

for PROFIBUS PA,
flameproof enclosure

- Low operating cost
- Compact design
- Well-proven technology and intelligence
- Robust and environmentally ruggedized
- Wide operating temperature range -40 ... 85 °C
- Easy to commission, “single pushbutton” operating philosophy
- Mechanical position indicator
- ATEX, FM, CSA, GOST and IECEx approvals
 - flameproof enclosure
 - intrinsically safe



Compact, well-proven, and flexible

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1 Description

The TZIDC-210 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.

1.1 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.

1.1.1 "Fail-safe" function

If the electrical power supply 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.

1.1.2 "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.

1.2 Operation

The positioner has a built-in operating panel providing a 2-line LCD and 4 pushbuttons for optimal local configuration, commissioning and operational monitoring.

Alternatively, the appropriate configuration program and the available communication option can be used.

1.3 Communication

Communication with the TZIDC-210 positioner occurs via PROFIBUS PA.

1.4 Modular design

The TZIDC-210 basic model can be enhanced at any time by retrofitting optional equipment. Option modules for analog or digital position feedback or a shutdown-module can be installed. Additionally, a mechanical position indicator, proximity switches or 24 V microswitches are available for indicating the position independently of the mother board function.

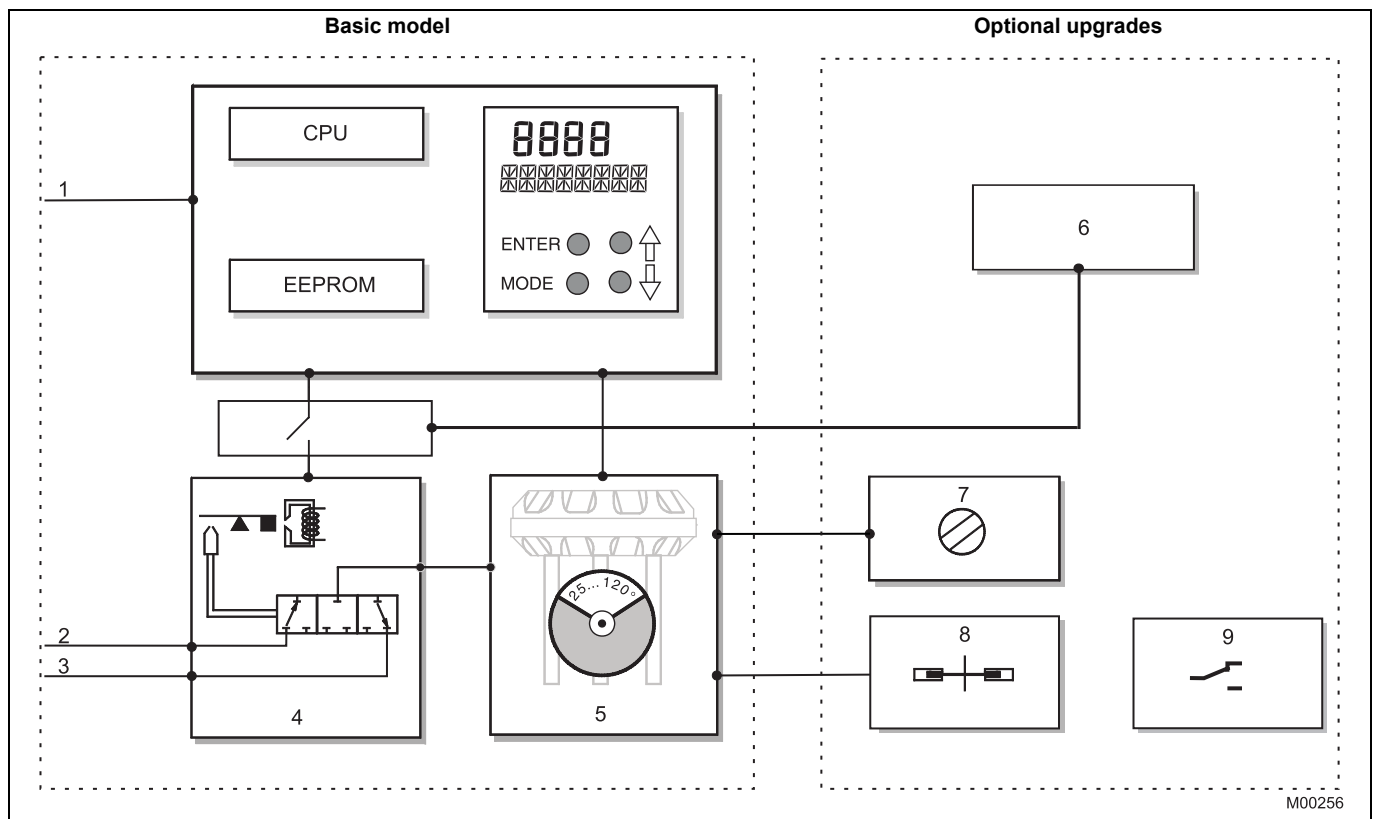


Fig. 1: TZIDC-210 schematic diagram

Basic model

- 1 Bus connector
- 2 Supply, 1.4 ... 6 bar
- 3 Exhaust
- 4 I/P module with 3/3-way valve
- 5 Position sensor (optional up to 270° rotation angle)

Optional upgrades

- 6 Plug-in module for safety shutdown (forced depressurization)
- 7 Mechanical position indicator
- 8 Mechanical feedback with proximity switches
- 9 Mechanical feedback with microswitches 24 V



Note

With optional upgrades either the “mechanical feedback with proximity switches” (8) or the “mechanical feedback with microswitches 24 V” (9) can be used.

In both cases, the “mechanical position indicator” (7) must be installed.

2 Mounting versions

2.1 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.

2.2 To rotary 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 rotary 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.

2.3 Integral mounting to control valves

The TZIDC-210 positioner featuring standard pneumatic action is available as an option for integral mounting.

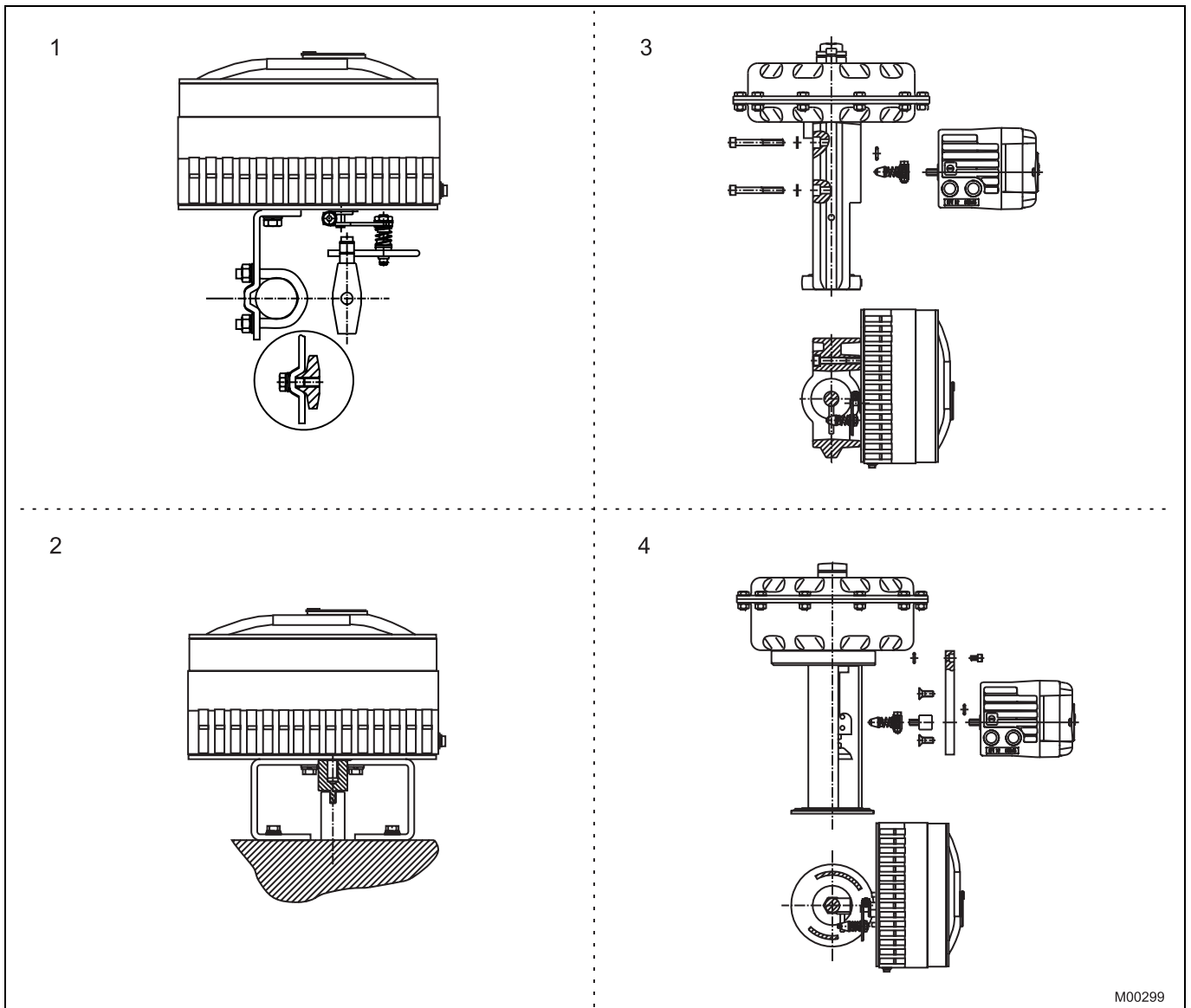
The required holes are found at the back of the device.

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.

2.4 Special actuator-specific mounting

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

Please contact us for details.



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Fig. 2: Mounting options

- 1 Mounting to linear actuators acc. to DIN / IEC 534
- 2 Mounting to rotary actuators to VDI / VDE 3845

- 3 Integral mounting to control valves
- 4 Integral mounting to control valves by using an adapter panel

3 Operation

3.1 General

Microprocessor-based position control in the TZIDC-210 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

3.1.1 Operating parameters

Signal range 0 ... 100%

Subranges are configurable, min. range 20 %

Recommended range > 50 %

Action (positioning signal)

Increasing: Positioning signal 0 ... 100 % = direction 0 ... 100 %

Increasing: Positioning signal 0 ... 100 % = direction 100 ... 0 %

Characteristic curve (travel = f {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.

End Position Behavior

Selection option for behavior when moving into the end position. Either the positioner additionally pressurizes the actuator and reaches full actuating force in the end position, or it continues to control the actuator in the end position and pressurizes the actuator only as much as is required to maintain the 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.



Note

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

Switching points for the position

This parameter allows you to define two position limits for signaling (see option "Module for digital position feedback").

3.1.2 Adjustment parameters

The TZIDC-210 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 (sensitivity)

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

Actuator spring action

Selection of the sensor shaft rotating sense (looking into the open case), if the valve is moved to the safe position by the actuator spring (actuator is depressurized via Y1/OUT1).

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

Display 0 ... 100 %

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

3.1.3 Monitoring parameters

Various functions for permanent operational monitoring are implemented in the TZIDC-210 operating program, e.g.:

- Internal positioning time-out
- Sensor monitoring
- Backup monitoring

While automatic commissioning is in progress, the current state is continuously indicated on the integrated LCD. Remaining messages can be retrieved via the user interface.

The fieldbus enables users to implement enhanced monitoring in the control system. A special window displays the most important process variables ONLINE such as the positioning signal (in %), the position (in %), the control deviation (in %) as well as the status messages.

3.1.4 Diagnosis parameters

The diagnosis parameters of the TZIDC-210 program inform the operator about the operating conditions of the valve.

From this information the operator can derive which maintenance works are required, and when.

Additionally, limit values can be defined for these parameters. When they are exceeded, an alarm is reported.

The following values are e.g. determined:

- Number of movements performed by the valve
- Total travel

The diagnostic parameters and limit values can be called up, set and reset using the configuration program.

3.2 Operator panel

The TZIDC-210 positioner's operator panel with four pushbuttons allows for

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

The operator panel is protected by a hinged cover which can be opened during operation even in hazardous areas, i.e. the positioner can be locally operated any time as required.

3.2.1 Single-button commissioning

Commissioning the TZIDC-210 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:

- 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 the configuration program.

3.2.2 Display

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

During control operation the following TZIDC-210 data can be called up by pressing the pushbuttons briefly:

Up button	Cyclic communication: - Setpoint (%) - Setpoint status
Down button	Acyclic communication: - Status of communication
Enter	Operating mode on the bus and bus address
	Software Version



Fig. 3: TZIDC-210 with removed cover, view of the operator panel

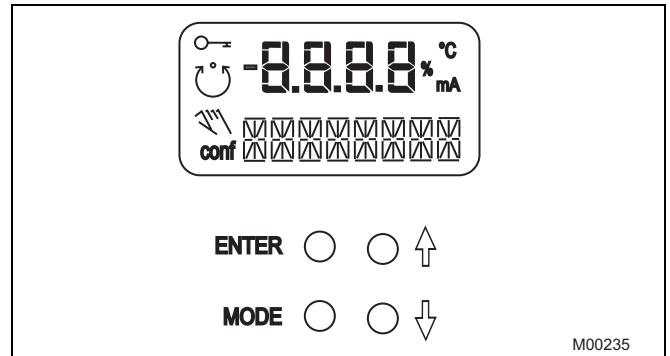


Fig. 4: TZIDC-210 operating elements and display

4 Communication

4.1 General

PROFIBUS is a manufacturer-independent, open fieldbus standard for use in the manufacturing industry and process automation. It is ideally suited for time-critical applications with high transmission rates as well as for complex communication activities. The flexible structure allows the mechanical mount and transmission speed to be easily adapted to the specific application. A standard communication protocol is used on a universal basis.

4.2 PROFIBUS PA

PROFIBUS PA was developed primarily for process automation solutions.

The transmission method (physical layer in the ISO/OSI model) complies with IEC 61158. The power supply for the field devices is provided concurrent with signal transmission via the fieldbus line. PROFIBUS PA is also suited for use in explosion-proof installations.

4.3 Benefits of PROFIBUS communication

- Standardized device profiles ensure interoperability of devices from various manufacturers
- Acyclic access to device data (even during operation) for configuration, diagnostics and service

- High system uptimes based on comprehensive device and bus diagnostics as well as default value strategies in the event of an error
- Support for efficient facility management through provision of operating values

4.4 Positioner TZIDC-210 for PROFIBUS PA

The TZIDC-210 positioner complies with the Profibus PA profile for process devices “Electro-pneumatic actuators V3.0”. This ensures interoperability in connection with third-party control systems.

In conformance with PROFIBUS conventions, data can be output during cyclic data transfer in operating modes AUT, MAN or RCAS and can be written in operating mode O/S (out-of-service).

Newly set parameters are saved in the non-volatile memory directly upon download to the device, and become active immediately.

4.5 Device management for TZIDC-210

For the TZIDC-210, a graphic user interface known as the “DTM” is available. The DTM is based on FDT/DTM technology (FDT 1.2) and can be integrated in a control system as well as a separate PC with the DVS401 configuration software (SMART VISION). The device can thus be commissioned, operated and serviced from a single user interface.

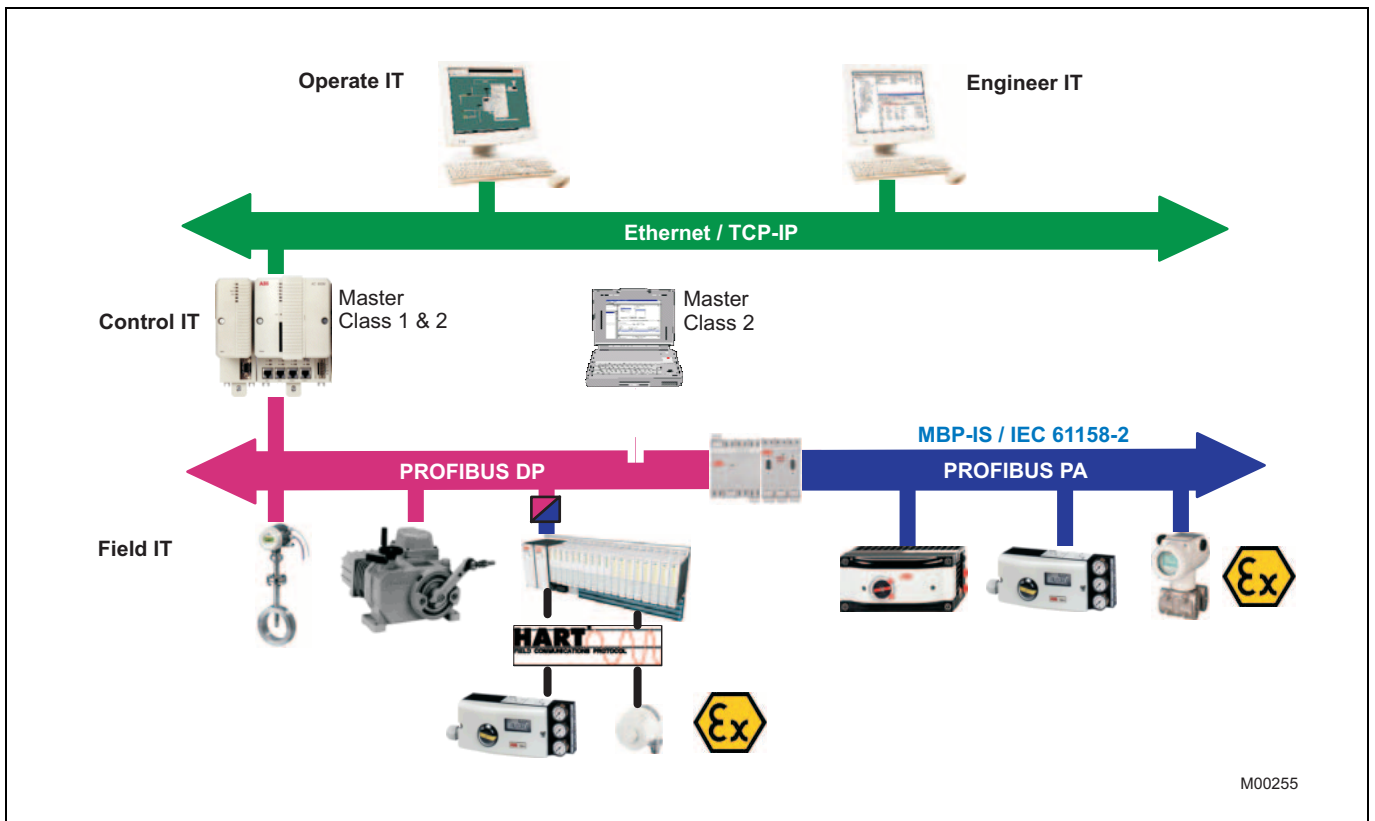


Fig. 5: Communication via PROFIBUS

5 Technical data

5.1 Communication

Profiles	Profibus PA profile for process devices Electro-pneumatic actuators V3.0
Block types	1 AO Functional block 1 Transducer block 1 physical block
Physical Layer	In compliance with IEC 61158-2
Transmission rate	31.25 Kbit/s
Supply voltage	Power feed from the PA bus, 9.0 ... 32.0 V DC
Max. permissible voltage	35 V DC
Power consumption	10.5 mA
Current in the event of an error	15 mA (10.5 mA + 4.5 mA)

5.2 Designation

Device name	TZIDC-210
PNO ID no.	0x0639
Dev. ID	0X3200028xyz
Bus address	Between 0 and 126, default address 126

5.3 Output

Range	0 ... 6 bar (0 ... 90 psi)
Air capacity	at 1.4 bar (20 psi) supply pressure 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
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 %

5.4 Travel

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

Travel time prolongation

Setting range	0 ... 200 seconds, separately for each direction
---------------	--

5.5 Air supply

Instrument air	free of oil, water and dust acc. 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) Note: Do not exceed the max. operating pressure of the actuator!
Air consumption	< 0.1 kg/h / 0.05 scfm (independent of supply pressure)

5.6 Transmission data and influences

Output Y1

Increasing:	Increasing output signal 0 ... 100 % Increasing pressure at output Y1
Increasing:	Increasing output signal 0 ... 100 % Decreasing pressure at output Y1

Action (positioning signal)

Increasing:	Signal 4 ... 20 mA = actuator position 0 ... 100 %
Increasing:	Signal 20 ... 4 mA = actuator position 0 ... 100 %
Characteristic deviation	≤ 0,5 %
Tolerance band	0.3 ... 10 %, adjustable
Dead band	0,1 ... 10 %, adjustable
Resolution (A/D conversion)	> 16000 steps
Sample rate	20 ms
Influence of ambient temperature	≤ 0.5 % per 10 K
Influence of vibration	≤ ± 1 % 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

Not measurable.

Meets the requirements of the following directives

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

5.7 Environmental capabilities

Ambient temperature

For operation, storage and transport: -40 ... 85 °C

When using proximity switches SJ2-S1N (NO): -25 ... 85 °C

Relative humidity

Operational (with closed housing and air supply switched on): 95 % (annual average), condensation permissible

Transport and storage: 75 % (annual average), non-condensing

5.8 Housing

Material/Protections

Aluminum, protection class IP 65 / NEMA 4X

Surface/color

Electrostatic dipping varnish with epoxy resin, stove-hardened. Case varnished black, RAL 9005, matte, housing cover Pantone 420.

Electrical connections

Screw terminals: Max. 1.0 mm² for options, Max. 2.5 mm² for bus connection.

Note: Do not expose the terminals to strain.

Cable entry: 2 tap holes 1/2-14 NPT or M20 x 1.5 (cable gland or pipe plug must be ordered separately)

Pneumatic connections

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

Weight

3,0 kg

Mounting orientation

any orientation allowed

Dimensions

see dimensional drawings

5.9 Explosion protection



Note

The values indicated here are taken from the respective approval certificates.

Always observe the specifications and supplements in the certificates.

(see operating instructions).

FM Approval HLC 7/04 3019164

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

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

CSA Certification 1555690

Explosion proof; enclosure 4X
Temperature range: -40 ... 85 °C
T5, max. 85 °C ; T6, max. 70 °C
CL I; Div 1; Grp. C-D
CL II; Div 1; Grp. E-F-G
CL III

ATEX / GOST Ukraine

Prototype test certificate:

Type:

II 2G EEx d II C T4/T5/T6

DMT 02 ATEX E 029 X

Flameproof enclosure

Device class: II 2G (EEx ib IIC)

Temperature class: T4, T5, T6

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 80 °C

T6: -40 °C < T_{amb} < 65 °C

ATEX

Prototype test certificate: TÜV 02 ATEX 1831 X

Type: Intrinsically safe equipment

Device class: II 2G (EEx ia IIC)

Temperature class: T4, T5, T6

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

IECEX

Prototype test certificate: IECEX TUN 04.0015X, Issue no.: 0

Type: Intrinsically safe

Temperature class: T4, T5, T6

Permissible ambient temperature: T4: -40 °C < T_{amb} < 85 °C

T5: -40 °C < T_{amb} < 55 °C

T6: -40 °C < T_{amb} < 40 °C

Signal circuit for PROFIBUS PA only for connecting a certified intrinsically safe circuit (e.g., FISCO power supply or barriers) with max. values acc. to:

	FISCO power supply ia/ib for Grp. IIB/IIC	FISCO power supply ia/ib for Grp. IIB/IIC	Barriers or power supply ia/ib for Grp. IIB/IIC
Voltage	U _i = 17.5 V	U _i = 17.5 V	U _i = 24 V
Current	I _i = 380 mA	I _i = 360 mA	I _i = 250 mA
Power	P _i = 5.32 W	P _i = 2.52 W	P _i = 1,2 W
Characteristic	rectangular	trapezoidal	linear

5.10 Options

Module for the emergency shutdown function

Supply voltage: 24 V DC (20 ... 30 V DC)
(galvanically isolated from input signal)

Safe position is activated when voltage < 5 V

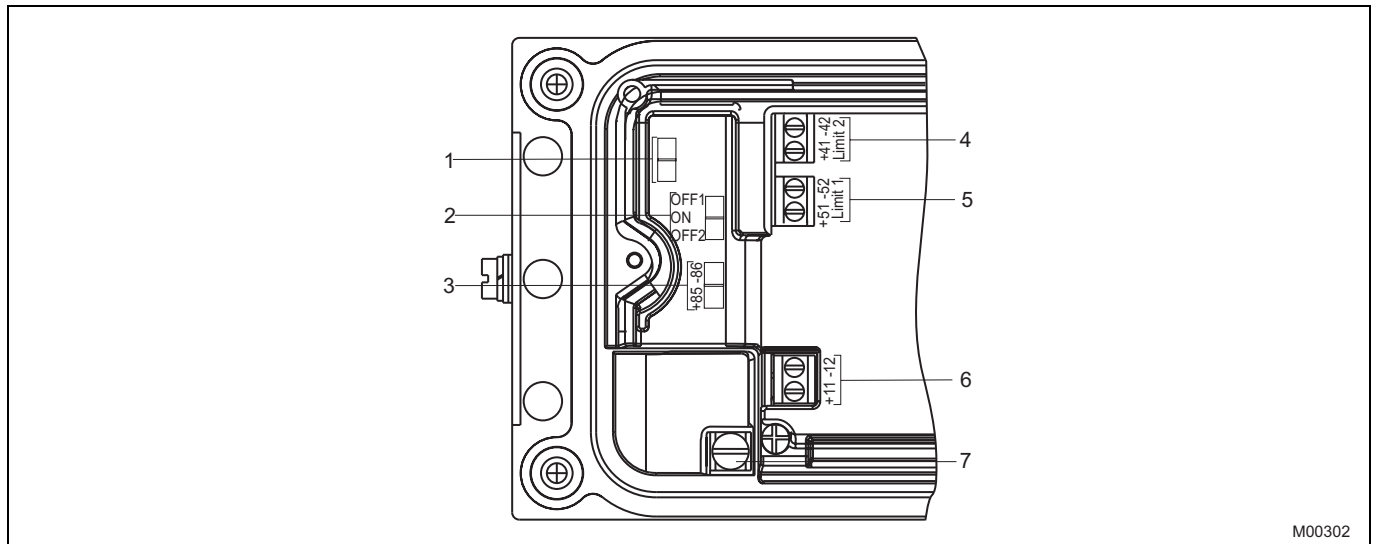
Explosion protection: see certificate (operating instructions)

A separate 24 V DC signal is normally applied to the emergency shutdown module, which connects through the signal from the microprocessor to the I/P module.

When the 24 V DC signal is interrupted, the pneumatic module executes the respective safety function, depending on the mechanical construction:

The positioner output Y1 is depressurized, and the valve is moved to the safe position. In case of a double-acting actuator the second output Y2 is additionally pressurized.

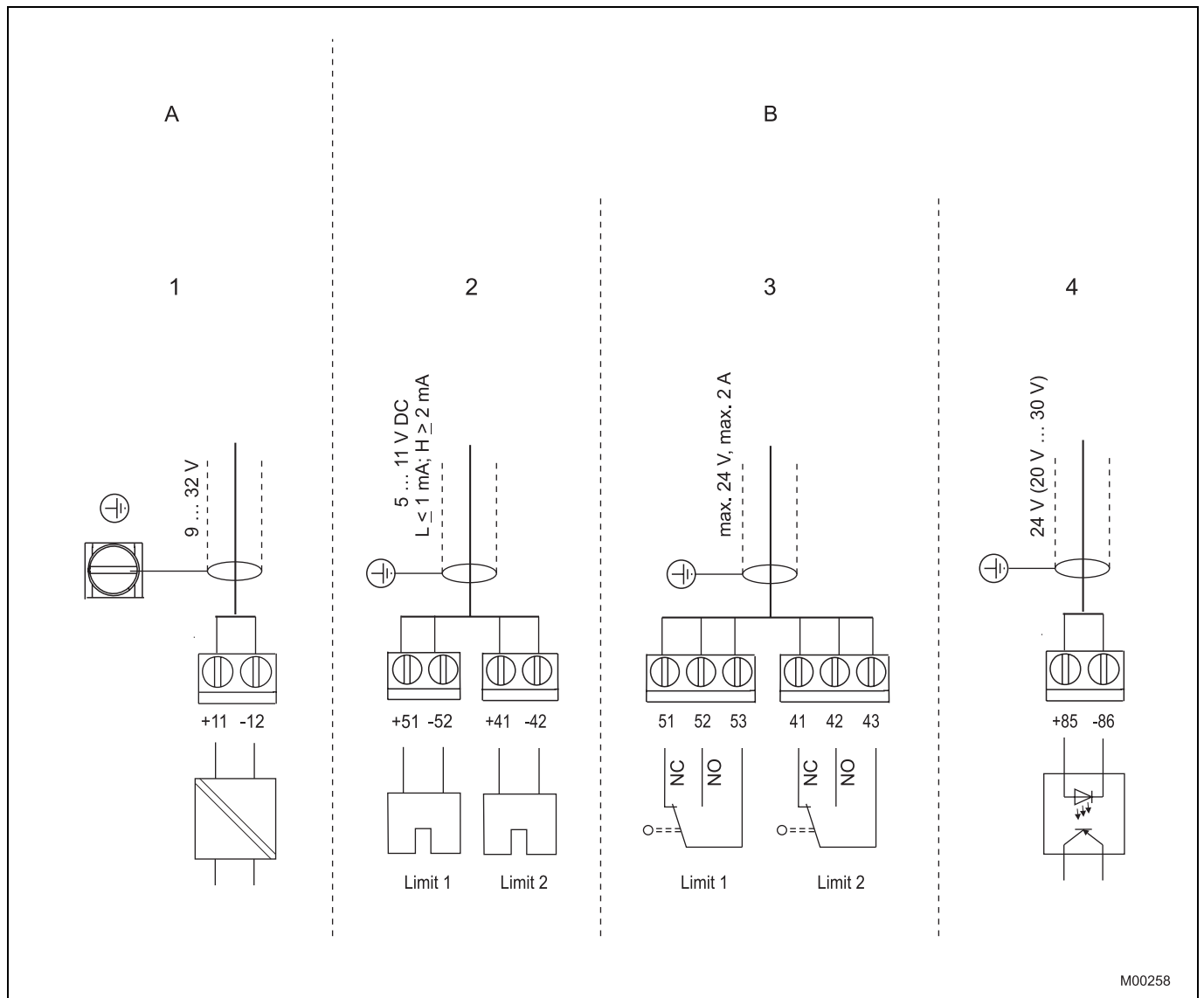
6 Electrical connection



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Fig. 6: Screw terminals, overview

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



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Fig. 7: Pin configuration

A Basic model
B Options

- 1 Fieldbus, bus feed
- 2 Proximity switches
- 3 Microswitches
- 4 Emergency shutdown module



Note

Keep cable shields as short as possible and connect on both sides.

7 Dimensions

All dimensions in mm (inch)

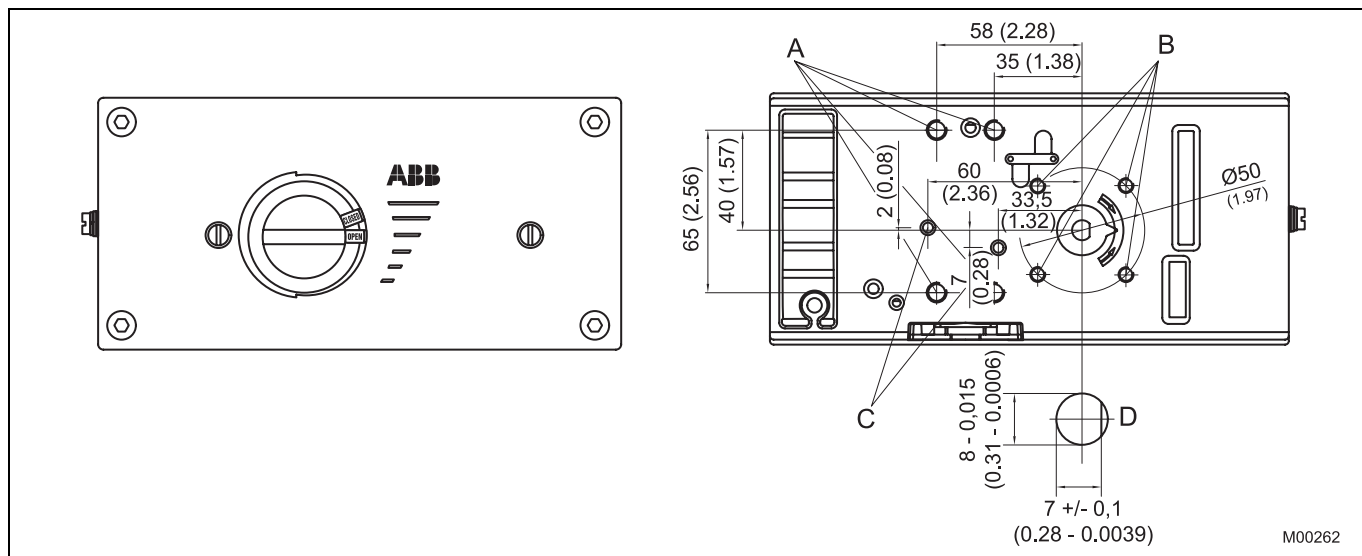


Fig. 8: Top view

- A Tap hole M8 (10 mm low)
- B Tap hole M6 (8 mm low)

- C Tap hole M5 x 0.5 (air connections in version for integral mounting)
- D Sensor shaft (larger than scale)

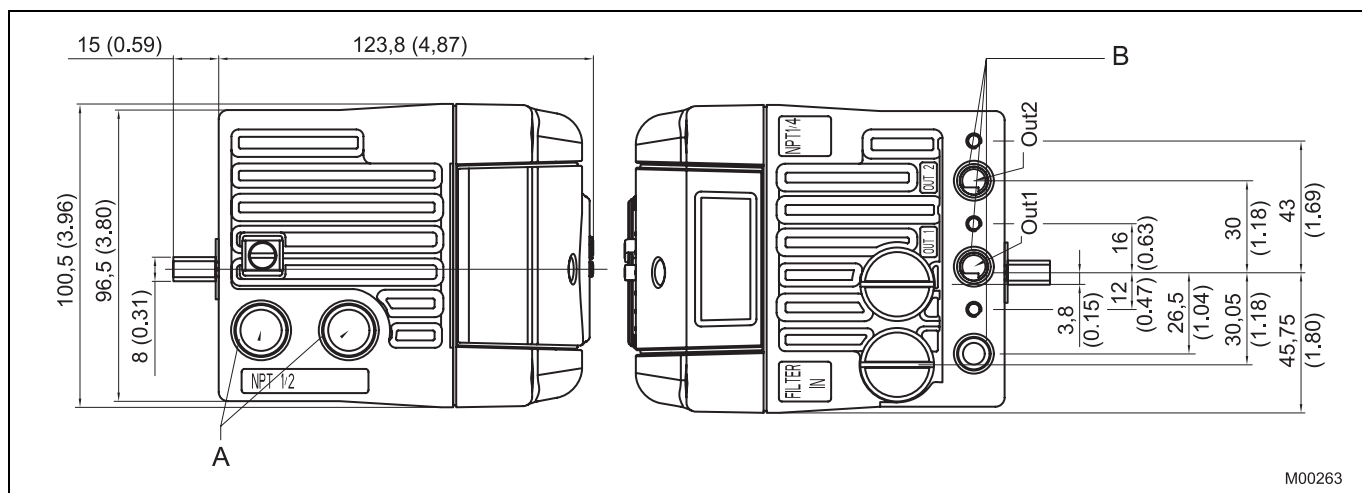


Fig. 9: Left and right side view

- A NPT 1/2" or M20 x 1.5

- B Pneumatic connections, NPT 1/4" -18 or G1/4"

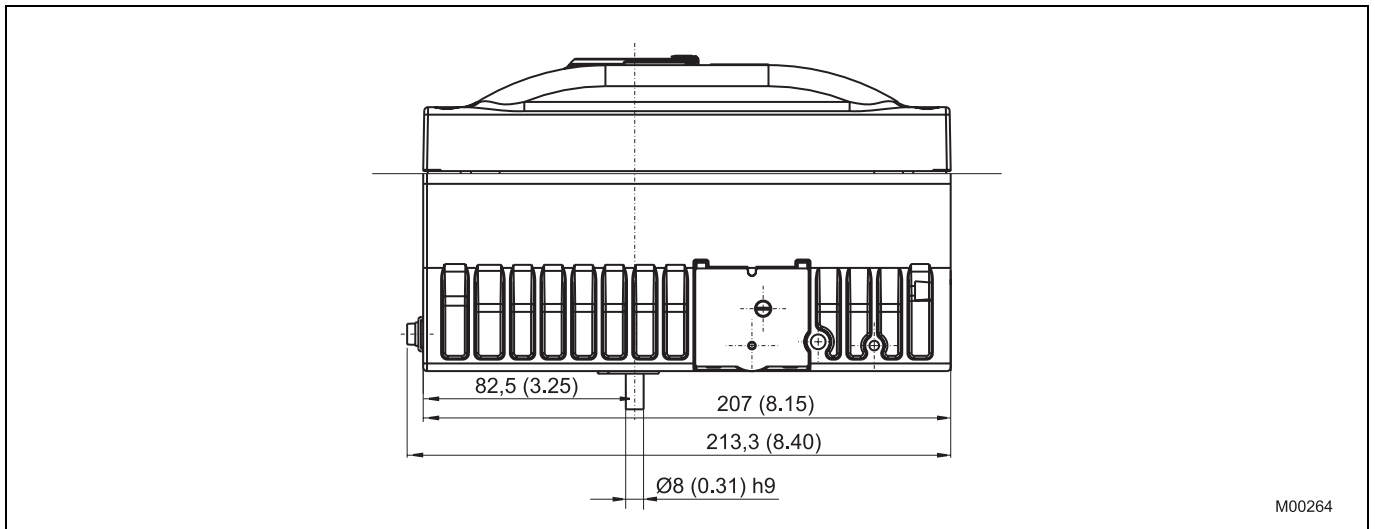


Fig. 10: Bottom view

A Pneumatic connections, NPT 1/4"-18 or G1/4"

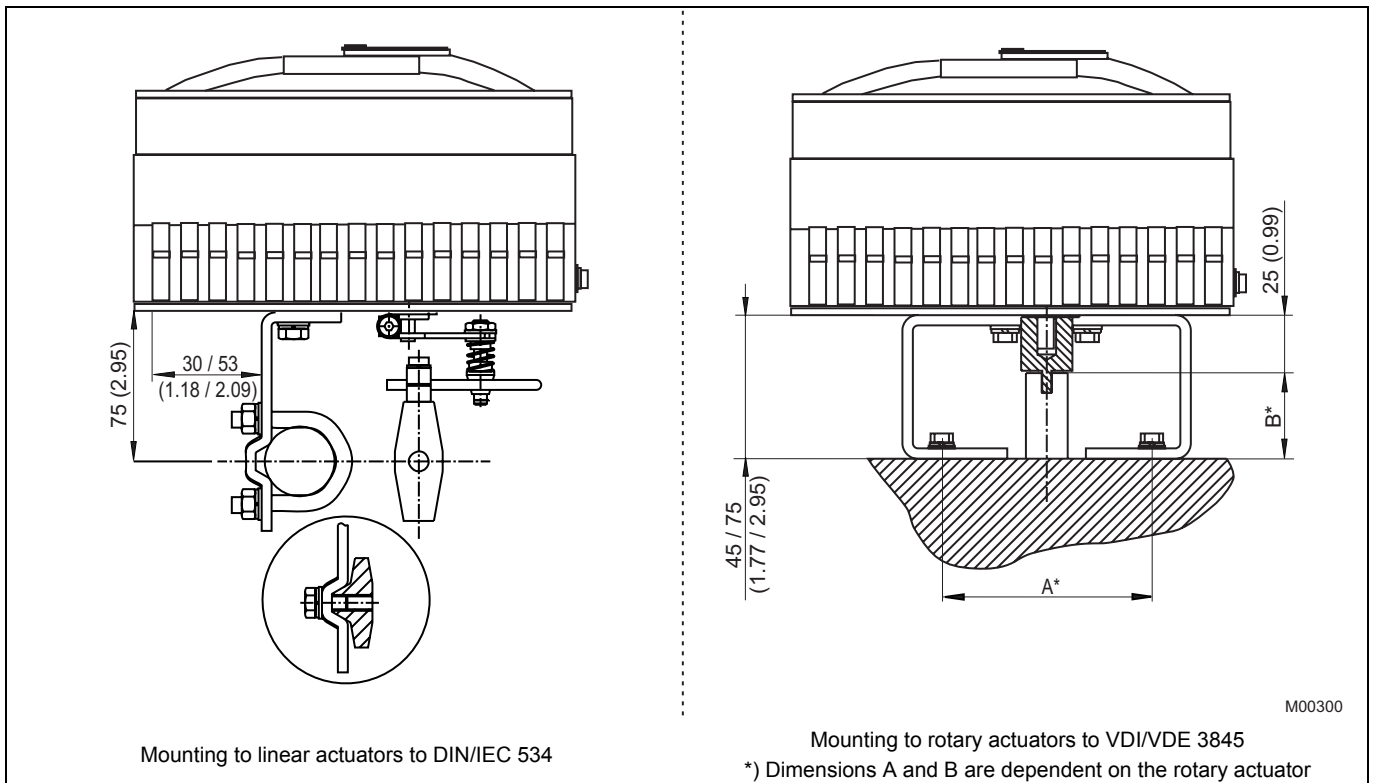


Fig. 11: Mounting drawings

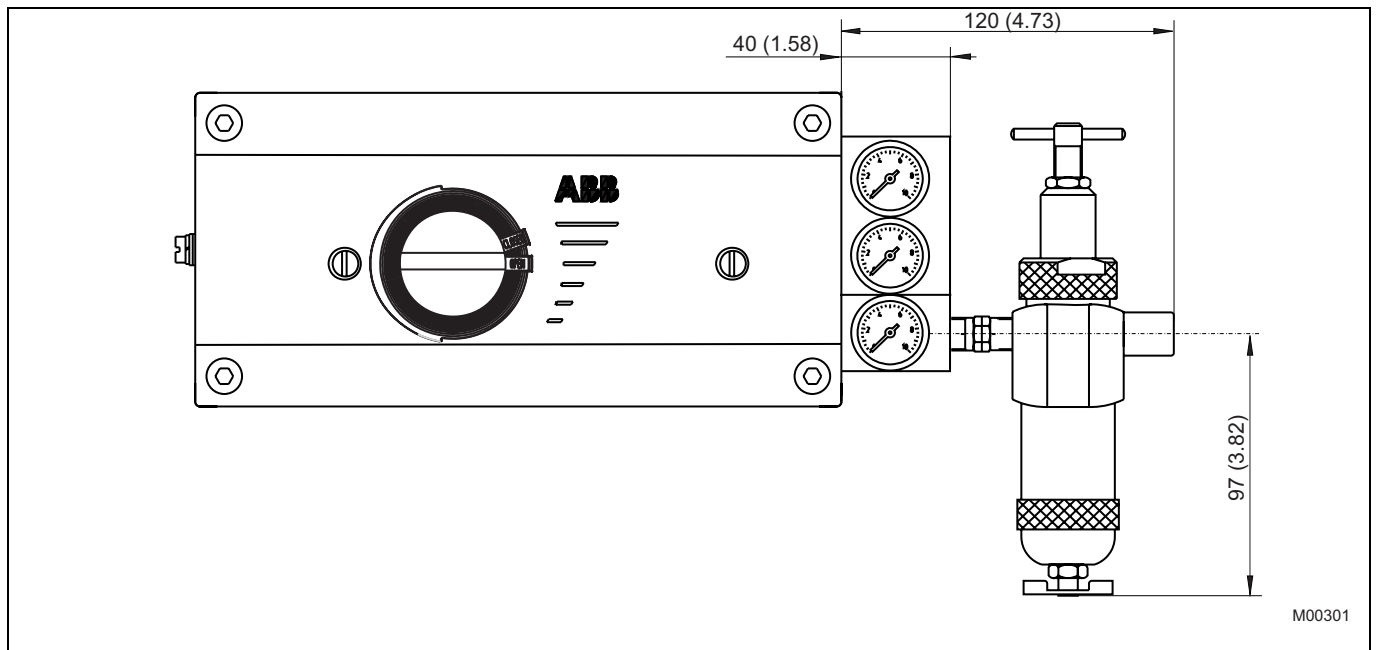


Fig. 12: Positioner TZIDC-210 with pressure gauge block and filter regulator

8 Ordering information

Electro-Pneumatic Positioner TZIDC-210 for PROFIBUS PA, intelligent, software-configurable	Variant digit No. Catalog No.	1	7	8	9	10	11	12	13	14	15	16	17	18	Code			
	V18349-			0									3					
Case / Mounting																		
Case made of aluminium, varnished, protection IP 65 (NEMA 4X)																		
for mounting to linear actuators acc. to DIN/IEC 534 / NAMUR																		
or to rotary actuators acc. to VDI/VDE 3845																		
as above, but with mechanical position indicator																		
for integral mounting to control valves																		
as above, but with mechanical position indicator																		
for mounting to rotary actuators acc. to VDI/VDE 3845																		
with extended rotation angle up to 270°																		
as above, but with mechanical position indicator																		
See Options/Accessories for customer-specific mounting																		
Please specify the actuator type and type of mounting																		
Note:																		
Special mounting material is required																		
(see "Accessories")																		
Operation																		
with operator panel and display integrated in the enclosure cover																		
1																		
Explosion protection																		
ATEX Ex II 2 G EEx d IIC T4, T5, T6																		
FM/CSA Class 1, Div. 1, Group C-D (explosion-proof)																		
ATEX EEx ia IIC T6 and EEx d IIC T4, T5, T6																		
IECEX Ex ia IIG T6																		
Other explosion protection certificate upon request																		
1)																		
1																		
2																		
3																		
5																		
Output / safe position (in case of an electrical power failure)																		
Single acting, fail safe																		
fail freeze																		
Double acting, fail safe																		
fail freeze																		
1																		
2																		
3																		
4																		
Connections																		
Cable: Thread M20 x 1.5 Air pipe: Thread G 1/4																		
Cable: Thread M20 x 1.5 Air pipe: Thread 1/4-18 NPT																		
Cable: Thread 1/2-14 NPT Air pipe: Thread 1/4-18 NPT																		
2)																		
1																		
2																		
3																		
Option module for shutdown function																		
without																		
Plug-in module for shutdown function																		
3)																		
0																		
5																		
Optional mechanical kit for digital position feedback																		
without																		
Mechanical kit for digital position feedback																		
with proximity switches SJ2-SN (NC or logical 1)																		
with proximity switches SJ2-S1N (NO or logical 0)																		
with 24 V DC/AC microswitches (change-over contacts)																		
4)																		
5)																		
0																		
1																		
2																		
3																		
Design (varnish / coding)																		
Standard																		
As specified (on request)																		
1																		
2																		
Device identification label																		
(provide list, if available)																		
without																		
label including text (plain text, max. 16 letters)																		
with separate sticker																		
with separate stainless steel label 18.5 x 65 mm																		
0																		
1																		
2																		

Continued on next page

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

8.1 Additional ordering information

TZIDC-210		Code			
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			
Inspection certificate	3.1 acc. to EN 10204 with max. deviation	CBA			

8.2 Order information, accessories 1a

	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 rotary actuators (mounting to VDI/VDE 3845)					
consisting of:					
a) Adapter (shaft coupler)	7959110				
b) Mounting bracket					
dimension A/B = 80/20 mm	319603				
dimension A/B = 80/30 mm	319604				
dimension A/B = 130/30 mm	319605				
dimension A/B = 130/50 mm	319606				

Continued on next page

8.3 Order information, accessories 1b

TZIDC-210		Catalog No.	Code			
Pressure gauge block including attachment material						
for single acting TZIDC-210	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			
		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			
		0...10 bar/ 0...140 psi	7959114			
for double acting TZIDC-210	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			
		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			
		0...10 bar/ 0...140 psi	7959118			
(Pressure gauge blocks are delivered as separate units for mounting by the customer)						
Filter regulator, brass incl. material for mounting						
connections	to pressure gauge block					
	thread G 1/4	7959119				
	thread 1/4-18 NPT	7959120				
(Filter regulators are delivered as separate units for mounting by the customer)						
Operating program for digital communication						
DSV401 (SMART VISION)		on CD-ROM	see Data Sheet 10/63-1.20 EN			
EEx d cable glands		6)				
1 x EEx d cable gland M20 x 1.5,						
1 pipe plug M20 x 1.5, securing adhesive		7959244				
2 x EEx d cable glands M20 x 1.5,						
securing adhesive		7959245				
1 x EEx d cable gland 1/2" NPT,						
1 pipe plug 1/2" NPT, securing adhesive		7959246				
2 x EEx d cable glands 1/2" NPT,						
securing adhesive		7959247				

6) for cable diameter 7.2...11.7 mm

8.4 Order information, accessories 2

TZIDC, TZIDC-110, TZIDC-120, TZIDC-200, TZIDC-210, TZIDC-220			Catalog No.			
Attachment kit for	Manufacturer / Type					
Air Torque	SC 30	9)	319604			
Air Torque	SC-P-60-4	9)	319604			
Air Torque	SR 30	9)	319603			
ARI	DP32, DP33, DP34		7959125			
AMG	SAD 010 ... SAF 040	9)	319603			
AMG	SAD 040 ... SAF 050	9)	319605			
ARCA	812 stroke 30 mm		7959107			
ARCA	812 stroke 60 mm		7959106			
ARCA	813 stroke 30 mm		7959109			
ARCA	813 stroke 60 mm		7959108			
Automax	DA 85 ... DA150	9)	319603			
Badger Meter	ATC 754/755		7959123			
bar	GTE / GTD 045 ... 127	9)	319604			
bar	GTE / GTD 143 ... 254	9)	319605			
Bray	92 / 93 series	9)	319603			
Conovalve	Series 740.000 / 750.000 / 770.000 / 795.000		7959125			
El-O-Matic	ED / ED / PE / PD 500 ... 4004	9)	319605			
El-O-Matic	ED / ED / PE / PD 25 ... 350	9)	319603			
FESTO	DRD-4-F05 ... DRD-50F10	9)	319603			
FESTO	DRD-77-F10 ... DRD-255-F14	9)	319605			
Fisher	1051-30, 1052-30		7959214			
Fisher	1061 size 130		7959206			
Fisher	471		7959195			
Fisher	585 C		7959250			
Fisher	657 / 667 Size 10 ... 30 mm		7959177			
Flow Serve	DA 85 ... 150	9)	319603			
Foxboro	FoxPak IP127 / V725		7959168			
Foxboro	V713 stroke 10 ... 35 mm		7959125			
Foxboro	V713 stroke 25 ... 90 mm		7959126			
GEFA	AC 020 ... AC 1750	9)	319604			
GEFA	MC 063 FA	9)	319603			
GEMÜ	690/25 and 50		7959103			
GEMÜ	CleanStar		7959125			
Gulde	DK		7959161			

9) need additional Adapter (Shaft Coupler), Catalog No. 7959110

8.5 Order information, accessories 3

TZIDC , TZIDC-110, TZIDC-120, TZIDC-200, TZIDC-210, TZIDC-220		Catalog No.			
Attachment kit for	Manufacturer / Type				
Honeywell	600-11, 600-15				7959126
Hytork	XL26 ... XL680	9)			319603
Hytork	XL1125, XL1370, XL2585, XL4580	9)			319605
Keystone	79U/E-002(S) ... 79U/E-181(S)				7959147
Mapag	A/F 30 ... A/F 500	9)			319603
Masoneilan	CAMFLEX II, VARIMAX, MINITORK II				7959144
Masoneilan	VariPak 28000 series				7959163
MaxFlo	MaxFlo				7959140
NAF	791290				7959207
NAMUR	stroke 10 ... 35 mm				7959125
NAMUR	stroke 25 ... 90 mm				7959126
NAMUR	stroke 100 ... 170 mm				7959339
NELES	B1JU8, B1J8U, B1CU9/20E, B1CU17/55, B1CU13-32, B1C6U-20U, 1JAU10/20, BC6U-20U	9)			319603
NELES	BC6-20, B1C6-20, BJ8-20, B1J8-20				7959146
Norbro	10AR40, 20BR40, 20AR40, 20RDA40, 15AR40, 15BR40	9)			319603
Norbro	25AR40, 25BR40, 35AR40, 35BR40, 33-40, 30AR40	9)			319604
Norbro	45BR40, 45AR40	9)			319606
Prisma	PP10, PP20	9)			319604
Prisma	PPW	9)			319603
Remote Control	RCD 05-DA/SR ... RCD 60-DA/SR	9)			319603
Revo	FD/FS 12, 25, 50	9)			319603
Revo	FD/FS 90, 130, 180, 205, 306	9)			319605
Richter	RA-1/2 046 ... RA-1/2 127	9)			319604
Richter	RA-1/2 185 ... RA-1/2 300	9)			319605
Samson	241, 271, 3271				7959145
Samson	3277				7959136
Schubert&Salzer	GS 8020 / 8021 / 8023				7959200
SED	SED stroke 100 mm				7959141
VDI / VDE 3845	80 / 20 mm	9)			319603
VDI / VDE 3845	80 / 30 mm	9)			319604
VDI / VDE 3845	130 / 30 mm	9)			319605
VDI / VDE 3845	130 / 50 mm	9)			319606

9) need additional Adapter (Shaft Coupler), Catalog No. 7959110

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