

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 ² 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 ¹⁾ | ≤ 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 | | | | | | G1/4B; G1/4A acc DIN 3852-E; G1/4 female; 1/2NPT; 1/4NPT; | |
| Wetted parts | Stainless steel, 1.4571 for ranges > 25 bar additionally 2.4711 (Elgiloy®) | | | | | | Stainless steel, 1.4571; O-ring: NBR | | | | | | P3291: FPM/FKM or EPDM | |
| 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"> - current output (2-w.) RA[Ω] ≤ (UB[V] - 9V) / 0,02 A - current output (3-w.) RA[Ω] ≤ (UB[V] - 9V) / 0,02 A - 0...5 V (3-wire) > 5 kOhm - 0...10 V (3-wire) > 10 kOhm | | | | | | | | | | | | | |
| Adjustability | <ul style="list-style-type: none"> - zero point -5...+10% of span (adjustment via software EasyCom) - span -50...+ 5% of span (adjustment via software EasyCom) | | | | | | | | | | | | | |
| 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 ³⁾ | 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"> - Storage -40 +85 °C - Medium -20 +105 °C - Ambient -20 +80 °C | | | | | | | | | | | | | |
| Weight | ca. 0,30 kg | | | | | | | | | | | | | |

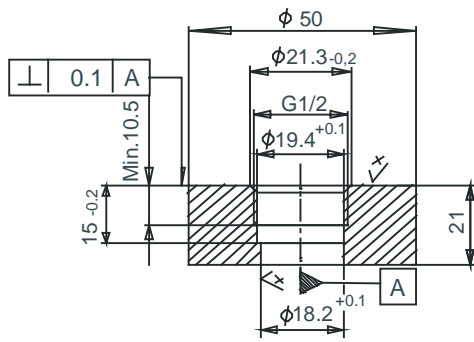
¹⁾ Including nonlinearity, hysteresis, zero-point- and full scale value deviation of F.S. = of full scale value

(according to measuring deviation acc. to IEC 61298-2) - (calibrated in vertical installation position, pressure connection bottom)

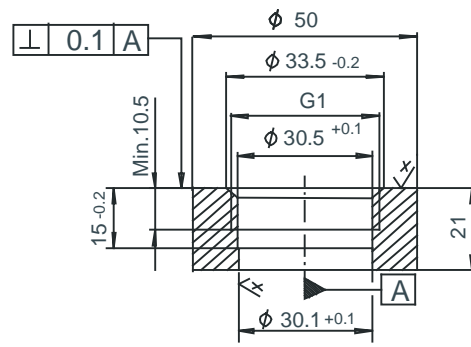
²⁾ Not possible for: ± measuring ranges and measuring ranges ≤ 0.4 bar and 0,8..1,2bar abs

³⁾ Declaration of conformity on request.

Welding socket respectively welding hole

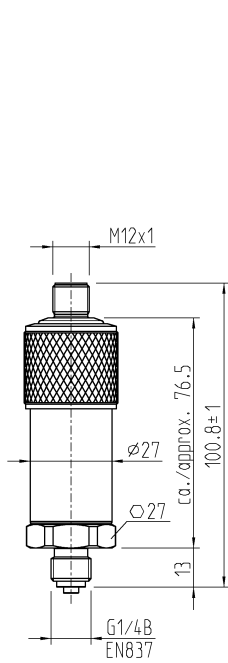


G 1/2 B

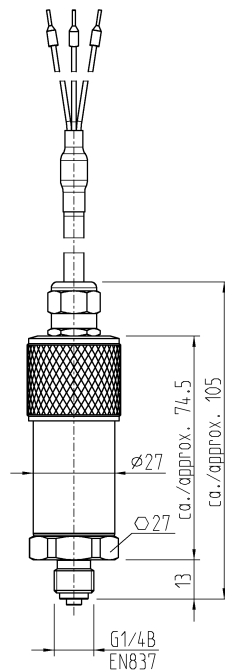


G 1 B

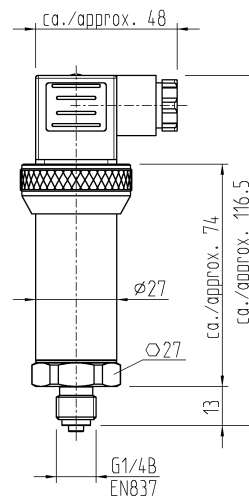
Electrical connections



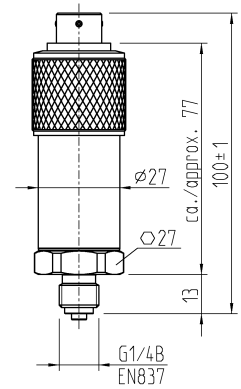
M12x1 circular connector *)



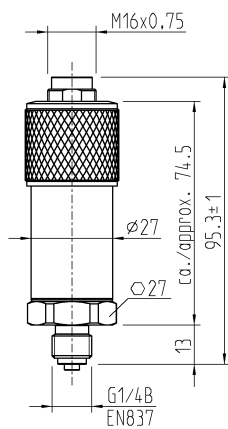
Cable output



L-Plug acc.DIN 175301-803A



Bayonet-connector *)



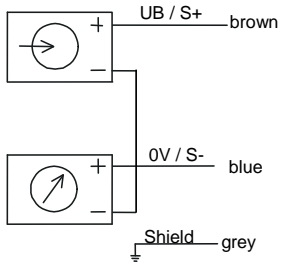
M16x0,75 circular connector *)

*) Mating plug are not included

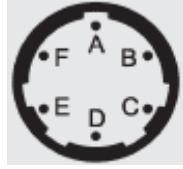
Electrical connection

Two wire system

Cable outlet



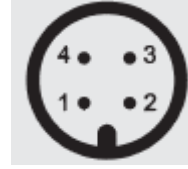
Bayonet nut connector,
6-pin



L-Plug
DIN 175301-803 A



Round plug connector,
M12x1 – 4-pin

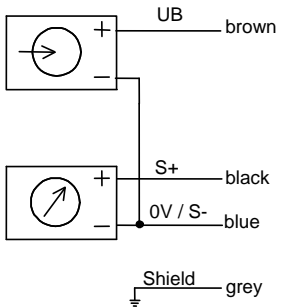


Round plug connector,
M16x0.75 – 5-pin

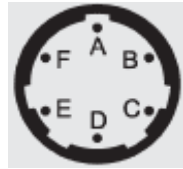


Three wire system

Cable outlet



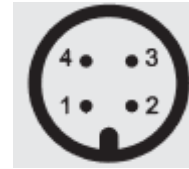
Bayonet nut connector,
6-pin



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 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 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