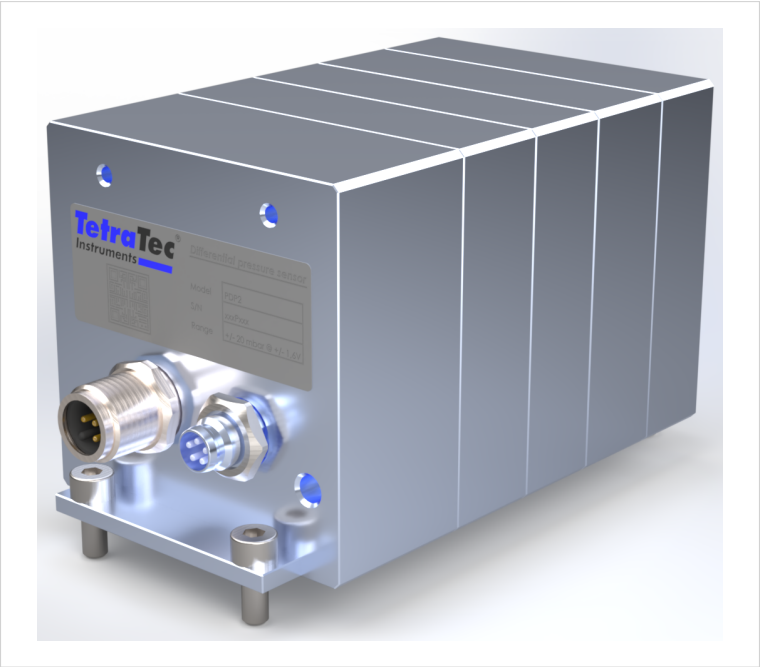
PDP2.flange

Technical Datasheet



Short description

Digital combined pressure transducer for differential and static pressure in a single flange housing. Both sensor cells are read out over the same MODBUS® connection. The differential pressure cell works capacitively and without a liquid transfer medium; it withstands 10 bar of static pressure against atmosphere. Internal volumes are reduced to a minimum. The transducer is suitable for flow measurement with a laminar flow element (LFE) and can be operated bidirectionally.

Identification

Product name	PDP2.flange
Design	combined pressure transducer with flange connection
Versions	PDP2.Combi, PDP2.DP, PDP2.SP
Measuring principle	capacitive (differential), piezoresistive (static)
Interface	MODBUS RTU, additionally analogue −2 to +2 V
Document status	12.11.2026

Measured variables and calibrated ranges

MEASURED VARIABLE	UNIT	MIN.	MAX.
Differential pressure	mbar	−1	+1
Differential pressure	mbar	−2	+2
Differential pressure	mbar	−10	+10
Differential pressure	mbar	−20	+20
Static pressure, gauge	bar	−1	+1
Static pressure, gauge	bar	−1	+7
Static pressure, absolute	bar	0	1
Static pressure, absolute	bar	0	7

Each version carries at most one differential pressure range and one static pressure range. **Any measuring range within the span of a differential pressure cell can be set** – the −20 to +20 mbar cell also covers 0 to 20 mbar, for example. It is technically the same cell; the data in the section “Sensors” therefore still refer to its full span, and relative to a smaller range set the deviation is correspondingly larger. Please state the required measuring range with the order.

Sensors

CHARACTERISTIC	DIFFERENTIAL PRESSURE CELL	STATIC PRESSURE CELL
Measuring principle	capacitive	piezoresistive
Materials in contact with the medium	ceramic, nickel-iron alloy, chromated aluminium	stainless steel 316 L, chromated aluminium
Linearity deviation	typ. ±0.025 % of span	typ. ±0.025 % of span
Hysteresis	typ. 0.025 % of span	typ. 0.010 % of span
Repeatability	typ. 0.010 % of span	typ. 0.010 % of span
Response time	T_{90} approx. 40 ms	T_{90} approx. 40 ms
Position dependency	0.05 % of span	–
Static pressure influence	0.3 Pa per bar	–
Warm-up time	typ. 30 minutes	typ. 15 minutes
Pressure against atmosphere	up to 10 bar gauge	–
Overload limit	plus to minus: 10 bar minus to plus: < 1 bar	2 × measuring range

With regular changes in the sign of the pressure load, increased zero drift is to be expected. Described in detail in the operating instructions.

Operating conditions

Operating temperature	+15 to +50 °C
Temperature compensation	+15 to +50 °C
Storage temperature	−20 to +60 °C
Operating direction	bidirectional
Mounting position	any; carry out a zero adjustment after changing the position

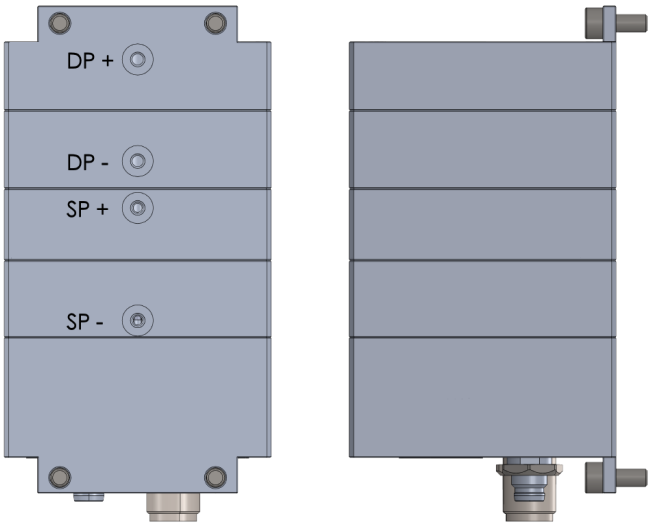
Media compatibility

Permissible media	air and inert gases, non-condensing
Not permissible	liquids, aggressive and corrosive gases, condensing media
Note	The transducer **must not be flushed**.

Mechanical and electrical data

Housing material	anodised aluminium
Degree of protection	IP 64
Weight	PDP2.Combi 540 g · PDP2.DP 400 g · PDP2.SP 380 g
Pressure connection	flange face, O-ring 3.5 × 1.5 mm, M3 internal thread
Tightening torque	M4 max. 2.9 Nm (guide value, unless the drawing states otherwise)
Power supply	24 VDC ±20 %
Current consumption	≤ 30 mA
Digital connection	M12×1 panel connector, 5-pin
Analogue connection	M8×1 panel connector, 5-pin

Connection layout



Flange face with the four pressure connections DP +, DP −, SP + and SP −.

Interfaces

Digital output signal	MODBUS RTU over RS-485
Protocol basis	MODBUS Application Protocol Specification V1.1b3 MODBUS over Serial Line V1.02
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 Bd factory setting 115200 Bd
Device address	1 to 247, factory setting 1
Parity	none, even (factory setting), odd
Stop bits	1 (factory setting) or 2
Bus termination	switchable in the device
Byte order	big-endian (factory setting), little-endian, both also with byte swap
Data formats	Float32 and Float64 to IEEE 754, uint16, uint32, uint64
Time stamp	resolution 0.1 ms, per measured variable
Sampling rate	5, 10, 16, 20, 50 (factory setting), 60 readings/s
Filter	Sinc1 to Sinc4, factory setting Sinc3
Analogue output signal	−2 to +2 V per measured variable

The complete register map, the pin assignment of the connectors and the supported function codes are given in the operating instructions PDP2.flange.

Options and variants

- **PDP2.Combi** – differential and static pressure
- **PDP2.DP** – differential pressure only
- **PDP2.SP** – static pressure only
- Static pressure cell as gauge or absolute pressure
- Connection plates with G1/8" ports for every version
- Connection cables M12×1 and M8×1, straight or angled
- Factory calibration certificate

Ordering information

Order no.: **PDP2.flange *aaabcc*** – three digits for the static pressure range, one for its type, two for the differential pressure range.

aaa – static pressure measuring range

CODE	RANGE	NOTE
000	no sensor	version PDP2.DP
010	−1 to +1 bar	as absolute pressure: 0 to 1 bar
070	−1 to +7 bar	as absolute pressure: 0 to 7 bar

b – type of sensor for static pressure

CODE	MEANING
n	no sensor
r	gauge pressure
a	absolute pressure, range starting at ≥ 0 bar

cc – differential pressure measuring range

CODE	RANGE	NOTE
00	no sensor	version PDP2.SP
01	−1 to +1 mbar	
02	−2 to +2 mbar	
10	−10 to +10 mbar	
20	−20 to +20 mbar	

Examples

- **PDP2.flange 070r10** – static gauge pressure −1 to +7 bar, differential pressure ±10 mbar (PDP2.Combi)
- **PDP2.flange 000n20** – differential pressure ±20 mbar only (PDP2.DP)
- **PDP2.flange 010a00** – static absolute pressure 0 to 1 bar only (PDP2.SP)

Accessories

ORDER NUMBER	DESCRIPTION
LTG-MBUS-GK125A-050U-00ADER	Connection cable M12×1 straight, length 5 m, open cable ends
LTG-MBUS-WK125A-050U-00ADER	Connection cable M12×1 angled, length 5 m, open cable ends
LTG-PDP2-GK085B-050U-00ADER	Connection cable M8×1 shielded, straight socket, length 5 m, open cable ends
LTG-PDP2-WK085B-050U-00ADER	Connection cable M8×1 shielded, angled socket, length 5 m, open cable ends
PDP2-VT-KO	Connection plate for PDP2.Combi with G1/8" ports to every sensor connection
PDP2-VT-DP	Connection plate for PDP2.DP with G1/8" ports to every sensor connection
PDP2-VT-SP	Connection plate for PDP2.SP with G1/8" ports to every sensor connection

FURTHER DOCUMENTS

Benefits, operating principle and application examples are given in the product brochure **PDP2.flange**. Mounting, electrical connection, parameter setting and the complete MODBUS register map are given in the **operating instructions PDP2.flange**. For the design of your measuring point, contact us at **+49 7157 5387-0** or **info@tetratec.de**.