FISCHER MESS- UND REGELTECHNIK

Data sheet

DE50 | Differential pressure transmitter

Application

Measuring transducer and switching device for over-pressure, under-pressure and differential pressure of gaseous media.

Fields of application:

- Air-conditioning technology
- Ventilation technology
- Environmental technology

Typical applications

- Stepless fan control unit
- Monitoring of automatic roll filters, extraction systems etc.
- Draft measurement in chimneys
- Flow and control pressure measurements
- Surface technology

Design and mode of operation

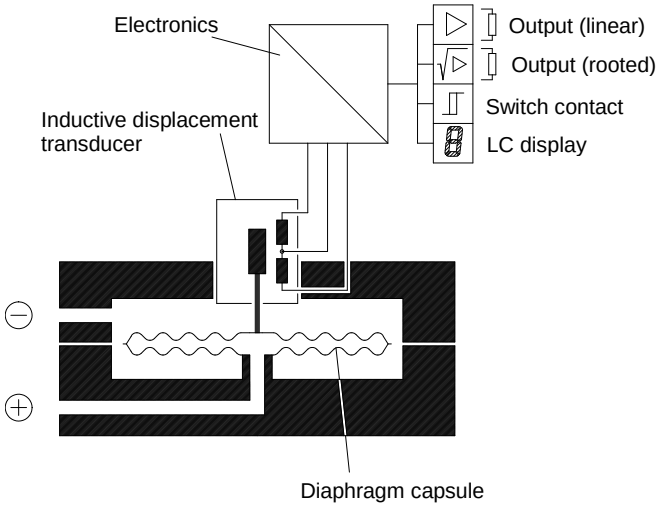
The basis of this measuring transducer is a diaphragm capsule measuring system that is suitable for measuring overpressure, under-pressure and differential pressure. The pressure or differential pressure that is to be measured triggers the diaphragm capsule, thereby moving the core of the inductive displacement transducer. This is converted to an electrical output signal in the downstream electronics.
The transformer electronics are available in several models. In addition to the various operating voltages, the output signal can be designed as a current or voltage signal. Flows in gaseous media are often measured according to the effective pressure principle. To achieve a flow-proportional measured value, the effective pressure signal needs to be rooted. There are transformer electronics available to supply the rooted output signals for these applications. In addition to the analogue output signal, the instrument can be equipped with potential-free contact outputs that can be set to each value within the measuring range.

The pressure / differential pressure values can be displayed as linear measured values on site via an installed LC display (optional).

Important features

- Robust and resistant to overpressure
- Maintenance-free through wear-free inductive pickup

Functional Schematic



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Technical Specification

General points

Measuring ranges	0 … 4 mbar to 0 … 600 mbar (see order code)
Max. stat. operating pressure	3 bar (see order code)
Max. pressure load	Over-pressure-proof up to permissible operating pressure
Measuring accuracy	± 1 % of the measuring range
Temperature drift	0.5 % /10 K
Admissible ambient temperature	-10 °C to +60 °C
Admissible media temperature	-20 °C to +70 °C
Admissible storage temperature	-25 °C to +80 °C
Enclosure protection class	IP 54 as per DIN EN 60 529

Electrical data

Electrical connection type	**Four-wire**		**Three-wire**		**Two-wire**	
Operating voltage	*Rated voltage*	*- tolerance*	*Rated voltage*	*- tolerance*	*Rated voltage*	*- tolerance*
	230 VAC	+10/-15%				
	115 VAC	+10/-15%				
	24 VAC	±10%	24 VDC	±10%	24 VDC	±10%
Output signal	**0 … 20 mA**	**0 ... 10V**	**0 … 20 mA**	**0 ... 10V**	**4 … 20 mA**	
Load at rated voltage	max. 800 Ω	> 2 kΩ	max. 800 Ω	> 2 kΩ	max. 500 Ω	
Current limiting	approx. 30 mA	approx. 30 mA	approx. 30 mA	approx. 30 mA	approx. 30 mA	
Voltage limit	-	approx. 12 V	-	approx. 12 V	-	
Power consumption	approx. 3 VA	approx. 3 VA	approx. 3 VA	approx. 3 VA	≤ 0.75 W	

Characteristic curve

Root extraction of the output with slow-feed suppression	±0.5 % 2% is set
Steepness adjustment	approx. 10 % of the measuring range
Zero-point adjustment	approx. 10 % of the measuring range

Measured value display / contact elements

Display	3 ½-digit LC-Display
Switch point setting	The digital display can be switched between the actual differential pressure value and the switch point settings by means of a selector switch. The Output I or Output II can be selected. The digital display now shows the applicable set target value. The target values can be set over the entire measuring range.
Switch point hysteresis	approx. 2%
Switching output	1 or 2 potential-free changeover contact

Load data of the contacts	**AC**	**DC**
U_{max}	250V	30V
I_{max}	2 A	2 A
P_{max} (resistive load)	250 VA	60 W

Connections

Process connection	Inner thread G 1/4, Hose screw connections made of Al, 6/8 mm Cutting ring screw connections made of MS for 6 or 8 mm pipes
Electr. connection	Internal terminal strip, cable opening with M16 x 1.5 Plug connections on request

Materials

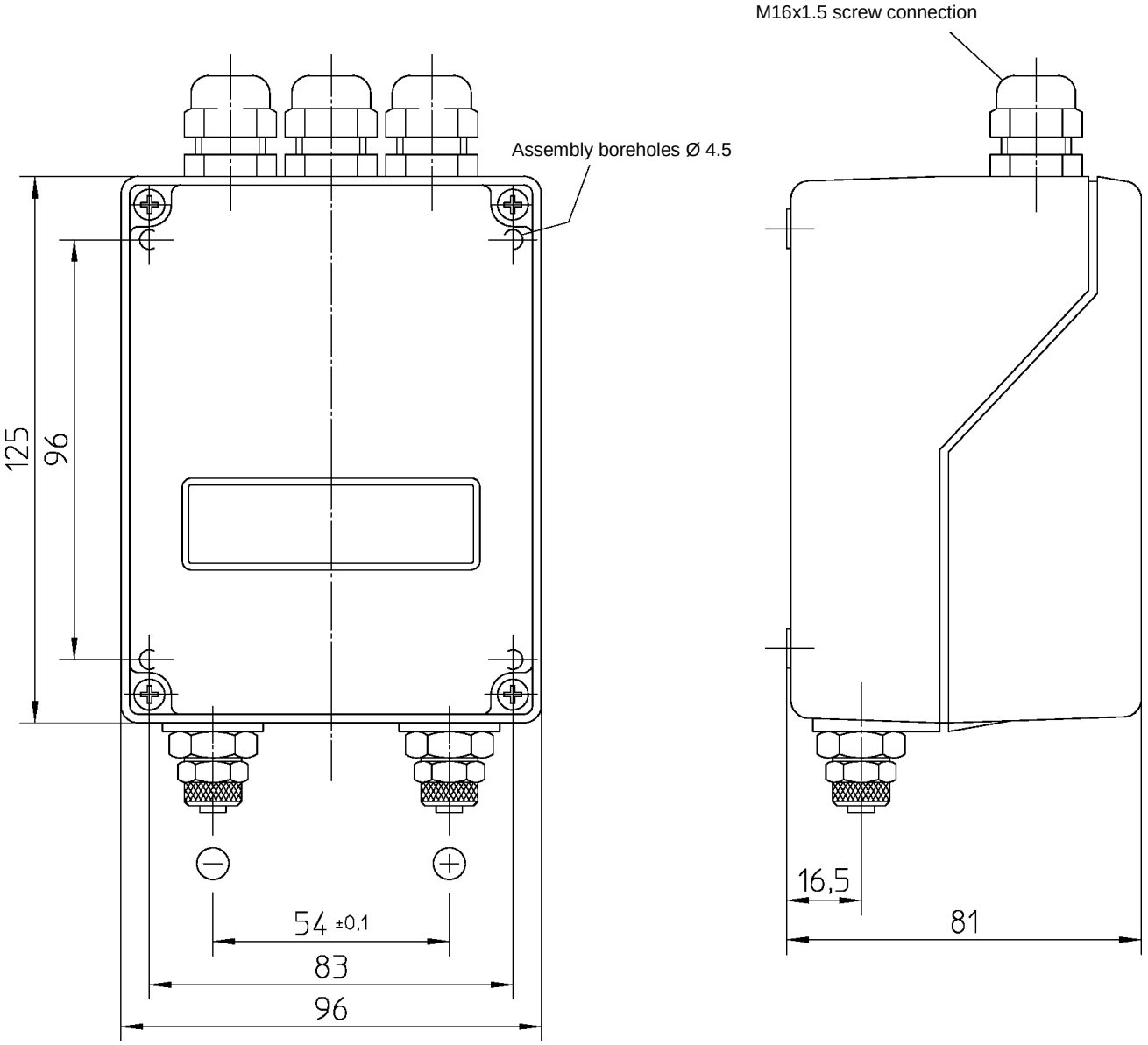
Casing	Cast aluminium, painted
Hood	ABS – self-extinguishing
Measuring element	Diaphragm capsule made of CuBe 2

Assembly

Install vertically if mounted to walls
Zero-point correction recommended if installed in a different position

Dimensional drawings

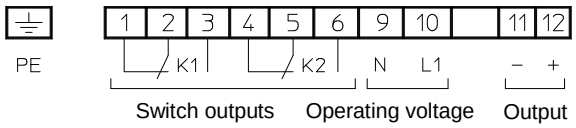
(All dimensions in mm unless otherwise stated)



Wiring diagrams

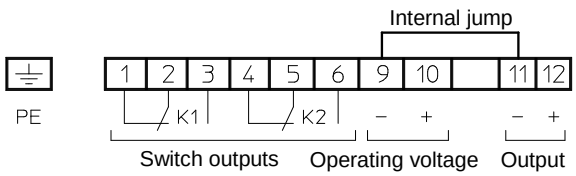
4-wire connection

Operating voltage 230 VAC / 115 VAC / 24 VAC



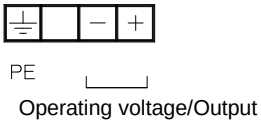
3-wire connection

Operating voltage 24 VDC



2-wire connection

Operating voltage 24 VDC



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Order Codes

Differential pressure transmitter

DE50 [ ][ ][ ][ ][ ][ ][ ][ ]

Measuring range	stat. operating pressure		
0 ... 1.6 mbar	8 mbar (Cl.:2.5)	**9**	**7**
0 ... 2.5 mbar	8 mbar (Cl.:2.5)	**9**	**8**
0 ... 4 mbar	20 mbar	**5**	**2**
0 ... 6 mbar	30 mbar	**5**	**3**
0 ... 10 mbar	50 mbar	**5**	**4**
0 ... 16 mbar	80 mbar	**5**	**5**
0 ... 25 mbar	125 mbar	**5**	**6**
0 ... 40 mbar	200 mbar	**5**	**7**
0 ... 60 mbar	300 mbar	**5**	**8**
0 ... 100 mbar	500 mbar	**5**	**9**
0 ... 160 mbar	800 mbar	**6**	**0**
0 ... 250 mbar	1200 mbar	**8**	**2**
0 ... 400 mbar	2000 mbar	**8**	**3**
0 ... 600 mbar	3000 mbar	**C**	**1**
-1 ... 0.6 mbar	5 mbar	**C**	**2**
-1 ... 5 mbar	30 mbar	**C**	**3**
-4 ... 6 mbar	50 mbar	**5**	**0**
-10 ... 6 mbar	80 mbar	**6**	**3**
-20 ... 40 mbar	300 mbar	**6**	**8**
-40 ... 60 mbar	500 mbar	**7**	**0**
-100 ... 60 mbar	800 mbar	**7**	**3**
-250 ... 150 mbar	2000 mbar	**7**	**7**
0 ... 160 Pa	800 Pa	**D**	**5**
0 ... 250 Pa	1250 Pa	**D**	**6**
0 ... 400 Pa	2000 Pa	**D**	**7**
0 ... 600 Pa	3000 Pa	**D**	**8**
0 ... 1000 Pa	5000 Pa	**D**	**9**
0 ... 1600 Pa	8000 Pa	**E**	**1**
0 ... 2.5 kPa	10 kPa	**N**	**3**
0 ... 4.0 kPa	20 kPa	**N**	**4**
0 ... 6.0 kPa	30 kPa	**N**	**5**
0 ... 10 kPa	50 kPa	**E**	**5**
0 ... 16 kPa	80 kPa	**E**	**6**
0 ... 25 kPa	120 kPa	**E**	**7**
0 ... 40 kPa	200 kPa	**E**	**8**
0 ... 60 kPa	300 kPa	**F**	**1**

Pressure connection

Inner thread G 1/4	**0 1**
Cutting ring screw connection in brass for 6 mm pipe	**2 8**
Cutting ring screw connection in brass for 8 mm pipe	**2 9**
Cutting ring screw connection in brass for 10 mm pipe	**3 0**
Aluminium screw connection for 6 / 4 mm hose	**4 0**
Aluminium screw connection for 8 / 6 mm hose	**4 1**

Electrical output signal

0 – 20 mA 3-wire (STANDARD)	**A**
4 - 20 mA 2-WIRE, only 24 V DC, without contacts, without root extraction	**B**
0 – 10 V DC 3-wire (STANDARD)	**C**
0 - 20 mA rooted, 3-wire connection	**E**
4 - 20 mA rooted, 3-wire connection	**F**
0 - 10 V DC rooted, 3-wire connection	**G**
4 – 20 mA 3-wire (STANDARD)	**P**

Operating voltage

230 VAC +10%/-15%	**1**
115 VAC +10%/-15%	**2**
24 VAC ±10%	**4**
24 VDC ±10%	**9**

Measuring value display/switching elements

Without measuring value display/switching elements	**0**
3½-digit measured value display	**1**
3½-digit measured value display with a potential-free contact	**2**
3½-digit measured value display with two potential-free contacts	**5**

Electrical connection

Inner terminal strip	**E**
M12 plug connection (only for 24 V AC/DC)	**M**

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