Data Sheet
10/18-0.32 EN

Electro-Pneumatic Positioner TZIDC-200

for 4...20 mA two-wire technology,
with flameproof enclosure

Industrial IT enabled

- **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
- **For SIL2 safety loops**

HART FIELD COMMUNICATIONS PROTOCOL

Compact, well-proven, and flexible

ABB

Concept

The TZIDC-200 positioner is a smart, electronically configurable instrument with communication capabilities, mounting to pneumatic actuators. It features a small and compact design, a modular construction, and an excellent cost-performance ratio.

The TZIDC-200's functional heart 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 4000 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 4...20 mA setpoint signal.

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 providing 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-200 can be configured, commissioned and monitored remotely via its communication port and the DTM. Communication is based on the HART Protocol and can be realized via the local communication interface (LKS) or in frequency-modulated mode via an FSK modem connected at any chosen point of the 4...20 mA signal line.

The modular design of the positioner allows you to add further functionality at a later time. Modules for analog or digital position feedback or for the shutdown function are available, as well as a mechanical position indicator and a digital position feedback option using proximity switches or 24 V microswitches.

Various TZIDC-200 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...+85 °C.

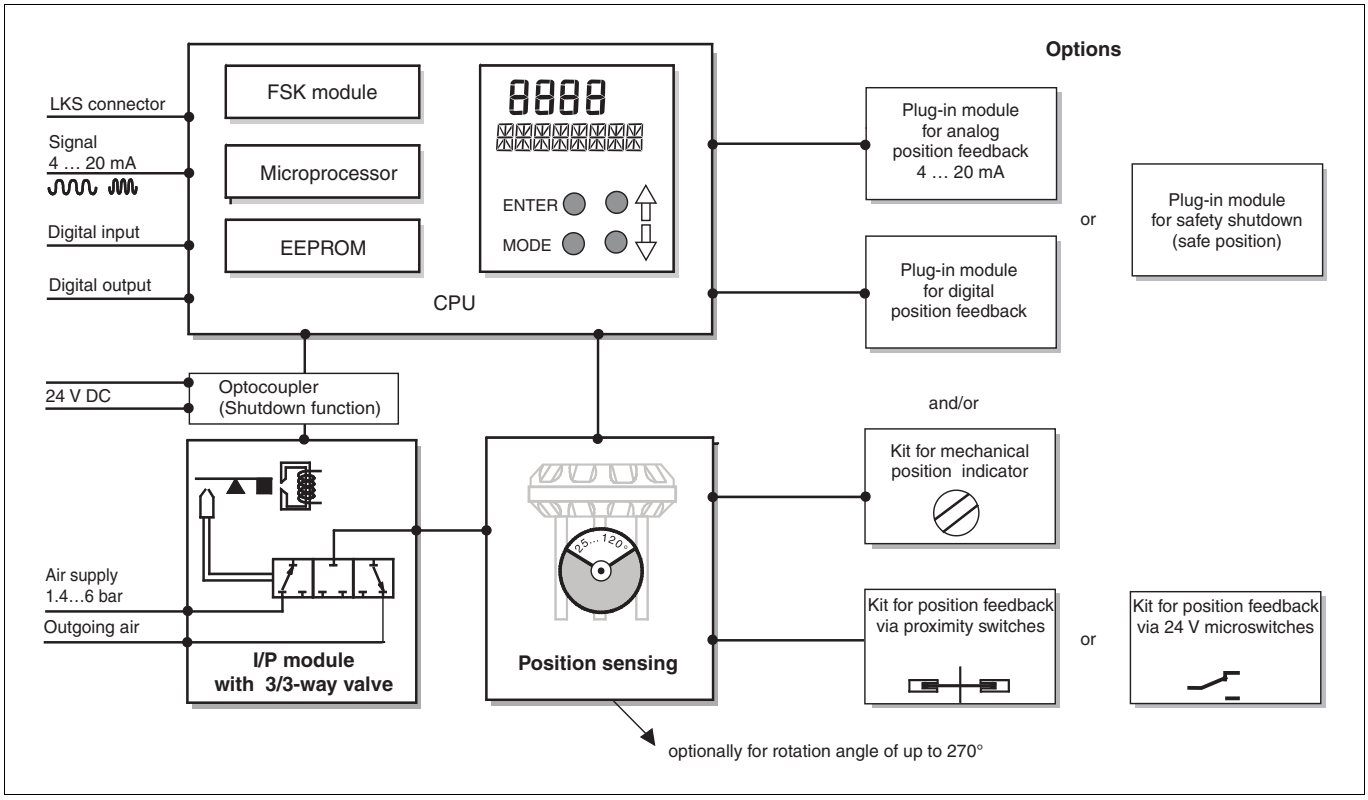


Fig. 1: TZIDC-200 schematic diagram

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-200 positioner designed for integral mounting with the required threaded holes at the back (see Fig. 12: 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.

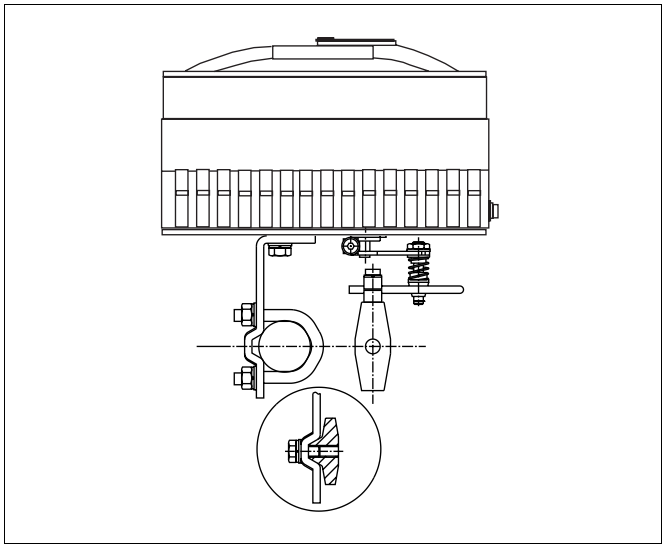


Fig. 2: Mounting to linear actuators to DIN/IEC 534 / NAMUR

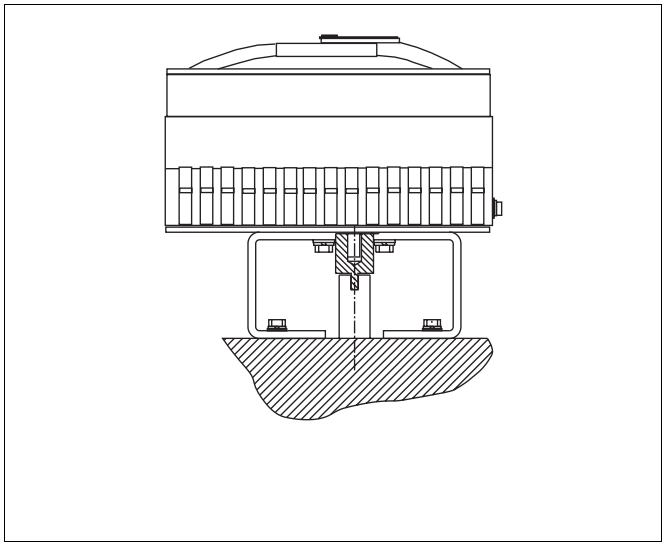


Fig. 4: Mounting to rotary actuators to VDI/VDE 3845

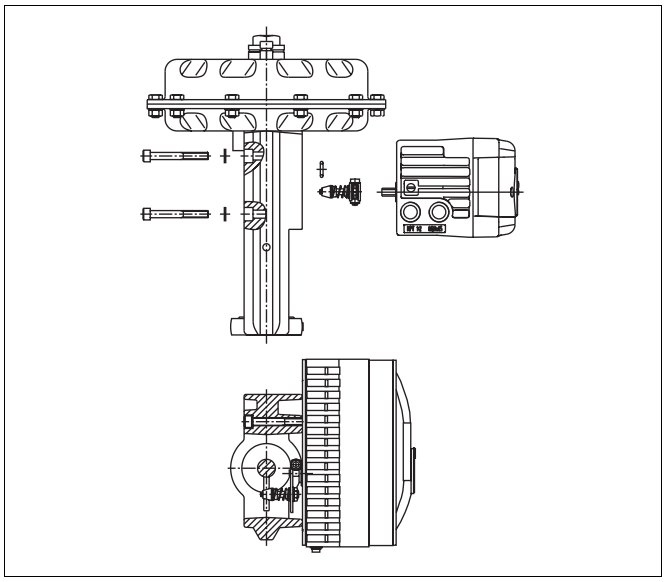


Fig. 3: Integral mounting to control valves

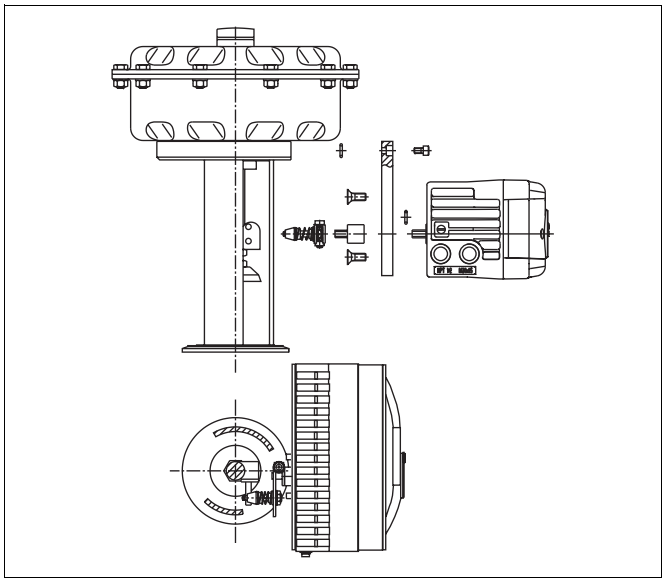


Fig. 5: Integral mounting to control valves by using an adapter panel

Operation

General

The smart, microprocessor-controlled TZIDC-200 positioner is designed for achieving optimal results. It features quick and precise control until reaching the set point and 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
– Maintenance parameters

Operating parameters

The following operating parameters can be set manually if required:

- **Signal range**
  Minimum signal 4 mA, maximum signal 20 mA (0...100 %) freely selectable for split-range operation
  minimum range 20 % (3.2 mA),
  recommended range $\geq$ 50% (8.0 mA)
- **Action (signal)**
  Direct: Signal 4...20 mA = position 0...100 %
  Reverse: Signal 20...4 mA = position 0...100 %
- **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.
  When the shut-off value is set to “0”, the position is further controlled, even in the respective 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.
- **Switching points for the position**
  This parameter allows you to define two position limits for signalling (see Options: Module for digital position feedback).
- **Digital output**
  The alarms generated in the TZIDC-200 positioner can be polled via the digital output as a collective alarm. The desired information can be selected via the operator panel or remotely via the DTM.
  The output can be set to “active high” or “active low”, as required.
- **Digital input**
  One of the following protective functions can be selected for the digital input, either via the local operator panel or remotely via the DTM:
  - no function (default setting)
  - move to 0% position
  - move to 100 % position
  - hold last position
  - disable local configuration
  - disable local configuration and operation
  - disable any access (no local or remote access (via a PC))

  The selected function is activated once the 24 V DC signal is no longer applied (< 10 V DC).

Adjustment parameters

The TZIDC-200 positioner has a special function (*Autoadjust*) for automatic adjustment of the relevant parameters, e.g.:

- **Control parameters**
  To adapt the TZIDC-200 positioner to the control action of the valve, the control parameters can be adjusted individually to achieve optimal control until reaching the set point.
- **Tolerance band**
  When reaching the tolerance band the position is considered as having reached the set point. 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 effective direction:
  Air to close/spring force to open
  or
  Air to open/spring force to close
- **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-200 operating program. The following states will be detected and indicated:

– 4...20 mA signal out of range
– position out of the adjusted range
– positioning time-out (adjustable time parameter)
– position controller inactive
– 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)

Access to extended monitoring parameters is possible via HART communication and the DTM.

Diagnosis parameters

The diagnosis parameters of the TZIDC-200 program inform the operator about the operating conditions of the valve. From this information the operator can derive which maintenance works are required, and when. Additionally, limit values can be defined for these parameters. When they are exceeded, an alarm is reported.

The following values are e.g. determined:

– Number of control actions performed by the valve
– Total travel

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

Operator panel

The TZIDC-200 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.

Single-button commissioning

In addition to the usual operating functions the TZIDC-200 smart positioner has a special feature providing operating convenience in the commissioning phase: the standard *Autoadjust* function can be started by simply pressing a single front panel button, and without knowing parameterization details.

When selecting the 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 remotely by using the DTM.

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 (control with or without adaptation) the following TZIDC-200 data can be called up by pressing the push-buttons briefly:

Up arrow button	current setpoint (mA)
Down arrow button	internal device temperature
Up + Down arrow buttons	current control deviation

Fig. 6: TZIDC-200 with open cover, view of the operator panel

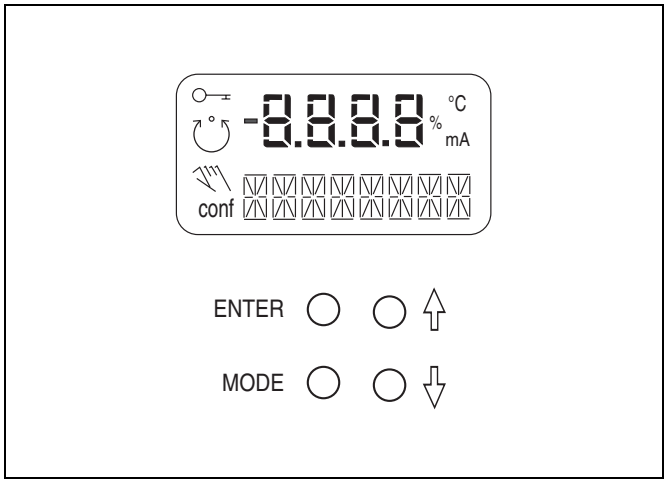


Fig. 7: TZIDC-200 operating elements and display

Communication

DTM

The DTM (Device Type Manager) for TZIDC/TZIDC-200 is based on the FDT/DTM technology (FDT 1.2) and can be integrated in a process control system or loaded in a 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 for monitoring the device, setting parameters, and uploading data.

Communication is based on the HART Protocol and can be realized via the local communication interface (LKS) or in frequency-modulated mode via an FSK modem connected at any chosen point of the 4...20 mA signal line. Communication has no effect on operation. Newly set parameters are saved in the non-volatile memory directly upon the download into the device, and become active immediately.

LKS adapter (RS-232 interface converter)

You can easily connect your TZIDC-200 positioner to a PC, e.g. in the workshop or in the commissioning phase, by using the positioner's LKS adapter (LKS = local communication interface).

An RS-232 interface converter adapts the signals on the serial PC port to the level of the positioner's LKS.

FSK Modem

The FSK modem establishes a digital frequency-modulated communication (**F**requency **S**hift **K**eying) with the TZIDC-200 positioner.

Tapping is possible at any chosen point of the 4...20 mA signal line.

We recommend to use an electrically isolated FSK modem. It is bus-compatible when used with isolating amplifiers. Even connecting explosion-protected field devices is possible, on condition that the FSK modem is run outside the hazardous area.

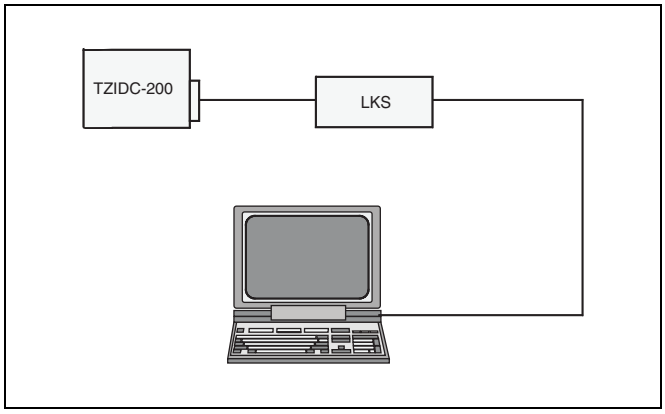


Fig. 8: Communication via LKS adapter

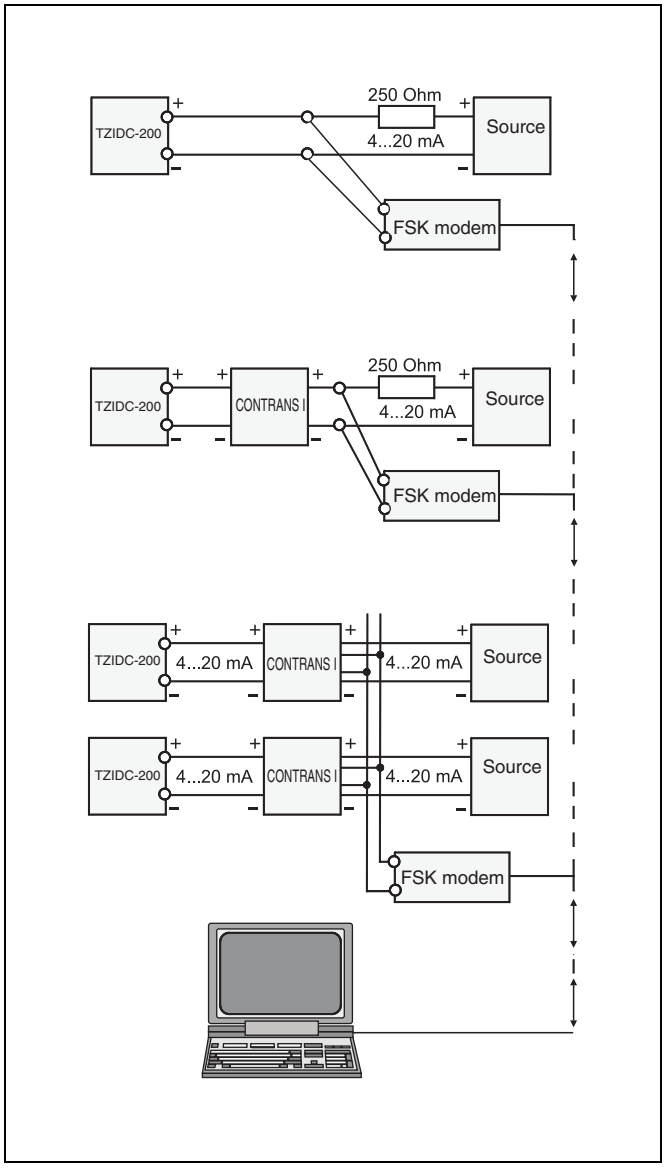


Fig. 9: Communication via HART Protocol and FSK modem

Technical data

Input

Signal

Nominal range 4...20 mA
Split range configuration betw. 20% and 100% of the nominal range
Max. 25 mA / 30 V
Two-wire technology

Load voltage at 20 mA	8.7 V DC without explosion protection 9.7 V DC for intrinsically safe device
Impedance at 20 mA	435 ohms without explosion protection 485 ohms for intrinsically safe device

Digital input

Control voltage	24 V DC (12...30 V DC)
Current	max. 4 mA

Digital output (control circuit to DIN 19234/NAMUR)

Supply voltage.	5...11 V DC
Current < 1.0 mA	Logical "0"
Current > 2.0 mA	Logical "1"
Effective direction:	normally logical "0" or logical "1" (configurable)

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 limit

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

Travel time prolongation

Range of 0...200 seconds, separately for each direction

Positioning time limit

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

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 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...10 %, adjustable

Resolution (A/D conversion)

> 4000 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

Communication

HART Protocol 5.1

Communication connection

- Connector for LKS (local communication interface) adapter
- HART communication (FSK modem) via 20 mA signal line

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):
100 %, 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 analog signal
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

Safety Integrity Level SIL2

EXIDA report No.: ABB 03/09-13 R003, Revision R1.0

The positioner TZIDC-200 and the shutdown module for TZIDC-200 meet the requirements regarding
– functional safety in accordance with IEC 61508/IEC 61511-1
– explosion protection (depending on the model)
– electromagnetic compatibility in accordance with EN 61000

In case of a failure of electrical power or compressed air supply or when a positioner malfunction occurs, the actuator is depressurized by the TZIDC-200, and the return spring in the actuator moves the valve to a pre-defined, safe end position (either OPEN or CLOSED).

SIL specific safety-related characteristics

Device	Category	SFF	PFDav	λdd + λs	λdu
TZIDC-200	SIL2	85 %	7.52×10^{-4}	1011 FIT	172 FIT
Shutdown module for TZIDC-200	SIL2	94 %	1.76×10^{-4}	718 FIT	40 FIT

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

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 8/02 3010829

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

Intrinsically safe; enclosure 4X; T5, max. 82°C
CL I, II, III, Div. 1, Group A, B, C, D, E, F, G

Non-incendive, enclosure 4X; T4, max. 85°C
CL I, Div. 2, Group A, B, C, D
CL II, III, Div. 2, Group F, G

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

CSA Certificate 1393920

Explosion proof; enclosure 4X; T5, max. 85°C
CL I, Div. 1, Group C, D
CL II, Div. 1, Group E, F, G
CL III

Intrinsically safe; enclosure 4X; T5, max. 82°C
CL I, Div. 1, Group A, B, C, D
CL II, Div. 1, Group 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 ib IIC T6**

Examination certificate	TÜV 98 ATEX 1370 X
Type:	**Intrinsically safe**
Device class:	II 2G (EEx ib IIC)
Temperature class:	T4, T5, T6
Perm. ambient temperature:	T4: -40 °C ≤ T_{amb} ≤ 85 °C T5: -40 °C ≤ T_{amb} ≤ 50 °C T6: -40 °C ≤ T_{amb} ≤ 35 °C

ATEX **Ex II 3G EEx n A II T6**

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

IECEx **Ex ib 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} ≤ 50 °C T6: -40 °C ≤ T_{amb} ≤ 35 °C

Options

Module for analog position feedback[1]

Range 4 ... 20 mA (configurable split ranges)
Two-wire circuitry, power supply 24 V DC (10...30 V DC)
48 V DC (20...48 V DC,
no explosion protection)
Action direct or reverse (configurable)
Characteristic deviation ≤ **1 %**
Note: Without a signal from the positioner (e.g. no energy or initializing) the module sets the output to > 20 mA (alarm level)

Module for digital position feedback[1]

2 switches for position signals (position adjustable within the range of 0...100%, ranges cannot overlap)
Current circuits to DIN 19234/NAMUR
Supply voltage 5...11 V DC
Control current < 1.0 mA = Logical "0"
Control current > 2.0 mA = Logical "1"
Eff. direction: normally logical "0" or log. "1" (configurable)

Module for the shutdown function[2]

Supply voltage	24 V DC (20...30 V DC)
Safe position is activated when	U < 5 V
AK approval	AK 4 to DIN V 19250
Test report No.	101/S01/148
Explosion protection	see certificates (operating instr.)
SIL	SIL2 (see page 8)

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. 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.

Digital position feedback with proximity switches

2 proximity switches for position feedback
Switching points adjustable between 0 and 100 %
Current circuits to DIN 19234/NAMUR
Supply voltage 5...11 V DC
Control current < 1 mA = logical "0"
> 2 mA = logical "1"
(independent of the positioner software and electronics)

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

NOTICE
When using proximity switch type SJ2-S1N (NO) the TZIDC-200 positioner may be exposed to an ambient temperature of -25 °C ... +85 °C, only.

Digital position feedback with 24 V microswitches

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

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-200.

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 adapter for communication

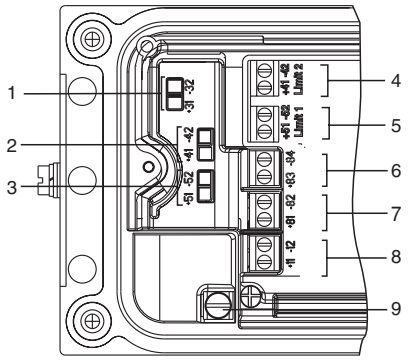
- LKS adapter for connector on TZIDC-200 (s. data sheet 63-6.71 EN)
- FSK modem for frequency shift keying (s. data sheet 63-6.71 EN)

PC software for remote configuration and operation

DSV401 (SMART VISION) with DTM for TZIDC/TZIDC-200
available on CD ROM (see data sheet 63-1.20 EN)

1. The module for analog position feedback and the module for digital position feedback plug in separate slots and can be used together.
2. The module for the shutdown function uses the same space as the module for analog feedback and the module for digital feedback and cannot be plugged in and run together with any of them.

Wiring diagrams



1. Module for analog position feedback
2. Module for digital position feedback (1st. terminal) or shutdown module
3. Module for digital position feedback (2nd. terminal)
4. Digital position feedback, either proximity switches or 24 V microswitches
5. Same as 4
6. Digital output DO
7. Digital input DI
8. 4...20 mA signal
9. Grounding screw

Fig. 10: Screw terminals, overview

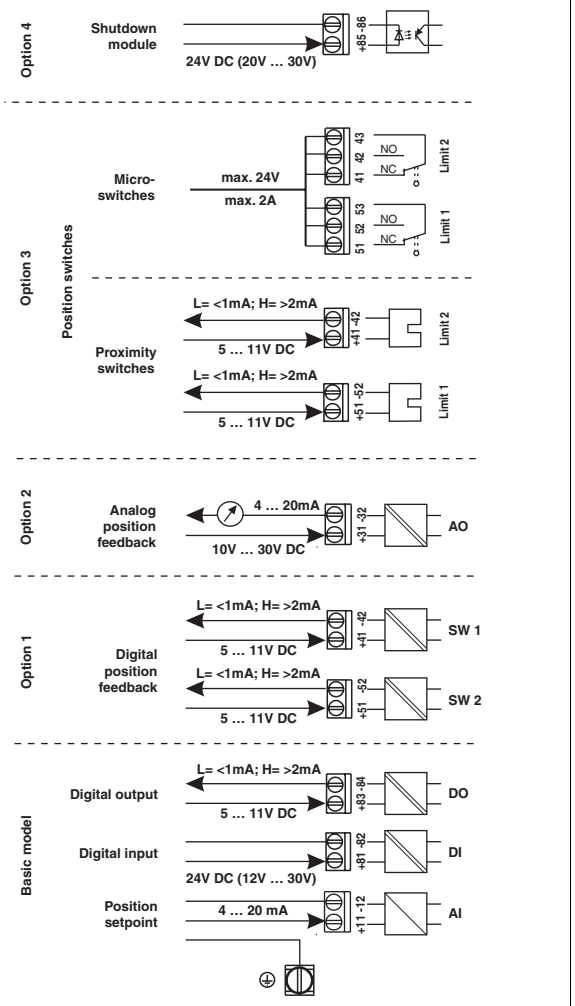


Fig. 11: Terminal assignment

Dimensional drawings

(all dimensions in mm and (inches))

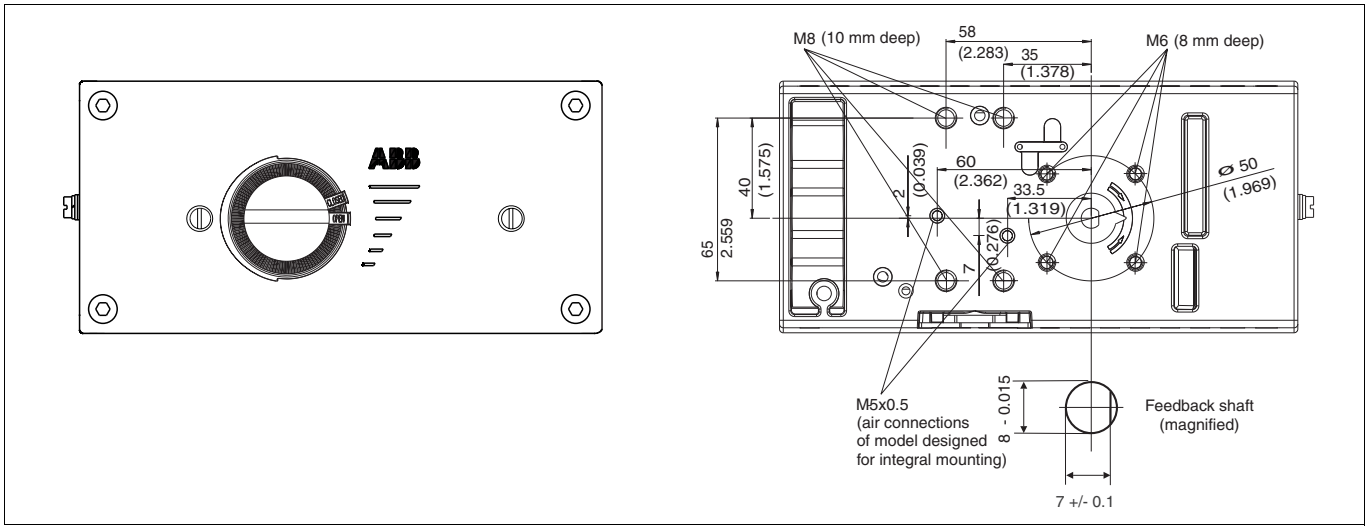


Fig. 12: Front view and rear view

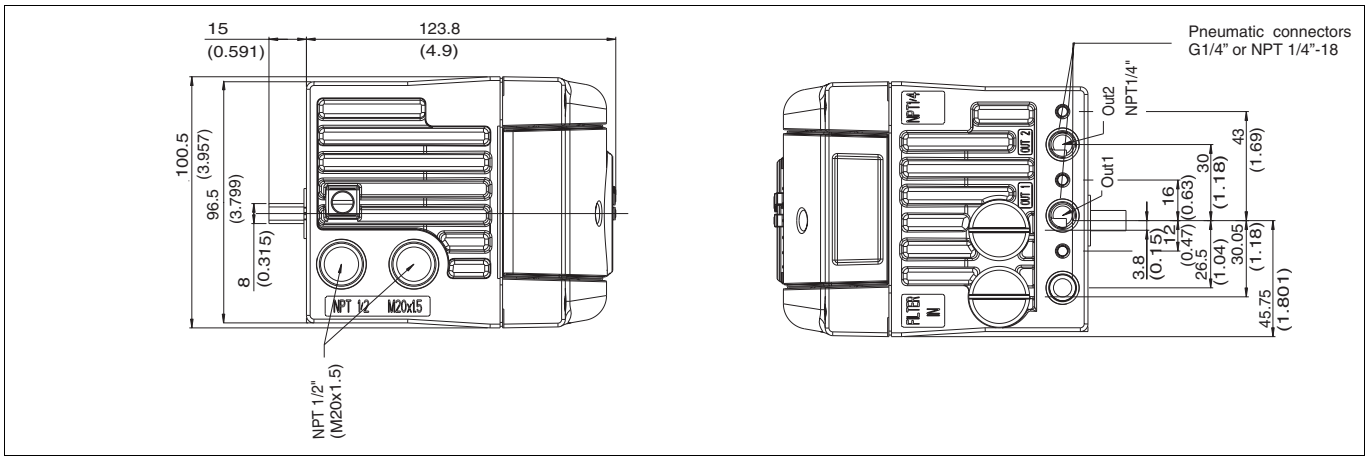


Fig. 13: Left and right side view

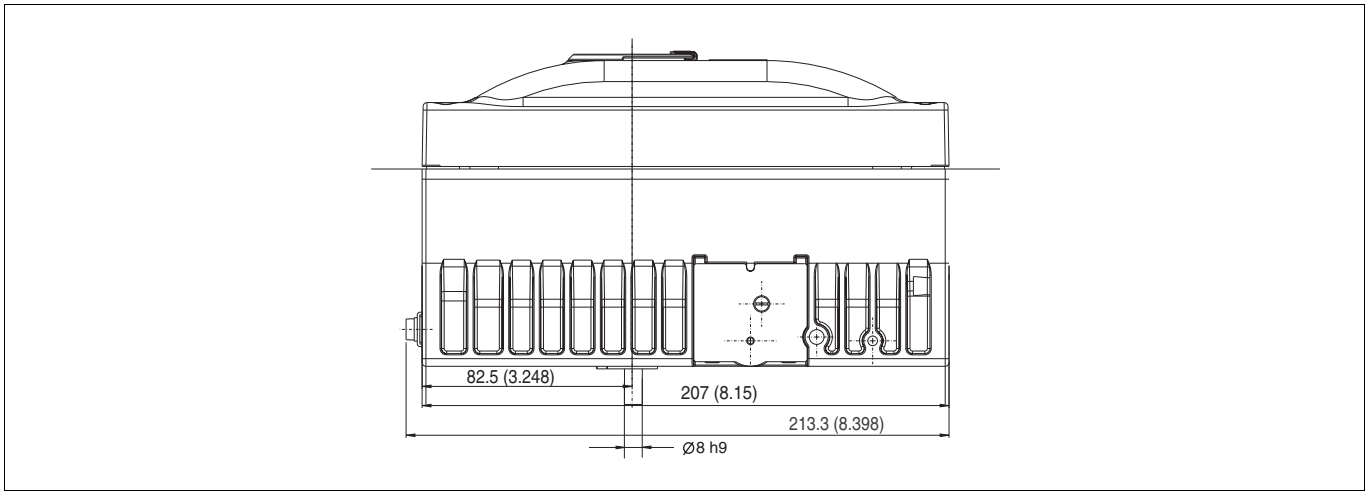


Fig. 14: Bottom view

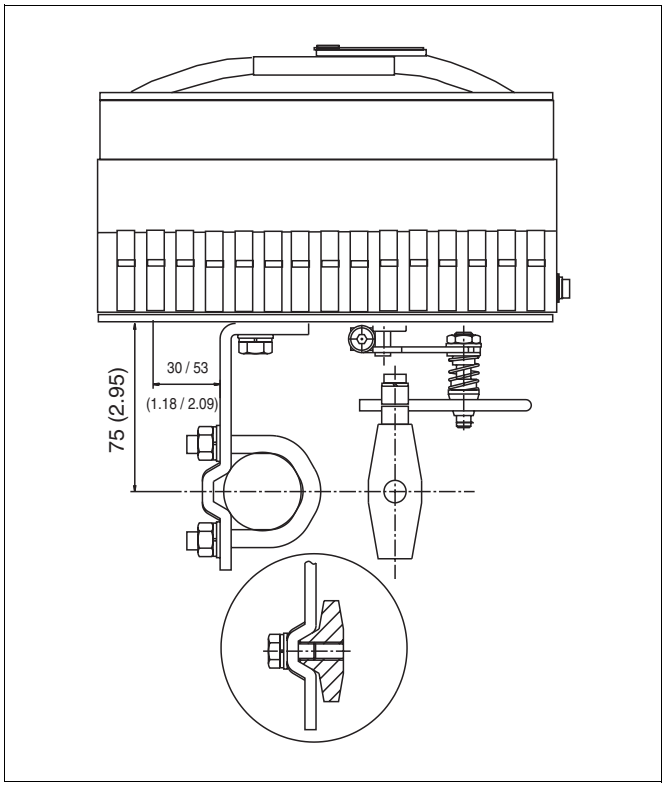


Fig. 15: Mounting to linear actuators to DIN/IEC 534

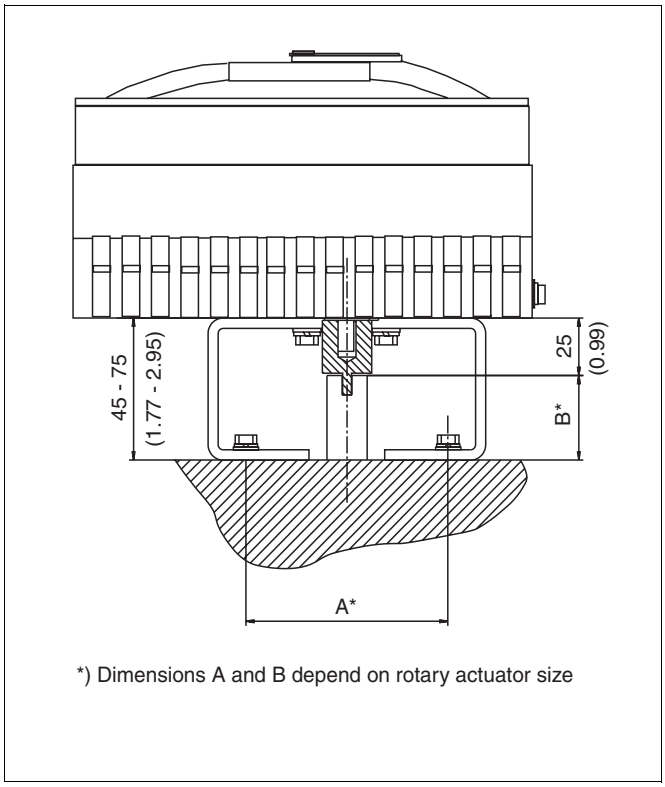


Fig. 16: Mounting to rotary actuators to VDI/VDE 3845

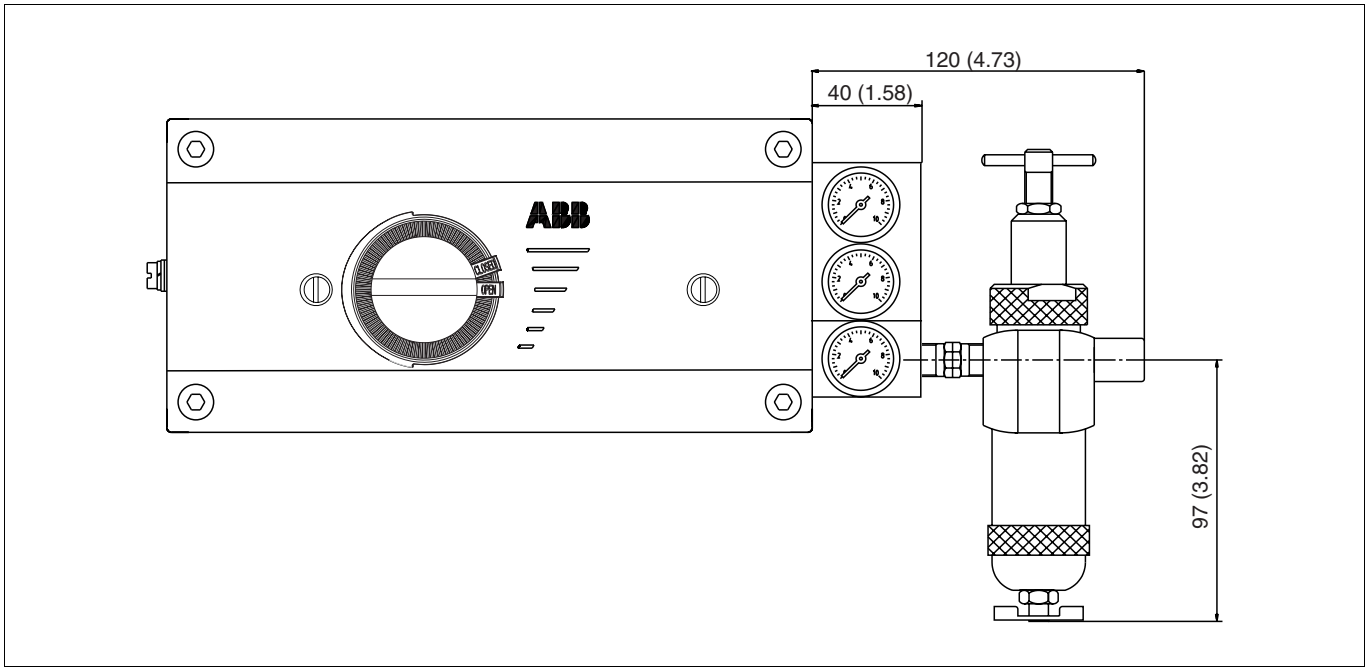


Fig. 17: Positioner TZIDC-200 with pressure gauge block and filter regulator

Ordering information

	Catalog No.											Code		
Electro-Pneumatic Positioner TZIDC-200 intelligent, software-configurable with local communication interface (LKS) and HART communication	**V18348-**		**0**											
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 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					1									
FM/CSA Class 1, Div. 1, Group C-D (explosion-proof) 1)					2									
ATEX EEx ib and EEx d IIC T6					3									
FM/CSA intrinsically safe and explosion-proof 1)					4									
other explosion protection certificates upon request														
Output/safe position (in case of an electrical power failure) Single acting, fail safe						1								
fail freeze						2								
Double acting, fail safe						3								
fail freeze						4								
Connections 2)														
Cable: Thread M20 x 1.5 Air pipe: Thread G 1/4							1							
Cable: Thread M20 x 1.5 Air pipe: Thread 1/4-18 NPT							2							
Cable: Thread 1/2-14 NPT Air pipe: Thread 1/4-18 NPT							3							
Option modules for analog or digital position feedback Without								0						
Plug-in module for analog position feedback, signal range 4...20 mA, two-wire								1						
digital position feedback								3						
analog position feedback, sign. range 4...20 mA, two-wire and digital position feedback								4						
shutdown module								5						
Mechanical kit for digital position feedback (option) 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					

1) only with cable connection NPT thread

Continued on next page

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)

	Catalog No.											Code		
Electro-Pneumatic Positioner TZIDC-200 intelligent, software-configurable with local communication interface (LKS) and HART communication	**V18348-**													
Parameter setting/bus address														
Factory setting for HART devices									1					
Customized parameter setting for HART devices									2					
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 11.5 x 60 mm											2			
Certficates														
SIL2 - Declaration of conformity												CS2		
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 attachm. 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			
see separate data sheet for specific mounting						
Mounting cost, material and adjustment						
for mounting to linear actuators to DIN/IEC 534 / NAMUR						
or to rotary actuators to VDI/VDE 3845						
External tubing with	Plastic tube		319628			
	Copper pipe		319629			
	Stainless steel pipe		319630			
for integral mounting to 23/24, 23/25 or 23/26 control valves						
Internal tubing			319627			
External tubing with	Copper pipe	1)	7959015			
	Stainless steel pipe		7959016			

Continued on next page

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

Accessories (continued)

			Catalog No.		
Pressure gauge block					
Pressure gauge block, including attachment material					
for single acting TZIDC-200, 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-200, 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 adapter for communication					
LKS adapter			see Data Sheet 10/63-6.71 EN		
FSK modem			see Data Sheet 10/63-6.71 EN		
DSV401 (SMART VISION)	on CD-ROM		see Data Sheet 10/63-1.20 EN		
Option Modules (can be added later)					
Plug-in module for analog position feedback, signal range 4...20 mA, 2-wire			7959128		
Plug-in module for digital position feedback			7959129		
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