



IEC 61508  
**SIL**  
ISO 13849  
**PL**



Ex II 3G Ex ec IIC T4 Gc  
Ex II 3D Ex tc IIIB T125°C Dc



**IO-Link Modbus**

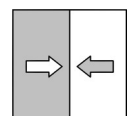
**CE**  
**UK**  
**CA**  
**EAC**  
RoHS III  
COMPLIANT



## Data sheet

### DE90

Differential pressure transmitter  
PRO-LINE®



# 1 Product and functional description

## 1.1 Performance characteristics

### Typical applications

- Space and clean room monitoring
- Supply and exhaust air systems, TNV systems
- Dynamic filter monitoring
- Filter monitoring
- Volume flow measurement
- Surface coating systems
- Process monitoring

### Main features

- Robust, resistant to overpressure and maintenance-free
- Simple configuration
- Measuring ranges from
  - 25 Pa to 25 kPa
  - 1 mbar to 250 mbar
- Measuring accuracy up to 0.5%
- Turn down ratio of 4:1
- Optionally one or two-channel model with 2 or 4 configurable switch outputs
- Optional analogue output signal for each channel
  - 0/4 to 20 mA, 0/2 to 10 V, or 1 to 5 V
  - Characteristic curve conversion and adjustment to process
- Multi-line LC display
  - Fully graphic with colour backlighting for the visualisation of the operating modes
  - Multilingual plain text menu
- Digital interfaces
  - USB OTG
  - RS485 Modbus RTU
  - IO-Link

## 1.2 Intended use

The DE90 is a differential pressure transmitter with additional switch outputs. It is suitable for measuring overpressure, under-pressure and differential pressure in neutral gaseous media.

The device may only be used for the purpose stipulated by the manufacturer. The manufacturer will not be liable for damage arising from incorrect or improper use.

### 1.2.1 Use in safety-related systems (SIL, PL)



#### **WARNING**

##### Exceptions

Devices with a Modbus or IO-Link interface must not be used in safety-related systems.



All other models may be used in safety-related systems.

For use in safety-related systems in accordance with “Functional Safety” (SIL) or “Functional Safety for Machines” (PL), the correct functioning of the safety function must be verified. You will find the necessary key figures, safety instructions, installation and maintenance instructions in the Safety Manual.

The Safety Manual is available for download via the following link:

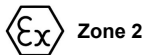
<https://www.fischermesstechnik.de/de/produkte/details/de90>

### 1.2.2 Explosion hazard area classification

#### Eurasian Economic Union (EAC):


The device does not have ATEX approval for this market. It may only be used there as an industrial device.

#### 1.2.2.1 Gas explosion protection



Devices with the order code **DE90 ### ## ## # 0 # 000 R1 # #** are suitable as 'Electrical equipment for use in potentially explosive areas', Zone 2 - Gases and vapours.

Designation as per Directive 2014/34/EU:


 II 3G Ex ec IIC T4 Gc

#### 1.2.2.2 Dust explosion protection



Devices with the order code **DE90 ### ## ## # 0 # 000 R1 # #** are suitable as “Electrical equipment for use in areas with combustible dust”, Zone 22 - dry dusts.

Designation as per Directive 2014/34/EU:

 II 3D Ex tc IIIB T125°C Dc

$-20^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$

### 1.3 Function diagram

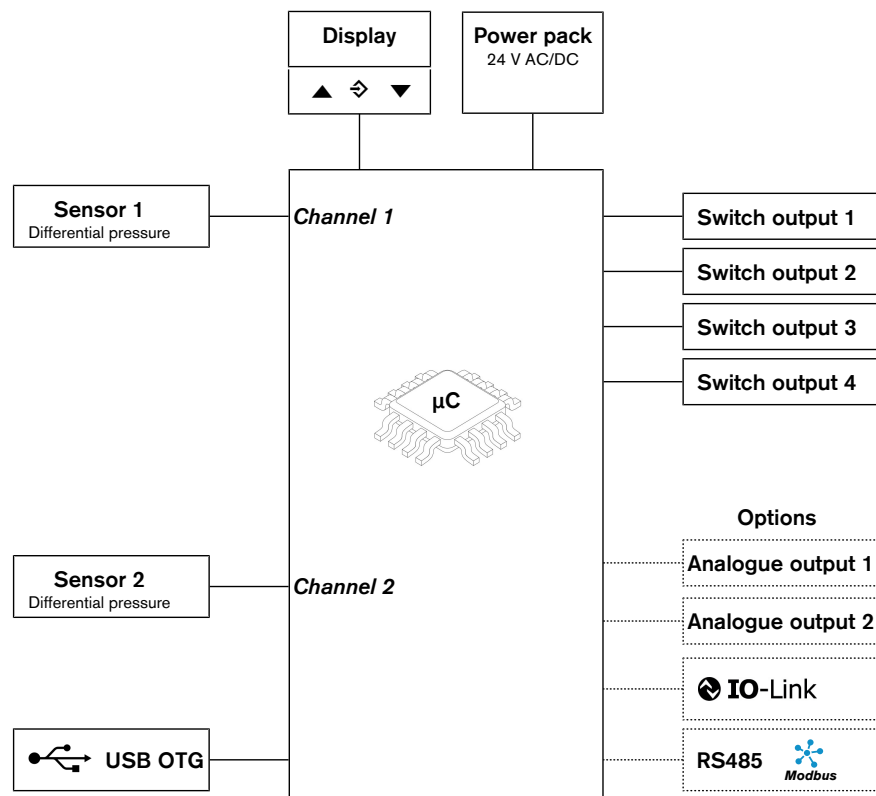


Fig. 1: Function diagram

### 1.4 Design and mode of operation

The device is based on a piezoresistive sensor element that is suitable for measuring overpressure, under-pressure and differential pressure. The pressures to be compared have a direct effect on a silicon membrane equipped with a measuring bridge.

When the pressure is equal, the measuring membrane is in its idle state. If a pressure difference occurs, the membrane is deflected and a resistance change takes place on the attached measuring bridge. This change is evaluated by the device's electronics and transformed into the display and up to four switch contacts.

Options:

The device can be equipped with up to two analogue outputs. The optional output signal can be dampened, spread, inverted and transformed via a table function even if it is nonlinear.

The device can be equipped either with a Modbus RTU interface or, alternatively, with an IO-Link interface.

### 1.4.1 Equipment

Overall, the device can be delivered with the following equipment.

	1 channel	2 channels	Modbus RTU <sup>)</sup>		IO-Link
			(Opt1)	(Opt2)	
Switch output 1	x	x		x	x
Switch output 2	x	x		x	x
Switch output 3		x		x	x
Switch output 4		x		x	x
USB interface	x	x	x	x	x
Options:					
RS485 Modbus RTU			x	x	
IO-Link					x
Analogue output 1	x	x			
Analogue output 2		x			

<sup>)</sup> Opt1: without switch outputs; Opt2: with switch outputs

### 1.4.2 Modbus RTU

For operating a device with a Modbus RTU interface, the corresponding Modbus manual is available for download from the FISCHER website.

### 1.4.3 IO-Link

For operating a device with an IO-Link interface, the IODD file and the corresponding interface description are available for download from the FISCHER website.

### 1.5 Equipment versions

#### Process connections

The connections presented here are used for all models.

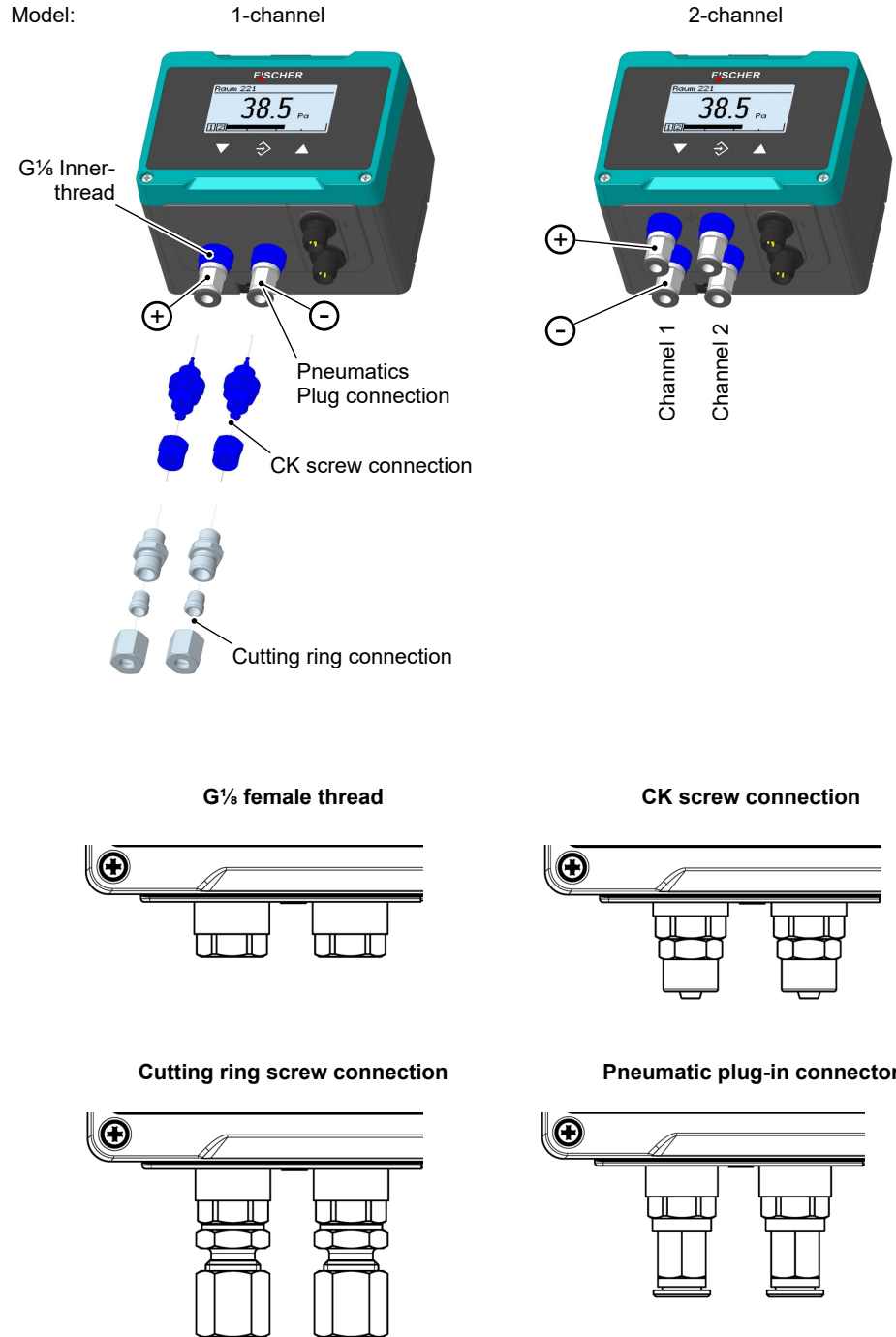


Fig. 2: Process connections

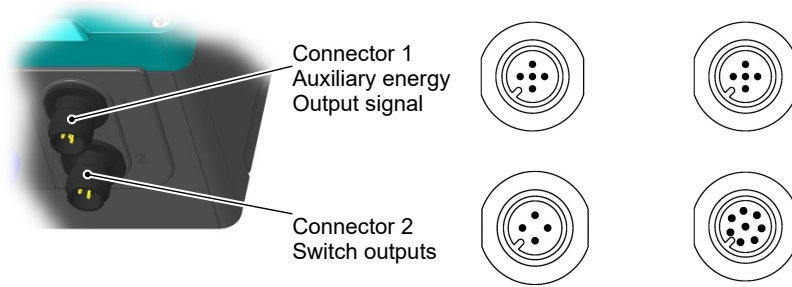
### Electric connections

Two M12 flange connectors is installed for the electrical connection.

Model: Standard

1-channel

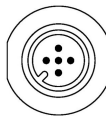
2-channel



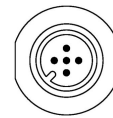
Modbus without switch outputs

Modbus with switch outputs

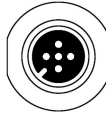
Connector 1  
Modbus IN



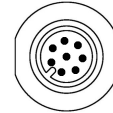
Connector 1  
Modbus



Connector 2  
Modbus OUT

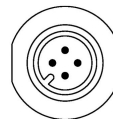


Connector 2  
Switch outputs



IO-Link with switch outputs

Connector 1  
IO-Link



Connector 2  
Switch outputs

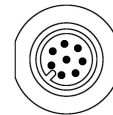


Fig. 3: Electric connections

### ATEX model



Fig. 4: ATEX model

## 2 Technical data

### 2.1 General

Type designation	DE90	
Pressure type	Differential pressure	
Measurement principle	Piezo-resistive	
<b>Reference conditions (acc. to IEC 61298-1)</b>		
Temperature	+15 to +25 °C	
Relative humidity	45 ... 75 %	
Air pressure	86 to 106 kPa	860 to 1060 mbar
Installation position	vertical	

### 2.2 Input variables

Asymmetric measuring ranges:

Measuring range (Channel 1 2)		Overload	Bursting pressure	Sensor type
	-20 ... +80 Pa	700 mbar	1 bar	A
	0 ... 25 Pa	700 mbar	1 bar	A
	0 ... 40 Pa	700 mbar	1 bar	A
	0 ... 60 Pa	700 mbar	1 bar	A
0 ... 1 mbar	0 ... 100 Pa	700 mbar	1 bar	A
0 ... 1.6 mbar	0 ... 160 Pa	700 mbar	1 bar	A
0 ... 2.5 mbar	0 ... 250 Pa	700 mbar	1 bar	A
0 ... 4 mbar	0 ... 400 Pa	100 mbar	200 mbar	B
0 ... 4 mbar	0 ... 400 Pa	700 mbar	1 bar	A *
0 ... 6 mbar	0 ... 600 Pa	100 mbar	200 mbar	B
0 ... 6 mbar	0 ... 600 Pa	750 mbar	1 bar	A *
0 ... 10 mbar	0 ... 1 kPa	100 mbar	200 mbar	B
0 ... 10 mbar	0 ... 1 kPa	750 mbar	1 bar	A *
0 ... 16 mbar	0 ... 1.6 kPa	310 mbar	410 mbar	B
0 ... 25 mbar	0 ... 2.5 kPa	310 mbar	410 mbar	B
0 ... 40 mbar	0 ... 4 kPa	310 mbar	410 mbar	B
0 ... 60 mbar	0 ... 6 kPa	800 mbar	1 bar	B
0 ... 100 mbar	0 ... 10 kPa	800 mbar	1 bar	B
0 ... 160 mbar	0 ... 16 kPa	1,4 bar	2,5 bar	B
0 ... 250 mbar	0 ... 25 kPa	1,4 bar	2,5 bar	B

\*) Measuring range with increased overload and burst pressure capability (see order code/special features).



**Symmetric measuring ranges:**

Measuring range (Channel 1 2)		Overload	Bursting pressure	Sensor
	-12,5 ... +12,5 Pa	700 mbar	1 bar	A
	-25 ... +25 Pa	700 mbar	1 bar	A
	-40 ... +40 Pa	700 mbar	1 bar	A
	-60 ... +60 Pa	700 mbar	1 bar	A
-1 ... +1 mbar	-100 ... +100 Pa	700 mbar	1 bar	A
-1.6 ... +1.6 mbar	-160 ... +160 Pa	700 mbar	1 bar	A
-2.5 ... +2.5 mbar	-250 ... +250 Pa	100 mbar	200 mbar	B
-2,5 ... +2,5 mbar	-250 ... +250 Pa	700 mbar	1 bar	A *
-4 ... +4 mbar	-400 ... +400 Pa	100 mbar	200 mbar	B
-4 ... +4 mbar	-400 ... +400 Pa	700 mbar	1 bar	A *
-6 ... +6 mbar	-600 ... +600 Pa	100 mbar	200 mbar	B
-6 ... +6 mbar	-600 ... +600 Pa	750 mbar	1 bar	A *
-10 ... +10 mbar	-1 ... +1 kPa	100 mbar	200 mbar	B
-10 ... +10 mbar	-1 ... +1 kPa	750 mbar	1 bar	A *
-16 ... +16 mbar	-1.6 ... +1.6 kPa	310 mbar	410 mbar	B
-25 ... +25 mbar	-2.5 ... +2.5 kPa	310 mbar	410 mbar	B
-40 ... +40 mbar	-4 ... +4 kPa	310 mbar	410 mbar	B
-60 ... +60 mbar	-6 ... +6 kPa	800 mbar	1 bar	B
-100 ... +100 mbar	-10 ... +10 kPa	800 mbar	1 bar	B
-160 ... +160 mbar	-16 ... +16 kPa	1,4 bar	2,5 bar	B
-250 ... +250 mbar	-25 ... +25 kPa	1,4 bar	2,5 bar	B

\*) Measuring range with increased overload and burst pressure capability (see order code/special features).

## 2.3 Output sizes

### Analogue outputs

The number of analogue outputs depends on the device version.

Device version	1-channel	2-channel
Number of analogue outputs	1	2

The output signal can be set in the configuration. Upon delivery, both analogue outputs are set to the same signal (see the type plate).

Output signal	0 to 20 mA 4 to 20 mA	0 ... 10 V 2 ... 10 V 1 ... 5 V
Signal range	0.0 to 21.5 mA	0.0 to 10.5 V
Load impedance $R_L$	$\leq 600 \Omega$	$\geq 2 \text{ k}\Omega$
Turn down	4:1	4:1

### Switch outputs

The number of switch outputs depends on the device model. The assignment of the switch outputs to the channels can be configured freely.

Standard version	1-channel	2-channel
Number of switch outputs	2	4
Assignment on delivery	Switch output 1 Switch output 2	Switch output 3 Switch output 4

Modbus (Opt1)	1-channel	2-channel
Number of switch outputs	0	0
Assignment on delivery	---	--

Modbus (Opt2)	1-channel	2-channel
Number of switch outputs	4	4
Assignment on delivery	Switch output 1 Switch output 2 Switch output 3 Switch output 4	Switch output 1 Switch output 2 Switch output 3 Switch output 4

IO-Link	1-channel	2-channel
Number of switch outputs	4	4
Assignment on delivery	Switch output 1 Switch output 2 Switch output 3 Switch output 4	Switch output 1 Switch output 2 Switch output 3 Switch output 4

Type	Potential-free semiconductor switch (MOSFET)
Progr. switching function	1-pole normally open (NO) 1-pole normally closed (NC)
Max. switching voltage	3 to 32 V AC/DC
Max. switching current	0.25 A
Max. switching output	8 W / 8 VA $R_{ON} \leq 4 \Omega$

## 2.4 Measuring accuracy

- The specifications for the measurement deviation (e) include linearity and hysteresis.
- All specifications refer to the basic measuring range (see name plate) and a compensation range of -20 to +70 °C.

### Sensor type A

Measuring range		Error of measurement (e) [%]		TK Zero point [%/10K]		TK Span [%/10K]	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
	0 ... 25 Pa	1.5	2.5	0.5	1.0	0.3	0.6
	0 ... 40 Pa	1.0	2.0	0.5	1.0	0.2	0.4
	0 ... 60 Pa	0.75	1.5	0.3	0.6	0.2	0.4
0 ... 1 mbar	0 ... 100 Pa	0.5	1.0	0.3	0.6	0.2	0.4
0 ... 1.6 mbar	0 ... 160 Pa	0.5	1.0	0.3	0.6	0.2	0.4
0 ... 2.5 mbar	0 ... 250 Pa	0.5	1.0	0.3	0.6	0.2	0.4
0 ... 4 mbar	0 ... 400 Pa	0.5	1.0	0.15	0.3	0.05	0.1
0 ... 6 mbar	0 ... 600 Pa	0.5	0.75	0.15	0.25	0.05	0.1
0 ... 10 mbar	0 ... 1 kPa	0.25	0.5	0.1	0.2	0.05	0.1
	-12.5 ... +12.5 Pa	1,5	2,5	0,5	1,0	0,3	0,6
	-20 ... +80 Pa	0,5	1,0	0,3	0,6	0,2	0,4
	-25 ... +25 Pa	1.0	2.0	0.4	0.8	0.2	0.4
	-40 ... +40 Pa	0.75	1.5	0.3	0.6	0.2	0.4
	-60 ... +60 Pa	0.5	1.0	0.3	0.6	0.2	0.4
-1 ... +1 mbar	-100 ... +100 Pa	0.5	1.0	0.3	0.6	0.2	0.4
-1.6 ... +1.6 mbar	-160 ... +160 Pa	0.5	1.0	0.3	0.6	0.2	0.4
-2.5 ... +2.5 mbar	-250 ... +250 Pa	0.5	1.0	0.15	0.3	0.05	0.1
-4 ... +4 mbar	-400 ... +400 Pa	0.5	1.0	0.1	0.2	0.05	0.1
-6 ... +6 mbar	-600 ... +600 Pa	0.5	0.75	0.1	0.15	0.05	0.1
-10 ... +10 mbar	-1 ... +1 kPa	0.25	0.5	0.05	0.1	0.05	0.1

**Sensortyp B**

Messbereich		Messabweichung (e) [%]		TK Nullpunkt [%/10K]		TK Spanne [%/10K]	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
0 ... 4 mbar	0 ... 400 Pa	0.5	1.0	0.15	0.3	0.05	0.1
0 ... 6 mbar	0 ... 600 Pa	0.5	0.75	0.15	0.25	0.05	0.1
0 ... 10 mbar	0 ... 1 kPa	0.25	0.5	0.1	0.2	0.05	0.1
0 ... 16 mbar	0 ... 1.6 kPa	0.25	0.5	0.15	0.3	0.05	0.1
0 ... 25 mbar	0 ... 2.5 kPa	0.25	0.5	0.15	0.25	0.05	0.1
0 ... 40 mbar	0 ... 4 kPa	0.25	0.5	0.1	0.2	0.05	0.1
0 ... 60 mbar	0 ... 6 kPa	0.25	0.5	0.1	0.2	0.05	0.1
0 ... 100 mbar	0 ... 10 kPa	0.25	0.5	0.1	0.15	0.05	0.1
0 ... 160 mbar	0 ... 16 kPa	0.25	0.5	0.05	0.1	0.05	0.1
0 ... 250 mbar	0 ... 25 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-2.5 ... +2.5 mbar	-250 ... +250 Pa	0.5	1.0	0.15	0.3	0.05	0.1
-4 ... +4 mbar	-400 ... +400 Pa	0.5	1.0	0.1	0.2	0.05	0.1
-6 ... +6 mbar	-600 ... +600 Pa	0.5	0.75	0.1	0.15	0.05	0.1
-10 ... +10 mbar	-1 ... +1 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-16 ... +16 mbar	-1.6 ... +1.6 kPa	0.25	0.5	0.1	0.2	0.05	0.1
-25 ... +25 mbar	-2.5 ... +2.5 kPa	0.25	0.5	0.1	0.15	0.05	0.1
-40 ... +40 mbar	-4 ... +4 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-60 ... +60 mbar	-6 ... +6 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-100 ... +100 mbar	-10 ... +10 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-160 ... +160 mbar	-16 ... +16 kPa	0.25	0.5	0.05	0.1	0.05	0.1
-250 ... +250 mbar	-25 ... +25 kPa	0.25	0.5	0.05	0.1	0.05	0.1

## 2.5 Digital interfaces

### USB interface

USB On The Go	2.0
Data rate	12 Mbit/s (Full Speed)
Connection	Micro USB type B
Communication	Host/Device mode

### Modbus RTU interface

interface	RS 485
Report	Modbus RTU
Modbus specification	Application Protocol Specification V1.1b3 (26 April 2012)
Address	1 ... 247
Baud rate	2400 ... 115200 baud
Parity	Even, uneven, parity
Stop bits	1...2

### IO-Link Interface

Connection	M12-4 Class A
IO-Link specification	V1.1
Pin assignment	as per IEC 60974-5-2
Device energy supply	max. 200 mA
Data transmission rates	COM 2 = 38.4 kBd

## 2.6 Auxiliary energy

**NOTICE! Only a CE-compliant mains adapter with a slow 200 mA fuse may be used in the power supply circuit for ATEX devices.**

Rated voltage	24 V AC/DC	
Admissible operating voltage $U_b$	19.2 to 28.8 V AC/DC	Default Modbus RTU
	18 to 30 V DC	IO-Link
Power consumption	Typ. 2W (VA) Max. 3W (VA)	

## 2.7 Operating conditions

	Standard	ATEX
Umgebungstemperaturbereich	-20 ... +70 °C	-20 ... +60 °C
Mediumtemperaturbereich	-20 ... +70 °C	-20 ... +60 °C
Lagerungstemperaturbereich	-20 ... +70 °C	-20 ... +70 °C
Schutzart	IP65	IP65
EMC	EN 61326-1:2013 EN 61326-2-3:2013	
ATEX	EN IEC 60079-0:2018 EN IEC 60079-7:2015/A1:2018 EN 60079-31:2014	
RoHS	EN IEC 63000:2018	

## 2.8 Display

Display	Full graphic LC display
Resolution	128 x 64 Pixel
Backlight	RGB
Measured value display	6 digits

## 2.9 Construction design

### Process connection

		Outer Ø	Inner Ø
CK screw connections made of aluminium	Hose	6 mm	4 mm
	Hose	8 mm	6 mm
Pneumatic plug-in connector in nickel-plated brass	Hose	6 mm	4 mm
	Hose	8 mm	6 mm
Cutting ring connection in stainless steel	Pipe	6 mm	
	Pipe	8 mm	

### Electrical connection

Standard version	1-channel	2-channel
Connector 1: Auxiliary energy, output	5-pin male	5-pin male
Connector 2: Switch outputs	4-pin male	8-pin male

Modbus without switch outputs	1-channel	2-channel
Connector 1: Modbus IN	5-pin male	5-pin male
Connector 2: Modbus OUT	5-pin female	5-pin female

Modbus with switch outputs	1-channel	2-channel
Connector 1: Modbus	5-pin male	5-pin male
Connector 2: Switch outputs	8-pin male	8-pin male

IO-Link with switch outputs	1-channel	2-channel
Connector 1: IO-Link	4-pin male	4-pin male
Connector 2: Switch outputs	8-pin male	8-pin male

### General activities

Installation position	User-defined
Dimensions (without connections)	120 x 81.5 x 95 mm
Weight	Max. 380 g

### 2.9.1 Materials

#### Materials of the parts that come into contact with the medium

Silicon, PVC, FKM, aluminium, brass, stainless steel

#### Materials of the parts that come into contact with the surroundings

Polyester, PET, polyamide 6.6, aluminium, nickel-plated brass, stainless steel

### 2.9.2 Dimensional drawings

All dimensions in mm unless otherwise stated

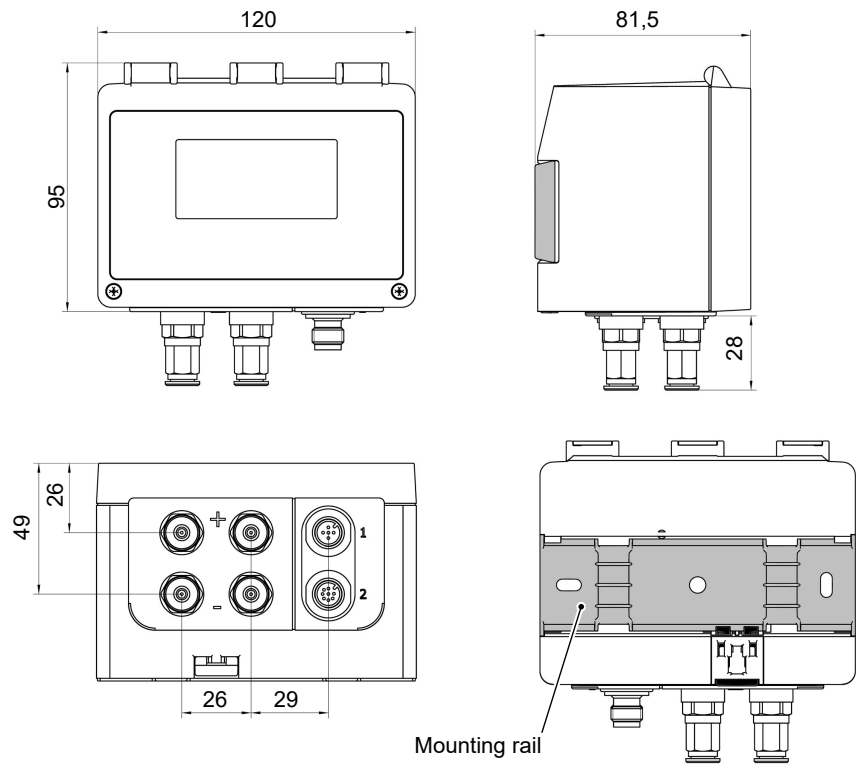


Fig. 5: Dimension drawing

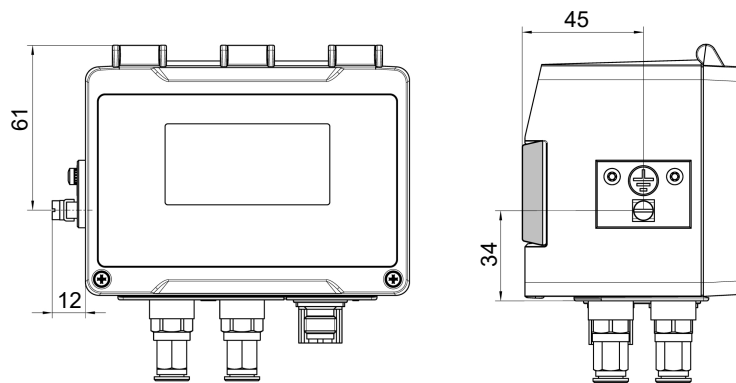


Fig. 6: Dimension drawing ATEX

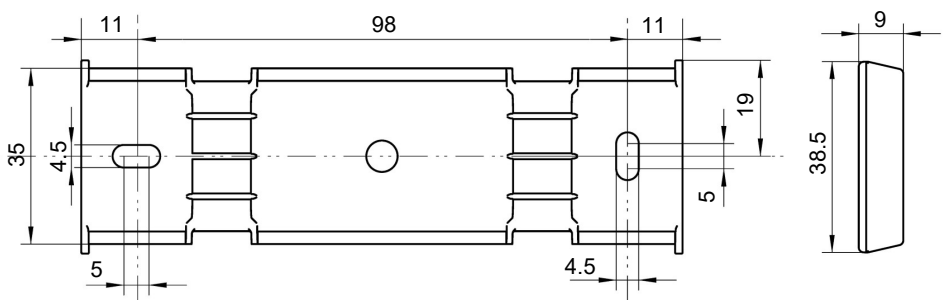


Fig. 7: Mounting rail

**Process connections**

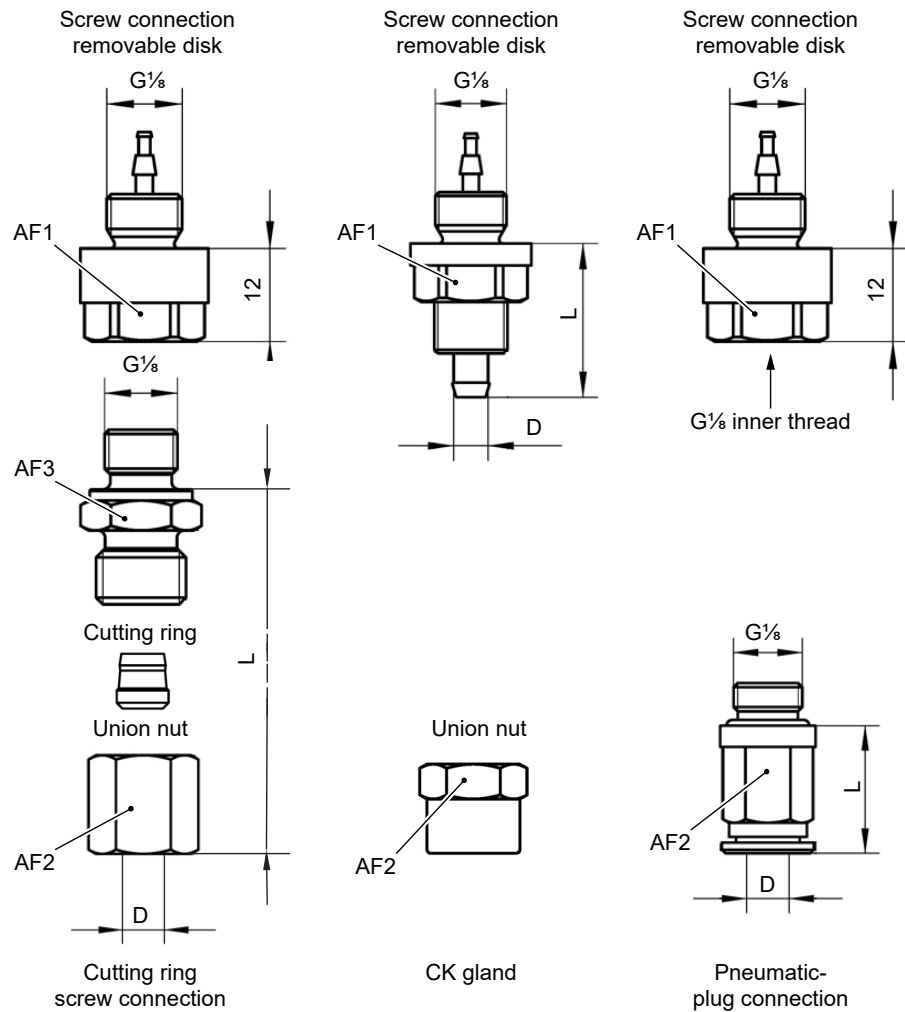


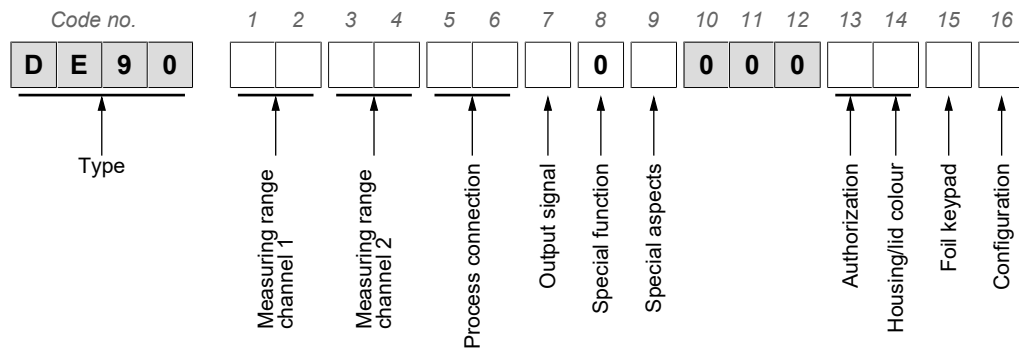
Fig. 8: Process connection Options

Prozessanschluss		D	d	L	AF1	AF2	AF3
Cutting ring screw connection	Pipe	6	---	23.5	14	14	14
		8	---	24.5	14	17	14
CK gland	Hose	6	4	21	14	12	---
		8	6	21	14	14	---
Pneumatic plug connection	Pneumatic hose	6	4	18	14	11	---
		8	6	20.5	14	13	---

D: outside diameter; d: inside diameter



### 3 Order codes



#### Measuring range channel 1:

[1.2]	[1.2]	[1.2]
	<b>D1</b>	0 to 25 Pa
	<b>D2</b>	0 to 40 Pa
	<b>D3</b>	0 to 60 Pa
<b>51</b>	<b>D4</b>	0 to 100 Pa
<b>97</b>	<b>D5</b>	0 to 160 Pa
<b>98</b>	<b>D6</b>	0 to 250 Pa
<b>52</b>	<b>D7</b>	0 ... 400 Pa
<b>53</b>	<b>D8</b>	0 to 600 Pa
<b>54</b>	<b>N1</b>	0 to 1 kPa
<b>55</b>	<b>N2</b>	0 to 1.6 kPa
<b>56</b>	<b>N3</b>	0 ... 2.5 kPa
<b>57</b>	<b>N4</b>	0 ... 4 kPa
<b>58</b>	<b>N5</b>	0 to 6 kPa
<b>59</b>	<b>E5</b>	0 to 10 kPa
<b>60</b>	<b>E6</b>	0 to 16 kPa
<b>82</b>	<b>E7</b>	0 to 25 kPa
	<b>L0</b>	-20 to +80 Pa
	<b>L4</b>	-12.5 to +12.5 Pa
	<b>L5</b>	-25 to +25 Pa
	<b>R6</b>	-40 to +40 Pa
	<b>2L</b>	-60 to +60 Pa
<b>A4</b>	<b>L7</b>	-100 to +100 Pa
<b>A5</b>	<b>R7</b>	-160 to +160 Pa
<b>A6</b>	<b>L6</b>	-250 to +250 Pa
<b>A7</b>	<b>R1</b>	-400 to +400 Pa
<b>A8</b>	<b>R2</b>	-600 ... +600 Pa
<b>A9</b>	<b>L8</b>	-1 to +1 kPa
<b>B1</b>	<b>L9</b>	-1.6 to +1.6 kPa
<b>B2</b>	<b>M6</b>	-2.5 to +2.5 kPa
<b>C5</b>	<b>M7</b>	-4 to +4 kPa
<b>B3</b>	<b>M8</b>	-6 to +6 kPa
<b>B4</b>	<b>R8</b>	-10 to +10 kPa
<b>R5</b>	<b>R9</b>	-16 to +16 kPa
<b>B6</b>	<b>T1</b>	-25 to +25 kPa
	<b>D9</b>	0 to 1000 Pa
	<b>O1</b>	0 to 1600 Pa
	<b>E2</b>	0 to 2500 Pa
	<b>E3</b>	0 to 4000 Pa
	<b>E4</b>	0 to 6000 Pa
	<b>1P</b>	0 to 10000 Pa
	<b>2P</b>	0 to 16000 Pa
	<b>3P</b>	0 to 25000 Pa

**Measuring range channel 2:**

[3.4]	[3.4]	[3.4]
<b>00</b> None		
	<b>D1</b> 0 to 25 Pa	
	<b>D2</b> 0 to 40 Pa	
	<b>D3</b> 0 to 60 Pa	
<b>51</b> 0 to 1 mbar	<b>D4</b> 0 to 100 Pa	
<b>97</b> 0 to 1.6 mbar	<b>D5</b> 0 to 160 Pa	
<b>98</b> 0 ... 2.5 mbar	<b>D6</b> 0 to 250 Pa	
<b>52</b> 0 to 4 mbar	<b>D7</b> 0 ... 400 Pa	
<b>53</b> 0 ... 6 mbar	<b>D8</b> 0 to 600 Pa	
<b>54</b> 0 ... 10 mbar	<b>N1</b> 0 to 1 kPa	<b>D9</b> 0 to 1000 Pa
<b>55</b> 0 ... 16 mbar	<b>N2</b> 0 to 1.6 kPa	<b>O1</b> 0 to 1600 Pa
<b>56</b> 0 ... 25 mbar	<b>N3</b> 0 ... 2.5 kPa	<b>E2</b> 0 to 2500 Pa
<b>57</b> 0 ... 40 mbar	<b>N4</b> 0 ... 4 kPa	<b>E3</b> 0 to 4000 Pa
<b>58</b> 0 ... 60 mbar	<b>N5</b> 0 to 6 kPa	<b>E4</b> 0 to 6000 Pa
<b>59</b> 0 ... 100 mbar	<b>E5</b> 0 to 10 kPa	
<b>60</b> 0 ... 160 mbar	<b>E6</b> 0 to 16 kPa	
<b>82</b> 0 ... 250 mbar	<b>E7</b> 0 to 25 kPa	
	<b>L0</b> -20 to +80 Pa	
	<b>L4</b> -12.5 to +12.5 Pa	
	<b>L5</b> -25 to +25 Pa	
	<b>R6</b> -40 to +40 Pa	
	<b>2L</b> -60 to +60 Pa	
<b>A4</b> -1 ... +1 mbar	<b>L7</b> -100 to +100 Pa	
<b>A5</b> -1.6 to +1.6 mbar	<b>R7</b> -160 to +160 Pa	
<b>A6</b> -2.5 ... +2.5 mbar	<b>L6</b> -250 to +250 Pa	
<b>A7</b> -4 ... +4 mbar	<b>R1</b> -400 to +400 Pa	
<b>A8</b> -6 ... +6 mbar	<b>R2</b> -600 ... +600 Pa	
<b>A9</b> -10 ... +10 mbar	<b>L8</b> -1 to +1 kPa	
<b>B1</b> -16 ... +16 mbar	<b>L9</b> -1.6 to +1.6 kPa	
<b>B2</b> -25 ... +25 mbar	<b>M6</b> -2.5 to +2.5 kPa	
<b>C5</b> -40 ... +40 mbar	<b>M7</b> -4 to +4 kPa	
<b>B3</b> -60 ... +60 mbar	<b>M8</b> -6 to +6 kPa	
<b>B4</b> -100 ... +100 mbar	<b>R8</b> -10 to +10 kPa	
<b>R5</b> -160 ... +160 mbar	<b>R9</b> -16 to +16 kPa	
<b>B6</b> -250 ... +250 mbar	<b>T1</b> -25 to +25 kPa	

**Process connection:**

[5.6]
<b>00</b> G $\frac{1}{8}$ female thread (aluminium)
<b>40</b> CK screw connection in aluminium for 6/4 mm hose
<b>41</b> CK screw connection in aluminium for 8/6 mm hose
<b>P6</b> Nickel-plated brass pneumatic plug-in connector for 6/4 mm hose
<b>P8</b> Nickel-plated brass pneumatic plug-in connector for 8/6 mm hose
<b>24</b> Stainless steel cutting ring connection for 6 mm pipe
<b>25</b> Cutting ring connection in stainless steel for 8 mm pipe

**Output signal:**

<b>[7]</b>
<b>0</b> None
<i>Switchable, preset at the factory:</i>
<b>C</b> 0 ... 10 V
<b>A</b> 0 to 20 mA
<b>P</b> 4 ... 20 mA
<i>Digital interface:</i>
<b>M</b> RS485 Modbus RTU (without switch outputs)
<b>N</b> RS485 Modbus RTU (with 4 switch outputs)
<b>i</b> IO-Link interface (with 4 switch outputs)

**Special functions:**

<b>[8]</b>
<b>0</b> None

**Special features:**

<b>[9]</b>
<b>0</b> None
<b>1</b> Sensor with increased overload and bursting pressure strength of 1 bar only for the following pressure ranges:
<b>52</b> 0 to 4 mbar
<b>53</b> 0 ... 6 mbar
<b>54</b> 0 ... 10 mbar
<b>A6</b> -2.5 ... +2.5 mbar
<b>A7</b> -4 ... +4 mbar
<b>A8</b> -6 ... +6 mbar
<b>A9</b> -10 ... +10 mbar
<b>D7</b> 0 ... 400 Pa
<b>D8</b> 0 to 600 Pa
<b>D9</b> 0 to 1000 Pa
<b>N1</b> 0 to 1 kPa
<b>L6</b> -250 to +250 Pa
<b>R1</b> -400 to +400 Pa
<b>R2</b> -600 ... +600 Pa
<b>L8</b> -1 to +1 kPa

**Approval and housing/lid colour:**

<b>[13.14] Approval</b>	<b>Housing colour</b>	<b>Lid colour</b>
<b>00</b> None	Anthracite	Green
<b>R1</b> ATEX zones 2 and 22	Black (conductive housing)	Black

**Membrane keypad:**

<b>[15]</b>
<b>0</b> FISCHER
<b>1</b> Neutral

**Configuration:**

<b>[16] Preset at the factory <sup>*)</sup></b>
<b>0</b> "Standard" configuration
<b>1</b> "Linear characteristic curve" configuration
<b>2</b> "Flow rate" configuration
<b>3</b> "Table" configuration
<b>4</b> "Volume flow" configuration with K factor
<b>5</b> "Equation" configuration

<b>[16] Preset at the factory <sup>*)</sup></b>	
<b>6</b>	“Dyn. filter monitoring” configuration
<b>7</b>	“Difference” configuration
<b>S</b>	“Customer-specific” configuration

<sup>\*)</sup> The configuration can be changed on the device at any time. The delivery state is defined by the order code. For details, see the operating instructions.

### 3.1 Accessories

#### M12 connection cables

<b>Designation</b>	<b>No. of pins</b>	<b>Length</b>	<b>Order No.</b>
PUR connection cable with M12 connector	4 pins	2 m	06401993
		5 m	06401994
		10 m	06401572
	5-pin	2 m	06401995
		5 m	06401996
		10 m	06401573
	8-pin	2 m	09001844
		5 m	09011146
		10 m	09011016

#### USB interface

<b>Designation</b>		<b>Order No.</b>
Connection cable, USB-A on USB micro-B connector	2 m	09007340
Stick USB 2.0, USB-A/micro-B connector	16 GB	09007316

#### Modbus

<b>Designation</b>		<b>Order No.</b>
Modbus terminating resistor	120 ohm socket	06411280
	120 ohm connector	06411279

### Connection set

To connect the differential pressure transmitter to the ventilation channels comprising

- 2 x PVC hose
- 2 x ABS weld socket incl. attachment screws.

Designation	Hose	Length	Order No.
Plastic connection set	2 x 6/4 mm	1 m	04005129
		2.5 m	04005148
		5 m	04005163
		10 m	04005216
	2 x 8/6 mm	1 m	04005217
		5 m	04005218

Comments:

For 2-channel devices, two connection sets may be required in some circumstances.

### Complete connection set

To connect the differential pressure transmitter to the ventilation channels comprising

- 2 x PVC hose
- 2 x ABS weld socket incl. attachment screws
- 2 x field-wireable M12 connector  
Channel 1: 4-pin/5-pin socket  
Channel 2: 8-pin/5-pin socket

Designation		Hose	Length	Order No.
Complete connection set	1-channel	4/6 mm	1 m	06411560
		6/8 mm	1 m	06411561
	2 channels	4/6 mm	1 m	06411562
		6/8 mm	1 m	06411563

### Recalibration connection set

To ensure correct measurements at all times, it is necessary to calibrate the pressure transducer regularly and bring it back in line with national or international standards.

Designation	Order No.
Recalibration connection set	06411887
2x Push-in T-fitting, male thread G1/8 Female thread G1/8 - for hose, outer Ø 6 mm	
2x Plug-in sleeve Ø 6 mm	
2x Ball valve QH-QS-6-1/8	

### Software

The configuration software inTouch is available at [fischermesstechnik.de](http://fischermesstechnik.de) as a download.

### **3.2 Information about the document**

This document contains all technical data about the device. Great care was taken when compiling the texts and illustrations. nevertheless, errors cannot be ruled out.

Subject to technical amendments.

## Notes



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