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Multi-range pressure and differential pressure transmitter

Applications

- Ventilation
- Air-conditioning
- Clean-room technology
- Flue draft mechanisms
- Filter monitoring

Brief description

This transmitter with piezoresistive pressure sensor allows differential pressure to be measured in non-aggressive gases.

Areas of application for differential pressure measurement include cleanrooms, for example. Permanent overpressure protects the process from dust penetration.

The multi-range pressure and differential pressure transmitter is a multifaceted measuring instrument controlled by a microprocessor. In addition to the wide range of uses, DIP (dual in-line package) switches can be used to switch between standardized output signals (current or voltage signal) and, in each case, eight different hectopascal measuring ranges. The current and voltage outputs are available at the terminals at the same time. Adjustable attenuation has been integrated for pressures that fluctuate strongly. It is also easy to correct the zero point. An LCD display with a plug-in system can be retrofitted for showing the pressure on-site.

Customer benefits

- **Varied and economical**
The measuring range, output, and attenuation are selected using a 6-part DIP switch, which is characterized by its simple configuration. This multifaceted measuring instrument combines a large number of functions, meaning that variants can be kept to a limit. Prices are thereby reduced to the minimum and delivery times are shortened. The wear-free measuring system provides operation that requires almost no maintenance.
- **Compact and simple**
Small but efficient. Thanks to its compact dimensions, this measuring instrument can be installed with ease and takes up very little space. You can also save time when it comes to the startup, as this is performed simply using DIP switches and push-buttons (⇒ operating manual 402006).



Type 402006 (display optional)

Special features

- 8 measuring ranges can be configured within two basic measuring ranges:
Basic measuring range 1:
0 (-2.5/-5/-7.5/-10) to 2.5/5/7.5/10 hPa
Basic measuring range 2:
0 (-25/-50/-75/-100) to 25/50/75/100 hPa
- Output signal: DC 0(2) to 10 V and 0(4) to 20 mA are configurable
- Adjustable attenuation for pressures that fluctuate strongly
- Zero point adjustment possible
- Optional plug-in LCD display

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Technical data

General Information

Reference conditions	DIN 16086 and DIN EN 60770
Sensor	
Measuring principle	Silicon sensor (piezoresistive)
Measurement medium	Non-aggressive gases
Mounting position	Device upright, process connection at the bottom
Calibration position	Device upright, process connection at the bottom

Output

Analog output	Can be configured using DIP switch DC 0 to 10 V, three-wire (standard), DC 2 to 10 V, three-wire, 0 to 20 mA, three-wire (standard), 4 to 20 mA, three-wire
Attenuation	Can be configured using DIP switch 50 ms (standard), 500 ms, 2000 ms, 4000 ms
Burden	
Current	
0(4) to 20 mA, three-wire	At a voltage supply of 15 to 18 V $R_L \leq 300 \Omega$ From a voltage supply of 18 V $R_L \leq 500 \Omega$
Voltage	
DC 0(2) to 10 V, three-wire	$R_L \geq 2 \text{ k}\Omega$

Measuring range

	Basic measuring range 1	Basic measuring range 2
Measuring range start	You can choose whether the measuring ranges begin at 0 hPa or the inverted measuring range (configurable).	
Measuring range (standard)	0 to 10 hPa	0 to 100 hPa
Measuring range (configurable)	0 (-2.5) to 2.5 hPa, 0 (-5) to 5 hPa, 0 (-7.5) to 7.5 hPa, 0 (-10) to 10 hPa	0 (-25) to 25 hPa, 0 (-50) to 50 hPa, 0 (-75) to 75 hPa, 0 (-100) to 100 hPa
Overload capability	100 hPa	800 hPa
Burst pressure	150 hPa	1000 hPa

Accuracy

Overall accuracy	1% of the basic measuring range end value (10 hPa or 100 hPa) The accuracy specified includes the largest possible error at room temperature.
Long-term stability	< $\pm 0.1\%$ of the basic measuring range end value (10 hPa or 100 hPa) per year Reference conditions according to DIN EN 61298-1
Temperature drift	< $\pm 0.05\%$ of the basic measuring range end value (10 hPa or 100 hPa) per K

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Electrical data

Voltage supply U_B	DC 15 to 38 V, AC 12 to 28 V Residual ripple: the voltage peaks must not exceed or fall below the specified voltage supply values!
Current consumption	Approx. 15 mA (without load)
Electrical connection	5-pole spring-cage terminal, max. 2.5 mm ² conductor cross section
Reverse voltage protection	Yes
Electrical circuit Requirement	SELV The device must be equipped with an electrical circuit that meets the requirements of EN 61010-1 with regard to "Limited-energy circuits".

Mechanical features

Material Parts in contact with media	Si, Al, Au, Cu, Ni, Pd, EP, PC, ABS
Housing Dimensions Pressure connections Cable fittings Display (optional)	86 mm × 56 mm × 40 mm (H × W × D) Dia. 6.6 mm × 10 mm (for flexible hoses dia. 6 mm) M12 × 1.5 Plug-in LCD display, 3.5-digit (separate accessory)
Weight	100 g

Environmental influences

Admissible temperatures Medium Environment Storage	0 to 60 °C 0 to 60 °C -20 to +70 °C
Admissible humidity	< 95% relative humidity (non-condensing)
Ambient pressure	600 to 1200 hPa
Admissible mechanical load Vibration resistance Shock resistance	Upon request 100 g for 6 ms, according to DIN EN 60068-2-27
Electromagnetic compatibility (EMC) Interference emission Interference immunity	Class B ^a , according to DIN EN 61000-6-3 Industrial requirement, according to DIN EN 61000-6-2
Protection type	IP54, according to DIN EN 60529

^a The product is suitable for industrial use as well as for households and small businesses.

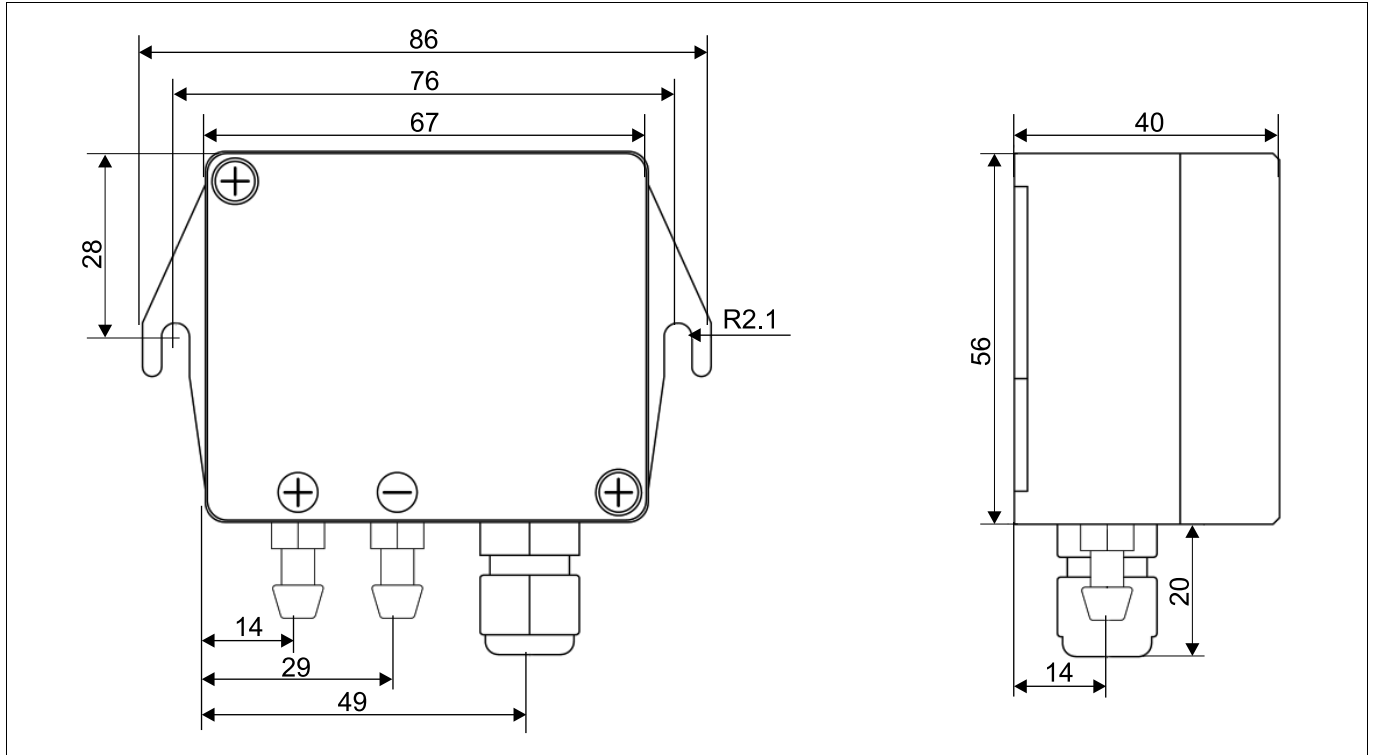
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Dimensions



Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection, only use the installation instructions or the operating manual. The knowledge and the correct technical compliance with the safety information and warnings contained in these documents are mandatory for mounting, electrical connection, and startup as well as for safety during operation.

Connection		Terminal assignment	
		<p>07 spring-cage terminal</p>	
0(4) to 20 mA, three-wire			
Voltage supply DC 15 to 38 V, AC 12 to 28 V	U_B 0 V/S- S+	V+ 0V/0V I	
DC 0(2) to 10 V, three-wire			
Voltage supply DC 15 to 38 V, AC 12 to 28 V	U_B 0 V/S- S+	V+ 0V/0V U	

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Order details

(1) Basic type	
402006	Multi-range pressure and differential pressure transmitter
(2) Basic type extension	
000	None
(3) Measuring range	
443	0 (-2.5/-5/-7.5/-10) to 2.5/5/7.5/10 hPa relative pressure, configurable
444	0 (-25/-50/-75/-100) to 25/50/75/100 hPa relative pressure, configurable
(4) Output	
411	DC 0(2) to 10 V and 0(4) to 20 mA configurable
(5) Process connection	
294	Hose connection dia. 6.6 mm × 10 mm (for flexible hoses dia. 6 mm)
(6) Electrical connection	
07	Spring-cage terminals

Order code	(1)	/	(2)	-	(3)	-	(4)	-	(5)	-	(6)
Order example	402006	/	000	-	443	-	411	-	294	-	07

Stock version

Order code	Description	Part no.
402006/000-443-411-294-07	0 (-2.5/-5/-7.5/-10) to 2.5/5/7.5/10 hPa configurable	00758206
402006/000-444-411-294-07	0 (-25/-50/-75/-100) to 25/50/75/100 hPa configurable	00758259

Accessories

Description	Part no.
Plug-in LCD display for type 402006	00758260