

Pressure Precision

with front-flush diaphragm
for gauge pressure and absolute pressure

accuracy 0.05% and 0.1 % of Full scale value

standard output: **4...20 mA; 2-wire system,**
 or **4...20 mA; 3-wire system,**
 or **0...20 mA; 3-wire system,**
 or **0... 5 VDC; 3-wire system,**
 or **0 ...10 VDC; 3-wire system**



P3290

P3291

Description

Pressure sensors precisions are top of the range precision pressure sensors.

With a standard accuracy of 0.1% and optional accuracy of 0.05%, these pressure sensors are particularly suitable for use in testing or calibration systems. The program - controlled temperature compensation system practically eliminates temperature - related measurement errors in the range 10°C to 60°C.

The front flush pressure diaphragm avoids zones, in which medium could crystallize or residues could form, thus ensuring trouble-free pressure measurement and hygienic cleaning of the pressure sensor.

Their long-term stability, good corrosion resistance, high protection up to max. IP 67 and mechanical load rating are the basis for use in harsh industrial environments.

For special measuring jobs, the zero point and measuring range can be reset with an IBM compatible PC. The software for the collection, storage and output of the measured values is available as an additional option.

The pressure sensors precisions meet the electromagnetic compatibility (EMC) to EN 61326.

Features

- High accuracy
- Long-term stability
- Thermally compensated for 10°C to 60°C. temperature range
- Corrosion resistant stainless steel design
- With laser welded front-flush diaphragm
- Serial interface, USB – interface at PC
- Fast external measurement value processing for data collection to 1kHz (3-wire)
- Compact design

Measuring ranges

Gauge pressure

negativ -1...0 bar to -0,25...0 bar

positiv 0...0,25 bar to 0...1000 bar

absolute pressure 0...0,25 bar to 0...16 bar

Applications

Testing and calibration systems,
Engineering,
Development and production

Models: P3290, P3291

Technical data

Model	P3290						P3291					Options
Pressure type	negative or positive gauge pressure			absolute pressure			negative or positive gauge pressure		absolute pressure			negative or positive gauge pressure
Output signal	4 ... 20 mA - 2-wire			0...5 VDC - 3-wire			4 ... 20 mA - 3-wire		0...10 VDC - 3-wire			
Accuracy ¹⁾	≤ 0,1 % of F.S. in the range of 0...50°											< 0,05 % of F.S. to 20°C ²⁾
Ranges	bar	0,25	0,4	0,6	1	1,6	2,5	4	6	10	16	1600 bar on request
Overload limit	bar	2	2	4	5	10	10	17	35	35	80	
Burst pressure	bar	2,4	2,4	4,8	6	12	12	20,5	42	42	96	
Ranges	bar	25	40	60	100	160	250	400	600	1000 ³⁾		
Overload limit	bar	50	80	120	200	320	500	800	1200	1500		
Burst pressure	bar	96	400	550	800	1000	1200	1700 ⁴⁾	2400 ³⁾	3000		
Sensor element	Piezoresistive: Vacuum: -1 ... 16 bar absolute pressure: 0 ... 16 bar Relative pressure: 0 ... 0,25 bar to 25 bar Thin film: Relative pressure: 25,01 ... 1000 bar											
Overload limit	≤ 16 bar 3,5 x; ≤ 600 bar 2 x; > 600 bar 1,5 x;						≤ 16 bar 3,5 x; ≤ 600 bar 2 x					
Repeatability	≤ ± 0,03 % of F.S.											
Stability (annual)	≤ ± 0,1 % of F.S. in rated conditions											
Case	Stainless steel 1.4571											
Internal liquid transmission	Synthetic oil {halocarbon-oil for oxygen-construction} <i>Attention: not by ranges: > 25 bar</i>						Synthetic oil {halocarbon-oil for oxygen-construction}					
Process connection	G 1/2 B acc. to EN 837						to 1,6 bar G 1 B front plug; from 2,5 bar G 1/2 B front plug					G1/4B; 1/2NPT; 1/4NPT; G1 B and G1/2 B front plug
Wetted parts	Stainless steel, 1.4571 (to range: > 25 bar additionally 2.4711 / UNSR 30003)						Stainless steel, 1.4571; o-ring: NBR {FPM/FKM or EPDM}					
Electr. connection – Analogue output	M12x1											DIN EN 175301-803 Form A Cable output with 1,5 m cable, Bajonett-connector
Power supply	14...30 VDC by outlet signal 0-10 VDC											
– Analogue output	9...30 VDC by all other outlet-signals											
Power consumption	max 30 mA with current output / < 25 mA						with voltage output					
Load	– current output (2-L) RA[Ω] ≤ (UB[V] – 10V) / 0,02 A – current output (3-L) RA[Ω] ≤ (UB[V] – 10V) / 0,02 A – 0...5 V (3-L) > 5 kOhm – 0...10 V (3-L) > 10 kOhm											
Temperature influence	– Middle TK of zero ≤ 0,1 % /10K, on zero and span – Middle TK of span ≤ 0,1 % /10K, on zero and span											
Adjustability	of zero and span; programmable											
– zero point	-5...+20°C {adjustment by software EasyCom}											
– span	-50...+ 5°C {adjustment by software EasyCom}											
– measured value	4 ms by construction 2-wire; 1 ms by construction 3-wire											
– heating period	< 10 min											
– Isolation span	500 VDC											
Measured value	3-wire 1ms (1kHz) and 2-wire 3ms (0,33 kHz)											
Protection	IP 67 acc. to EN 60 529 / IEC 529											IP 65 (L-plug)
Emission ⁵⁾	acc. to EN 61326											
Interference ⁵⁾	acc. to EN 61326											
Temperature ranges	– Storage -40 85 °C – Medium -20 105 °C In oxygen-construction, model P3291 is unavailable. In oxygen-construction, model P3290 is only possible with medium: -20 ... +60 °C. – Ambient -20 80 °C											
Compensated temperature range	-20 80 °C											
Weight	ca. 0,30 kg											

1) Inclusive of nonlinearity, hysteresis, zero-point- and full scale value deviation of F.S. = of full scale value (conform to measuring deviation acc. to IEC 61298-2) - (calibrated in vertical installation position, pressure connection bottom)

2) Not possible by: ± measuring ranges and measuring ranges ≤ 0.4 bar.

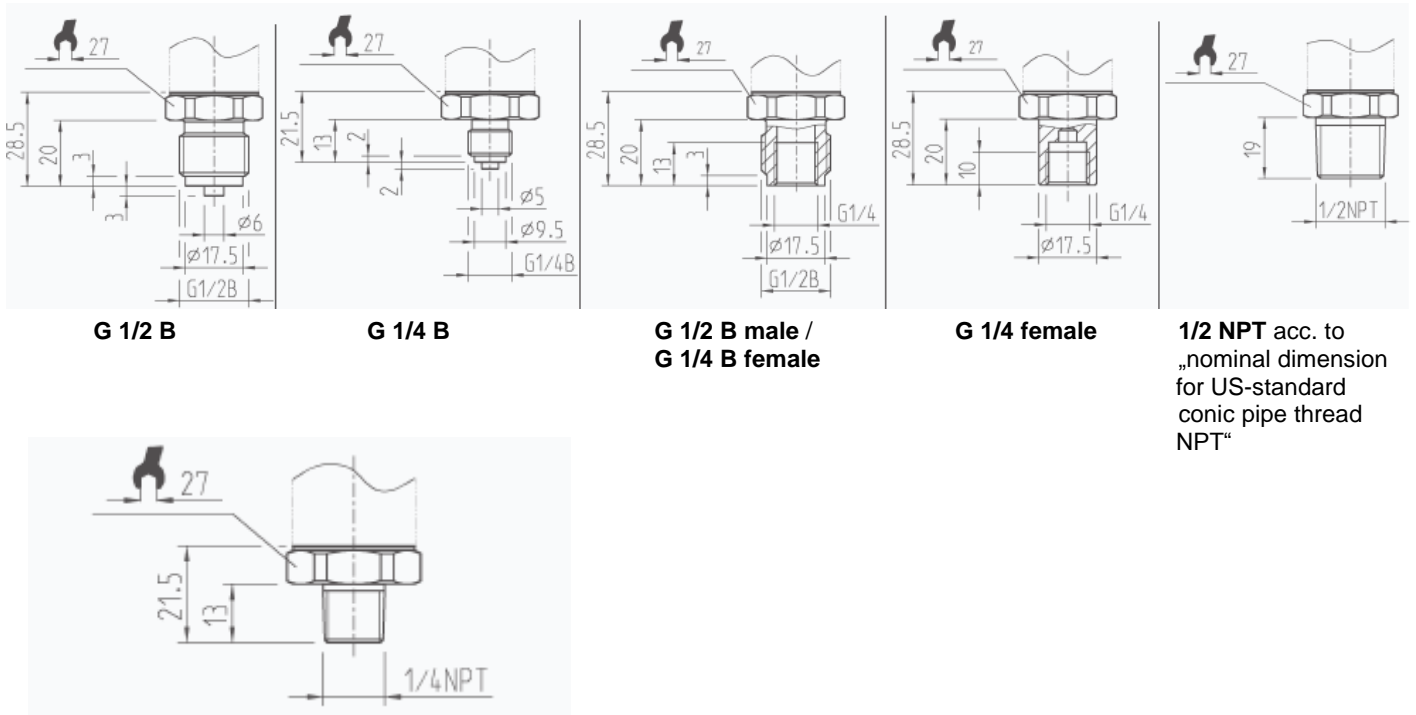
3) Only for model P3290 available

4) Model P3291: the tabular value is only available by o-ring seal under the hexagon. Otherwise is available max. 1500 bar.

5) Declaration of conformity on request.

Dimensions (mm)

Pressure connections for model P3290



G 1/2 B

G 1/4 B

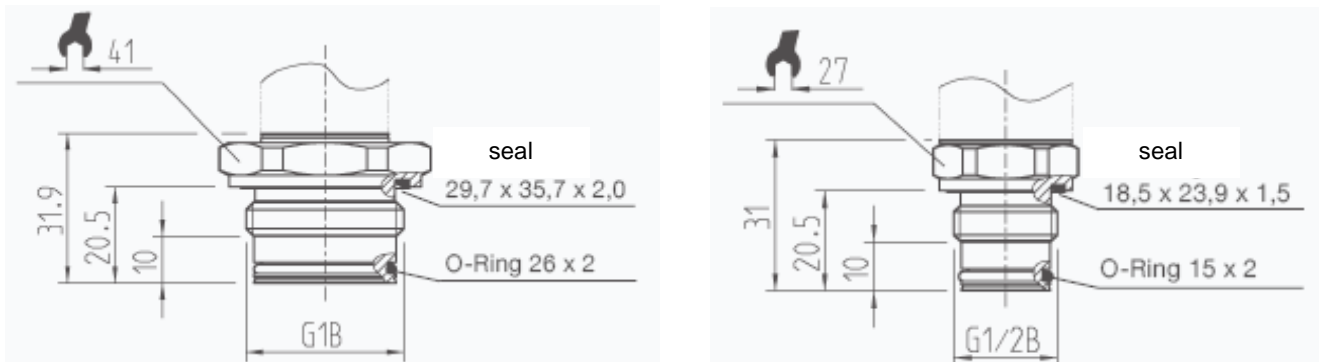
**G 1/2 B male /
G 1/4 B female**

G 1/4 female

1/2 NPT acc. to „nominal dimension for US-standard conic pipe thread NPT“

1/4 NPT acc. to „nominal dimension for US-standard conic pipe thread NPT“

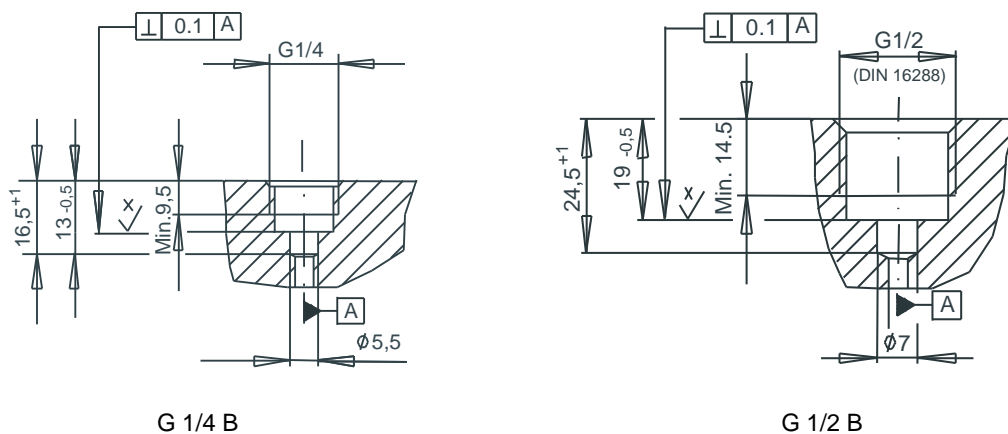
Pressure connection for model P3291, front flush



G 1B 0 ... 0,25 bar to 0 ... 1,6 bar

G 1/2B 0 ... 2,5 bar to 0 ... 1000 bar

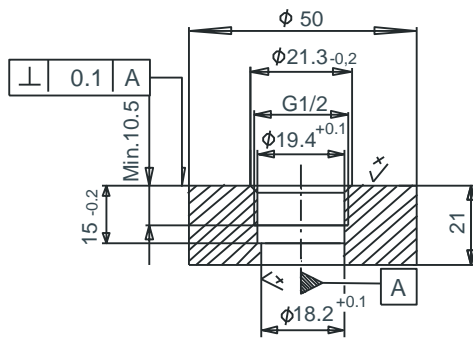
Tapped holes acc. to DIN 16288



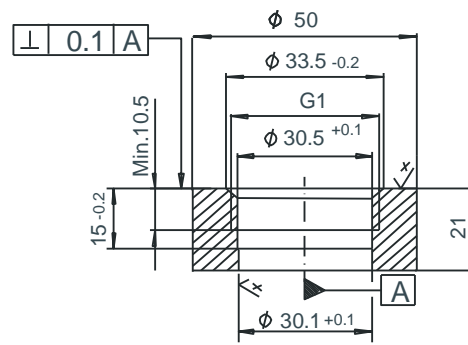
G 1/4 B

G 1/2 B

Welding socket respectively welding hole

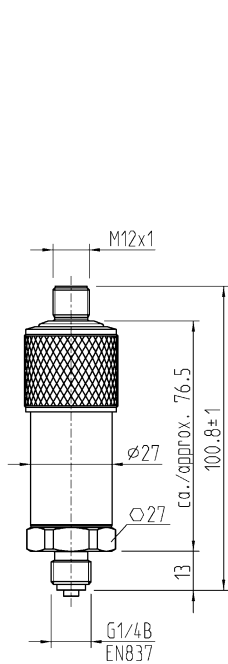


G 1/2 B

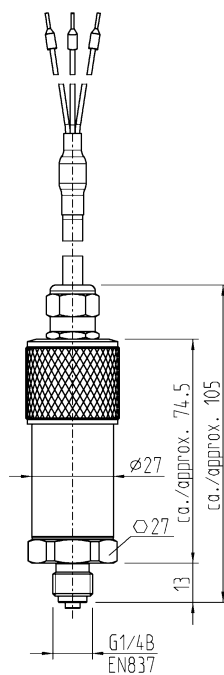


G 1 B

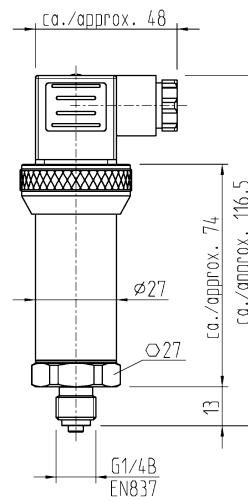
Electrical connections



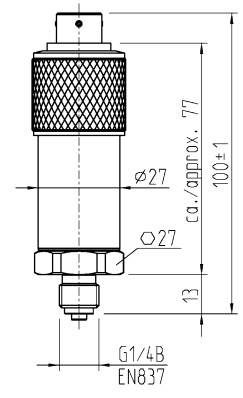
M12x1 round plug connector *)



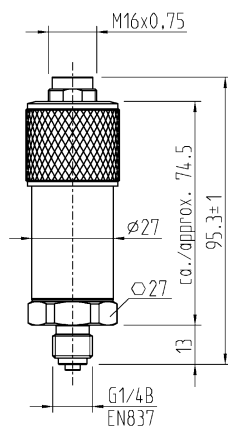
Cable outlet



DIN 175301-803A pipe socket



Bayonet-connector *)



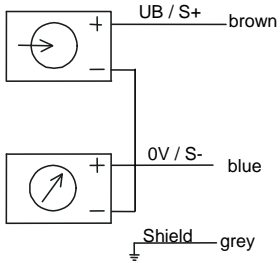
M16x0,75 round plug connector *)

*) Mating plug are not contained in shipment.

Electrical connection

Two wire system

Cable outlet



Bayonet nut connector, 6-pin



Pipe socket, DIN 175301-803 A



Round plug connector, M12x1 – 4-pin

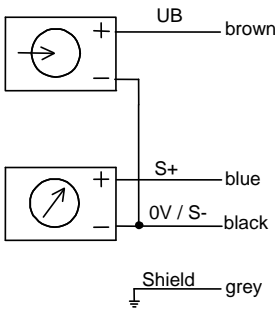


Round plug connector, M16x0.75 – 5-pin

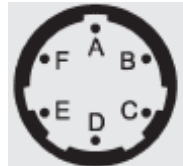


Three wire system

Cable outlet



Bayonet nut connector, 6-pin



Pipe socket, DIN 175301-803 A



Round plug connector, M12x1 – 4-pin



Round plug connector, M16x0.75 – 5-pin



	Cable outlet	Bayonet nut connector, 6-pin	Pipe socket DIN 175301-803A	Round plug connector M12x1 – 4-polig	Round plug connector M16x0.75 – 5-polig
2-wire	UB=brown / OV=blue	UB=A / OV=B	UB=1 / OV=2	UB=1 / OV=3	UB=3 / OV=1
3-wire	B=brown/OV=black/S+=blau	UB=A/OV=B/S+=C	UB=1/OV=2/S+=3	UB=1/OV=3/S+=4	UB=3/OV=4/S+=1
Cable cross-section	0,5 mm ² (AWG 20)	---	to max. 1,5 mm ²	---	---
Cable diameter	6-8 mm	---	6-8 mm	---	---
Protection acc. to IEC 60529	IP 67	IP 67	IP 65	IP 67	IP 65
	The showed protections are only considered to be in a plugged order with cable connectors acc. to protection				

Order details

1. Model
2. Measuring range
3. Output signal
4. Options

Modifications reserved