

DE50 || Differential Pressure Transmitter

Measuring transmitter with limit switching function for overpressure, vacuum and differential pressure especially for gaseous media

Range of applications:

- air conditioning technology
- ventilation technology
- environmental engineering

Typical Applications

- continuous ventilating control
- monitoring of exhausters, tapline filters etc.
- chimney draft measurement
- flow and control pressure measurement
- surface technology

Principles of Operation

The function of this transmitter is based on a capsule element measuring system suitable for overpressure-, vacuum- and differential pressure measurements. Pressure or differential pressure to be measured displaces the capsule element and moves hereby the core of inductive displacement transducer. The electronic amplifier generates an electrical output signal. Different types of electronic converters can be supplied. Apart from the different operating voltages output signal can be supplied as current or voltage signal. Flow rates of gaseous medium are often measured by measuring differential pressure. In order to obtain a flow proportional measuring value differential pressure signal has to be square-root extracted. For those applications transformation electronics are used which supply square-root extracted output signals.

In addition to analogue output signal potential free relay outputs can be supplied. They can be adjusted to any value within the measuring range. By means

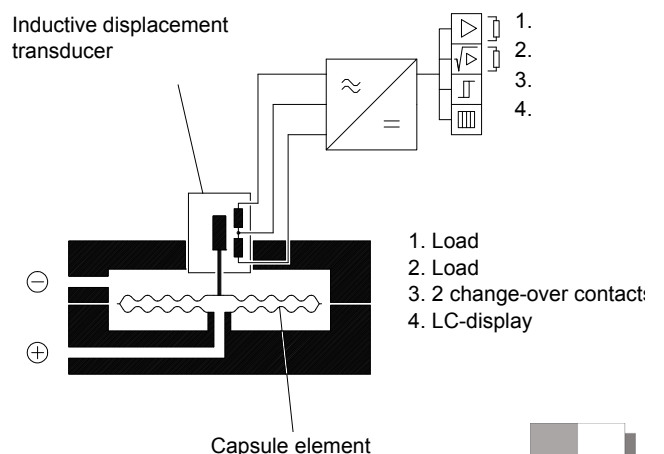


of a built-in LC-display (option) a local linear indication of pressure-/differential pressure measuring values is possible.

Main Features

- high overpressure safety
- maintenance-free due to wear resistant inductive measuring cell
- rugged design

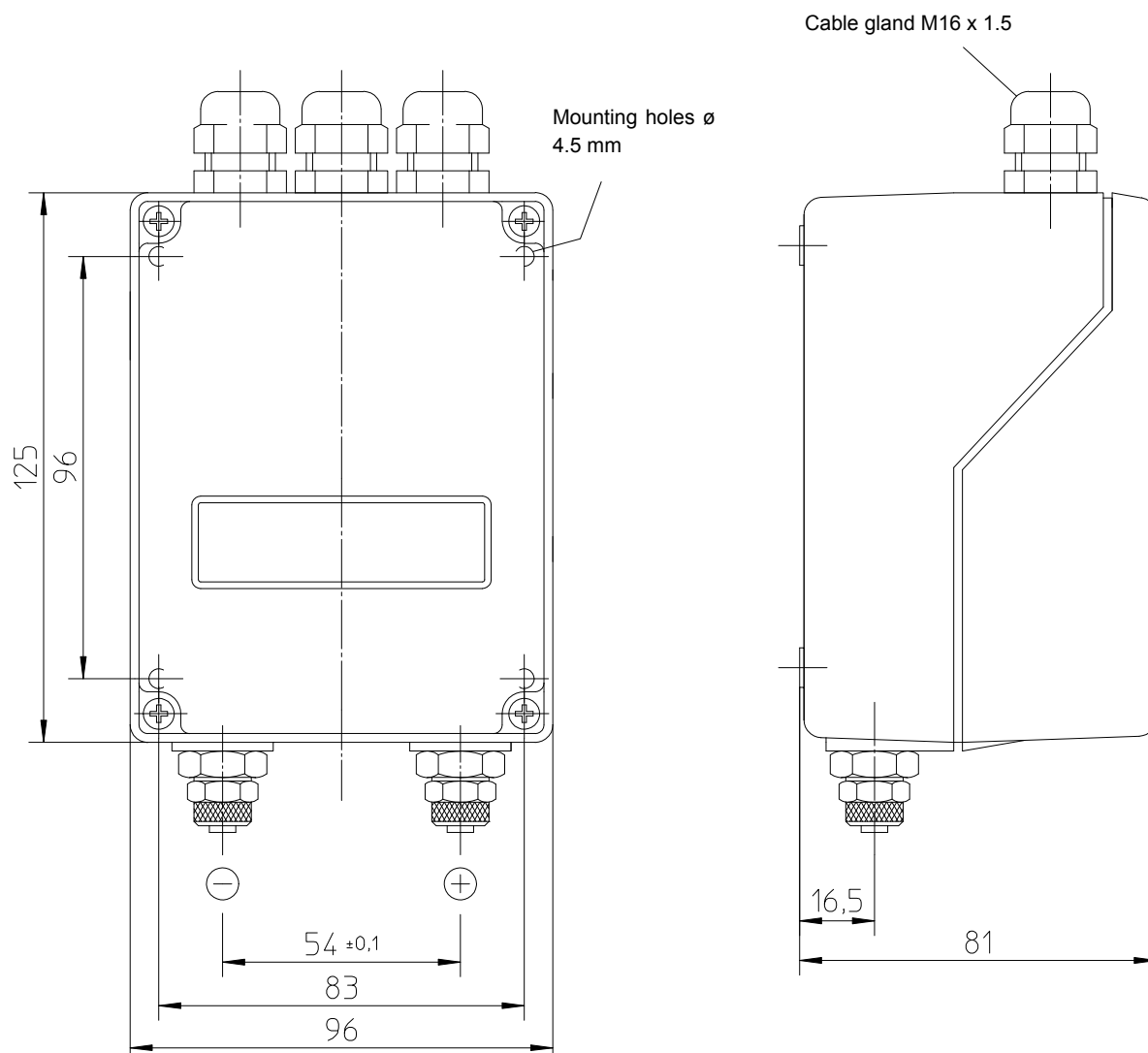
Functional Scheme



Specifications

General			
Measuring ranges	0...4mbar to 0...600 mbar (see Ordering Code)		
Nominal pressure	max. 3 bar (see Ordering Code)		
Max. static pressure	overpressure safe up to permitted nominal pressure		
Measuring accuracy	± 1% FS		
Temperature drift	0.5% FS / 10K		
Perm. ambient temperature	-10°...+60°C		
Perm. medium temperature	-20°...+70°C		
Protection class	IP 54 acc. to DIN EN 60529		
Electrical			
Electrical connections	4/3-wire	4/3-wire	2-wire
Operating voltages	230 V AC 4-wire	230 V AC 4-wire	24 V DC
	115 V AC 4-wire	115 V AC 4-wire	
	24 V AC 4-wire	24 V AC 4-wire	
	24 V DC 3-wire	24 V DC 3-wire	
Power consumption	approx. 3 VA	approx. 3 VA	≤ 0,75 W
Output signal	0-20 mA	0-10 V DC	4-20 mA
Apparent ohmic resistance	max. 800 Ω	> 2 k Ω	max. 500 Ω
Current limit	approx. 30 mA	approx. 30 mA	approx. 30 mA
Voltage limit	-	approx. 12 V DC	-
Square-rooted output	± 0.5%		
with suppression of leak flow volume	2% set up		
Range adjustment	approx. 10% FS		
Zero point adjustment	approx. 10% FS		
Measuring Indication / Switching Sections			
Measuring indication	3½ digit LC-Display		
Switching point adjustment	The digital display can be switched over between the differential pressure actual value and the switch point adjustments via selector. The display then indicates the related setpoint value. Setpoint values are adjustable within full scale range.		
Switching point hysteresis	approx. 2%		
Contact output	1 or 2 potential-free change-over contacts		
Load data of contacts	$U_{\sim \max.} = 250 \text{ V AC}$, $I_{\sim \max.} = 2 \text{ A}$, $P_{\sim \max.} = 250 \text{ VA}$ ohmic resistance		
	$U_{= \max.} = 30 \text{ V}$, $I_{= \max.} = 2 \text{ A}$, $P_{= \max.} = 60 \text{ W}$ ohmic resistance		
Connection			
Electrical Connections	internal connector bloc, M16x1.5 connection plug connections on request		
Pressure Connections	female thread G¼, threaded hose coupling (al) for 6/8 mm flexible tube, cutting ring connection (brass) for 6/8/10 mm tube		
Materials			
Housing	diecasted aluminium, varnished		
Housing cover	ABS, self-extinguishing		
Measuring element	capsule element of Cu Be 2		
Installation			
wallmounting	vertical, pressure ports downward		
any other orientation	correction of zero point recommended		

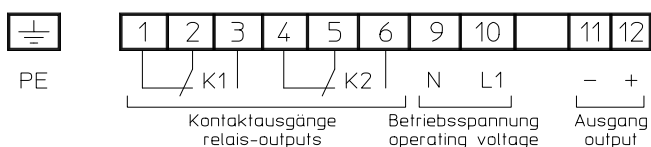
Dimensions (all units in mm unless stated otherwise)



Electrical Connections

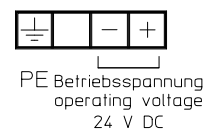
Operating Voltage

4-wire 230 V AC / 115 V AC / 24 V AC



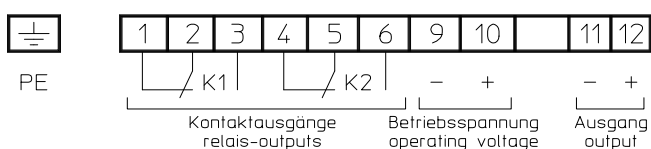
Operating Voltage

2-wire 24 V DC



Operating Voltage

3-wire 24 V DC



Ordering Code

Differential Pressure Transmitter DE50

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Measuring range / max. static operating pressure

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.....>	8	4
– 1 to 5 mbar 30 mbar.....>	C	3
– 4 to 6 mbar 50 mbar.....>	5	0
– 10 to 6 mbar 80 mbar.....>	6	3
– 20 to 40 mbar 300 mbar.....>	6	8
– 40 to 60 mbar 500 mbar.....>	7	0
–100 to 60 mbar 800 mbar.....>	7	3
–250 to 150 mbar 2000 mbar.....>	7	7

Pressure Connections

Female Thread G ¼.....>	0	1
Cutting ring connection brass for 6 mm tube.....>	2	8
Cutting ring connection brass for 8 mm tube.....>	2	9
Cutting ring connection brass for 10 mm tube.....>	3	0
Screw connection AI for 6 mm flexible tube.....>	4	0
Screw connection AI for 8 mm flexible tube.....>	4	1

Electrical Output Signal

0–20 mA linear.....>	A
4–20 mA linear 2-wire, only for 24 V DC without contacts and square root extraction.....>	B
0–10 V DC linear.....>	C
0–20 mA square-rooted.....>	E
4–20 mA square-rooted.....>	F
0–10 V DC square-rooted.....>	G
4–20 mA linear.....>	P

Operating Voltage

230 V AC.....>	1
115 V AC.....>	2
24 V AC.....>	4
24 V DC.....>	9

Indication / Switching Sections

Without indication / without contacts.....>	0
3½ digit indication / without contacts.....>	1
3½ digit indication / with 1 potential-free contact.....>	2
3½ digit indication / with 2 potential-free contacts.....>	5

Electrical Connection

Internal connector bloc.....>	E
M12 plug connection.....>	M