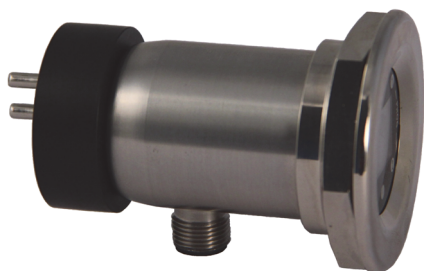


Product information

Differential pressure Transmitter / Switch OMNI-DP2



- Differential pressure measurement for non-aggressive gases
- Short reaction time
- Analog output, two switching outputs
- Clear, easily legible, illuminated LCD display
- Designed for industrial use
- Small, compact construction
- Very simple installation
- Control panel assembly (IP65)

Characteristics

The sensor measures the difference of the pressures at the two pressure ports P1 and P2 by means of piezo-resistive pressure sensor elements on a ceramic substrate.

The sensors are compensated in the entire operating temperature range and offer excellent drift and long-term stability.

The pressure ports are designed as hose connections with a 3 mm outside diameter.

There are various versions available:

Relative differential:

In this case $P1 \geq P2$ must apply.

Metering ranges from 5 mbar to 1000 mbar

Bidirectional differential:

In this case $P1 > P2$ or $P2 > P1$ may apply.

Metering ranges from ± 5 mbar to 1000 mbar

Absolute pressure measurement with only one pressure port P1:

Metering ranges:

0..1000 mbar

760..1200 mbar (barometric)

The display of the measured values takes place on a backlit graphical LCD display, including physical unit, which can be transposed on the device.

In addition, there is an analog output (20 mA or 10 V). The output range is programmable on the device.

Two integrated limit switches can be configured as a minimum or maximum switch.

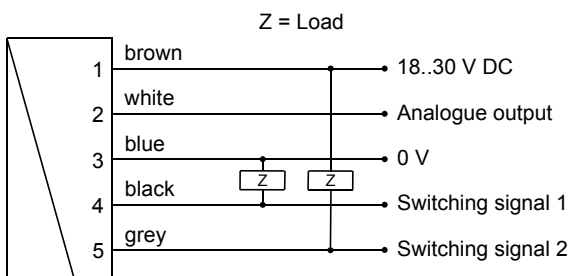
Technical data

Sensor	Piezo-resistive pressure difference measuring bridge																																				
Process connection	Tube Ø3 mm for hose connection																																				
Medium being measured	Non-aggressive gases																																				
Metering ranges and burst pressures	<u>Relative differential:</u> <table> <tr><td>0 .. 5 mbar</td><td>> 0.35 bar</td></tr> <tr><td>0 .. 10 mbar</td><td>> 0.35 bar</td></tr> <tr><td>0 .. 20 mbar</td><td>> 0.5 bar</td></tr> <tr><td>0 .. 50 mbar</td><td>> 1 bar</td></tr> <tr><td>0 .. 100 mbar</td><td>> 1 bar</td></tr> <tr><td>0 .. 200 mbar</td><td>> 5 bar</td></tr> <tr><td>0 .. 340 mbar</td><td>> 5 bar</td></tr> <tr><td>0 .. 1000 mbar</td><td>> 5 bar</td></tr> </table> <u>Bidirectional differential:</u> <table> <tr><td>-5 .. +5 mbar</td><td>> 0.35 bar</td></tr> <tr><td>-10 .. +10 mbar</td><td>> 0.35 bar</td></tr> <tr><td>-20 .. +20 mbar</td><td>> 0.5 bar</td></tr> <tr><td>-50 .. +50 mbar</td><td>> 1 bar</td></tr> <tr><td>-100 .. +100 mbar</td><td>> 1 bar</td></tr> <tr><td>-200 .. +200 mbar</td><td>> 5 bar</td></tr> <tr><td>-340 .. +340 mbar</td><td>> 5 bar</td></tr> <tr><td>-1000 .. +1000 mbar</td><td>> 5 bar</td></tr> </table> <u>Absolute pressure sensors:</u> <table> <tr><td>0 .. 1000 mbar</td><td>> 5 bar</td></tr> <tr><td>760 .. 1200 mbar</td><td>> 5 bar</td></tr> </table> Other metering ranges available on request	0 .. 5 mbar	> 0.35 bar	0 .. 10 mbar	> 0.35 bar	0 .. 20 mbar	> 0.5 bar	0 .. 50 mbar	> 1 bar	0 .. 100 mbar	> 1 bar	0 .. 200 mbar	> 5 bar	0 .. 340 mbar	> 5 bar	0 .. 1000 mbar	> 5 bar	-5 .. +5 mbar	> 0.35 bar	-10 .. +10 mbar	> 0.35 bar	-20 .. +20 mbar	> 0.5 bar	-50 .. +50 mbar	> 1 bar	-100 .. +100 mbar	> 1 bar	-200 .. +200 mbar	> 5 bar	-340 .. +340 mbar	> 5 bar	-1000 .. +1000 mbar	> 5 bar	0 .. 1000 mbar	> 5 bar	760 .. 1200 mbar	> 5 bar
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Measurement uncertainty	At 25 °C: Metering ranges up to 10 mbar: $\pm 1.5\%$ full scale value Metering ranges up to 100 mbar: $\pm 1.0\%$ full scale value other metering ranges : $\pm 0.5\%$ full scale value in the range -25 .. +85 °C: plus 0.5% full scale value on the above values																																				
Long term stability	< 0.5% full scale value / year																																				
Reaction time	32 ms																																				
Medium temperature	-25..+85 °C																																				
Ambient temperature	-20..+70 °C																																				
Storage temperature	-20..+80 °C																																				
Materials medium-contact	stainless steel Piezo-resistive pressure sensor elements on ceramic substrate																																				
Materials, non-medium-contact	<table> <tr> <td>Housing</td><td>Stainless steel 1.4305</td></tr> <tr> <td>Glass</td><td>Mineral glass, hardened</td></tr> <tr> <td>Magnet</td><td>Samarium Cobalt</td></tr> <tr> <td>Ring and rear wall</td><td>POM</td></tr> <tr> <td>Sensor support</td><td>FR4</td></tr> <tr> <td>screws</td><td>Steel, galvanised</td></tr> </table>	Housing	Stainless steel 1.4305	Glass	Mineral glass, hardened	Magnet	Samarium Cobalt	Ring and rear wall	POM	Sensor support	FR4	screws	Steel, galvanised																								
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screws	Steel, galvanised																																				
Supply voltage	18..30 V DC																																				
Power requirement	< 2 W																																				

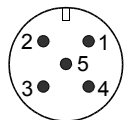
Product information

Analogue output	4 – 20 mA / max. load 500 Ω or 0 – 10 V / min. load 1 kΩ
Switching outputs	Transistor output "push-pull" (resistant to short circuits and polarity reversal) $I_{out} = 100 \text{ mA max.}$
Hysteresis	adjustable, position of the hysteresis depends on minimum or maximum
Display	extendible graphic LCD display Temperature range -20...+70 °C, 32 x 16 pixels, background illumination, displays value and unit, flashing LED signal lamp with simultaneous message on the display
Electrical connection	for round plug connector M12x1, 5pole
Ingress protection	IP 65 (Front)
Weight	approx. 0.2 kg
Conformity	CE

Wiring



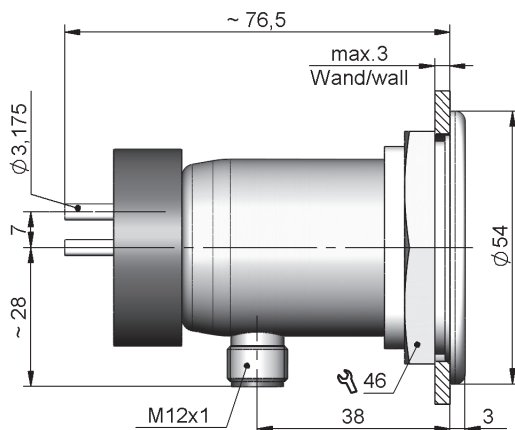
Connection example: PNP NPN



Plug connector M12x1

Before the electrical installation, it must be ensured that the supply voltage complies with the data sheet. The use of shielded cabling is recommended.

Dimensions



Handling and operation

Assembly



The assembly in the control panel takes place using an installation kit (included in the scope of supply). An mounting hole (Ø 45 mm) in the control panel is required. The front ring is fit through the hole from the outside and secured from the inside by a nut (size 46). Then the OMNI device is inserted in the ring from the inside and fixed with a threaded pin mounted on the side. The seal between the front ring and control panel and the seal between the front ring and OMNI device are provided by O-rings.

The connection takes place by means of sliding hoses onto the 3 mm connection of the device.

Programming



Set to 1 = continue (STEP)
Set to 2 = modify (PROG)

Pos. 1 or 2 is selected with the supplied magnets. Operation is by dialogue with the display messages, which makes its use very simple.

The following actions are possible:

Display of the parameters, using position 1

Starting from the normal display (currently measured value with unit), if 1 (STEP) is repeatedly selected, then the display shows the following information in this order:

- Switching value S1 (switching point 1 in the selected unit)
- Switching characteristics of S1
MIN = Monitoring of minimum value
MAX = Monitoring of maximum value
- Hysteresis 1 (hysteresis value of S1 in the set unit)
- Switching value S2
- Switching characteristics of S2
- Hysteresis 2
- Code
After entering the **code 111**, further parameters can be defined:
- Filter (settling time of the display and output)
- Physical unit (Units)
- Output: 0..20 mA or 4..20 mA
- 4/0 mA (measured value corresponding to 4/0 mA)

Product information

OMNI-DP2

- 20 mA (measured value corresponding to 20 mA)

For models with a voltage output, replace 20 mA accordingly with 10 V.

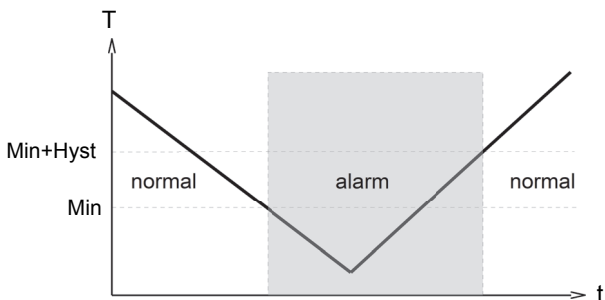
Edit, using position 2

If the currently visible parameter is to be modified:

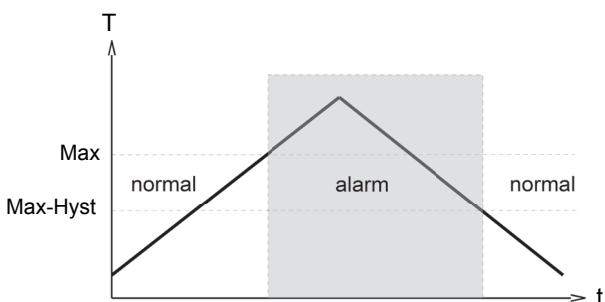
- Set magnet to Pos. 2 and a blinking cursor appears which shows the modifiable position
- By actuation of Pos. 2 repeatedly, the values are increased; with actuation of Pos. 1, the cursor switches to the next digit
- Leave the parameter by actuating Pos. 1 (until the cursor leaves the line) means adopting the change
- If there is no action within 30 seconds, the device returns to the normal display range without accepting the modification.

The limit switches S1 and S2 can be used for the monitoring of minima or maxima.

With a minimum-switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is once more exceeded. With a maximum-switch, exceeding the limit value causes a



switchover to the alarm state. Return to the normal state occurs when the measured value once more falls below the limit value minus the set hysteresis.



The change to the alarm state is indicated by the integrated red LED and a cleartext in the display.

While in the normal state the switching outputs are at the level of the supply voltage; in the alarm state they are at 0 V, so that a wire break would also display as an alarm state at the signal receiver.

Overload display

Overload of the switching output is detected, indicated on the display ("Check S1 / S2"), and the switching output is

Simulation mode

To simplify commissioning, the sensor provides a simulation mode for the analog output. It is possible to create a programmable value in the range 0..21.0 mA (and/or 10 V) at the output (without modifying the process variable). This allows the wiring run between the sensor and the downstream electronics to be tested during commissioning. This mode is accessed by means of **code 311**.

Factory settings

After modifying the configuration parameters, it is possible to reset them to the factory settings at any time **using code 989**.

Ordering code

1. 2. 3. 4.
OMNI-DP2- **S**

○ = Option

1. Metering range			
0005	5 mbar	●	●
0010	10 mbar	●	●
0020	20 mbar	●	●
0050	50 mbar	●	●
0100	100 mbar	●	●
0200	200 mbar	●	●
0340	340 mbar	●	●
1000	1000 mbar	●	●
1200	760 – 1200 mbar (barometric)	●	●
2. Sensor type			
D	Relative differential	●	●
B	Bidirectional differential	●	●
A	Absolute	●	●
3. Analogue output			
I	Current output 0/4..20 mA	●	●
U	○ Voltage output 0/2..10 V (available on request)	●	●
4. Electrical connection			
S	for round plug connector M12x1, 5pole	●	●

Accessories

- Round plug connector / cable (K / KB...)
- Device configurator ECI-1