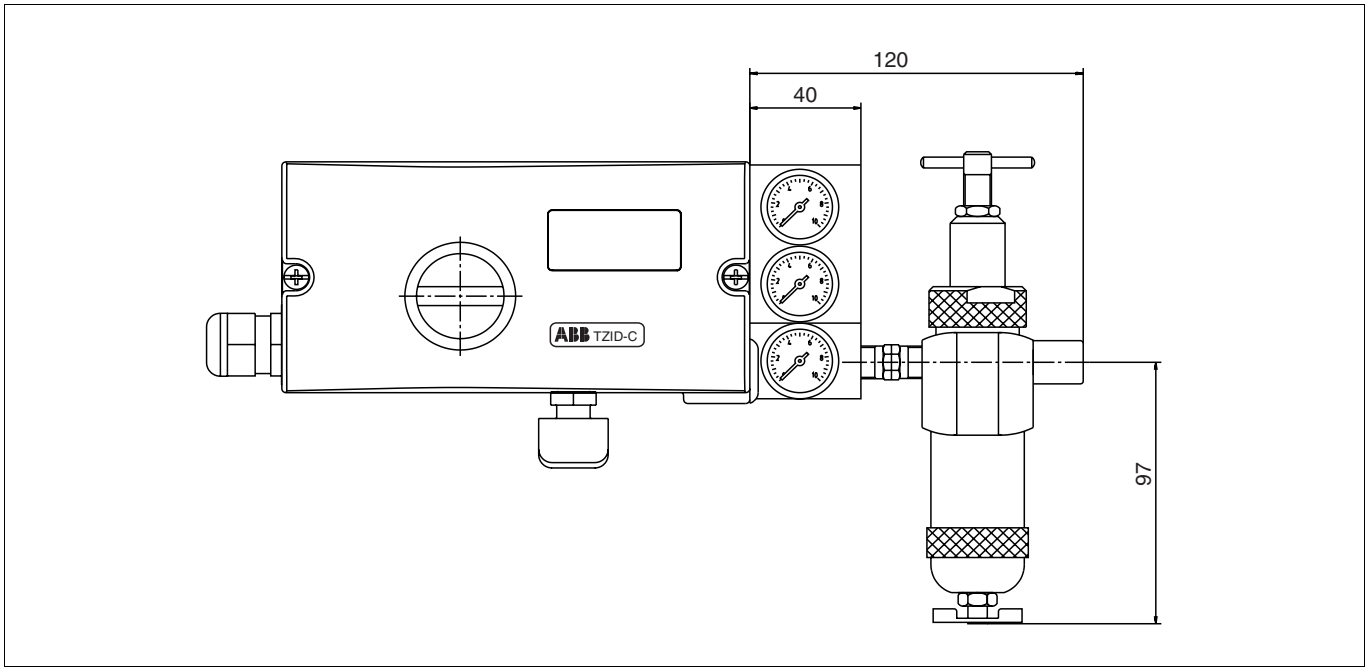



**Fig. 16:** Positioner TZIDC-120 with pressure gauge block and filter regulator

## Ordering information

| | Catalog No. | | | | | | | | | | Code | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Electro-Pneumatic Positioner TZIDC-120**<br>intelligent, configurable<br>with indicator and operator panel | **V18347-** | | **0** | | | | | | **0** | | | | |
| **Case/Mounting**<br>Case made of aluminium, varnished, protection IP 65 (NEMA 4X)<br>For mounting to linear actuators acc. to DIN/IEC 534 / NAMUR or to rotary actuators acc. to VDI/VDE 3845, also ready for integral mounting | | 1 | | | | | | | | | | | |
| As above, but with mechanical position indicator | | 2 | | | | | | | | | | | |
| For mounting to rotary actuators acc. to VDI/VDE 3845 with extended rotation angle up to 270° | | 5 | | | | | | | | | | | |
| As above, but with mechanical position indicator | | 6 | | | | | | | | | | | |
| **Note:**<br>Special mounting material is required<br>(see "Accessories") | | | | | | | | | | | | | |
| **Input/communication port**<br>FOUNDATION Fieldbus | | | | 4 | | | | | | | | | |
| **Explosion protection**<br>without | | | | | 0 | | | | | | | | |
| ATEX EEx ia IIC T6 | | | | | 1 | | | | | | | | |
| FM/CSA (under preparation) | | | | | 2 | | | | | | | | |
| ATEX EEx n A II T6 | | | | | 4 | | | | | | | | |
| IECEx Ex ia IIC T6 | | | | | 5 | | | | | | | | |
| IECEx Ex nA II T6 | | | | | 6 | | | | | | | | |
| other explosion protection certificates upon request | | | | | | | | | | | | | |
| **Output/safe position (in case of an electrical power failure)** | | | | | | | | | | | | | |
| Single acting, fail safe | | | | | | 1 | | | | | | | |
| fail freeze | | | | | | 2 | | | | | | | |
| Double acting, fail safe | | | | | | 4 | | | | | | | |
| fail freeze | | | | | | 5 | | | | | | | |
| **Connections** | | | | | | | | | | | | | |
| Cable: Thread 1/2-14 NPT Air pipe: Thread 1/4-18 NPT | | | | | | | 2 | | | | | | |
| Cable: Thread M20 x 1,5 Air pipe: Thread G 1/4 | | | | | | | 6 | | | | | | |
| **Optional shutdown module** | | | | | | | | | | | | | |
| Without | | | | | | | | 0 | | | | | |
| Plug-in module for shutdown module | | | | | | | | 4 | | | | | |
| **Optional mechanical kit for digital position feedback** | | | | | | | | | | | | | |
| Without | | | | | | | | | 0 | | | | |
| Mechanical kit for digital feedback | | | | | | | | | | | | | |
| With proximity switches SJ2-SN (NC or logical 1) | | | | | | | 2) | | 1 | | | | |
| With proximity switches SJ2-S1N (NO or logical 0) | | | | | | | 2) 3) | | 3 | | | | |
| With 24 V DC/AC microswitches (change-over contacts) | | | | | | | 1) 2) | | 5 | | | | |

1) not for explosion protected version
2) only for model with mechanical position indicator
3) only for ambient temperature range -25 °C to +85 °C

Continued on next page

## Ordering information (continued)

| | Catalog No. | Code | | |
|---|---|---|---|---|
| **Electro-Pneumatic Positioner TZIDC-120**<br>intelligent, configurable<br>with indicator and operator panel | **V18347-** | **0** | **0** | |
| **Design (varnish/coding)** | | | | |
| Standard | 1 | | | |
| Special version chemistry (details on request) | E | | | |
| As specified (on request) | | | | |
| **Certificates** | | | | |
| Certificate of compliance with the order acc. to EN 10204-2.1 (DIN 50049-2.1) | | CF1 | | |
| Certificate of compliance with the order acc. to EN 10204-2.1 (DIN 50049-2.1) with item description | | CF2 | | |
| Test Report acc. to EN 10204-2.2 (DIN 50049-2.2) | | CF3 | | |
| Constructors test certificate O acc.to DIN 55350-18-4.2.2 | | CH1 | | |
| Constructors test certificate M acc.to DIN 55350-18-4.2.2 with item description | | CH3 | | |
| Constructors test certificate M acc.to DIN 55350-18-4.2.2 with item description and diagram | | CH4 | | |
| Inspection Certificate 3.1B acc. to EN 10204 with max. deviation | | CBA | | |
| Inspection Certificate 3.1B acc. to EN 10204 with add. data and item description | | CBB | | |
| Test Certificate & Letter of Conformity with item description | | CTC | | |
| **Device identification label** | | | | |
| incudes lettering (plain text, max. 16 letters) | | | | |
| stainless steel 11.5 x 60 mm | | MK1 | | |
| sticker 41 x 32 mm | | MK2 | | |
| sticker 11 x 25 mm | | MK3 | | |

## Accessories

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

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

## Accessories (continued)

| | | | Catalog No. | | |
|---|---|---|---|---|---|
| **Pressure gauge block** | | | | | |
| Pressure gauge block, including attachment material | | | | | |
| for single acting TZIDC-120, 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-120, with 3 pressure gauges Ø 28 mm | | | | | |
| (1 x for air supply and 2 x for output pressure) | | | | | |
| G 1/4 connections | Supply pressure range 0...10 bar/ 0...140 psi | | | | |
| | Output pressure range 0...4 bar/ 0...60 psi | | 7959115 | | |
| | Output pressure range 0...10 bar/ 0...140 psi | | 7959116 | | |
| 1/4-18 NPT connections | Supply pressure range 0...10 bar/ 0...140 psi | | | | |
| | Output pressure range 0...4 bar/ 0...60 psi | | 7959117 | | |
| | Output pressure range 0...10 bar/ 0...140 psi | | 7959118 | | |
| (Pressure gauge blocks are delivered as separate units for mounting by the customer) | | | | | |
| **Filter regulator** | | | | | |
| Brass filter regulator, incl. material for mounting to pressure gauge block | | | | | |
| Connections | Thread G 1/4 | | 7959119 | | |
| | Thread 1/4-18 NPT | | 7959120 | | |
| (Filter regulators are delivered as separate units for mounting by the customer) | | | | | |
| **Option modules (can be added later)** | | | | | |
| Plug-in module for shutdown function | | | 7959199 | | |
| Kit for | mechanical position indicator | | 7959130 | | |
| | (including front cover with glass) | | | | |
| Kit for | digital position feedback | | | | |
| | (including front cover with mechanical position indicator) | | | | |
| | with 24 V DC/AC microswitches (change-over contacts) | | 7959191 | | |
| | with proximity switches SJ2 - SN (NC or logical 1) | | 7959131 | | |
| | SJ2 - S1N (NO or logical 0) | 3) | 7959132 | | |
| Kit for | digital position feedback | | | | |
| | with 24 V DC/AC microswitches (change-over contacts) | 1) | 7959190 | | |
| | with proximity switches SJ2 - SN (NC or logical 1) | 1) | 7959133 | | |
| | SJ2 - S1N (NO or logical 0) | 1) 3) | 7959134 | | |
| **Spare parts** | | | | | |
| Spare parts kit | | | 7959198 | | |
| I/P module (single acting, fail safe) | | 2) | 7958510 | | |
| I/P module (single acting, fail freeze) | | 2) | 7958511 | | |
| I/P module (double acting, fail safe) | | 2) | 7958512 | | |
| I/P module (double acting, fail freeze) | | 2) | 7958513 | | |

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

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