

TZIDC-110 Electro-Pneumatic Positioner

for PROFIBUS PA

IndustrialIT
enabled™

- **Compact and efficient**
 - through well-proven technology and intelligence
- **Communication based on PROFIBUS PA**
 - fieldbus connection to IEC 61158-2
 - current consumption 10.5 mA, 9...32 V DC
- **Simple commissioning procedure, user-friendly**
 - fully automatic *Autoadjust* function
 - adjustment via the built-in operator panel or remotely
 - mechanical position indicator
- **Complies with the EC directives for EMC and CE**
- **Explosion protection certificates, intrinsically safe**
- **Robust and environmentally ruggedized**
 - influence of shock and vibration < 1%
 - aluminum case, IP 65 (NEMA 4X)
- **Wide operating temperature range**
 - - 40 °C to + 85 °C (- 40 to + 185 °F)
- **Attachment to linear or rotary actuators**
- **Optional pressure gauge block and filter regulator**
- **Low operating cost**
 - air consumption of less than 0.03 kg/h

**Smart
Compact and efficient****ABB**

Concept

The TZIDC-110 positioner is an intelligent and electronically configurable instrument with communication capabilities, mounting to pneumatic actuators. The TZIDC-110 stands out for a small and compact design, a modular construction, and an excellent cost-performance ratio.

The functional heart of the TZIDC-110 positioner is its microprocessor-controlled CPU where the operating system is running. The position feedback signal is polled with a sampling rate of 20 ms and an A/D resolution of 16,000 steps. This ensures a rapid and high-precision signal processing for the input and the position feedback. The power for the CPU is derived from the bus.

The operating program includes functions for fully automatic adjustment in the commissioning phase. These functions provide for optimal control of the position to minimize control deviation.

The pneumatic actuator is driven by an I/P module with subsequent 3/3-way valve. The electrical positioning signal from the CPU is proportionally converted into a pneumatic signal which, in turn, adjusts the 3/3-way valve. The cross-sectional area of the valve air channels for filling the actuator with air or evacuating air from it is changed in proportion with the adjustment. When reaching the set point, the 3/3-way valve is closed in center position.

The positioner has an operating panel consisting of a 2-line LCD and 4 push-buttons. The operating panel has the perfect design for optimal local configuration, commissioning, and operational monitoring. Alternatively, the TZIDC-110 can be configured, commissioned and monitored via the fieldbus, by using the appropriate configuration program.

The modular design of the positioner allows you to add further functionality at a later time. Assembly kits for mechanical position indication for digital position feedback using proximity switches or 24 V microswitches are available. Additionally, the plug-in module for the shutdown function is available.

Various TZIDC-110 features ensure safe valve operation on site:

- Compliance with the EMC Directive
- Robust aluminum case, protection IP 65 (NEMA 4X)
- High resistance to shock and vibration up to 10 g
- Operational reliability through permanent internal monitoring
- Message generation
- Operation at ambient temperatures of - 40 to + 85 °C (- 40 to + 185 °F)

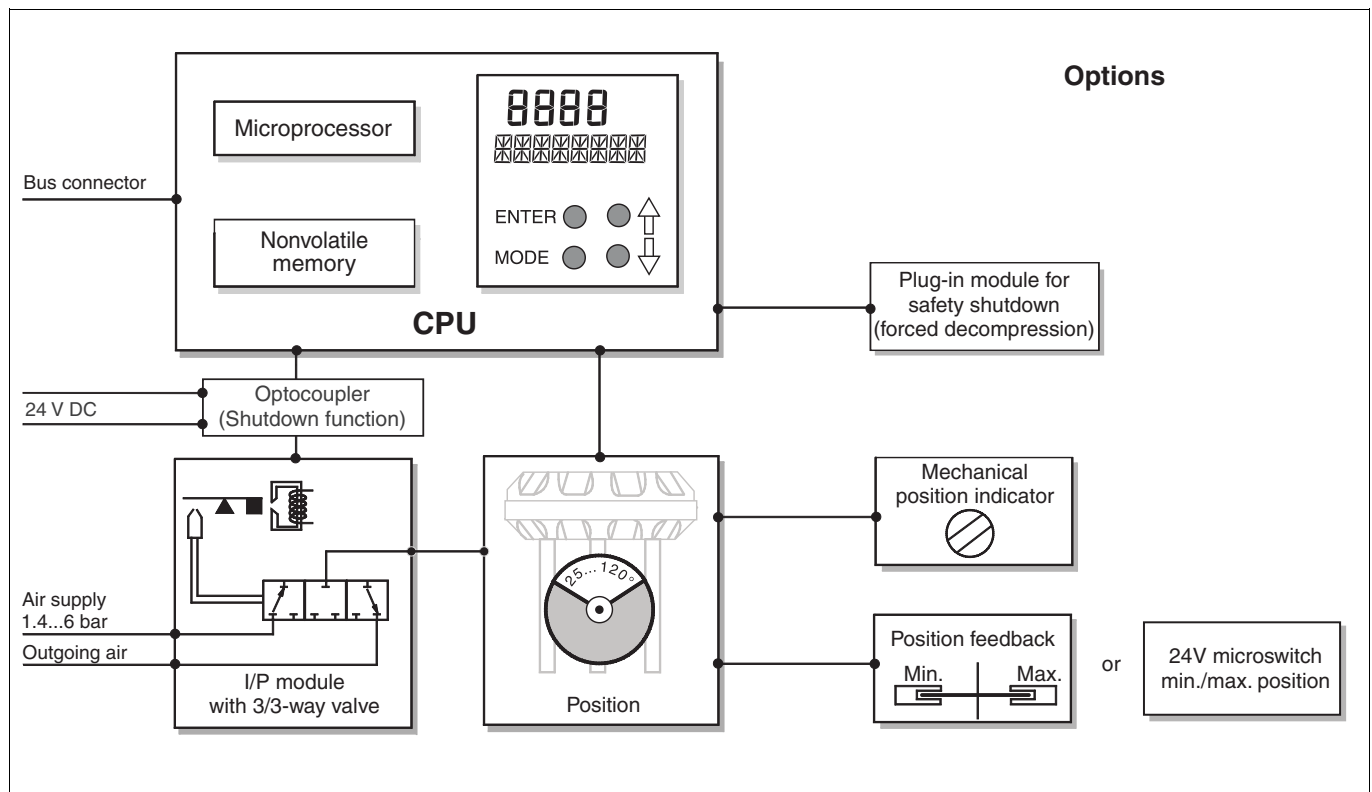


Fig.1: TZIDC-110 schematic diagram

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 is in accordance with VDI/VDE 3845. The attachment kit contains the adapter for coupling the positioner feedback shaft to the actuator shaft, and mounting brackets for mounting the positioner to the actuator. Screwed pipe connections and air pipes are not included in the kit and have to be provided by the customer.

Integral mounting to control valves

The TZIDC-110 positioner is ready for integral mounting. The appropriate threaded holes are available at the positioner's back. The benefit of this design is that the point for mechanical stroke measurement is inside the yoke and, thus, protected by it. No external tubing is required, since the air flow from the positioner to the actuator is guided through an internal channel bore.

Special actuator-specific mounting

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

Please contact us for details.

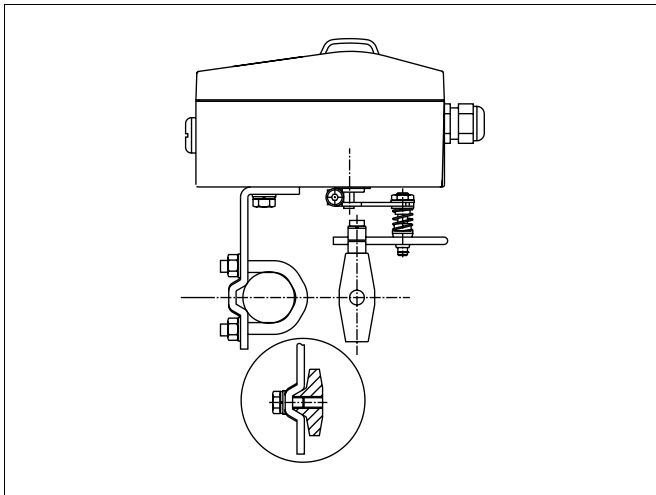


Fig. 2: Mounting to linear actuators to DIN/IEC 534

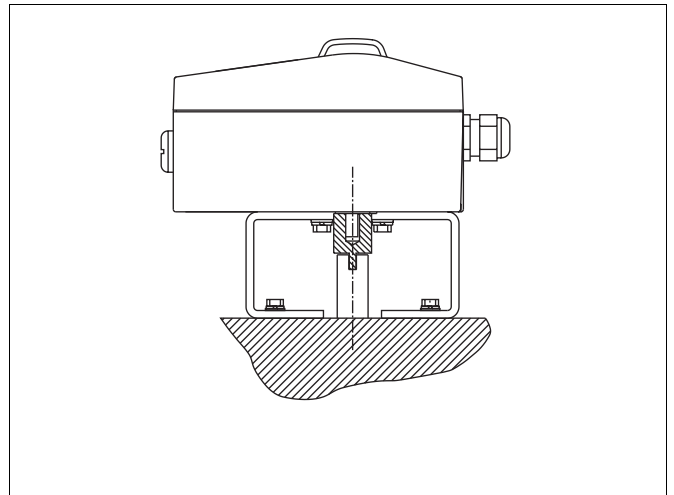


Fig. 4: Mounting to rotary actuators to VDI/VDE 3845

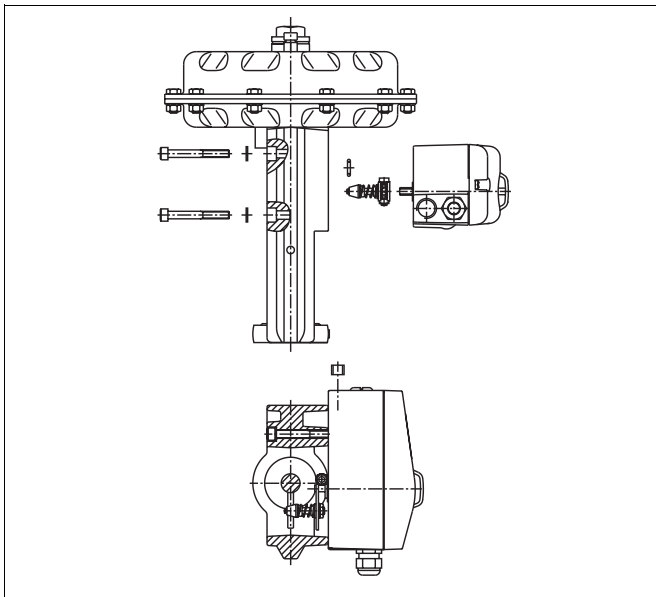


Fig. 3: Integral mounting to control valves

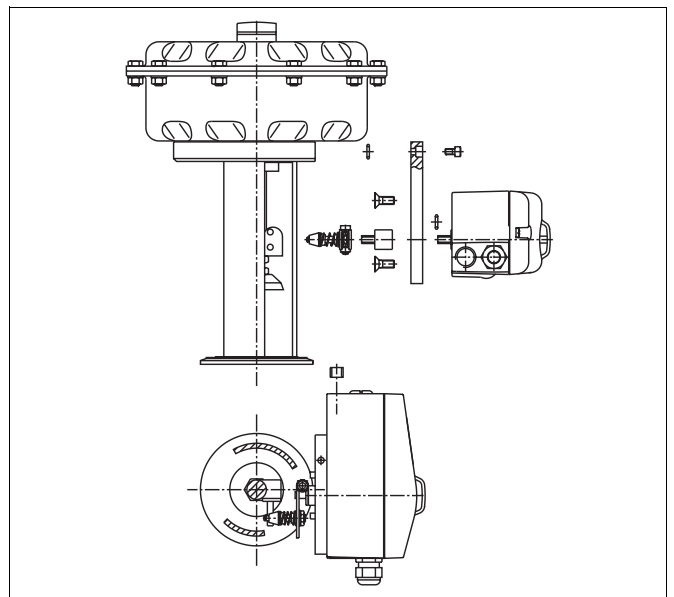


Fig. 5: Integral mounting to control valves by using an adapter panel

Operation

General

The intelligent microprocessor-controlled TZIDC-110 positioner is designed for achieving optimal results. It stands out for quick and precise control until reaching the set point and for high operational reliability. The activation and adjustment of parameters necessary to achieve this goal is done automatically by the *Autoadjust* function. If required, the settings can be changed manually.

The total range of parameters includes:

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

Operating parameters

The following operating parameters can be activated and adjusted:

- **Characteristic curve (travel = f {pos. signal})**
linear,
equal percentage 1:25 or 1:50 or 25:1 or 50:1,
or user-configurable with 20 reference points
- **Tolerance band**
When reaching the tolerance band the position is considered as having reached the setpoint. From this point on, the position is further slowly re-adjusted until the dead band is reached. The factory setting for this parameter is 0.3 %.
- **Dead band (sensitivity)**
When reaching the dead band, the position is held. The factory setting for this parameter is 0.1 %.
Both the tolerance band and the dead band are automatically determined during the positioner's self-optimization.
- **Travel limiting**
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 function can be selected 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.
- **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
- **Control in the end position**
Here you can define whether the pneumatic actuator shall be fully pressurized or the position shall be further controlled in the end position. This parameter can be set separately for each end position.

Adjustment parameters

The TZIDC-110 positioner has a special function (*Autoadjust*) for automatic adjustment of all relevant parameters. The *Autoadjust* function can be started by pressing the respective push-buttons on the device's front panel or by using the configuration program on a remote PC.

The following parameters can be activated and adjusted:

- **Control parameters**
To adapt the TZIDC-110 positioner to the control action of the valve, the control parameters can be adjusted individually to achieve optimal control until reaching the set point.
- **Valve range 0...100 %**
Valve end positions, start of range "0 %" and end of range "100 %".
- **Effective direction of the actuator**
Adjustment to either of the two possible directions:
Air to open/spring force to close
or
Air to close/spring force to open
- **Display 0...100 %**
Adjusting the display (0...100 %) to the direction of action for opening or closing the valve.

Monitoring parameters

Various functions for permanent device monitoring are implemented in the operating program of the TZIDC-110 positioner:

- Internal output circuit monitoring
- Monitoring to check whether or not the position is out of the adjusted range (rotation angle) for position feedback.
- Monitoring for positioning time-out (adjustable time parameter)
- Monitoring of the stroke and travel counter to check if the limit value is exceeded (limits can be adjusted during diagnosis)

While automatic commissioning is in progress, the current state is continuously indicated on the integrated LC display. All other messages can be called up for display via the graphical user interface.

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-110 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 stroking distance

The diagnosis parameters and limit values can be called up, set, and reset via the fieldbus, by using the special TZIDC-110 configuration program.

Operator panel

The TZIDC-110 positioner's operator panel allows for

- monitoring
- manual control
- TZIDC-110 configuration
- fully automatic commissioning

Operation

The panel's four push buttons (see illustration) are used for selecting the individual operating levels, parameterizing the device, and saving the settings. In addition to the already known operating functions there is a special feature: a simplified auto-adjustment routine can be started easily through only few operator actions, and without knowing parameterization details.

When the positioner is changed over from a linear to a rotary actuator, the zero position of the display is changed automatically. As a result, 0% is indicated in the display for a valve that is closed by turning clockwise.

Display

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

In bus mode (REMOTE), the following TZIDC-110 data can be called up by pressing the push-buttons briefly:

Enter	Software revision
Up arrow	For cyclic communication: Setpoint (%) and setpoint state (decimal) For acyclic communication: communication state
Down arrow	Operating mode on the bus and address in the device

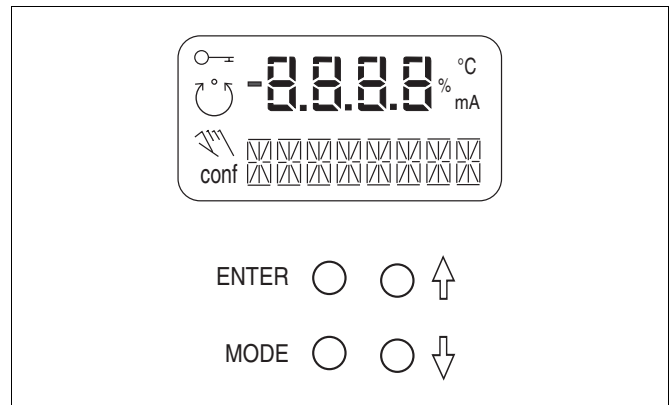


Fig. 6: TZIDC-110 operating elements

Configuration program

General

The graphical user interface for the TZIDC-110 positioner is based on the FDT/DTM technology (FDT 0.98-1) and can be integrated in an open control system or loaded into a PC with the configuration program SMART VISION®. With this you can use the same user interface in the commissioning phase, during operation, and for service tasks for monitoring the device, setting parameters, and uploading data.

In all cases the communication is realized via the fieldbus connection. In accordance with the PROFIBUS conventions it is possible to read data during cyclic data exchange (AUT, MAN or RCAS mode) and write data in the O/S (Out of Service) mode. Newly set parameters are saved in the non-volatile memory directly upon the download into the device, and are immediately active.

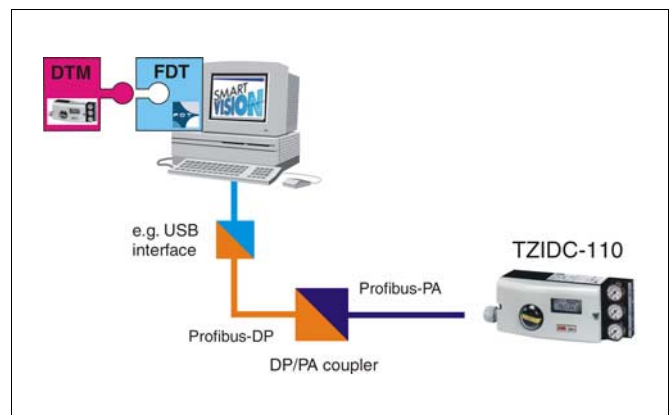


Fig. 7: Direct link to a PC/laptop

Technical data

Communication

Profiles

Profibus PA Profile for Process Control Devices
Electro-Pneumatic Actuators V3.0

Block types

1 AO Function Block, 1 Transducer Block, 1 Physical Block

Physical layer

Compliant to the standard IEC 61158-2

Communication speed

31.25 Kbit/s

Operating voltage

Bus-powered: 9.0 V DC - 32.0 V DC

Max withstand voltage

35 V DC

Current consumption

10.5 mA

Fault current

15 mA (10.5 mA + 4.5 mA)

Name value

Physical device tag

TZID-C110

PNO ID number

0x0639

Device ID

0X3200028xyz

Device address

Between 0 and 126, default node address 126

Output

Range

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

Air capacity

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

Function

for single or double acting actuators, air is vented from actuator or actuator is blocked in case of an electrical power failure

Shut-off value

When the setpoint exceeds or falls below the defined limit value, the actuator immediately moves to the 0% or 100 % position.

Travel

Angle of rotation

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

Travel time prolongation

Range 0...200 seconds, individually configurable for each direction

Dead band time limit

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

Stroke limiting

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

Air supply

Instrument air

Free of oil, water and dust to DIN/ISO 8573-1
Pollution and oil contents according to Class 3
(purity: max. particle size 5 µm, max. particle density 5mg/m³,
oil contents: max. concentration 1 mg/m³;
dew point at least 10 °C below operating temperature)

Supply pressure

1.4...6 bar (20...90 psi)

Caution: Do not exceed the max. operating pressure of the actuator!

Air consumption

< 0.03 kg/h (0.08 scfm) (independent of supply pressure)

Transmission data and influences

Action (output signal or pressure in the actuator)

Direct:	Increasing signal 0...100 mA Increases. pressure OUT1 in the actuator
Reverse:	Increasing signal 0...100 mA Decreases. pressure OUT1 in the actuator

Characteristic curve (travel = f {signal})

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

Characteristic deviation

< 0.5 %

Tolerance band

0.3...10 %, adjustable

Dead band

0.1... 5 %, adjustable

Resolution (A/D conversion)

16,000 steps

Sample rate

20 milliseconds

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 following requirements

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

Environmental capabilities

Ambient temperature

-40 to +85 °C (- 40 to + 185 °F)
for operation, storage and transport

Relative humidity

Operational (with closed housing and air supply switched on):
100 %, condensation permissible
Transport and storage:
75 % (annual average), non-condensing

Case

Material/protection

Aluminum, protection IP 65 (NEMA 4X)

Surface/Color

Electrostatic dipping varnish with epoxy resin, stove-enamelled
Bottom part of case varnished black, RAL 9005, matt,
Cover white aluminum, RAL 9006

Electrical connections

Screw terminals
max. 1.0 mm² for options, max. 2.5 mm² for bus connection
Caution: Do not expose the terminals to strain!

Cable entry
2 threads Pg. 13.5, 1/2-14 NPT or M20x1.5
for cable diameter 6...12 mm
1 with cable gland and 1 with pipe plug

Pneumatic connections

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

Weight

1.7 kg

Mounting orientation

any orientation allowed

Dimensions

see dimensional drawings

Explosion protection

FM/CSA

(pending)

ATEX

II 2G EEx ia II C T6
Type examination certificate TÜV 02 ATEX 1831 X
Type: Intrins. safe equipment
Device class: II 2G (EEx ia IIC)
Temperature class: T4, T5, T6
Permissible ambient temperature:
T4: $-40\text{ °C} \leq T_{\text{amb}} \leq 85\text{ °C}$
T5: $-40\text{ °C} \leq T_{\text{amb}} \leq 55\text{ °C}$
T6: $-40\text{ °C} \leq T_{\text{amb}} \leq 40\text{ °C}$

ATEX

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

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

FISCO ia/ib for group IIB/IIC	FISCO ia/ib for group IIB/IIC	Barrier or power supply unit ia/ib for group IIB/IIC
$V_i = 17.5\text{ V}$	$V_i = 17.5\text{ V}$	$V_i = 24\text{ V}$
$I_i = 380\text{ mA}$	$I_i = 360\text{ mA}$	$I_i = 250\text{ mA}$
$P_i = 5.32\text{ W}$	$P_i = 2.52\text{ W}$	$P_i = 1.2\text{ W}$
rectangular	trapezoidal	linear

Options

Module for the shutdown function

Supply voltage	$V_{\min} = 20 \text{ V}, V_{\max} = 30 \text{ V}$
Safe pos. is activated when	$V < 5 \text{ V}$
AK approval	AK 4 to DIN V 19250
Test report No.	101/S01/148
Explosion protection	EEx ia IIC

In case of a 24 V DC power failure, the positioner can let the valve move to the safe position by depressurizing the actuator independently of the processor. To achieve this, the I/P module power supply is separated by an optocoupler. Both the communication and feedback are still active, since the positioner is powered via the bus line. The shutdown input is electrically isolated from the control signal.

Due to the shutdown function no additional solenoid valves are required. It has a safety certificate from TÜV Rheinland in accordance with AK4. The plug-in module also has an Ex certificate for use in intrinsically safe current circuits.

Mechanical position indicator

- Indicator disk
- Cover with transparent dome
- Symbol stickers
- Extension for the feedback shaft

Digital position feedback with proximity switches*

- 2 proximity switches for min. and max. position (position adjustable within range of 0...100%)
- Current circuit to DIN 19234
- Supply voltage 5...11 V DC
- Control current < 1 mA = switching state logical "0"
- Control current > 3 mA = switching state logical "1"
- (works independently of the software and the electronics of the positioner)

Direction of action (logical state)

Proximity switch	Position			
	< Min.	> Min.	< Max.	> Max.
SJ2-SN (NC)	0	1	1	0
SJ2-S1N (NO)	1	0	0	1

Digital position feedback with 24 V microswitches*

Two 24 V DC/AC microswitches for the min. and max. position. Switching points adjustable between 0 and 100 %
Not approved for use in the hazardous area!

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

* The "digital position feedback" option is directly actuated by the rotating shaft of the positioner and can only be used together with the mechanical position indicator described above.

Accessories

Mounting material

- Attachment kit for linear actuators to DIN/IEC 534 (lateral attachment to NAMUR)
- Attachment kit for rotary actuators to VDI/VDE 3845
- Attachment kit for integral mounting
- Attachment kit for actuator-specific attachment on request

Pressure gauge block

- With pressure gauges for supply and output pressure, Pressure gauges with plastic case Ø 28 mm, with connection block made of aluminum, varnished black inclusive of mounting material for attachment to TZIDC-110.

Filter regulator

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

PC software for remote configuration and operation

- SMART VISION[®], (standard) as CD-ROM
- DTM for operation in an FDT environment
- see data sheet 10/63-1.20

Adapter for bus communication

- see data sheet 10/63-6.41

Spare parts kit

Wiring diagrams

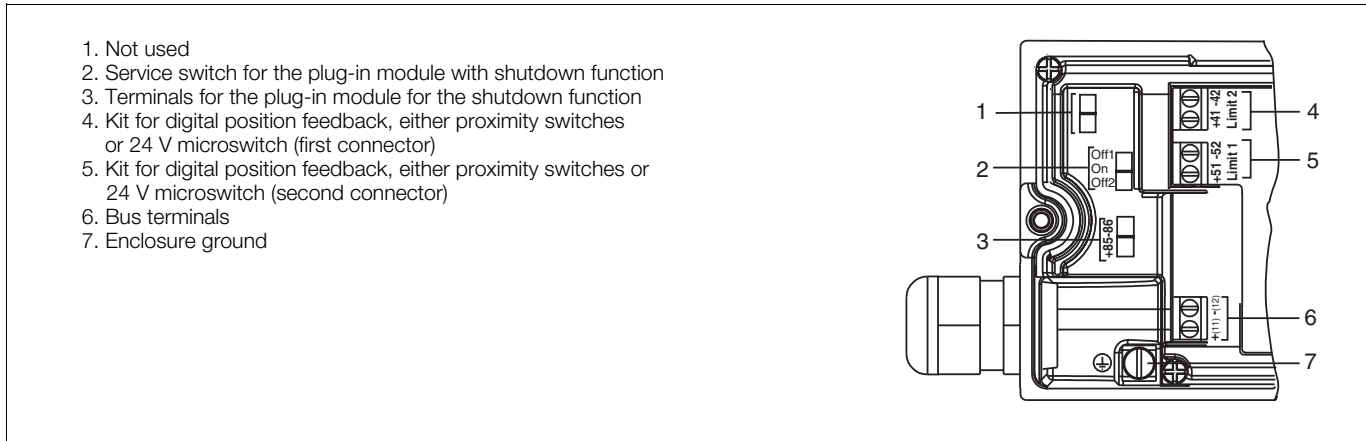


Fig. 8: Electrical connections

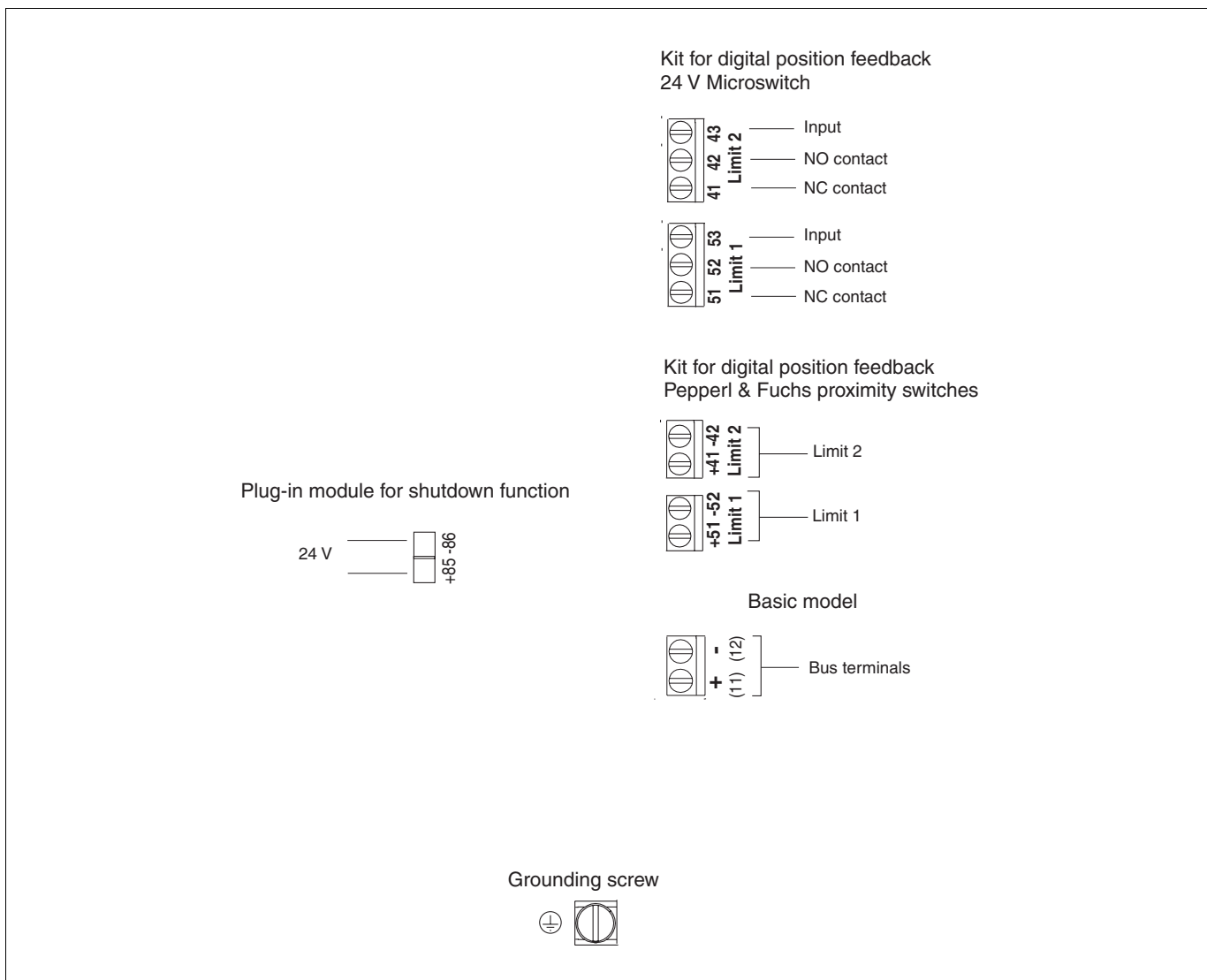


Fig. 9: Terminal assignment

Dimensional drawings (all dimensions in mm)

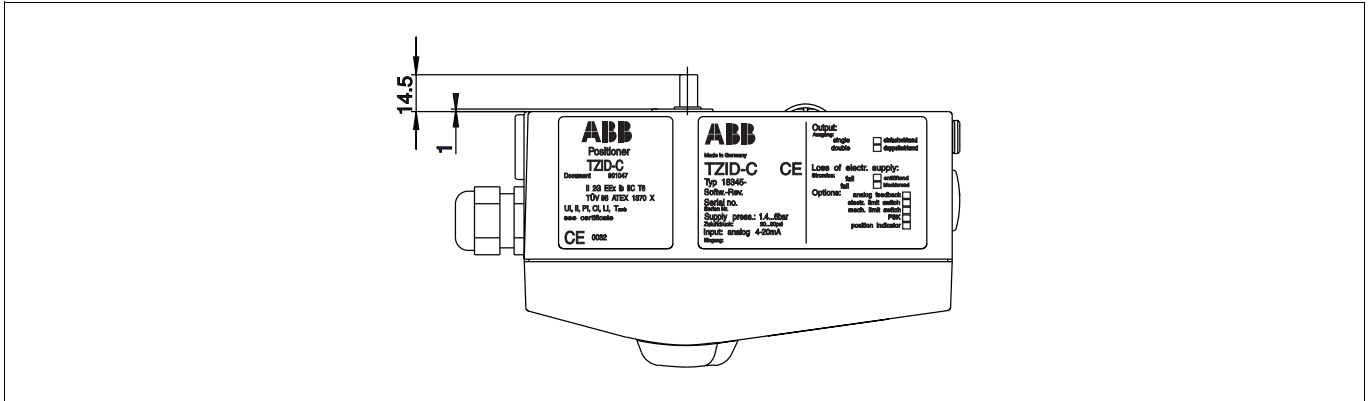


Fig.10: Top view

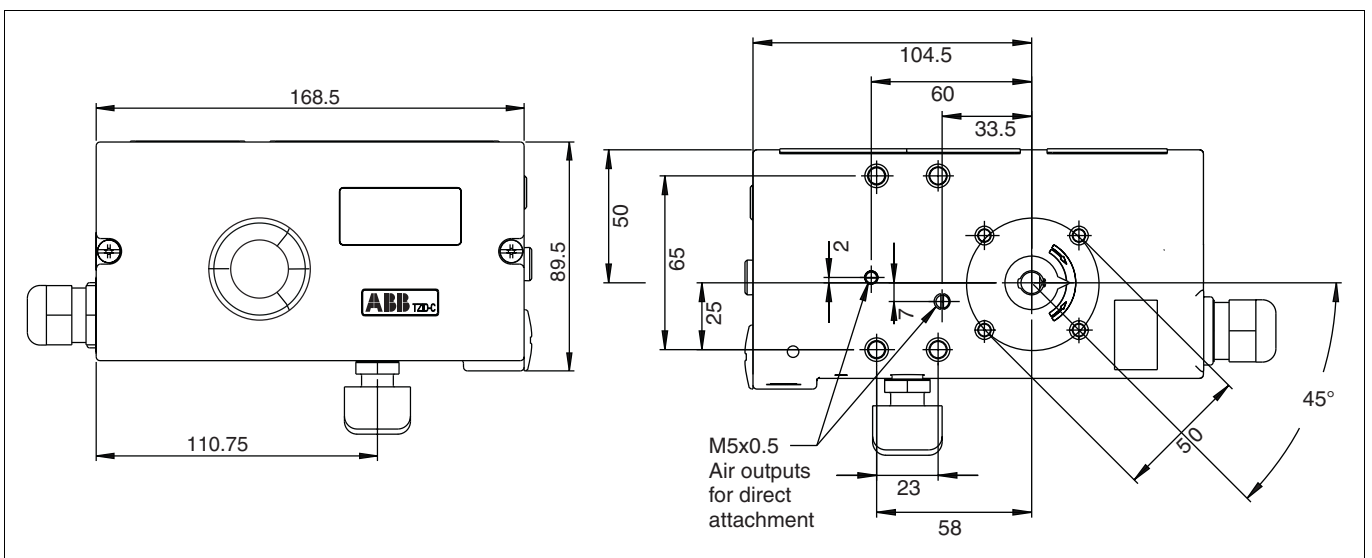


Fig.11: Front view and rear view

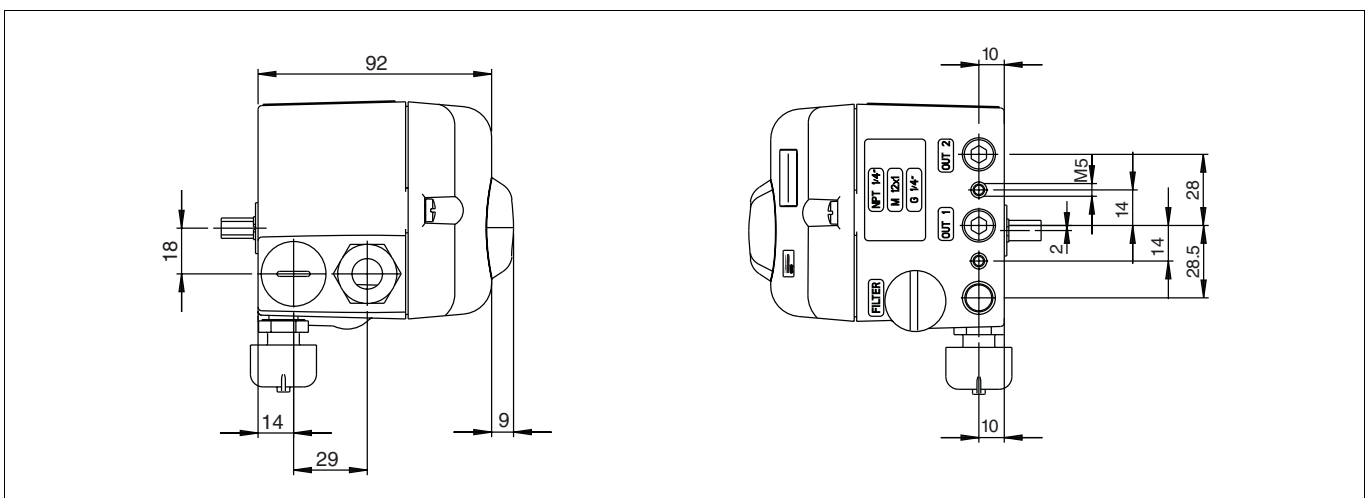


Fig. 12: Side view (from the left and from the right side)

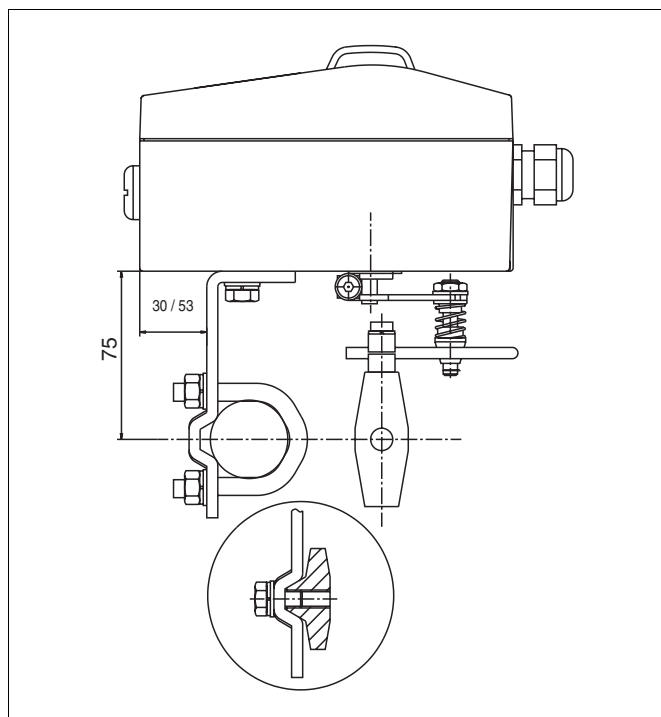


Fig. 13: Mounting to linear actuators to DIN/IEC 534

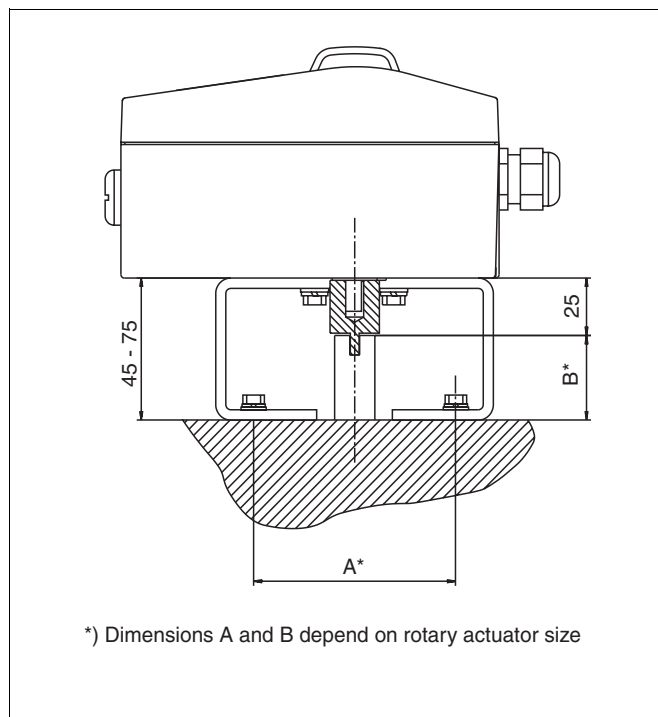


Fig. 14: Mounting to rotary actuators to VDI/VDE 3845

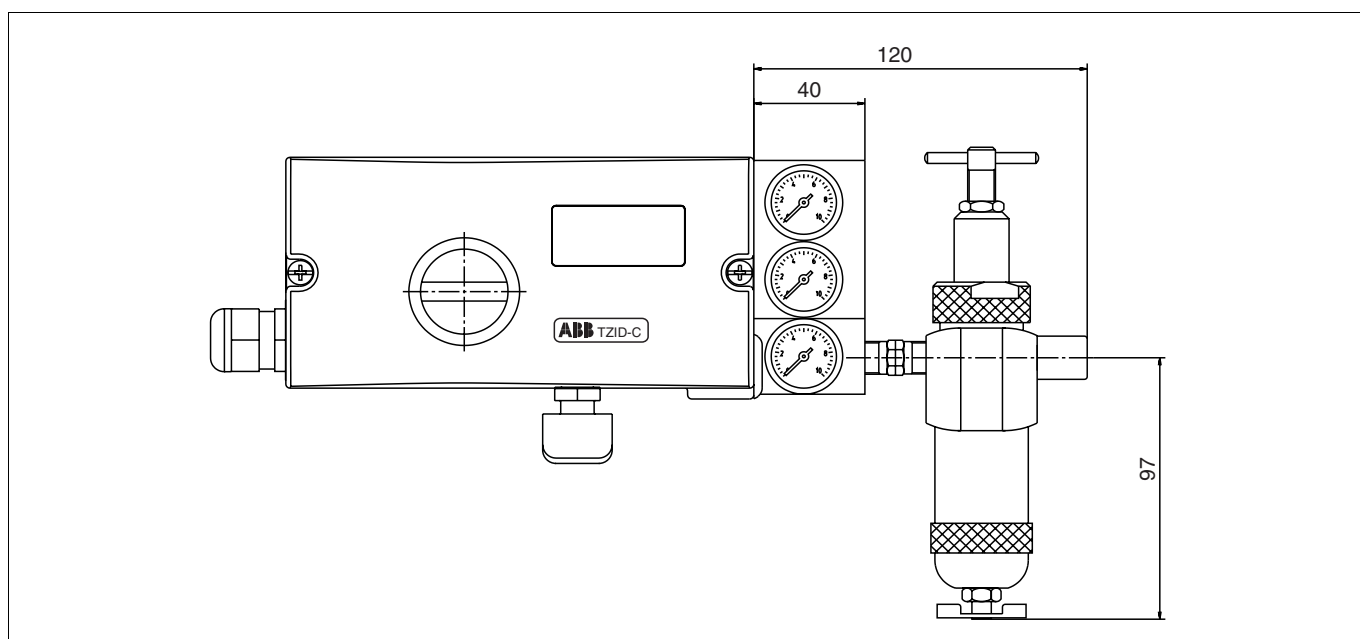


Fig. 15: Positioner TZIDC-110 with pressure gauge block and filter regulator

Ordering information

		Catalog No												
TZIDC-110 Intelligent Positioner electro-pneumatic, configurable with indicator and operator panel		V18346-	0								0			
Case/Mounting Case made of aluminium, varnished, protection IP 65 (NEMA 4X) For mounting to linear actuators acc. to DIN/IEC 534 or to rotary actuators acc. to VDI/VDE 3845, also ready for integral mounting As above, but with mechanical position indicator For mounting to rotary actuators acc. to VDI/VDE 3845 with extended rotation angle up to 270° As above, but with mechanical position indicator			1											
Note: Special mounting material as specified under "Accessories" is required			2											
Input/communication port Profibus PA												3		
Explosion protection without ATEX EEx ia IIC T6 FM/CSA ATEX EEx n A II T6 Explosion protection certificate upon special agreement (on request)													0 1 2 4	
Output/safe position (in case of an electrical power failure) Single acting, fail safe fail freeze Double acting, fail safe fail freeze													1 2 4 5	
Connections Cable: Thread Pg. 13.5 Air pipe: Thread G 1/4 Cable: Thread 1/2-14 NPT Air pipe: Thread 1/4-18 NPT Cable: Thread Pg 13.5 Air pipe: Thread 1/4-18 NPT Cable: Thread M20 x 1,5 Air pipe: Thread M12 x 1 Cable: Thread M20 x 1,5 Air pipe: Thread 1/4-18 NPT Cable: Thread M20 x 1,5 Air pipe: Thread G 1/4														1 2 3 4 5 6
Option modules for analog or digital position feedback Without Plug-in module for shutdown module (temperature: -30°...+60°)													0 4	
Mechanical Kit for digital position feedback (option) Without Mechanical kit for digital feedback of minimum and maximum position ¹⁾ With proximity switches SJ2-SN (NC or logical 1) With proximity switches SJ2-S1N (NO or logical 0) With 24 V DC/AC microswitches (change-over contacts)													0 1 3 5	

¹⁾ only for model with mechanical position indicator

Continued on the next page

Ordering information (continued)

		Catalog No												
TZIDC-110 Intelligent Positioner electro-pneumatic, configurable with indicator and operator panel		V18346-												
Design (varnish/coding)												1 E		
Standard														
Special version chemistry (details on request) As specified (on request)														
Device identification label includes lettering (plain text, max. 16 letters)														
stainless steel 11.5 x 60 mm														
sticker 41 x 32 mm														
sticker 11 x 25 mm														
Note: The kit for digital position feedback (proximity switches) is identical for positioners with or without explosion protection. The 24V microswitches must not be used in hazardous areas.														

Accessories													
		Catalog No											
Mounting material and cost													
Attachment kit for linear actuators (lateral attachment to DIN/IEC 534 or Namur)													
Stroke 10... 35 mm												18391-7959125	
Stroke 20 ... 100 mm												18391-7959126	
Attachment kit for integral mounting to													
23/24 and 23/25 cont. valve DN 15 up to DN 100, stroke 10...35 mm												18391-7959106	
DN 125 up to DN 150, stroke 25...65 mm												18391-7959107	
23/26 control valve DN 25 up to DN 100, stroke 10...35 mm												18391-7959108	
DN 125 up to DN 162, stroke 25...65 mm												18391-7959109	
Attachment kit for rotary actuators (mounting to VDI/VDE 3845), consisting of													
a) Adapter (shaft coupler)												18391-7959110	
b) Mounting bracket, dimensions A/B = 80/20 mm												18391-0319603	
A/B = 80/30 mm												18391-0319604	
A/B = 130/30 mm												18391-0319605	
A/B = 130/50 mm												18391-0319606	
Mounting cost, material and adjustment													
for mounting to linear actuators to DIN/IEC 534													
or to rotary actuators to VDI/VDE 3845													
External tubing with Plastic tube												18391-0319628	
Copper pipe												18391-0319629	
Stainless steel pipe												18391-0319630	
for integral mounting to 23/24, 23/25 or 23/26 control valves													
Internal tubing												18391-0319627	
External tubing ¹⁾ with Copper pipe												18391-7959015	
Stainless steel pipe												18391-7959016	

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

	Catalog No		
Pressure gauge block			
Pressure gauge block, including attachment material			
for single acting TZIDC-110, 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	18381-7959111	
	Output pressure range 0...10 bar/ 0...140 psi	18381-7959112	
1/4-18 NPT connections	Supply pressure range 0...10 bar/ 0...140 psi Output pressure range 0...4 bar/ 0...60 psi	18381-7959113	
	Output pressure range 0...10 bar/ 0...140 psi	18381-7959114	
for double acting TZIDC-110, 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	18381-7959115	
	Output pressure range 0...10 bar/ 0...140 psi	18381-7959116	
1/4-18 NPT connections	Supply pressure range 0...10 bar/ 0...140 psi Output pressure range 0...4 bar/ 0...60 psi	18381-7959117	
	Output pressure range 0...10 bar/ 0...140 psi	18381-7959118	
(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	18381-7959119	
	Thread 1/4-18 NPT	18381-7959120	
(Filter regulators are delivered as separate units for mounting by the customer)			
PC software for digital communication			
SMART VISION® as CD-ROM		s. Data Sheet 63-1.20	
DTM for use under SMART VISION® and in FDT environment		s. Data Sheet 63-1.20	
Option Modules (can be added later)			
Plug-in module for shutdown function		18391-7959199	
Kit for	Mechanical position indicator (including front cover with glass)	18391-7959130	
Kit for	Digital feedback of minimum and maximum position (including front cover with mechanical position indicator)		
	with 24 V DC/AC microswitches (change-over contacts)	18391-7959191	
	with proximity switches SJ2 - SN (NC or logical 1)	18391-7959131	
	SJ2 - S1N (NO or logical 0)	18391-7959132	
Kit for	digital feedback of minimum and maximum position ¹⁾ with 24 V DC/AC microswitches (change-over contacts)	18391-7959190	
	with proximity switches SJ2 - SN (NC or logical 1)	18391-7959133	
	SJ2 - S1N (NO or logical 0)	18391-7959134	
Spare parts			
Spare parts kit		18391-7959198	
I/P-Module (single acting, fail safe) (explosion-proof model, only)		18391-7958510	
I/P-Module (single acting, fail freeze) (explosion-proof model, only)		18391-7958511	
I/P-Module (double acting, fail safe) (explosion-proof model, only)		18391-7958512	
I/P-Module (double acting, fail freeze) (explosion-proof model, only)		18391-7958513	

¹⁾ Only fits for basic model with mechanical position indicator

Your notes

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