Data Sheet
10/18-0.33 EN

Electro-Pneumatic Positioner TZIDC-210

for PROFIBUS PA,
with flameproof enclosure

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

Compact, well-proven, and flexible

Short description

TZIDC-210 is an electronically configurable positioner with communication capabilities, mounting to pneumatic linear or rotary actuators. It features a flameproof enclosure, 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-210 positioner is realized via a PROFIBUS PA.

Modular design

The TZIDC-210 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.

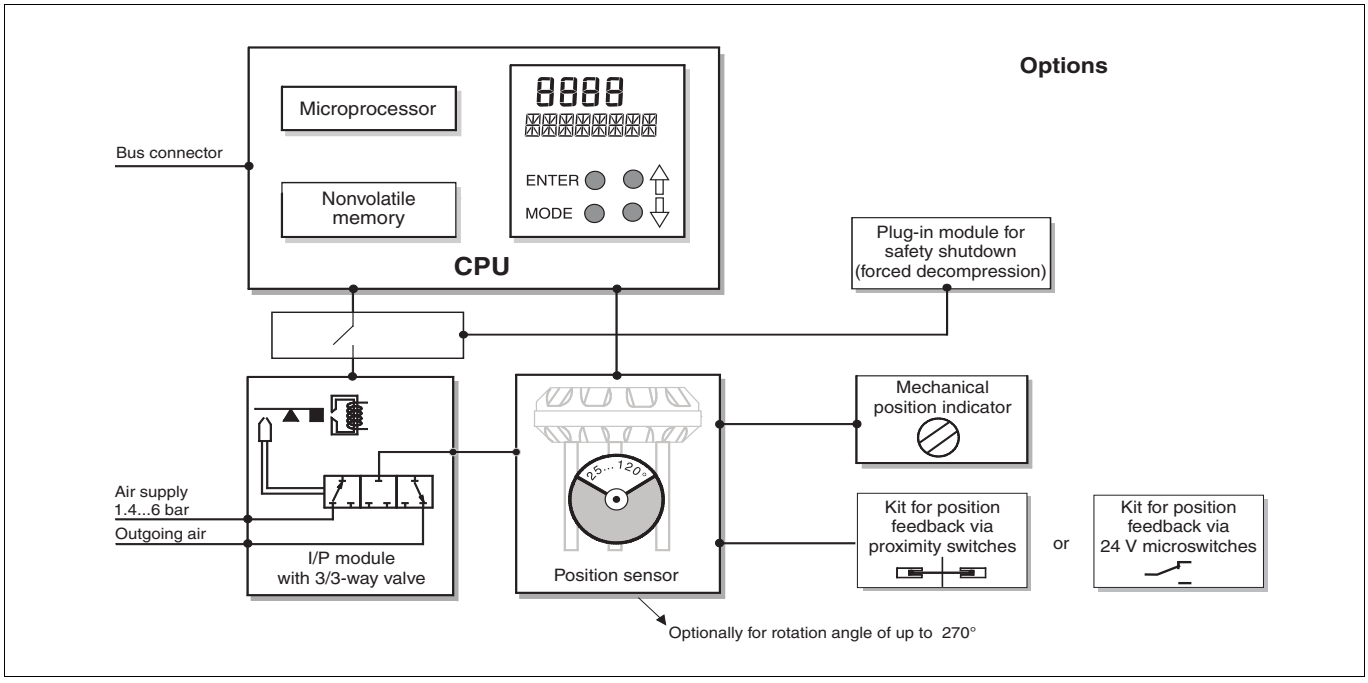


Fig. 1: TZIDC-210 schematic diagram

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-210 positioner designed for integral mounting with the required threaded holes at the back (see Fig. 11: Front view and rear view) is also available. The benefit of this design is that the point for mechanical stroke measurement is protected and that the positioner and actuator are linked internally. No external tubing is required.

Special actuator-specific mounting

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

Please contact us for details.

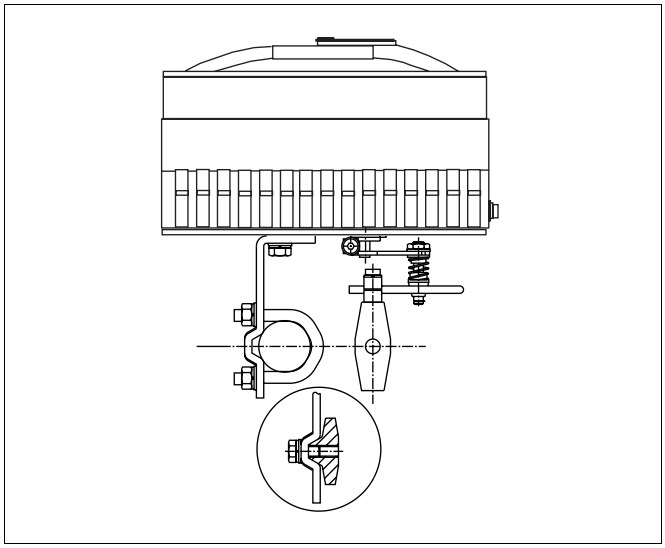


Fig. 2: Mounting to linear actuators to DIN/IEC 534 / NAMUR

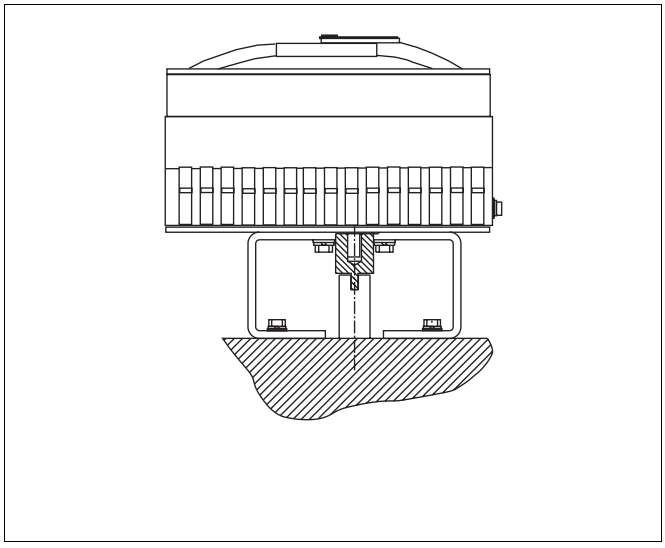


Fig. 4: Mounting to rotary actuators to VDI/VDE 3845

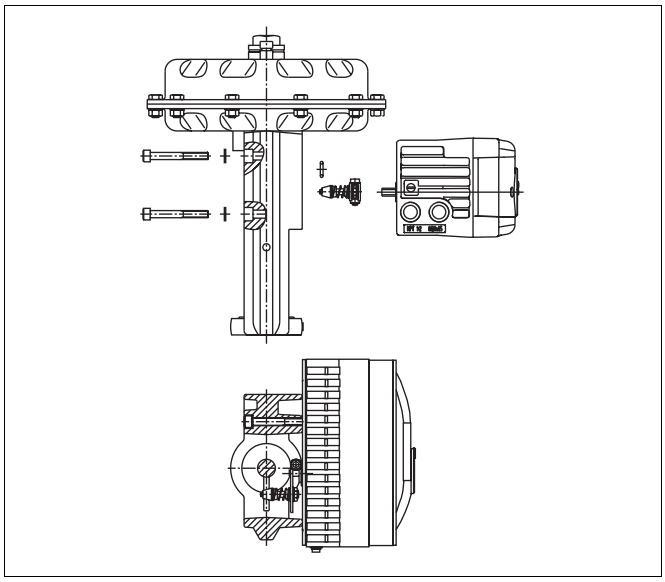


Fig. 3: Integral mounting to control valves

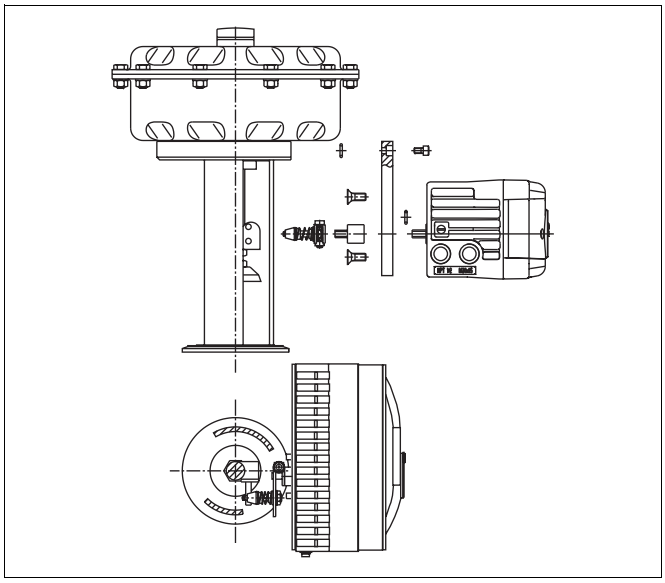


Fig. 5: Integral mounting to control valves by using an adapter panel

Operation

General

Microprocessor-based position control in the TZIDC-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

Operating parameters

The following operating parameters can be set manually if required:

- **Signal range 0...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-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 OUT1). For double-acting actuators the actuator spring action corresponds to pressurizing the pneumatic output (OUT2).
- **Display 0...100 %**
  Adjusting the display (0...100 %) according to the direction of action for opening or closing the valve.

Monitoring parameters

Various functions for permanent operational monitoring are implemented in the TZIDC-210 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 and a DTM.

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

Operator panel

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

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

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

Fig. 6: TZIDC-210 with open cover, view of the operator panel

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: turning counter-clockwise for linear and clockwise for rotary actuators.

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

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-210 data can be called up by pressing the push-buttons briefly:

Up arrow button	Cyclic communication: - setpoint value (%) - setpoint state Acyclic communication: - communication state
Down arrow button	Operating mode on the bus and bus address
ENTER	Software revision

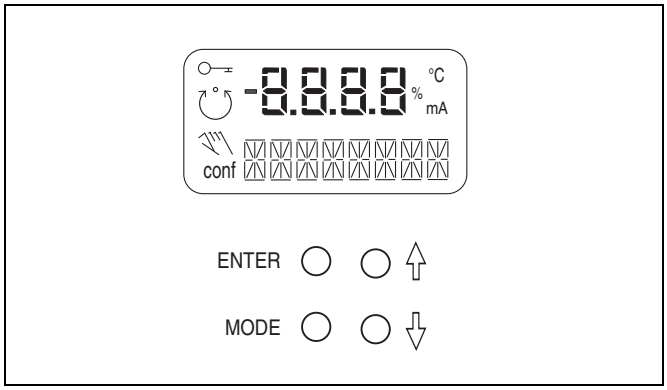


Fig. 7: TZIDC-210 operating elements and display

Communication

General

PROFIBUS is a vendor-independent, open field bus standard for manufacturing and process automation applications. It is ideal for both high-speed time critical applications and complex communication tasks. The flexible structure allows you to easily adapt the mechanical construction and the transmission rate to the respective application. The same communication protocol is used consistently.

PROFIBUS PA

PROFIBUS PA has been designed primarily for process automation solutions. 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. PROFIBUS is also suitable for use in plants with explosion protection.

User benefits from using PROFIBUS

- Interoperability of process devices from different vendors due to standardized device profiles.
- 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.

Positioner TZIDC-210 for PROFIBUS PA

The positioner TZIDC-210 complies with the PROFIBUS PA Profile for Process Control Devices “Electro-Pneumatic Actuators V 3.0”. This ensures trouble-free use in control systems from different vendors.

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.

Device Management for TZIDC-210

A graphical user interface called the “DTM” (Device Type Manager) is available for the TZIDC-210 positioner. It is based on the FDT/DTM technology (FDT 1.2) and can be integrated in a process control system or loaded in a stand-alone PC with the DSV401 (SMART VISION) program. This allows you to work with the same user interface in the commissioning phase, during operation, and for service tasks.

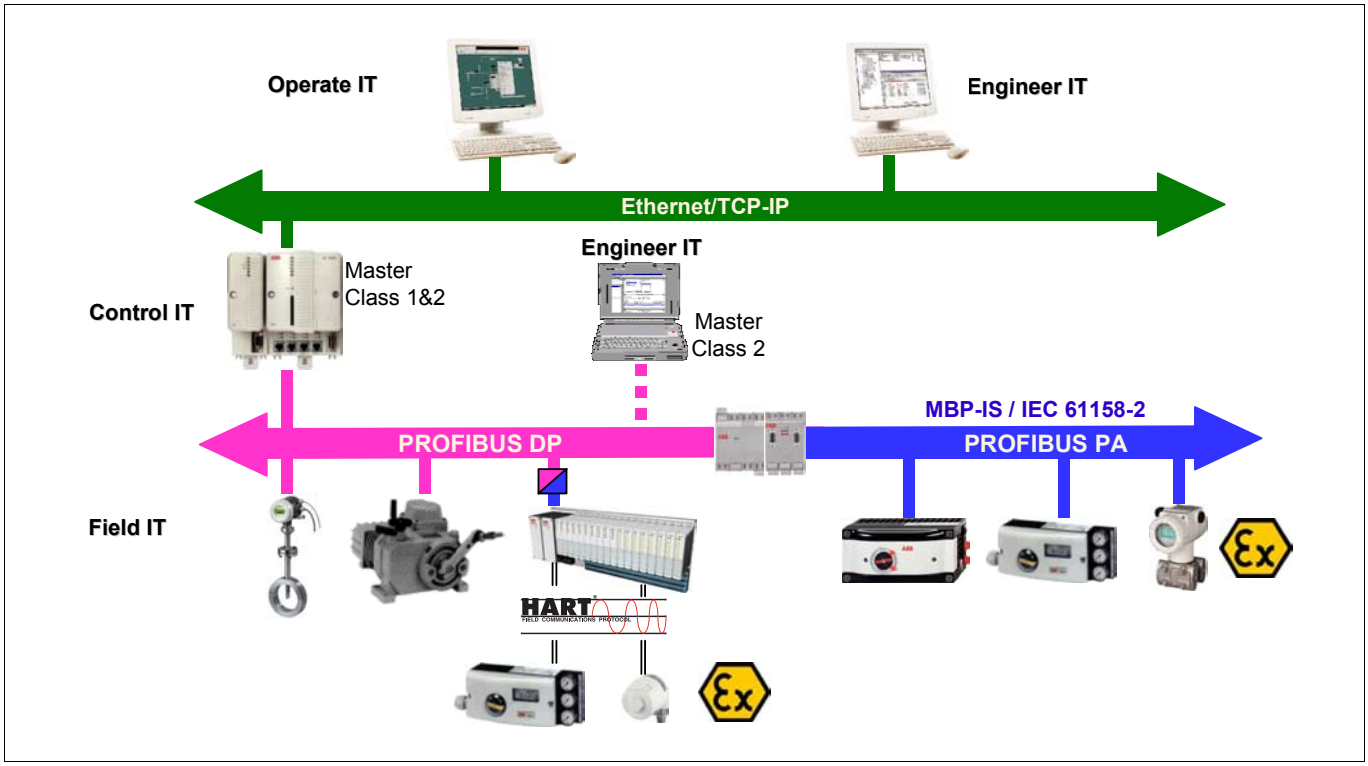


Fig. 8: Communication via PROFIBUS

Technical data

Communication

Profiles
PROFIBUS PA Profile for Process Control Devices
Electro Pneumatic Actuator V3.0

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

Physical layer
Compliant to the standard IEC 61158-2

Transmission rate
31.25 Kbit/second

Power supply
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

Physical device tag
TZID-C210

PNO ID number
0x0639

Device ID
0X3200028xyz

Bus address
Between 0 and 126, standard bus 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 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 °) 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
< 0.1 kg/h /0.05 scfm (independent of supply pressure)

Transmission data and influences

Output OUT 1

Increasing:	increasing signal 0...100 % increasing output pressure OUT 1
Decreasing:	increasing signal 0...100 % decreasing output pressure OUT 1

Action (signal)

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

Characteristic 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 housing and air supply switched on):
95 % (annual average), condensation permissible
Transport and storage:
75 % (annual average), non-condensing

Case

Material/Protections

Aluminum, protection class IP 65 / NEMA 4X

Surface/color

Electrostatic dipping varnish with epoxy resin, stove-hardened
Case varnished black, RAL 9005, matt,
Cap Pantone 420

Electrical connections

Screw terminals:
max. 1.0 mm^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
(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

Explosion protection

WARNING

The values indicated here have been taken out of the respective approval certificates.
Always observe the specifications and supplements in the certificates (see operating instructions).

FM Approval HLC 7/04 3019164

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

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

CSA Certificate 1555690

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

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

Examination certificate	DMT 02 ATEX E 029 X
Type:	**Flameproof enclosure**
Device class:	II 2G (EEx d IIC)
Temperature class:	T4, T5, T6
Perm. ambient temperature:	T4: -40 °C ≤ T_{amb} ≤ 85 °C T5: -40 °C ≤ T_{amb} ≤ 80 °C T6: -40 °C ≤ T_{amb} ≤ 65 °C

ATEX **Ex II 2G EEx ia IIC T6**

Examination certificate	TÜV 02 ATEX 1831 X
Type:	**Intrinsically safe**
Device class:	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

IECEx **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 PROFIBUS PA, 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) (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
Signal current < 1 mA	Logical “0”
Signal 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-210 positioner may be exposed to an ambient temperature of -25 °C ... +85 °C, only.

Digital position feedback with 24 V microswitches [1]

WARNING

Only approved for Ex d version!

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

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

Mechanical position indicator

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

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

EEx d cable glands

Cable gland and pipe plug approved for Ex d, securing adhesive

Pressure gauge block

With pressure gauges for supply and output pressure,
pressure gauges with plastic case ∅ 28 mm,
with aluminum connection block, varnished black
inclusive of mounting material for attachment to TZIDC-210.

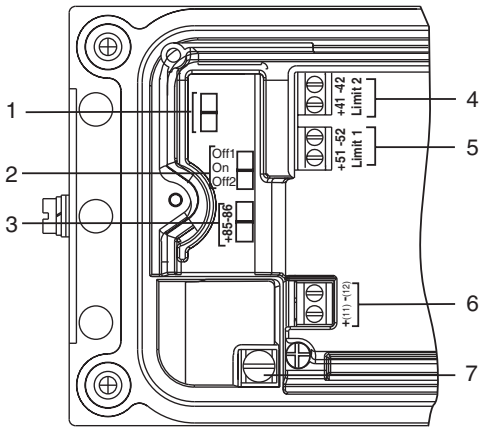
Filter regulator

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

DSV401 (SMART VISION) with DTM for TZIDC110/210
available on CD ROM (see data sheet 63-1.20 EN)

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

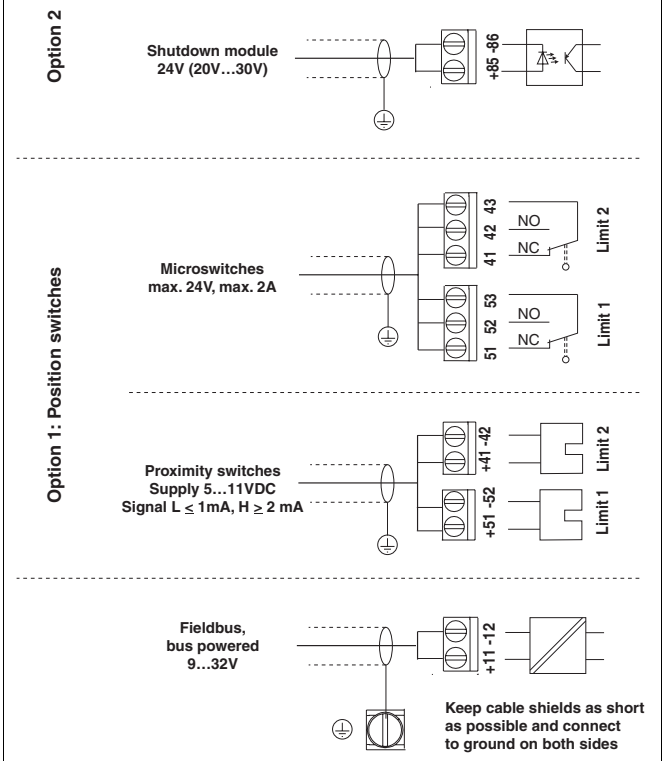


Fig. 10: Terminal assignment

Dimensional drawings (dimensions in mm (inches))

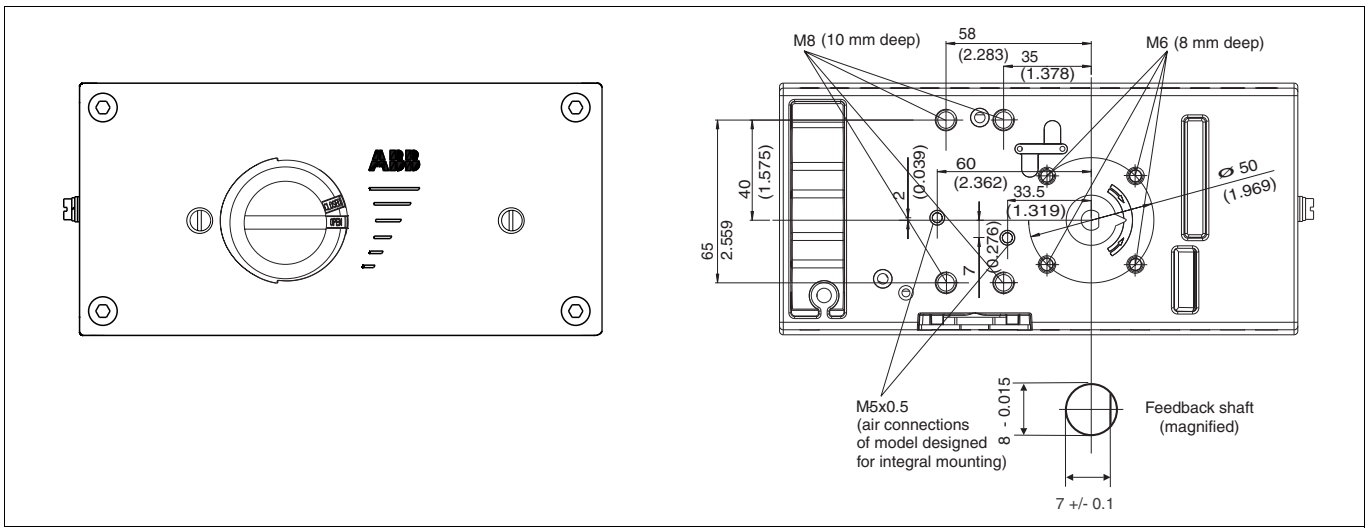


Fig. 11: Front view and rear view

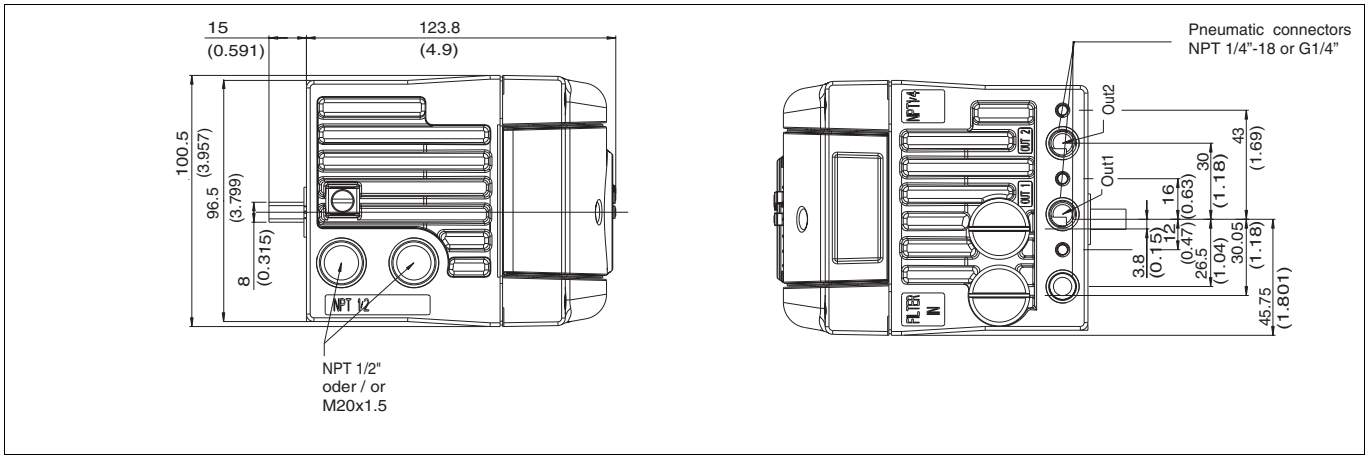


Fig. 12: Left and right side view

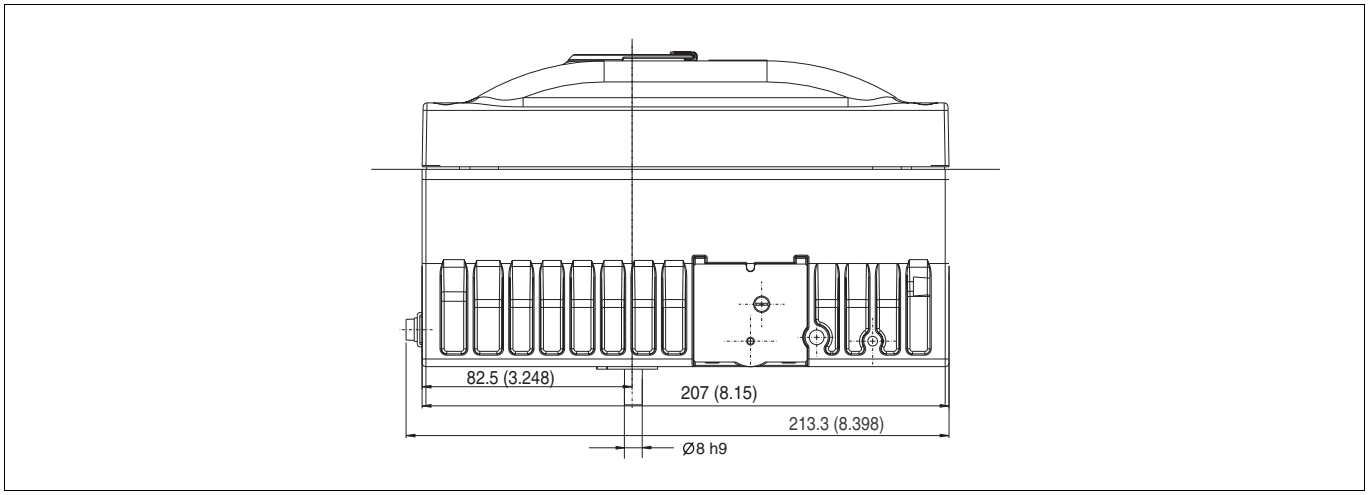


Fig. 13: Bottom view

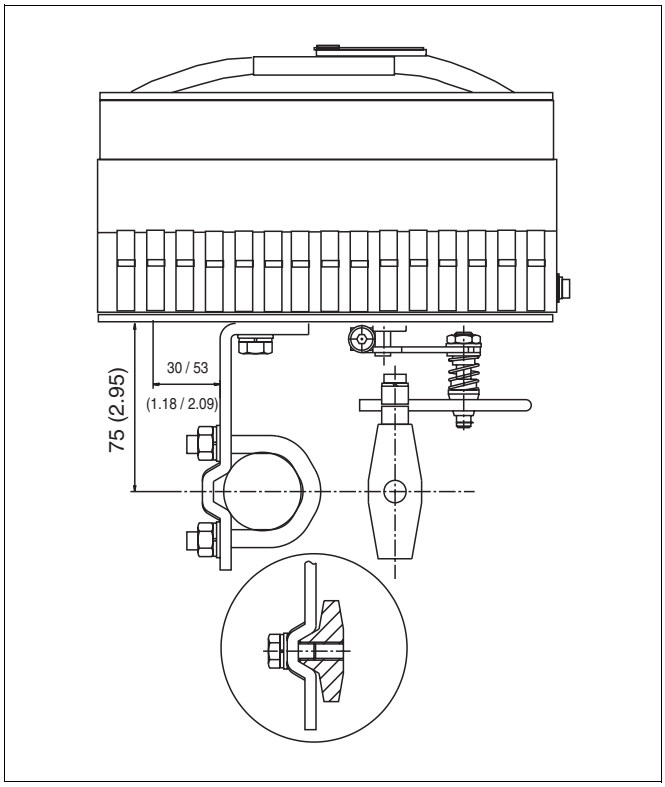


Fig. 14: Mounting to linear actuators to DIN/IEC 534

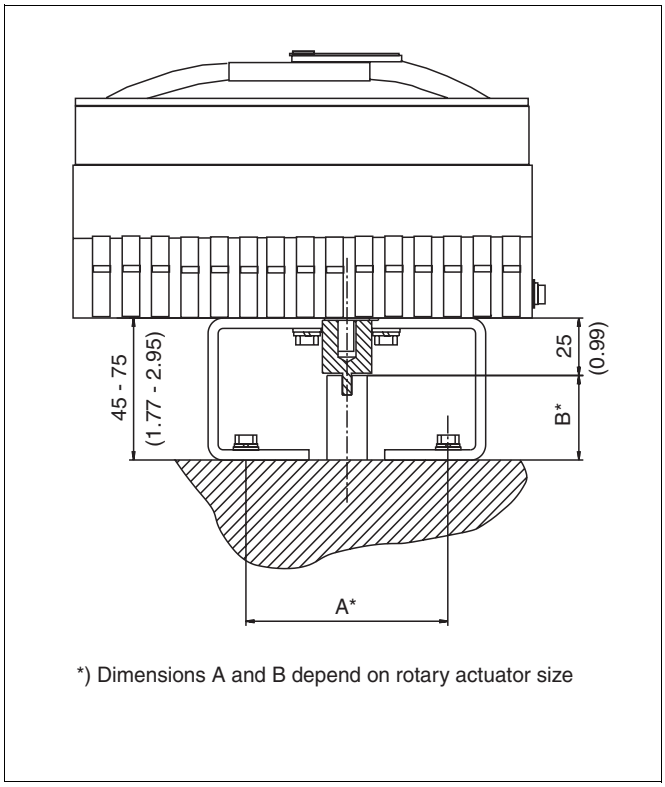


Fig. 15: Mounting to rotary actuators to VDI/VDE 3845

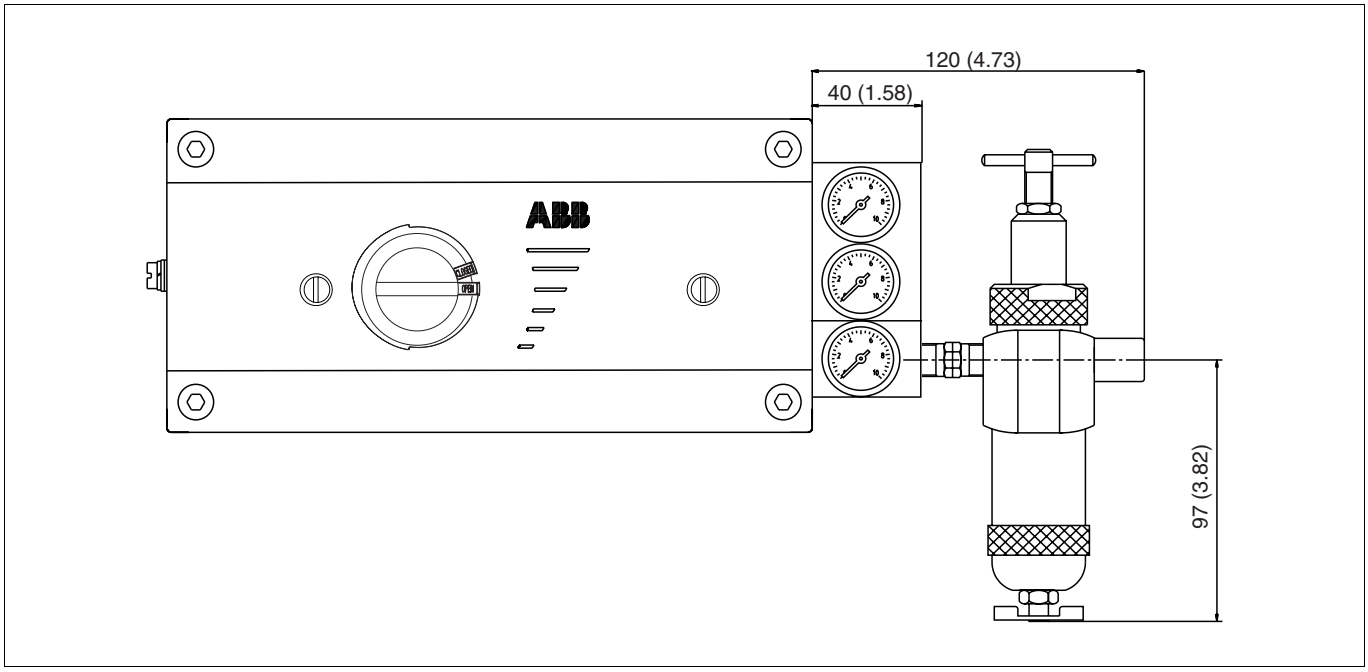


Fig. 16: Positioner TZIDC-210 with pressure gauge block and filter regulator

Ordering information

	Catalog No.											Code		
Electro-Pneumatic Positioner TZIDC-210 intelligent, software-configurable	**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		1												
As above, but with mechanical position indicator		2												
For integral mounting to control valves		3												
As above, but with mechanical position indicator		4												
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												
See Options/Accessories for customer-specific mounting														
Please specify the actuator tye 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					1									
FM/CSA Class 1, Div. 1, Group C-D (explosion-proof) 1)					2									
ATEX EEx ia IIC T6 and EEx d IIC T4, T5 ,T6					3									
IECEx Ex ia IIG T6					5									
Other explosion protection certificate upon request														
Output/safe position (in case of an electrical power failure)														
Single acting, fail safe						1								
fail freeze						2								
Double acting, fail safe						3								
fail freeze						4								
Connections 2)														
Cable: Thread M20 x 1.5 Air pipe: Thread G 1/4							1							
Cable: Thread 1/2-14 NPT Air pipe: Thread 1/4-18 NPT							3							
Option module for shutdown function														
Without								0						
Plug-in module for the shutdown function								5						
Optional mechanical kit for digital position feedback														
without									0					
Mechanical kit for digital position feedback														
With proximity switches SJ2-SN (NC or logical 1)									1					
With proximity switches SJ2-S1N (NO or logical 0)							3)		2					
with 24V DC/AC microswitches (change-over contacts)							4)		3					
Design (varnish/coding)														
Standard										1				
As specified (on request)										2				
Device identification label (provide list, if available)														
without											0			
label incuding text (plain text, max. 16 letters), with separate sticker											1			
same as above, but with separate stainless steel label 11.5x60 mm											2			

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

Ordering information (continued)

	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		
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		

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			
Pressure gauge block						
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			
	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-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			
	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)						
PC software for digital communication						
DSV401 (SMART VISION)	on CD-ROM	see Data Sheet 10/63-1.20 EN				

Accessories (continued)

			Catalog No.	Code		
Option Modules (can be added later)						
Plug-in module for shutdown function			7959199			
Kit for	mechanical position indicator		7959238			
Kit for	digital position feedback					
	with 24 V DC/AC microswitches (change-over contacts)	1)	7959230			
	with proximity switches SJ2 - SN (NC or logical 1)		7959231			
	SJ2 - S1N (NO or logical 0)	2)	7959232			
Kit for	digital position feedback with existing mechanical position indicator					
	with 24 V DC/AC microswitches (change-over contacts)	1)	7959240			
	with proximity switches SJ2 - SN (NC or logical 1)		7959241			
	SJ2 - S1N (NO or logical 0)	2)	7959242			
EEx d cable glands		3)				
1 x EEx d cable gland M20x1.5, 1 pipe plug M20x1.5 and securing adhesive			7959244			
2 x EEx d cable glands M20x1.5 and securing adhesive			7959245			
1 x EEx d cable gland 1/2" NPT, 1 pipe plug 1/2" NPT and securing adhesive			7959246			
2 x EEx d cable glands 1/2" NPT and securing adhesive			7959247			

1) only for Ex d version
2) only for ambient temperature range -25...+85 °C
3) for cable diameter 7.2...11.7 mm

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ABB Ltd.
Salterbeck Trading Estate
Workington, Cumbria
CA14 5DS
UK
Tel: +44 (0) 1946 830 611
Fax: +44 (0) 1946 832 661

ABB Inc.
125 E. County Line Road
Warminster, PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Automation Products GmbH
Schillerstr. 72
32425 Minden
Germany
Tel: +49 551 905-534
Fax: +49 551 905-555