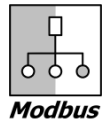


## Data sheet

DE43

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



The bus-capable 2-channel transmitter is suitable for measuring pressure, under-pressure, and differential pressure in neutral gaseous media.

Fields of application include:

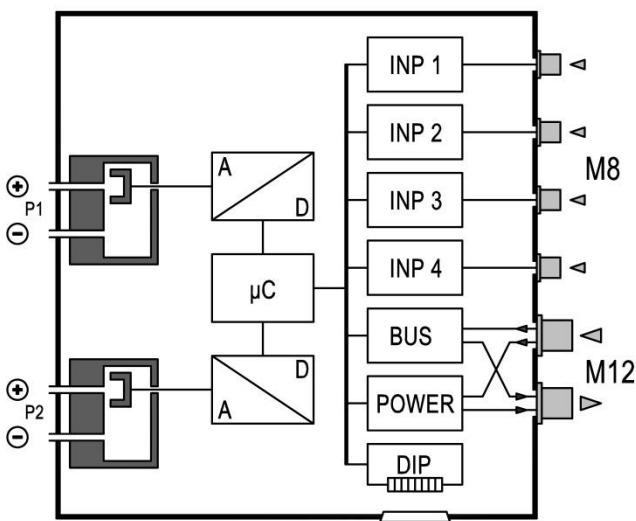
- Air-conditioning technology
- Ventilation technology
- Environmental technology
- Monitoring of automatic roll filters, extraction systems etc.
- Draft measurement in chimneys
- Flow and control pressure measurements
- Surface technology

### Design and mode of operation

The basis of this transmitter comprises two piezoresistive sensors.

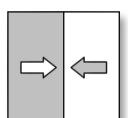
The pressure that is to be measured acts upon a silicone membrane that is equipped with a resistor bridge. The acting pressure causes the membrane to move and therefore a change in resistance. The bridge signal is analysed by the integrated electronics and converted to a pressure value. This is forwarded to the overriding control system via an interface on request.

### Functional Schematic



### Important features

- robust and resistant to overpressure
- maintenance-free
- two independent differential pressure sensors
- bus-capable via RS 485 with Modbus-RTU protocol
- optionally with connection for external contacts
- Address setting and configuration mechanical via coding switch
- calibrated and configured ex-works



## Technical data

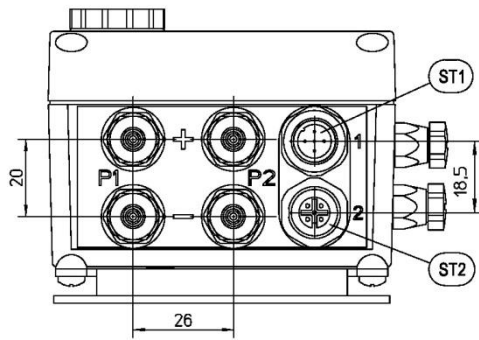
		Positive ranges 0...				± ranges				
Measurement range	mbar	4	6	10	16	±2.5	±4	±6	±10	±16
	Pa	400	600	1000	1600	±250	±400	±600	±1000	±1600
	kPa	0.4	0.6	1	1.6	±0.25	±0.4	±0.6	±1	±1.6
Max. stat. operating pressure	mbar	50		100		50			100	
Bursting pressure	mbar	150		300		150			300	
Characteristic curve deviation °)	max. %FS	1.0				1.0				
	typ. %FS	0.5				0.5				
Tk span <sup>°°)</sup>	max. %FS/10K	1.0	0.6	0.3	1.0	0.5	0.3			
	typ. %FS/10K	0.3				0.3				
Tk zero-point °°)	max. %FS/10K	1.0	0.6	0.4	1.0	0.5	0.4			
	typ. %FS/10K	0.2				0.2				

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

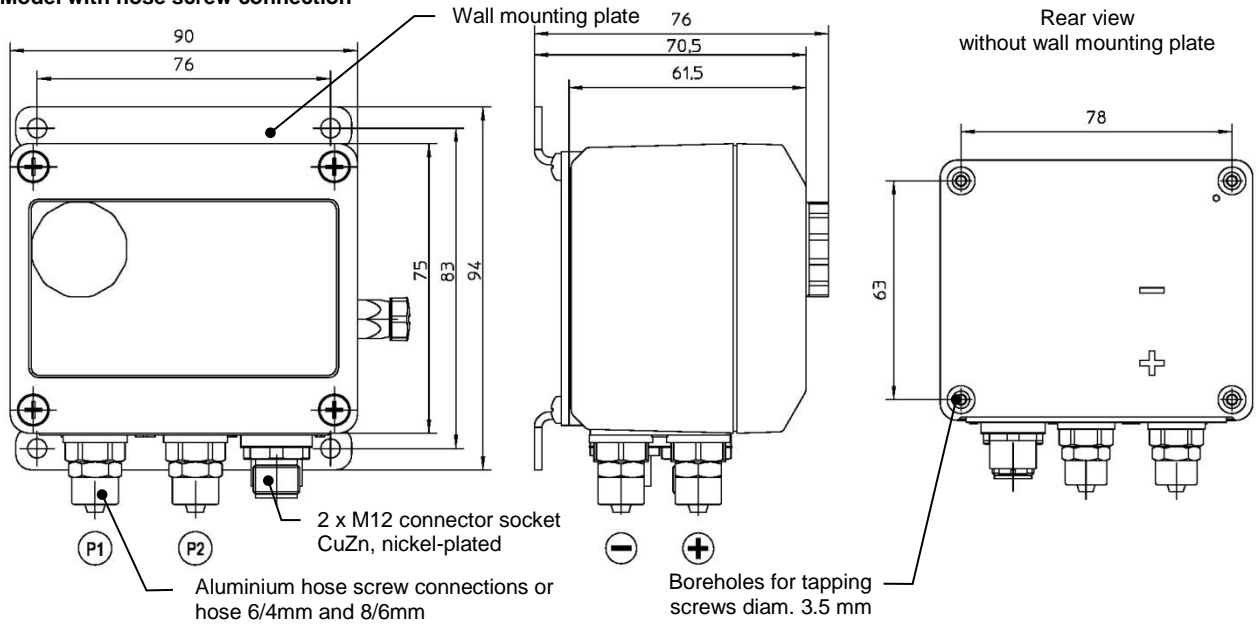
°°) : Compensation range 0 ... 60°C

	<b>General points</b>
Admissible ambient temperature	-10 ... 70°C
Admissible media temperature	-10 ... 70°C
Admissible storage temperature	-20 ... 70°C
Enclosure protection class	IP65 acc. to DIN EN 60529
Damping (P=10...90%)	1s
	<b>Electrical data</b>
Rated Voltage	24 VDC
Allowed operating voltage U <sub>b</sub>	18-30 VDC
Electrical connection type	RS 485 with Modbus-RTU protocol
Power consumption	max. 2 W
	<b>Ports</b>
Modbus	2 x M12 round plug connector Connector 1 for supply and bus signals (5-pin, male) Plug 2 for forwarding to the next BUS participant or to connect a BUS termination plug (5-pin, female)
Proximity switch (Option for external potential-free contacts)	4 x M8 round plug connector Input 1 (3-pin, female) Input 2 (3-pin, female) Input 3 (3-pin, female) Input 4 (3-pin, female)
Pressure	Aluminium hose screw connections or hose 6/4mm and 8/6mm Pneumatic plug connector for 6/4 mm hose and 8/6 mm hose
	<b>Communication parameter</b>
valid Modbus specification	Application Protocol Specification V1.1b3 (April 26, 2012)
Address	1 ... 127
Data format	Can be set   pre-set 1200 ... 57600 Baud   9600 Baud Parity and 1 ... 2 stopbits   no parity and 1 stopbit
	<b>supported Modbus functions</b>
Read Discrete Inputs	0x02
Read Holding Registers	0x03
Read Input Registers	0x04
Read Device Identification	0x2B / 0x0E
	<b>Materials, assembly</b>
Casing material	Polyamide PA 6.6
Media-contacting material	Silicon, PVC, aluminium, brass
Assembly	attachment boreholes on rear side Wall mounting

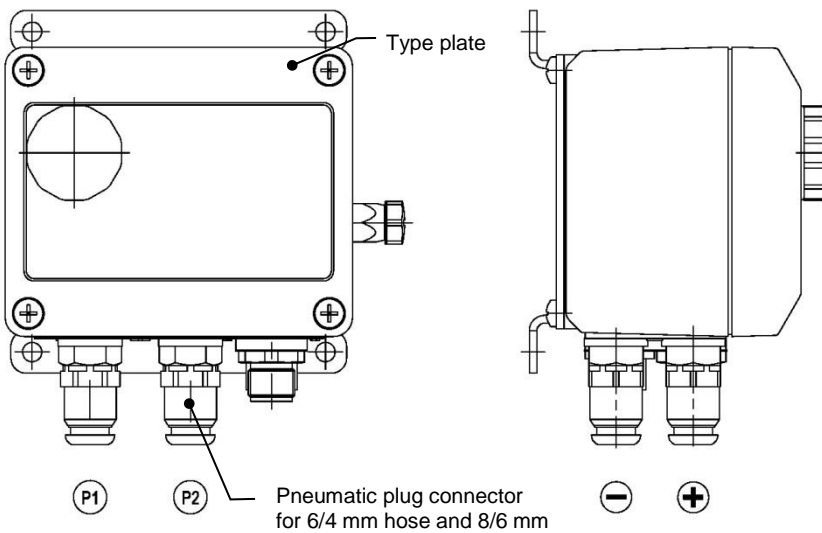
**Dimensional drawings** (All dimensions in mm unless otherwise specified)



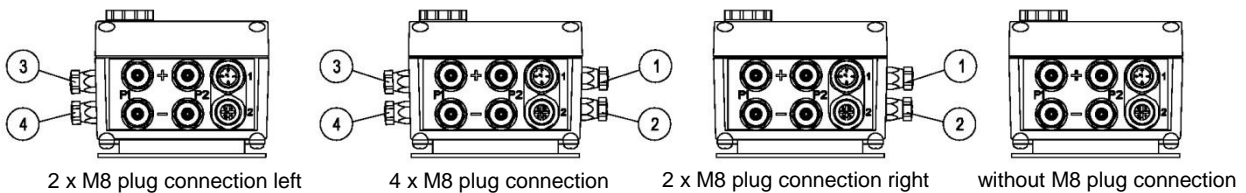
**Model with hose screw connection**



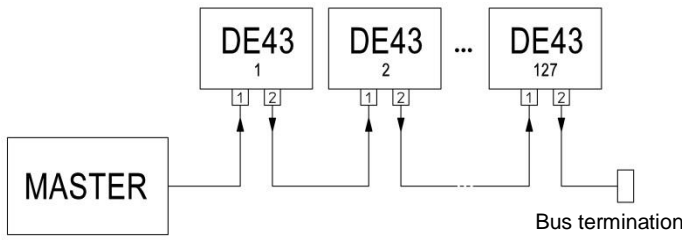
**Model with pneumatic plug connector**



**Connection option for the inputs 1 to 4**



**Bus structure**



The device is connected in a line network structure via plug 1 and plug 2 as a slave to the Modbus RTU network. Star-shaped networks are not allowed.

Communication is effected via a Modbus master that is also connected to the bus system. Here, the individual slaves only react to direct commands from the master, which is why communication between the slaves is not possible.

In this way up to 127 bus participants of the type DE43 can be connected without an amplifier to a Modbus RTU network.

**Terminating resistors**

We recommend terminating both end points of the Modbus RTU network with 120Ω resistors, which are available separately, to guarantee error-free data transmission.

**Electrical Connection**

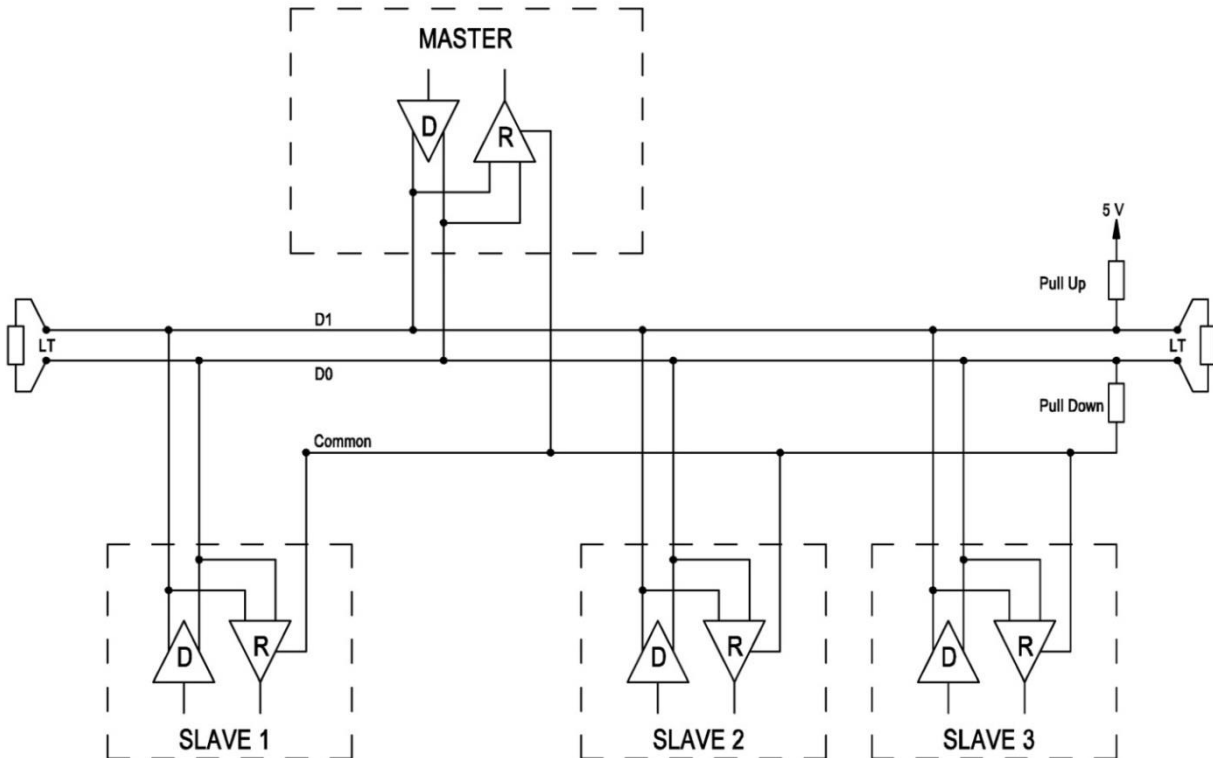
Supply and bus termination:

ST1 (plug)	Pin	Signal name	Cable colour
	A	Coding	
	1	Power supply +U <sub>b</sub>	brown
	2	BUS-D1	white
	3	Power supply -U <sub>b</sub>	blue
	4	BUS-D0	black
	5	BUS-R	grey

ST2 (bush)	Pin	Signal name	Cable colour
	A	Coding	
	1	Power supply +U <sub>b</sub>	brown
	2	BUS-D1	white
	3	Power supply -U <sub>b</sub>	blue
	4	BUS-D0	black
	5	BUS-R	grey

For external potential-free contacts:

Input 1-4 (bush)	Pin	Signal name	Cable colour
	1	+	brown
	3	-	blue
	4	Input N <sup>1</sup>	black



<sup>1</sup> N : Input number

## Order Codes

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

DE43 

								9	2	C	C	
--	--	--	--	--	--	--	--	---	---	---	---	--

Channel 1 - measuring range	allowed stat. pressure	operating pressure		
0 ... 4 mbar	.....50 mbar	.....50 mbar	>	5 2
0 ... 6 mbar	.....50 mbar	.....50 mbar	>	5 3
0 ... 10 mbar	...100 mbar	.....50 mbar	>	5 4
0 ... 16 mbar	...100 mbar	.....50 mbar	>	5 5
-2.5 ... +2.5 mbar	.....50 mbar	.....50 mbar	>	A 6
-4 ... +4 mbar	.....50 mbar	.....50 mbar	>	A 7
-6 ... +6 mbar	.....50 mbar	.....50 mbar	>	A 8
-10 ... +10 mbar	...100 mbar	.....50 mbar	>	A 9
-16 ... +16 mbar	...100 mbar	.....50 mbar	>	B 1
0 ... 400 Pa	.....50 mbar	.....50 mbar	>	D 7
0 ... 500 Pa	.....50 mbar	.....50 mbar	>	J 7
0 ... 600 Pa	.....50 mbar	.....50 mbar	>	D 8
0 ... 1000 Pa	...100 mbar	.....50 mbar	>	D 9
0 ... 1600 Pa	...100 mbar	.....50 mbar	>	E 1
-250 ... +250 Pa	.....50 mbar	.....50 mbar	>	L 6
0 ... 1 kPa	.....50 mbar	.....50 mbar	>	N 1
0 ... 1.6 kPa	...100 mbar	.....50 mbar	>	N 2
-1 ... +1 kPa	.....50 mbar	.....50 mbar	>	L 8
-1.6 ... +1.6 kPa	...100 mbar	.....50 mbar	>	L 9

Channel 2 - measuring range	allowed stat. pressure	operating pressure		
0 ... 4 mbar	.....50 mbar	.....50 mbar	>	5 2
0 ... 6 mbar	.....50 mbar	.....50 mbar	>	5 3
0 ... 10 mbar	...100 mbar	.....50 mbar	>	5 4
0 ... 16 mbar	...100 mbar	.....50 mbar	>	5 5
-2.5 ... +2.5 mbar	.....50 mbar	.....50 mbar	>	A 6
-4 ... +4 mbar	.....50 mbar	.....50 mbar	>	A 7
-6 ... +6 mbar	.....50 mbar	.....50 mbar	>	A 8
-10 ... +10 mbar	...100 mbar	.....50 mbar	>	A 9
-16 ... +16 mbar	...100 mbar	.....50 mbar	>	B 1
0 ... 400 Pa	.....50 mbar	.....50 mbar	>	D 7
0 ... 500 Pa	.....50 mbar	.....50 mbar	>	J 7
0 ... 600 Pa	.....50 mbar	.....50 mbar	>	D 8
0 ... 1000 Pa	...100 mbar	.....50 mbar	>	D 9
0 ... 1600 Pa	...100 mbar	.....50 mbar	>	E 1
-250 ... +250 Pa	.....50 mbar	.....50 mbar	>	L 6
0 ... 1 kPa	.....50 mbar	.....50 mbar	>	N 1
0 ... 1.6 kPa	...100 mbar	.....50 mbar	>	N 2
-1 ... +1 kPa	.....50 mbar	.....50 mbar	>	L 8
-1.6 ... +1.6 kPa	...100 mbar	.....50 mbar	>	L 9

**Order Codes (Continued)**

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

DE43 

							9	2	C	C	
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**Discharge port**

- Aluminium screw connection for 6 / 4 mm hose .....> 4 0
- Aluminium screw connection for 8 / 6 mm hose .....> 4 1
- Pneumatic plug connector for 6/4 mm hose ..... P 6
- Pneumatic plug connector for 8/6 mm hose ..... P 8

**Electrical input signal (for external pot.-free contacts)**

- no electrical input signal .....> 0
- 2 digital inputs with M8 connection 3 and 4 (left).....> L
- 2 digital inputs with M8 connection 1 and 2 (right) .....> K
- 4 digital inputs with M8 connection 1 and 4 (left and right) .....> C

**Operating voltage**

- 24 V DC .....> 9

**Interface**

- RS 485 .....> 2

**Interface protocol**

- RS 485 Modbus-RTU protocol ..... C

**Electrical connection**

- M12 plug connector .....> C

**Assembly option**

- Standard (attachment boreholes on rear side).....> 0
- Wall mounting .....> W
- Wall assembly 90° twisted.....> V

**Accessories**

Article number	Designation
06411280	Terminating resistor MODBUS 120 Ohm M12 bush
06411279	Terminating resistor MODBUS 120 Ohm M12 plug



