

# Precision Pressure Sensor

with internal or front-flush diaphragm  
for gauge or absolute pressure

accuracy 0.05% or 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

Precision pressure sensors are the high end models of the tecs is pressure sensor programme.

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

For media with high viscosity or for fluids which may crystallize a front flush version of this pressure sensor is also available. (for pressure up to 600 bar)

The excellent long-term stability, good corrosion resistance and the high protection class up to IP 67 show the robustness of this pressure sensor.

For special applications zero point and measuring range can be adjusted via PC. The software for the collection, storage and output of the measured values is available as an option.

## Features

- High accuracy
- Long-term stability
- Temperature compensated from 10°C to 60°C
- Media affected parts made of stainless steel
- USB – interface for programming
- Fast measuring rate up to 1kHz
- Compact design
- Option: Front-flush diaphragm (up to 600 bar)

## Measuring ranges

Gauge pressure	0 ... 0,25 bar	to	0 ... 1000 bar
negative	-1...0 bar	to	-0,25...0 bar
positive	0...0,25 bar	to	0...1000 bar
absolute pressure	0...0,25 bar	to	0...16 bar
compound ranges	-1 ... +0,6bar	to	-1 ... +15bar

## Applications

Testing and calibration systems  
Engineering  
Development and production

**Models: P3290, P3291**

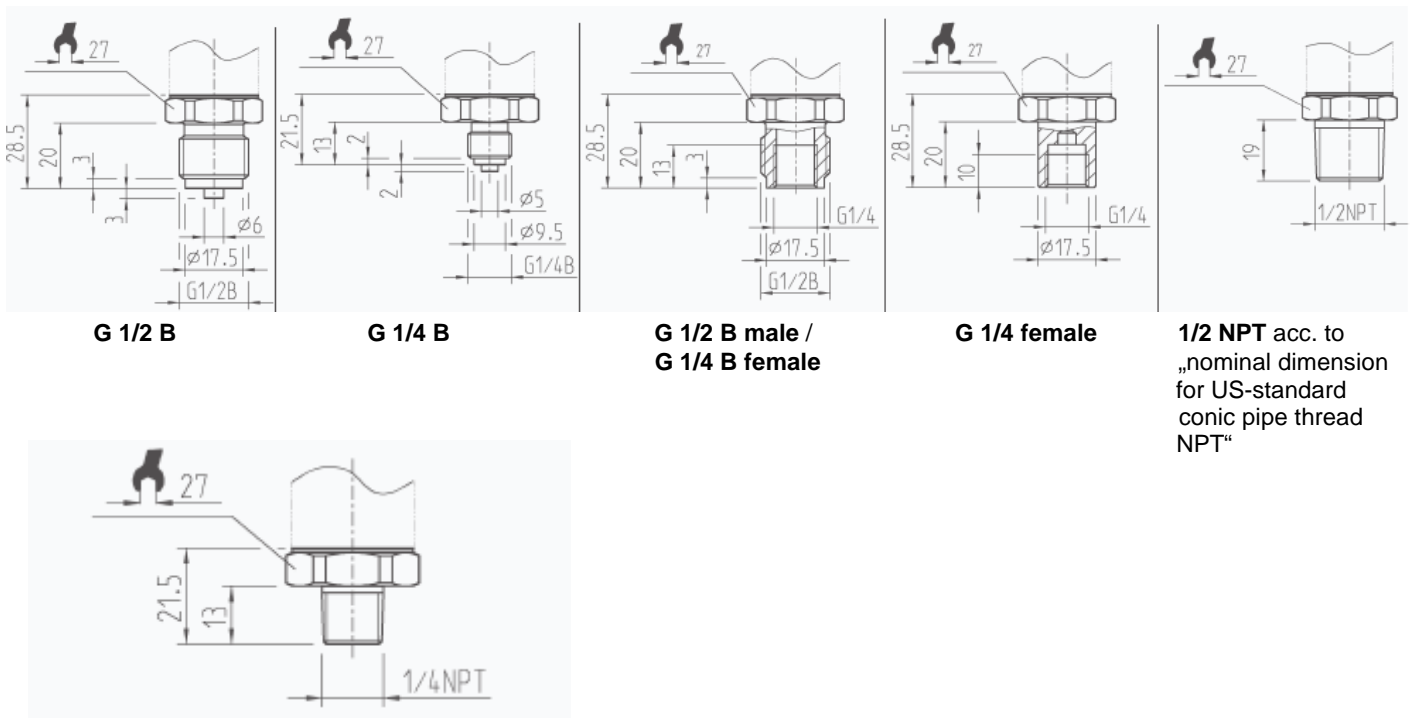
## Technical data

Model	P3290						P3291						Options
Pressure type	negative or positive gauge pressure absolute pressure compound ranges												
Measuring range	bar	0..0,25	0..0,4	0..0,6	0..1	0..1,6	0..2,5	0..4	0..6	0..10	0..16	psi ranges mbar ranges kg/cm <sup>2</sup> MPa ranges	
Overload limit	bar	1,5	2,4	3,6	4	6,4	7,5	12	18	30	48		
Measuring range	bar	0..25	0..40	0..60	0..100	0..160	0..250	0..400	0..600	0..1000			
Overload limit	bar	75	80	120	200	320	500	800	1200	1500			
Measuring range	bar abs	0..0,25	0..0,4	0..0,6	0..1	0,8..1,2	0..1,6	0..2,5	0..4	0..6	0..10		
Overload limit	bar	1,5	2,4	3,6	4	3,6	4,8	7,5	12	18	30		
Measuring range	bar abs	0..16	0..25										
Overload limit	bar	48	48										
Measuring range	bar	-1..0	-0,6..0	-0,4..0	-0,25..0	-1..0,6	-1..1	-1..1,5	-1..+3	-1..+5	-1..+9		
Overload limit	bar	1,5	1,5	1,5	1,5	3,2	4	5	8	12	20		
Measuring range	bar	-1..+15											
Overload limit	bar	32											
Vacuum resistant	Yes												
Output signals	4 ... 20 mA - 2-wire				0...5 VDC - 3-wire								
	4 ... 20 mA - 3-wire				0...10 VDC - 3-wire								
	0 ... 20 mA - 3-wire												
Power supply	9...30 VDC ; 14...30 VDC for output signal 0-10 VDC												
Accuracy <sup>1)</sup>	≤ 0,1 % of F.S. in the range of 10...60 °C											< 0,05 % of F.S. 2)	
Long term stability	≤ ± 0,1 % of F.S. / year												
Compensated temperature range	-20 .... 80 °C												
Temperature error -20 .. +10 °C +60 .. +80 °C	≤ 0,2% of span/10K ≤ 0,2% of span/10K												
Process connection	G 1/2 B acc. to EN 837						to 1,6 bar G 1 B front flush; from 2,5 bar G 1/2 B front flush						
Wetted parts	Stainless steel, 1.4571 for ranges > 25 bar additionally 2.4711 (Elgiloy®)						Stainless steel, 1.4571; O-ring: NBR						
Electr. connection	M12x1											DIN EN 175301-803 Form A Cable output with 1,5 m cable, Bajonett-connector	
Load	<ul style="list-style-type: none"> <li>- current output (2-w.) RA[Ω] ≤ (UB[V] - 9V) / 0,02 A</li> <li>- current output (3-w.) RA[Ω] ≤ (UB[V] - 9V) / 0,02 A</li> <li>- 0...5 V (3-wire) &gt; 5 kOhm</li> <li>- 0...10 V (3-wire) &gt; 10 kOhm</li> </ul>												
Adjustability	<ul style="list-style-type: none"> <li>- zero point -5...+10% of span (adjustment via software EasyCom)</li> <li>- span -50...+ 5% of span (adjustment via software EasyCom)</li> </ul>												
Measuring rate	3-wire: 1ms (1kHz) 2-wire: 2ms (0,5 kHz)												
Warm-up time	< 10 min												
Ingress protection	IP 67 acc. to IEC 60 529											IP 65 (L-plug)	
EMC <sup>3)</sup>	2004/108/EC, EN 61326 emission (group1, class B) and immunity (industrial application)												
Insulation voltage	500 VDC												
Vibration resistance	10g (IEC 60068-2-6, under resonance)												
Shock resistance	200g (IEC60068-2-27, mechanical)												
Temperature ranges	<ul style="list-style-type: none"> <li>- Storage -40 .... +85 °C</li> <li>- Medium -20 .... +105 °C</li> <li>- Ambient -20 .... +80 °C</li> </ul>												
Weight	ca. 0,30 kg												

- 1) Including nonlinearity, hysteresis, zero-point- and full scale value deviation of F.S. = of full scale value  
(according to measuring deviation acc. to IEC 61298-2) - (calibrated in vertical installation position, pressure connection bottom)
- 2) Not possible for: ± measuring ranges and measuring ranges ≤ 0.4 bar and 0,8..1,2bar abs
- 3) Declaration of conformity on request.

## Dimensions (mm)

### Pressure connections for model P3290



**G 1/2 B**

**G 1/4 B**

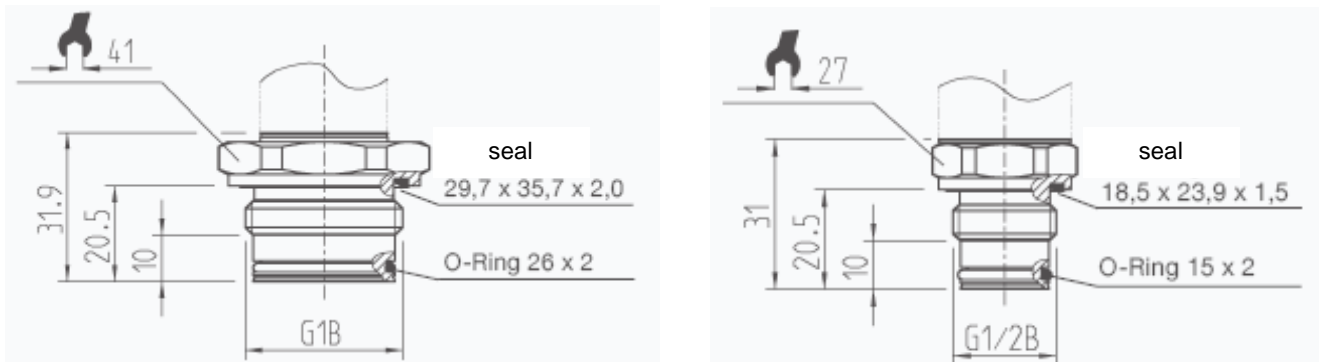
**G 1/2 B male /  
G 1/4 B female**

**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“

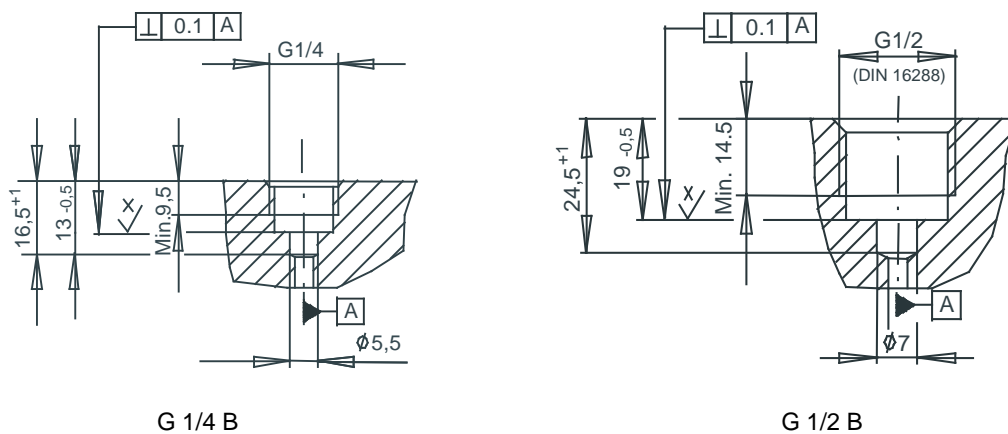
### Pressure connection for model P3291, front flush



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

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

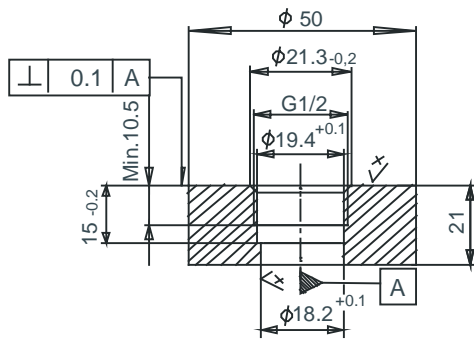
### Tapped holes acc. to DIN 16288



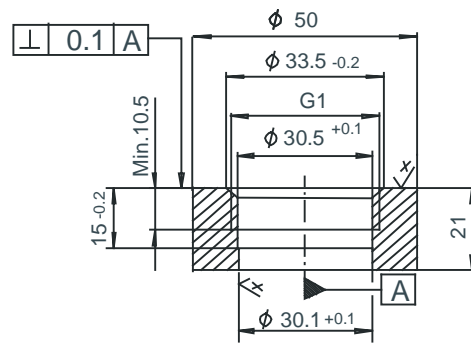
**G 1/4 B**

**G 1/2 B**

## Welding socket respectively welding hole

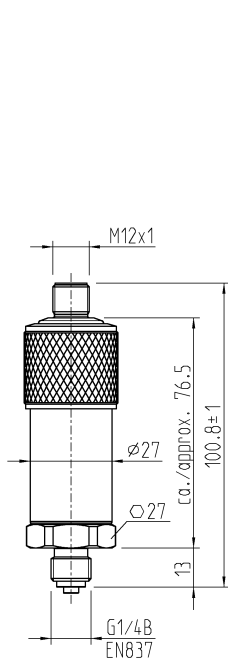


G 1/2 B

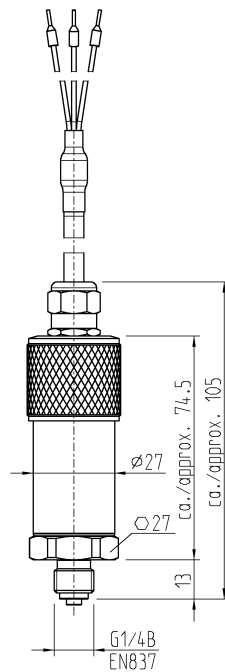


G 1 B

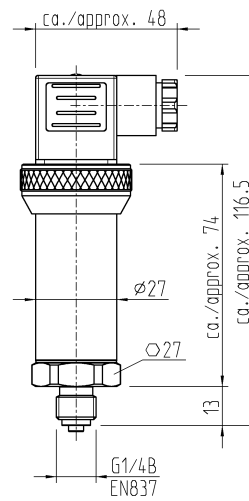
## Electrical connections



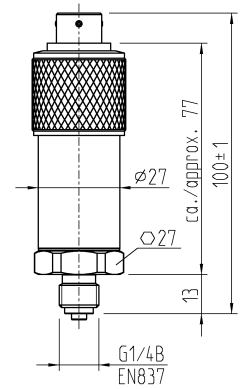
M12x1 circular connector \*)



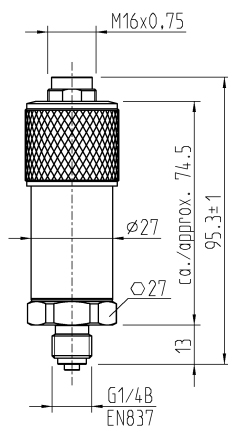
Cable output



L-Plug acc. DIN 175301-803A



Bayonet-connector \*)



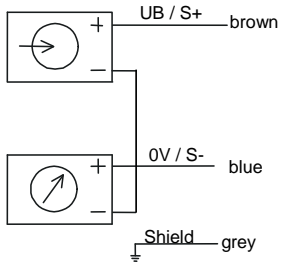
M16x0,75 circular connector \*)

\*) Mating plug are not included

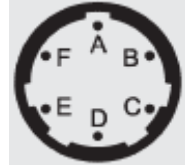
## Electrical connection

### Two wire system

Cable outlet



Bayonet nut connector, 6-pin



L-Plug DIN 175301-803 A



Round plug connector, M12x1 – 4-pin

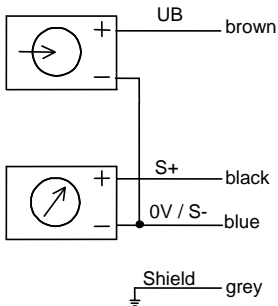


Round plug connector, M16x0.75 – 5-pin

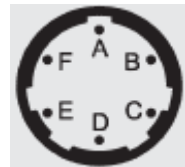


### Three wire system

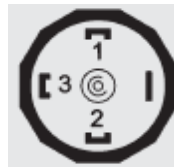
Cable outlet



Bayonet nut connector, 6-pin



L-Plug, DIN 175301-803 A



Round plug connector, M12x1 – 4-pin



Round plug connector, M16x0.75 – 5-pin



	Cable outlet	Bayonet nut connector, 6-pin	L-Plug 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=blue /S+= black	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 <sup>2</sup> (AWG 20)	---	to max. 1,5 mm <sup>2</sup>	---	---
Cable diameter	6-8 mm	---	6-8 mm	---	---
Protection acc. to IEC 60529	IP 67	IP 67	IP 65	IP 67	IP 67
	The stated protection only applies when plugged in using mating connectors with appropriate ingress protection				

### Order details

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

Modifications reserved