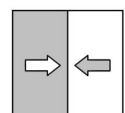




Datasheet

DE23

Differential pressure transmitter



1 Product and functional description

1.1 Performance features

Typical applications

- Filter equipment
- Precision air channel measurements
- Low-pressure measurement for building automation
- Clean room pressure equalisation
- Burner under-pressure measurement
- Furnace-circulating air controls

Important features

- Long-term stable measurement of low pressure
- Robust, resistant to overpressure and maintenance-free
- 1 or 2 channel measurement

1.2 Intended use

The DE23 is a differential pressure transmitter for measuring very small over-pressure, under-pressure and differential pressure in neutral, non-corrosive gaseous media.

1.3 Equipment versions

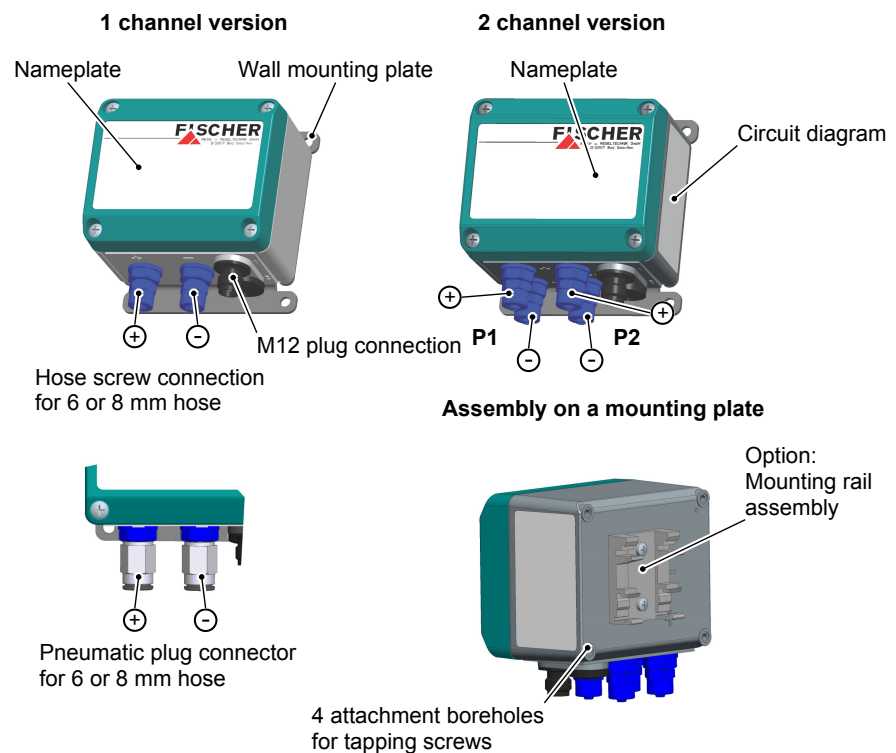


Fig. 1: Equipment versions

1.4 Function diagram

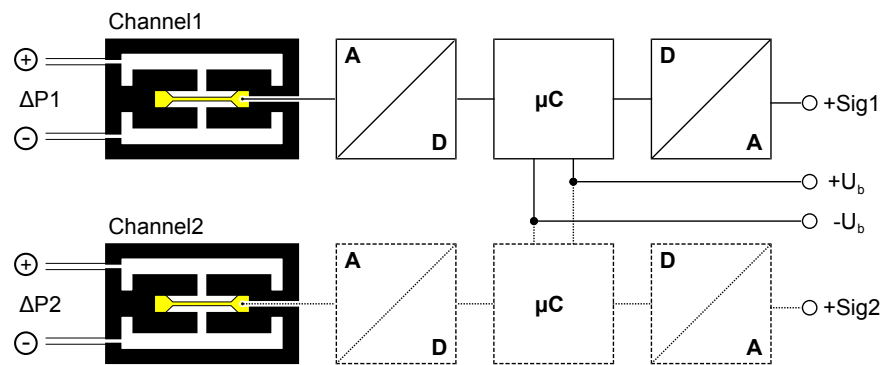


Fig. 2: Function diagram 3-wire (voltage output)

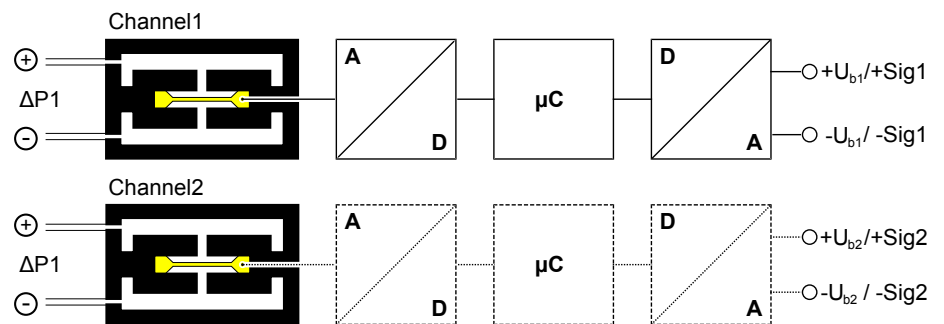


Fig. 3: Function diagram 2-wire (current output)

1.5 Design and mode of operation

The basis of this transmitter is a sensor element with a produced differential condenser made with silicon-glass technology.

The active pressure generates changes in capacity that is evaluated by the device's electronics and transformed into an analogue signal 4 ... 20 mA or 0 ... 10 V.

The measuring channel are identical in the 2-channel models.

2 Technical Data

2.1 Generalities

Reference conditions (acc. to IEC 61298-1)		
Temperature	+15 ... +25 °C	
Relative humidity	45 ... 75 %	
Air pressure	86 ... 106 kPa	860 ... 1060 mbar
Installation position	User-defined	

All information in the technical data refer to one measuring value channel. The technical data for the second measuring value channel is identical and is therefore not listed.

2.2 Input variables

Measured variable

Differential pressure, positive and negative over-pressure

Measuring ranges

Relative pressure	+/- measuring ranges	asymmetric
0 ... 25 Pa	± 25.0 Pa	-20 ... +80 Pa
0 ... 50 Pa	± 50.0 Pa	
0 ... 100 Pa	± 100.0 Pa	
0 ... 250 Pa	± 250.0 Pa	
0 ... 500 Pa		
0 ... 1000 Pa		

For all measuring ranges:

Max. system pressure	stat. pressure	1 bar
Bursting pressure on one side		1,7 bar

2.3 Output sizes

	Current output	Voltage output
Output signal	4 ... 20 mA	0 ... 10 V
Apparent ohmic resistance	$R_L \leq (U_b - 12 \text{ V}) / 0.02 \text{ A}$	
Characteristic curve	linear	linear
Connection type	2-Wire	3-Wire

2.4 Measurement accuracy

Characteristic curve deviation ¹⁾	1 % FS ²⁾
Reproducibility	0.1 % FS
TK zero-point and range ³⁾	0.6 % FS / 10 K
Long-term stability	≤ 0.5 % FS / year
Response time (10 ... 90 %)	250 ms

¹⁾ Non-linearity and hysteresis at 25 °C

²⁾ FS: Full Scale (measuring range span)

³⁾ Compensation range 4 ... 50 °C

2.5 Auxiliary energy

	2-wire (4 ... 20 mA)	3-wire (0 ... 10 V)	
Rated Voltage	24 V DC	24 V AC	24 V DC
Adm. operating voltage	19 ... 36 V	19,2 ... 28,8 V	14 ... 36 V
Power consumption (per chanel)	Max. 20 mA	Max. 6 mA	

2.6 Application conditions

Increase ambient temperature	-10 ... +60 °C
Media temperature	-10 ... +60 °C
Storage temperature	-20 ... +70 °C
Enclosure protection class	IP65 as per EN 60529
EMC	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN 50581:2012

2.7 Construction design

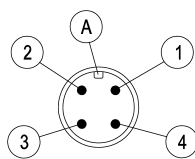
2.7.1 Process connection

All device models are available with the following process connections:

Hose screw connection (aluminium anodised)	for 6/4 mm hose
	for 8/6 mm hose
Pneumatic plug connector	for 6/4 mm hose
	for 8/6 mm hose

2.7.2 Electrical connection

M12 round plug connector, 4-pin, male, A-coding



2-wire 4 ... 20 mA		1 channels	2 channels
1	brown	+U _b +Sig	+U _{b1} +Sig 1
2	white		-U _{b2} -Sig 2
3	blue	-U _b -Sig	-U _{b1} -Sig 1
4	black		+U _{b2} +Sig 2

3-wire 0 ... 10 V		1 channels	2 channels
1	brown	+U _b	+U _b
2	white		+Sig2
3	blue	-U _b -Sig	-U _b -Sig1 -Sig2
4	black	+Sig	+Sig1

Fig. 4: Electrical connection

2.7.3 Materials

Housing	Polyamide PA 6.6
Has contact to the medium	Silicon, PVC, aluminium, brass

2.7.4 Assembly

Attachment boreholes on the rear side for attachment to mounting plates.

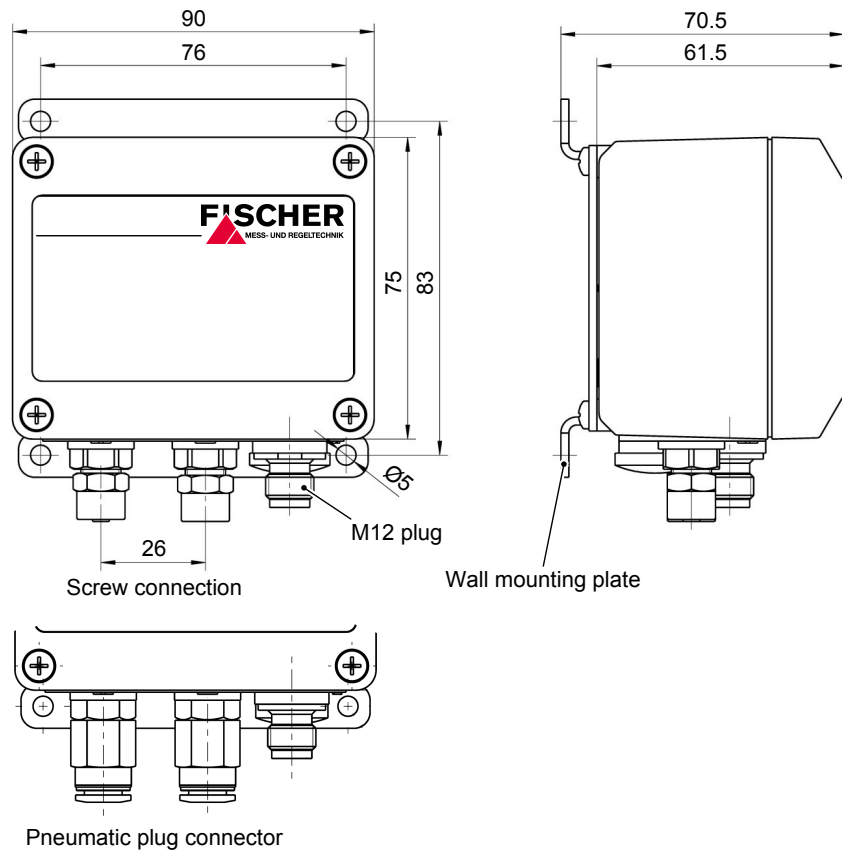
Assembly of the mounting rails using an adapter element.

Wall mounting using wall mounting plate

2.7.5 Dimensional drawings

All dimensions in mm unless otherwise stated

Wall-mounting



Attachment boreholes on rear side

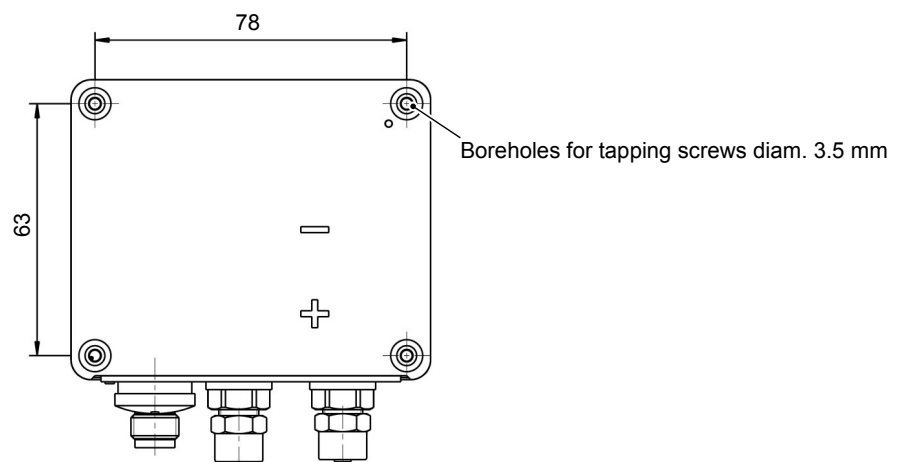


Fig. 5: Dimension drawing

Assembly of the mounting rails

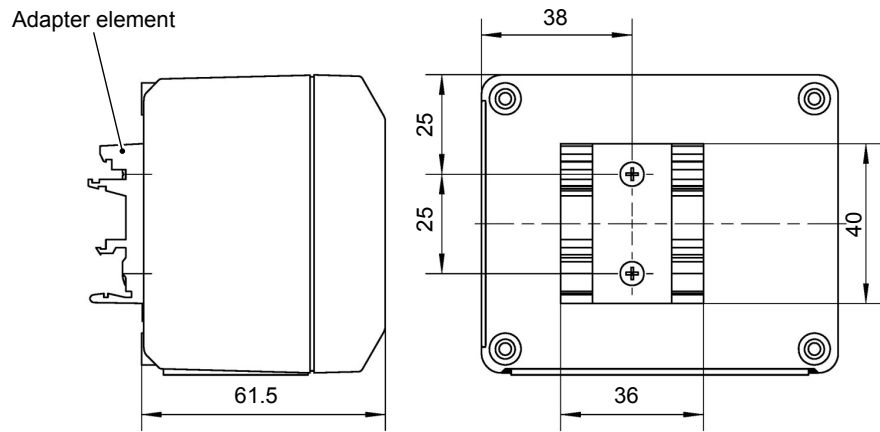


Fig. 6: Assembly of the mounting rails

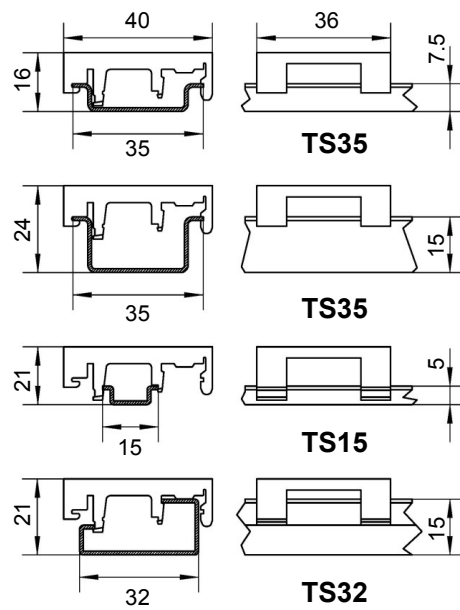
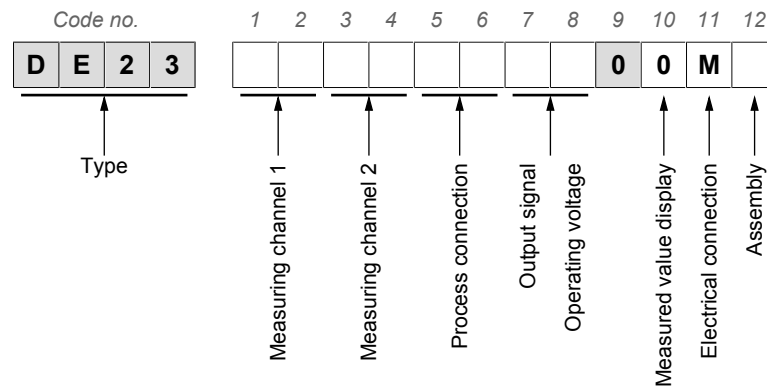


Fig. 7: Mounting rails options

3 Order Codes



Measuring range channel 1:

[1,2]	(Code no.)
D1	0 ... 25 Pa
J6	0 ... 50 Pa
D4	0 ... 100 Pa
D6	0 ... 250 Pa
J7	0 ... 500 Pa
D9	0 ... 1000 Pa
L5	± 25.0 Pa
L2	± 50.0 Pa
L0	-20 ... +80 Pa
L7	± 100.0 Pa
L6	± 250.0 Pa (only versions 4...20 mA, 2-wire)

Measuring range channel 2:

[3,4]	(Code no.)
00	without
D1	0 ... 25 Pa
J6	0 ... 50 Pa
D4	0 ... 100 Pa
D6	0 ... 250 Pa
J7	0 ... 500 Pa
D9	0 ... 1000 Pa
L5	± 25.0 Pa
L2	± 50.0 Pa
L0	-20 ... +80 Pa
L7	± 100.0 Pa
L6	± 250.0 Pa (only versions 4...20 mA, 2-wire)

Process connection:

[5,6] (Code no.)	
40	Aluminium hose screw connection anodised for 6/4 mm hose
41	Aluminium hose screw connection anodised for 8/6 mm hose
P6	Pneumatic plug connector for 6/4 mm hose
P8	Pneumatic plug connector for 8/6 mm hose

Output signal/Operating voltage:

[7,8]	Output signal	Operating voltage
BR	4 ... 20 mA 2-wire connection	24 V DC
CL	0 ... 10 V 3-wire connection	24 V AC/DC

Measured value display:

[10] (Code no.)	
0	none

Electrical connection:

[11] (Code no.)	
M	M12 plug connection

Assembly options:

[12] (Code no.)	
0	Attachment boreholes on rear side (standard)
S	Assembly on mounting rails
W	Wall-mounting

3.1 Accessories

Order no.	Planned measures	No. of Poles	Length
06401993	Connection cable with M12 connector	4-pin	2 m
06401994	Connection cable with M12 connector	4-pin	5 m
04005144	Wall mounting set		

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.

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