

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

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Multi-range pressure and differential pressure transmitter

Type 402005

Applications

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

Brief description

This transmitter has a piezoresistive pressure sensor and can be used to measure differential pressure in non-aggressive gases.

Differential pressure measurement is used, for example, in clean rooms. Permanent overpressure protects the process against dust penetration.

The multi-range pressure and differential pressure transmitter is a many-faceted, microprocessor-controlled measuring instrument. Apart from the varied range of applications, DIP switches (dual in-line package) are used to choose between standardized output signals (current or voltage signal) and each of four different measuring ranges in the hecto-pascal range. Adjustable damping is incorporated for widely fluctuating pressures. A connector system allows an LCD display to be added-on, to display the pressure on-site.



Type 402005

Customer benefits

• Versatile and economic

A 9-way DIP switch with a strikingly simple configuration is used to select the measuring range, the output and the damping.

This multi-faceted measuring instrument combines numerous functions, thus limiting the number of variations required, and as a result, reducing prices to a minimum and shortening delivery times. Because the measuring system is wear-free, operation is almost maintenance-free.

• Compact and uncomplicated

Small but effective. The compact size of this measuring instrument makes it easy to install and saves space at the same time. Time is also saved on start-up, thanks to an uncomplicated DIP switch.

Key features

- 4 measuring ranges, adjustable within two basic measuring ranges:
Basic range 1:
2.5 hPa, 5 hPa, 7.5 hPa, 10 hPa
Basic range 2:
25 hPa, 50 hPa, 75 hPa, 100 hPa
- Output signal: 0 - 10 V DC and 0(4) - 20 mA, adjustable
- Damping is adjustable for widely fluctuating pressures
- LCD display connection option

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Technical data

General

Reference conditions	DIN 16086 and EN 60770
Sensor	
Principle of measurement	Silicon sensor (piezoresistive)
Location	
Mounting location	Device standing vertically, process connection on bottom
Calibration location	Device standing vertically, process connection on bottom

Measuring range

Basic range 1	The measuring ranges start at 0 hPa.				
Measuring range	2.5	5	7.5	10	hPa
Overload capacity	680				hPa
Bursting pressure	2000				hPa
Maximaler beidseitiger Systemdruck	8000				hPa
Basic range 2	The measuring ranges start at 0 hPa.				
Measuring range	25	50	75	100	hPa
Overload capacity	680				hPa
Bursting pressure	2000				hPa
Maximaler beidseitiger Systemdruck	8000				hPa

Output

Analog output	
Output 409	0 - 10 V DC, 3 wires 0 - 20 mA, 3 wires 4 - 20 mA, 3 wires
Damping	10 ms; 0.5 s; 2 s; 4 s
Burden	
Voltage 0 to 10 V DC, 3 wires	$R_L \geq 2 \text{ k}\Omega$
Current 0(4) - 20 mA, 3 wires	from 14 to 18 V supply voltage $R_L \leq 300 \Omega$ above 18 V supply voltage $R_L \leq 500 \Omega$

Mechanical properties

Parts in contact with the media	
Material	PU, glass, FeNiCo, Au, Al, PEI

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Enclosure	
Dimensions	86 x 56 x 40 mm (H x W x D)
Weight	200 g

Ambient conditions

Permissible temperatures	
Medium	10 to 50 °C
Environment	10 to 50 °C
Storage	-10 to +70 °C
Permissible relative humidity	80% relative humidity
Permissible mechanical loading	
Vibration resistance	on request
Shock resistance ^a	100 g for 6 ms
Electromagnetic compatibility	
Interference emission ^b	Class B
Interference immunity ^c	Industrial requirements
Enclosure protection^a	IP54

^a EN 60068-2-27^b EN 61000-6-3^c EN 61000-6-2^d EN 60529**Accuracy**

Linearity^a	± 2 % of the set measuring range
Long-term stability^b	± 2 % of the set measuring range per year (typical)

^a Linearity based on limit point setting^b with reference conditions to EN 61298-1**Auxiliary power**

Supply voltage U_B^a	14 - 38 V DC, 12 - 31 V AC
Power consumption	approx. 20 mA (without load)
Reverse polarity protection	YES
Circuit	SELV

^a Residual ripple: Peak voltages must **not** exceed or fall below the values specified for the supply voltage!

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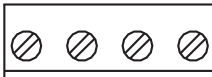
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Connection diagram

Connection			Terminal assignment
			1 2 3 4 
			Screw terminal
0(4) - 20 mA, 3 wires, output 409			
Supply voltage	14 - 38 V DC, 12 - 31 V AC	U_B 0 V/S- S+	3 2/4 1
0 - 10 V DC, 3 wires, output 409			
Supply voltage	14 - 38 V DC, 12 - 31 V AC	U_B 0 V/S- S+	3 2/4 1

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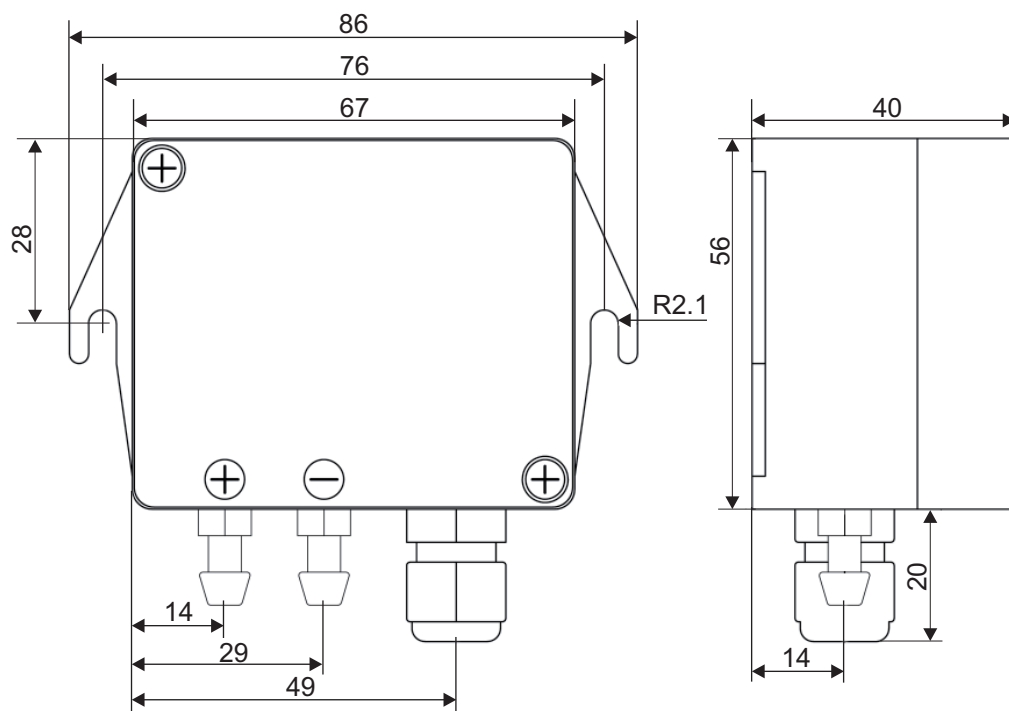
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Dimensions



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Order details

402005/000	(1) Basic type Multi-range pressure and differential pressure transmitter
	(2) Relative pressure measuring range Overpressure
441	0 - 2.5 hPa, 0 - 5 hPa, 0 - 7.5 hPa, 0 - 10 hPa
442	0 - 25 hPa, 0 - 50 hPa, 0 - 75 hPa, 0 - 100 hPa
	(3) Output
409	0(4) - 20 mA / DC 0 - 10 V3 wires (switchable)
	(4) Process connection
294	Tube connection ø 6.6 mm x 10 mm (for flexible tubing ø 6 mm)
	(5) Extra codes
000	none

Order code	(1)	-	(2)	-	(3)	-	(4)	/	(5)
Order example	402005/000	-	441	-	409	-	294	/	000

Stock instruments

Delivery in 3 working days after receipt of order

Type	Version	Part No.
402005/000-441-409-294	0 - 2.5 hPa, 0 - 5 hPa, 0 - 7.5 hPa, 0 - 10 hPa	00561200
402005/000-442-409-294	0 - 25 hPa, 0 - 50 hPa, 0 - 75 hPa, 0 - 100 hPa	00550210

Accessories

Delivery in 3 working days after receipt of order

Item	Part No.
Connectable LCD display	00550211