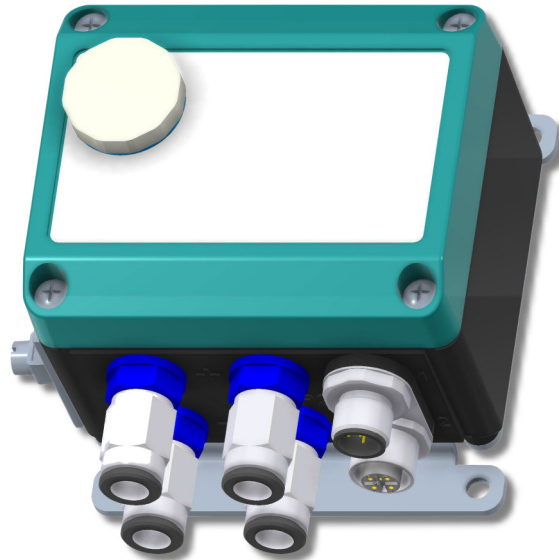


II 3G Ex nA IIC T4 Gc
II 3D Ex tc IIIB T125°C Dc

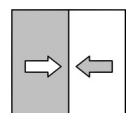


Data sheet

DE43 ... R####

Digital 2-channel transmitter
for direct connection to bus-capable automation devices

Version for potentially explosive areas
Gas explosion protection Zone 2, Gases and vapours
Dust explosion protection Zone 22, dry dusts



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
- Use in areas at risk of explosion

Zone 2 ⚡ II 3G Ex nA IIC T4 Gc

Zone 22 ⚡ II 3D Ex tc IIIB T125°C Dc

1.2 Equipment versions

Assembly

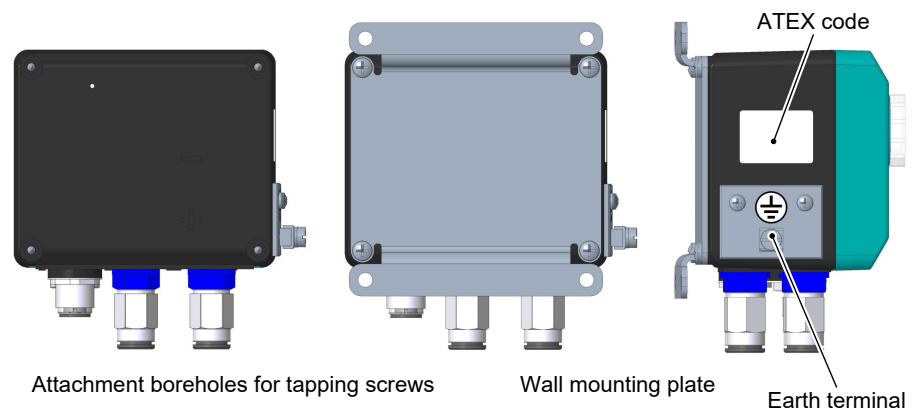


Fig. 1: Wall mounting

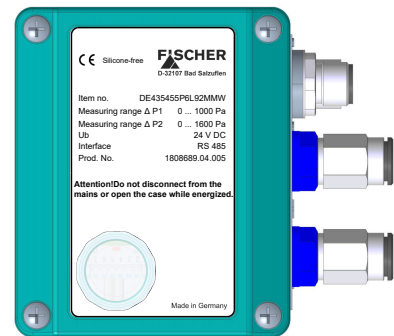
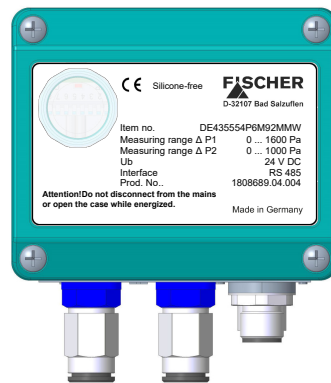


Fig. 2: Type plate

Process connection

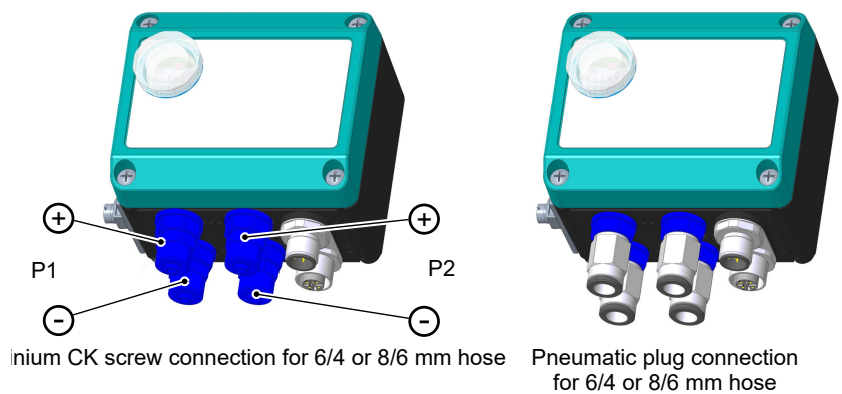


Fig. 3: Process connection

Electrical connections

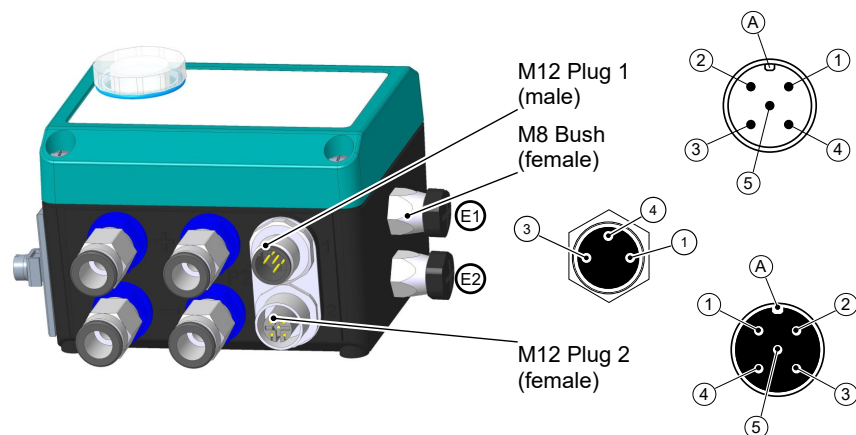


Fig. 4: Electrical connections

1.3 Function diagram

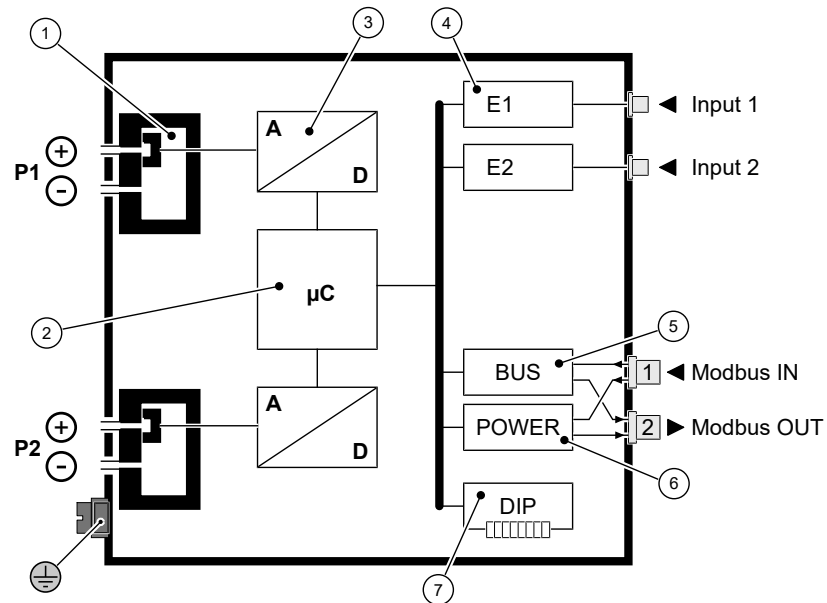


Fig. 5: Function diagram

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

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

		Unit	+ ranges (0 ... +p)					+ ranges (-p ... +p)				
Measuring range (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(*)	Max.	%FS						1.0				
	Type	%FS						0.5				
TK Span **)	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 **)	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				

*) Characteristic curve deviation (non-linearity and hysteresis) at 25°C

**) 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.

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 ... +60 °C
Storage temperature range	-20 ... +70 °C
Medium temperature range	-10 ... +70 °C
Protection	IP65
ATEX	EN 60079-0:2012 + A11:2013 EN 60079-15:2010 EN 60079-31:2014
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

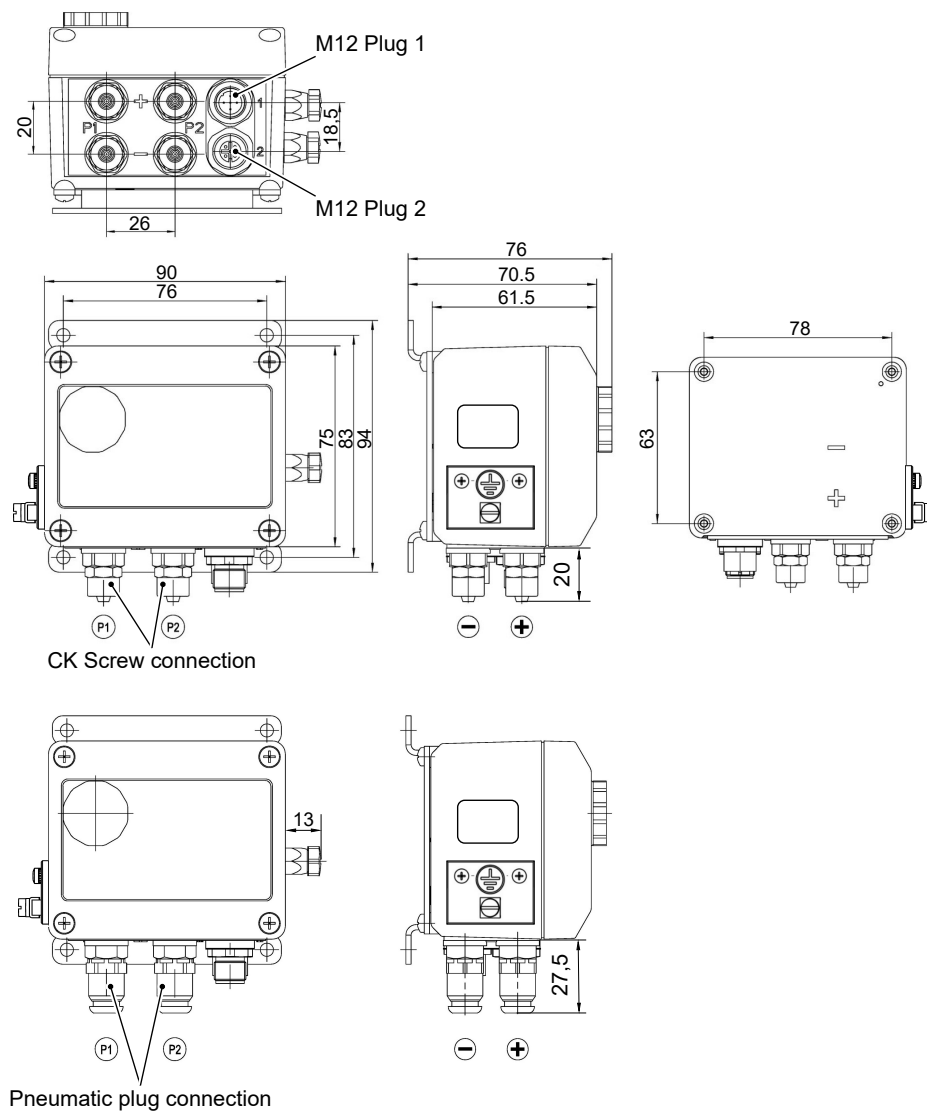
2.6.1 Connections

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

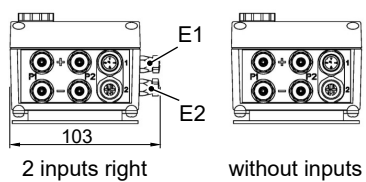
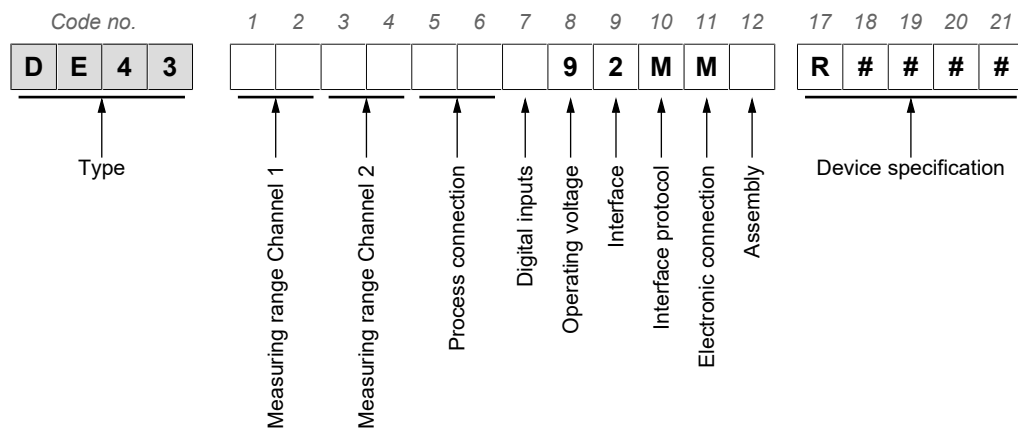


Fig. 6: Dimensional picture

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:

[7]	M8 round plug connector 3-pin, female
0	Without digital inputs
K	Two digital inputs (E1, E2) right

Operating voltage:

[8]	
9	24 V DC

Interface:

[9]	
2	RS 485

Interface protocol:

[10]	(Code no.)
C	Modbus RTU Protocol

Electrical connection:

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

Assembly:

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

Device specification

[17-21]	Device specification
R####	Version for use in areas at risk of explosion Zone 2 and Zone 22
	   II 3G Ex nA IIC T4 Gc  II 3D Ex tc IIIB T125 °C Dc

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



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