

## Pressure sensors for industrial applications Model P3297

Non linearity 0.5% (option 0.25%)

Standard output:      4...20 mA; 2-wire  
                             or    0...5 VDC; 3-wire  
                             or    0...10 VDC; 3-wire  
                             or    0.5...4.5 VDC; 3-wire  
                             or    0.5...4.5 VDC ratiometric



### Description

Robustness and long-term stability during operation are the strengths of this compact pressure sensor for general industrial applications.

The materials and technologies used make these sensors suitable for applications with aggressive media. Welded connections between pressure cell and process connection require no sealing elements and make the measuring system particularly resistant to mechanical shock and vibration. The compact design makes these sensors interesting for room critical applications.

A wide variety of electrical connections and pressure ports simplifies the adaptation to different applications. The pressure sensor is internationally certified and ready for global deployment.

The pressure sensors comply with electromagnetic compatibility requirements (EMC) as per EN 61326.

### Features

- Measuring range from 0...1 bar to 0...600 bar
- Medium wetted parts of stainless steel
- High EMC protection according to EN 61 326
- Compact instrument size
- No internal sealing elements
- Highly resistance to shock and vibration
- For dynamic or static measurements

### Measuring range

Gauge pressure    0...1 bar to 0...600 bar  
                             -1...0 bar to -1...+24 bar

### Applications

Hydraulics and pneumatics  
Pumps and compressors  
Building automation  
Test stand construction  
Machine and apparatus construction

**Model: P3297**

## Technical Data

|                                                                                                           |                                                                                                                                                                                                                                                         |                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b>                                                                                              | <b>P3297</b>                                                                                                                                                                                                                                            |                                                                                                                                          |
| Pressure type                                                                                             | positive and negative gauge pressure<br>absolut pressure on request                                                                                                                                                                                     |                                                                                                                                          |
| - Measuring range [bar]                                                                                   | 0...1 bar to 0...600 bar<br>-1...0 bar to -1...+24 bar                                                                                                                                                                                                  |                                                                                                                                          |
| - overrange limit [bar]                                                                                   | x 2                                                                                                                                                                                                                                                     |                                                                                                                                          |
| - burst pressure [bar]                                                                                    | x 6                                                                                                                                                                                                                                                     |                                                                                                                                          |
| Sensor element                                                                                            | piezoresistive to 0..6 bar, thin film as of 0..10 bar                                                                                                                                                                                                   |                                                                                                                                          |
| Output signal                                                                                             | 4...20 mA                      2- wire<br>0...5 VDC                      3- wire<br>1...5 VDC                      3- wire<br>0...10 VDC                    3- wire<br>0.5...4.5 VDC                3- wire<br>0.5...4.5 VDC                ratiometric |                                                                                                                                          |
| Non linearity <sup>1)</sup>                                                                               | ≤ 0.5% of F.S.; option: 0.25% of F.S.                                                                                                                                                                                                                   |                                                                                                                                          |
| Accuracy <sup>2)</sup>                                                                                    | ≤ 1.0% of F.S.; option: 0.5% of F.S. <sup>3)</sup>                                                                                                                                                                                                      |                                                                                                                                          |
| Zero Drift                                                                                                | ≤ 0,5% of F.S. (typ.), ≤ 0,8% of F.S. (max.)                                                                                                                                                                                                            |                                                                                                                                          |
| Non-repeatability                                                                                         | ≤ 0.1% of F.S.                                                                                                                                                                                                                                          |                                                                                                                                          |
| Long-term Drift                                                                                           | ≤ 0.1% of F.S. (by reference conditions)                                                                                                                                                                                                                |                                                                                                                                          |
| Material<br>not wetted parts<br>medium wetted parts                                                       | stainless steel 316L, HNBR, PA<br>stainless steel 316L (from 0...10 bar rel. 13-8PH)                                                                                                                                                                    |                                                                                                                                          |
| Pressure connection                                                                                       | G 1/4 according to DIN 3852-E<br>G 1/4 according to EN 837<br>G 1/2 according to EN 837<br>1/4 NPT<br>1/2 NPT, other pressure connection on request                                                                                                     |                                                                                                                                          |
| Electrical connection                                                                                     | connector DIN EN 175301-803 Form A with junction box<br>connector DIN EN 175301-803 Form C with junction box<br>circular plug-in connector M12x1 (4-pin)<br>cable outlet: 2m, other electrical connection on request                                    |                                                                                                                                          |
| Power supply / load<br>4...20 mA<br>0...1...5 V<br>0...10 V<br>0.5 ... 4.5 V<br>0.5 ... 4.5 V ratiometric | 8...30 VDC<br>8...30 VDC<br>14...30 VDC<br>8...30 VDC<br>5 VDC ± 10%                                                                                                                                                                                    | $R_A [\Omega] \leq (U_B [V] - 8V) / 0.02A$<br>> max. output / 1 mA<br>> max. output / 1 mA<br>> max. output / 1 mA<br>$R_A > 4.5k\Omega$ |
| Reponse time                                                                                              | ≤ 4ms within 10% to 90% of F.S.                                                                                                                                                                                                                         |                                                                                                                                          |
| RoHS-conformity                                                                                           | yes                                                                                                                                                                                                                                                     |                                                                                                                                          |
| Approval according to                                                                                     | cULus                                                                                                                                                                                                                                                   |                                                                                                                                          |
| CE-conformance                                                                                            | 2004/108/EWG interference emission and interference resistance to EN 61 326<br>interference emission limit class B<br>97/23/EG pressure gauge code                                                                                                      |                                                                                                                                          |
| Electrical protections                                                                                    | polarity, overvoltage and short-circuit protection                                                                                                                                                                                                      |                                                                                                                                          |
| Ingress protection<br>(per IEC 60529) <sup>4)</sup>                                                       | Plug DIN EN 175301-803: IP 65<br>Circular Connectors M12x1: IP 67<br>Cable output: IP 67                                                                                                                                                                |                                                                                                                                          |
| Temperature influence                                                                                     | ≤ 1% typ. ≤ 2.5% max.in range 0...80°C                                                                                                                                                                                                                  |                                                                                                                                          |
| Temperature ranges<br>compansated range<br>storage<br>media<br>ambient                                    | 0...80°C<br>-20...80°C (Option: -30..100°C)<br>0...80°C (Option: -30..100°C)<br>0...80°C (Option: -30..100°C)                                                                                                                                           |                                                                                                                                          |
| Load capacity<br>shock (mechanical)<br>vibration (under resonance)                                        | 500g acc. to IEC 60068-2-27<br>10g acc. to IEC 60068-2-6                                                                                                                                                                                                |                                                                                                                                          |
| Weight                                                                                                    | approx. 80g                                                                                                                                                                                                                                             |                                                                                                                                          |

<sup>1)</sup> According to IEC 61298-2

<sup>2)</sup> Including non linearity, hysteresis, non repeatability, variation of zero point and finale value (is equal to error according to IEC 61298-2).

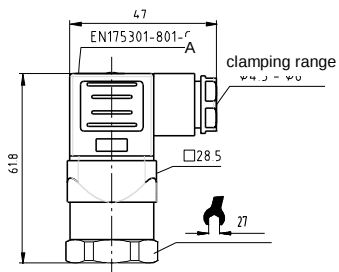
<sup>3)</sup> By option: accuracy 0.5% and signal 0...5V is accuracy 0.6%

<sup>4)</sup> The specified protection class (according to IEC 60529) only applies when plugged in using mating connectors with corresponding protection.

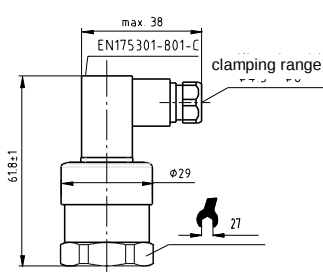
## Dimension (mm)

### Case

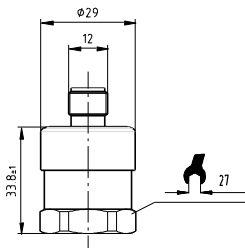
connector according to DIN  
EN 175301 – 803 Form A



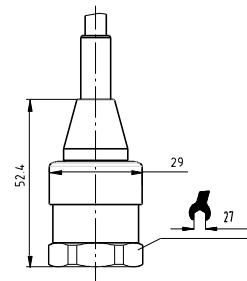
connector according to DIN  
EN 175301 – 803 Form C



circular plug-in connector  
M12x1

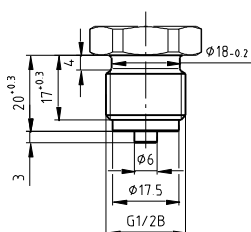


Cable outlet

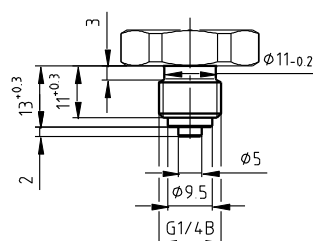


### Pressure connections

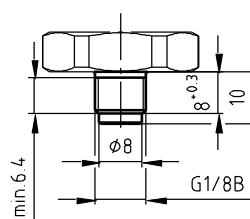
G 1/2 B



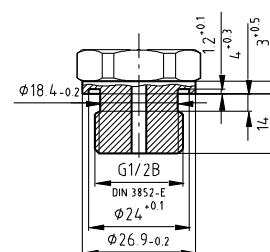
G 1/4 B



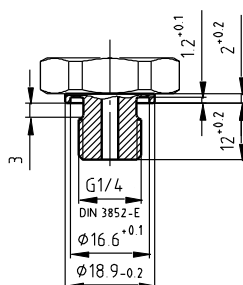
G 1/8 B



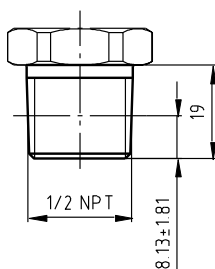
G 1/2 DIN 3852-E



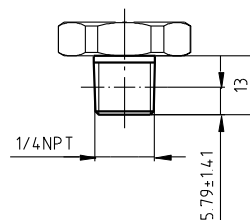
G 1/4 A DIN 3852-E



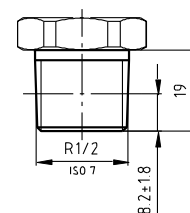
1/2 NPT



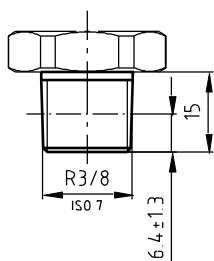
1/4 NPT



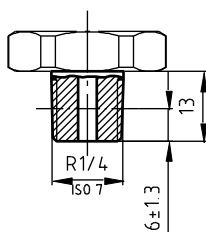
R 1/2



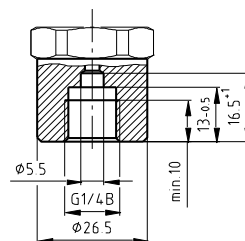
R 3/8



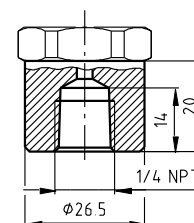
R 1/4



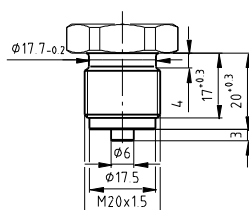
G 1/4 female



1/4 NPT female



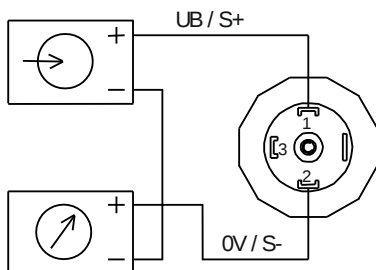
M20 x 1,5



## Electrical connector

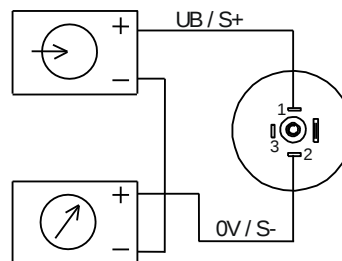
### Two-wire system

Connector according to DIN EN 175301-803 Form A with junction box



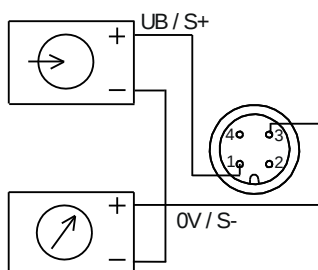
E-001

Connector according to DIN EN 175301-803 Form C with junction box



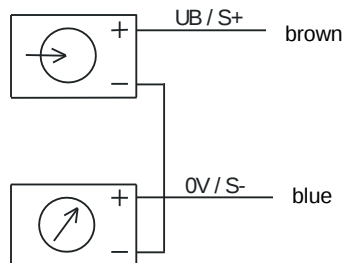
E-005

Circular plug-in connector M12x1



E-033

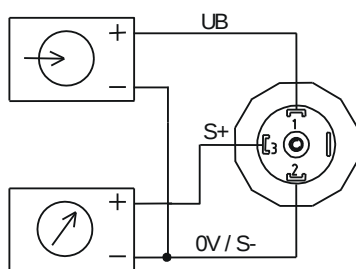
Cable outlet



E-015

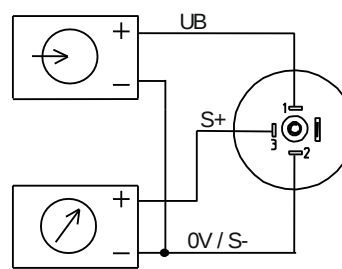
### Three-wire system

Connector according to DIN EN 175301-803 Form A with junction box



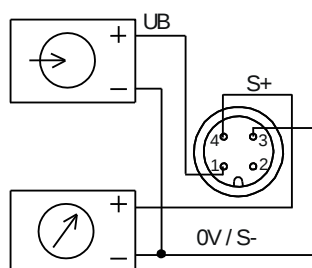
E-002

Connector according to DIN EN 175301-803 Form C with junction box



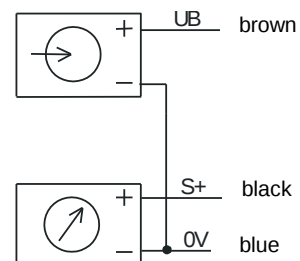
E-006

Circular plug-in connector M12x1



E-034

Cable outlet



E-017

Modifications reserved