

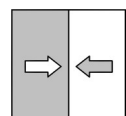
## Data sheet

### DE43

Digital 2-channel transmitter

for direct connection to  
bus-capable automation devices

09005641 • DB\_EN\_DE43 • Rev. ST4-B • 12/22



# 1 Product and functional description

## 1.1 Performance characteristics

### Typical applications

- Air-conditioning technology
- Ventilation technology
- Environmental technology
- Monitoring of automatic roll filters, extraction systems etc.
- Metering at cowls
- Flow and control pressure measurements
- Surface technology

### Important features

- Durable and resistant to overpressure
- Maintenance-free
- Two independent differential pressure sensors
- Bus-capable via RS-485 with Modbus-RTU protocol
- Optional connection for external contacts
- Address setting and configuration mechanical via coding switch
- Calibrated and configured ex-works

## 1.2 Equipment versions

### Assembly

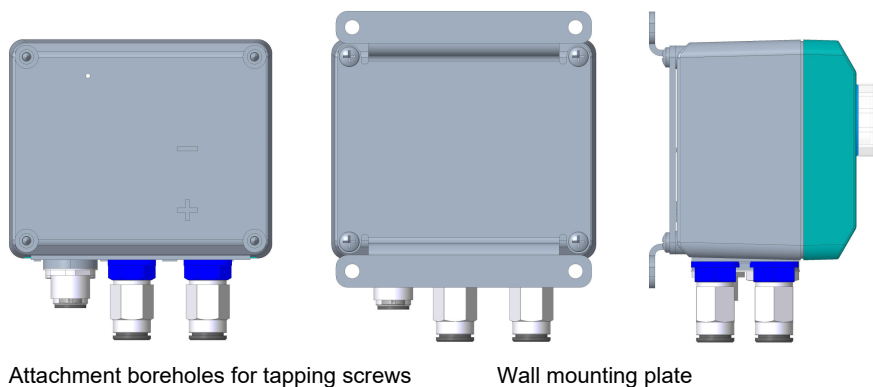


Fig. 1: Wall mounting

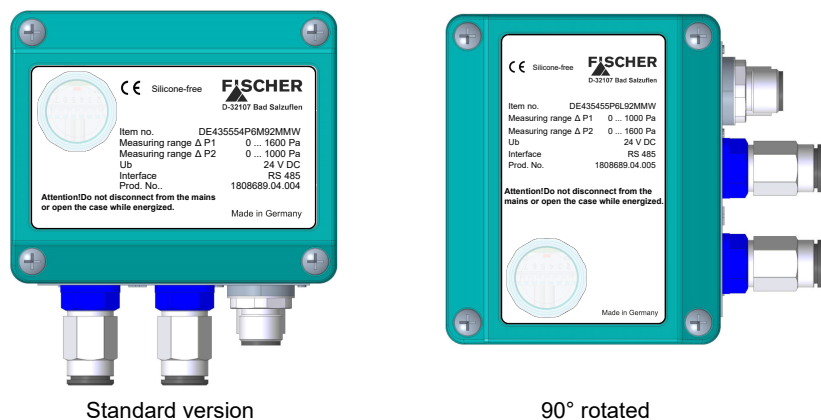


Fig. 2: Type plate

### Process connection

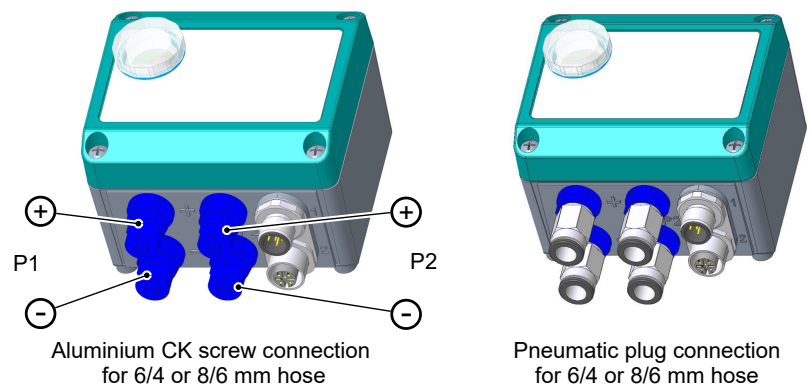


Fig. 3: Process connection

### Electrical connections

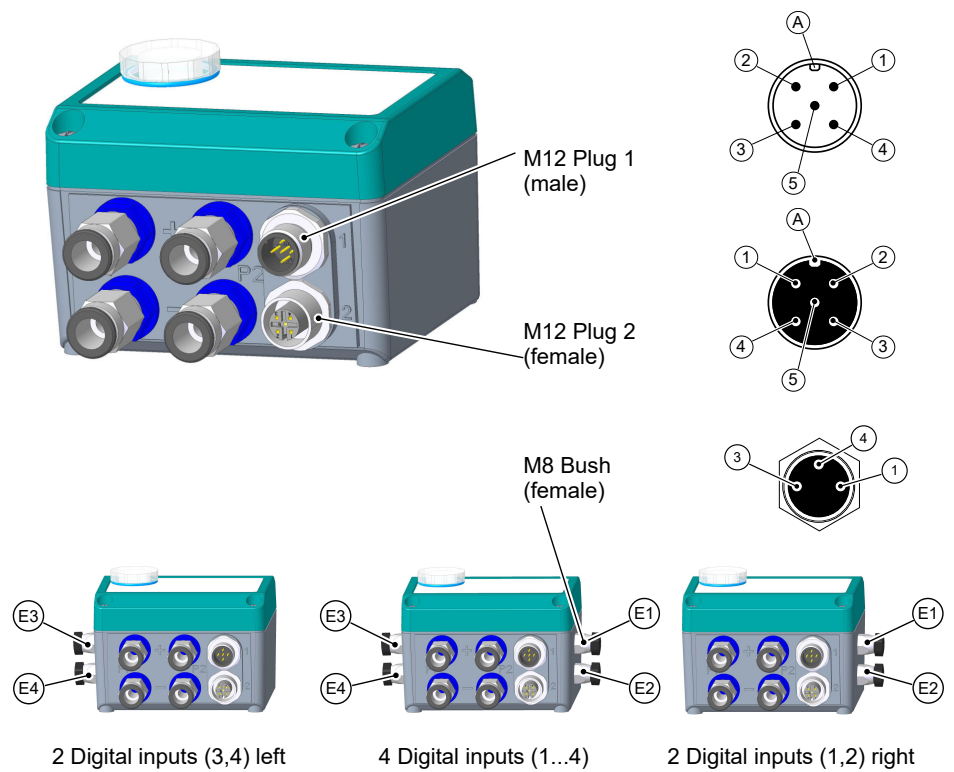


Fig. 4: Electrical connections

### 1.3 Function diagram

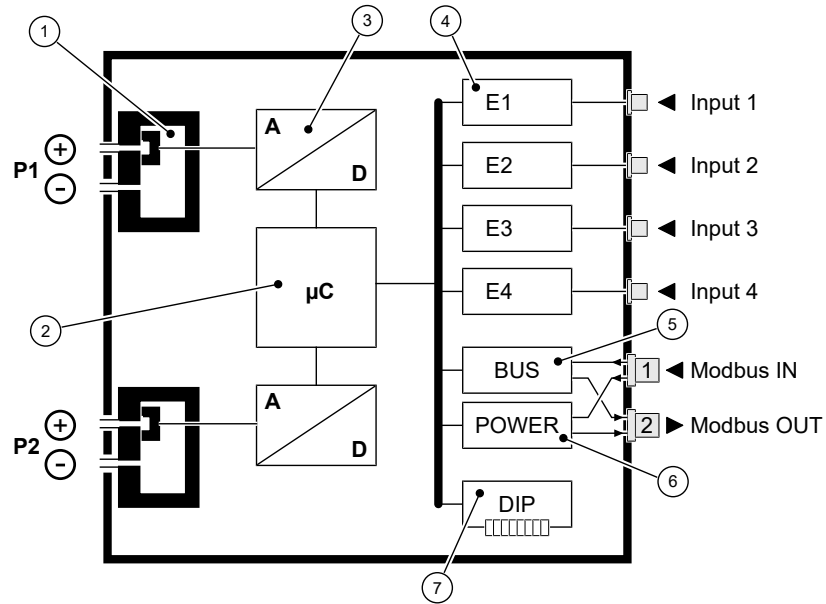


Fig. 5: Function diagram

1	Sensor element	2	Micro-controller
3	AD converter	4	Digital inputs
5	Modbus interface	6	Power Supply
7	Modbus configuration		

### 1.4 Design and mode of operation

The basis of the DE43 transmitter comprises two piezoresistive sensor elements.

The pressure that is to be measured acts upon a silicone membrane that is equipped with a resistor bridge. The acting pressure causes the membrane to move and therefore a change in resistance. The bridge signal is analysed by the integrated electronics and converted to a pressure value.

The DE43 transmitter communicates with an overriding control system via an RS 485 interface and a Modbus RTU protocol. The currently measured value is forwarded by the overriding control system on request.

The device also has a connecting slot for two or four proximity switches whose signals can also be queried through the Modbus by the overriding control system.

## 2 Technical data

### 2.1 General

General information	
Type designation	DE43
Pressure type	Differential pressure, relative pressure
Measurement principle	Piezo-resistive
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

### 2.2 Input variables

Measuring variable	Pressure, under-pressure and differential pressure for neutral gaseous media
Damping (P=10...90%)	1 sec

Measuring range (p)	Unit	+ ranges (0 ... +p)					+ ranges (-p ... +p)					
		PA	400	600	1000	1600	2500	±250	±400	±600	±1000	±1600
	kPa	0.4	0.6	1	1.6	2.5	±0.25	±0.4	±0.6	±1	±1.6	
	mbar	4	6	10	16	25	±2.5	±4	±6	±10	±16	
Max. stat. operating pressure	mbar	50	50	100	100	100	50	50	50	100	100	
Bursting pressure	mbar	150	150	300	300	300	150	150	150	300	300	
Characteristic curve deviation <sup>(*)</sup>	Max.	%FS					1.0					
	Type	%FS					0.5					
TK Span <sup>(**)</sup>	Max.	%FS/10K	1.0	1.0	0.3	0.3	0.3	1.0	0.5	0.3	0.3	0.3
	Type	%FS/10K	0.3									
TK zero-point <sup>(**)</sup>	Max.	%FS/10K	1.0	1.0	0.4	0.4	0.4	1.0	0.5	0.4	0.4	0.4
	Type	%FS/10K	0.2									

<sup>(\*)</sup> Characteristic curve deviation (non-linearity and hysteresis) at 25°C

<sup>(\*\*)</sup> Compensation range 0...60 °C

### 2.3 Communication parameter

interface	RS 485
Report	Modbus RTU
Modbus specification	Application Protocol Specification V1.1b3 (April 26, 2012)
Address	1 ... 127
Baud rate	1200 ... 57600 Baud
Parity	Even, uneven, parity
Stopbits	1...2

**Pre-set data format**

Baud rate	9600 Baud
Parity	None
Stopbit	1

**Supported Modbus functions**

0x02	Read Discrete Inputs
0x03	Read Holding Registers
0x04	Read Input Registers
0x2B / 0x0E	Read Device Identification

For more information about this, please refer to the operating instructions and online [http://www.modbus.org/docs/Modbus\\_Application\\_Protocol\\_V1\\_1b3.pdf](http://www.modbus.org/docs/Modbus_Application_Protocol_V1_1b3.pdf).

**2.4 Auxiliary energy**

nominal voltage	24 V DC
Admissible operating voltage	18 ... 30 V DC
Absorbed power	Max. 2 W

**2.5 Operating conditions**

Ambient temperature range	-10 ... +70 °C
Storage temperature range	-20 ... +70 °C
Medium temperature range	-10 ... +70 °C
Protection	IP65
EMC	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN IEC 63000:2018

**2.6 Construction design**

Installation position	User-defined
Max. dimensions (WxHxT)	116 x 103 x 76 mm
Weight	375 g

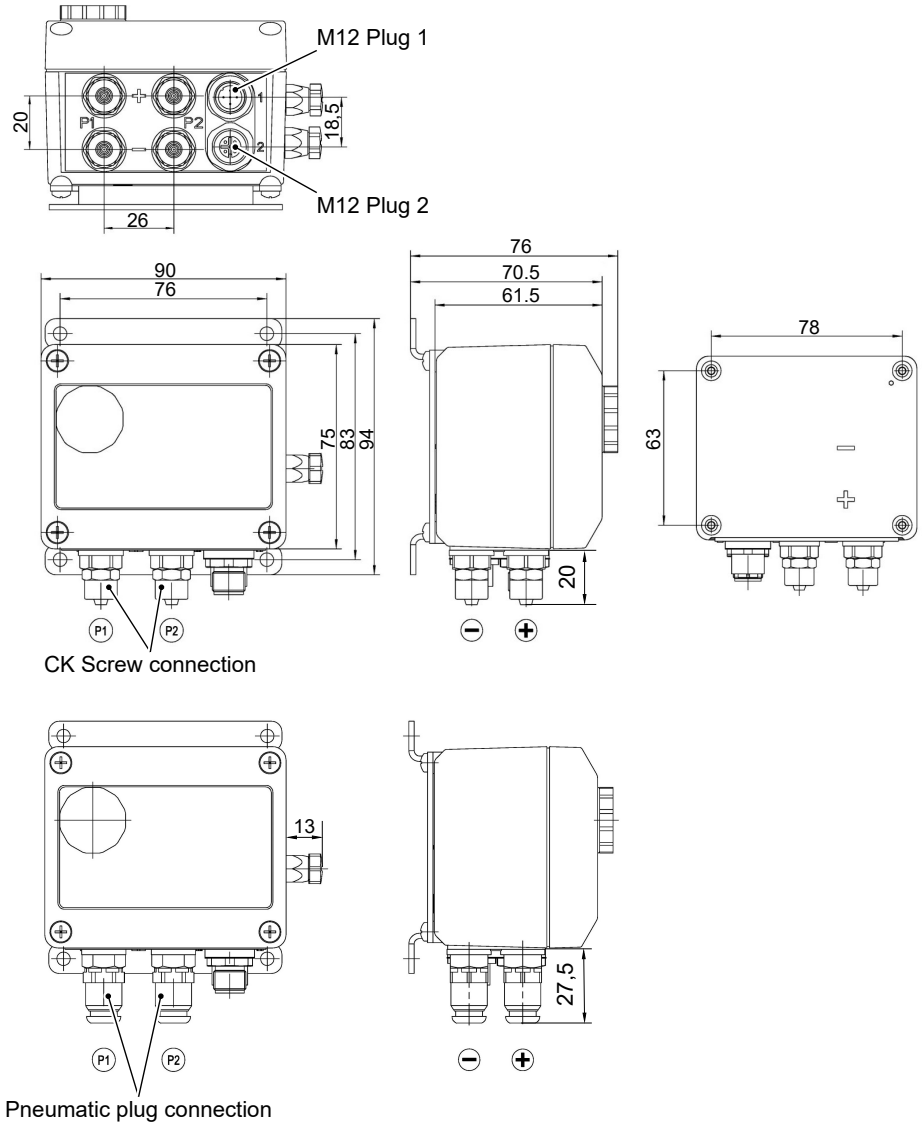
**2.6.1 Connections**

Modbus connector 1	M12 round plug connector (5-pin, male, max. 2A) Plug 1 for supply and bus signals
Modbus connector 2	M12 round plug connector (5-pin, female, max. 2A) Plug 2 for forwarding the signals to the next BUS participant or to connect a BUS termination plug
Digital inputs E1 ... E4	M8 round plug connector (3-pin, female) Depending on the model, 0, 2 or 4 proximity switches can be connected
Process connection option 1	Aluminium CK screw connection for 6/4 or 8/6 mm hose
Process connection option 2	Pneumatic plug connector for 6/4 or 8/6 mm hose

**2.6.2 Materials**

Housing	Polyamide PA 6.6
Media-contacting material	Silicon, PVC, aluminium, brass

**2.6.3 Dimensional drawings**



**Digital inputs E1 ... E4**

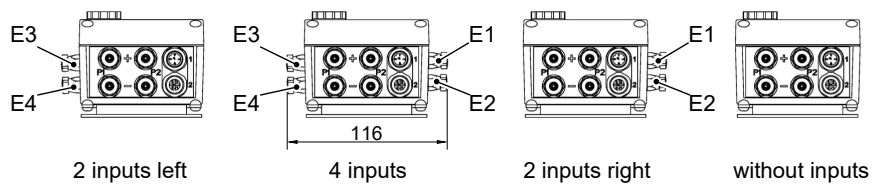
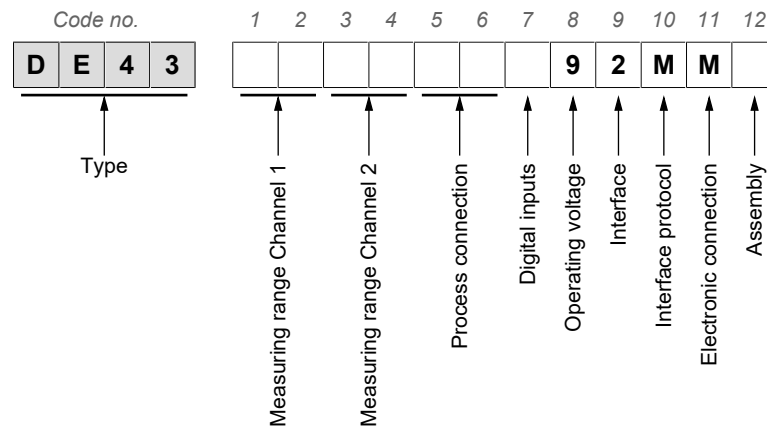


Fig. 6: Dimensional picture

### 3 Order codes



#### Measuring range channel 1:

[1.2]	[Pa]
D7	0 ... 400
D8	0 ... 600
D9	0 ... 1000
E1	0 ... 1600
E2	0 ... 2500 Pa
S6	-250 ... +250
R1	-400 ... +400
R2	-600 ... +600
R3	-1000 ... +1000
R4	-1600 ... +1600

#### Measuring range channel 2:

[1.2]	[Pa]
D7	0 ... 400
D8	0 ... 600
D9	0 ... 1000
E1	0 ... 1600
E2	0 ... 2500 Pa
S6	-250 ... +250
R1	-400 ... +400
R2	-600 ... +600
R3	-1000 ... +1000
R4	-1600 ... +1600

#### Process connection:

[5.6]	
40	CK aluminium screw connection for 6/4 mm hose
41	CK aluminium screw connection for 8/6 mm hose
P6	Pneumatic plug connector MS nickel-plated for 6/4 mm hose
P8	Pneumatic plug connector MS nickel-plated for 8/4 mm hose



**Digital inputs:**

<b>[7]</b>	<b>M8 round plug connector 3-pin, female</b>
<b>0</b>	Without digital inputs
<b>L</b>	Two digital inputs (E3, E4) left
<b>K</b>	Two digital inputs (E1, E2) right
<b>C</b>	Four digital inputs (E1, E2) right and (E3, E4) left

**Operating voltage:**

<b>[8]</b>	
<b>9</b>	24 V DC

**Interface:**

<b>[9]</b>	
<b>2</b>	RS 485

**Interface protocol:**

<b>[10]</b>	<b>(Code no.)</b>
<b>C</b>	Modbus RTU Protocol

**Electrical connection:**

<b>[11]</b>	
<b>C</b>	M12 round plug connector (Modbus, power supply) M8 round plug connector (Digital inputs, optional→[7])

**Assembly:**

<b>[12]</b>	
<b>0</b>	Standard (attachment boreholes on rear side)
<b>W</b>	Horizontal wall mounting
<b>V</b>	Vertical wall mounting

**3.1 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

## Notes



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