Pressure Sensors
Industrial Pressure Measurement in Fluids and Gases
Pressure Sensors for Numerous Applications

Pressure is one of the factors that needs to be most frequently detected and monitored in the process- and manufacturing industry. Whether in standard applications or under special conditions, each application requires a perfect solution for its needs.

Therefore, high-quality materials, flexible process connections, easy programming as well as high accuracy and multiple display functions are the essential features of Turck pressure sensors.

Market-driven solutions

With a comprehensive standard portfolio of pressure sensors, Turck offers technically as well as economically attractive solutions for a wide range of pressure measuring tasks. In high-volume projects as well as in smaller quantities, you benefit of the highest quality at competitive prices.

Low storage costs

The underlying concept of the pressure sensor portfolio is to solve the diverse requirements with a minimum number of device types. This reduces the complexity of inventory and thus the cost of the handling and holding of various device variants.
Reliable measurement technology

In the development of the electronics and the housing it was a major demand that harsh application conditions such as aggressive media or change of environmental conditions do not affect the accurate and reliable function of the sensors.

Certified quality

With several international approvals, the pressure sensors are versatile usable and a highly reliable and safe instrument for demanding pressure sensing in plant and machine construction.

Made-to-measure solution

With the Turck product portfolio, you solve an enormous variety of pressure measuring tasks in the most diverse applications. With regards to customer-specific requirements not covered by the standard, we develop the optimum solutions for you in technical and economic terms.
PS Series
The robust all-rounder

-1...600 bar relative pressure
-Accuracy 0.5 % f.s.
-0...16 bar absolute pressure
-Very high overload capacity
-Fully potted IP69K
-Stainless steel housing 1.4305 (AISI 303) or 1.4404 (316 L)
-Rotatable sensor body
-IO-Link
-ATEX certified

If high chemical resistance, durability and reliability are required, the PS series is optimally suited. Especially designed to function reliably in the harshest environments, neither dust, water, aggressive oils or alkalis can affect the operation of the PS sensors. Short delivery times, variable process connections and a wide range of output types make the PS sensors reliable all-rounders.

PS 010V – 3 01 – LI2UPN 8 X – H1 1 4 1 / 3GD

Measuring range
01VR -1...0 bar g
001R 0...1 bar g
0.25VR -0.25...0.25 bar g
001A 0...1 bar a
003A 0...2.5 bar a
010A 0...10 bar a
016A 0...16 bar a
001V -1...1 bar g
003V -1...2.5 bar g
010V -1...10 bar g
016V -1...16 bar g
022V -1...25 bar g
040V -1...40 bar g
100R 1...100 bar g
250R 1...250 bar g
400R 1...400 bar g
600R 1...600 bar g

Functional principle
PS Pressure sensor

Pressure connection
01 G¼" female thread
02 ¼"-18NPT female thread
03 ¼"-18NPT male thread
04 G¼" male thread
05 ⅜" UNF male thread (only for design 5)
06 G¼" male thread front-flush (only for design 6)
07 1 ½" Tri-Clamp (only for design 6)
08 G½" male thread manometer connection (only for design 5)
09 G½" male thread front-flush (only for design 6)
10 R¼" male thread
11 R¼" female thread

Design
3 adjustable, with display, non-rotatable sensor body
5 adjustable, with display, rotatable sensor body
6 adjustable, with display, rotatable sensor body with front-flush membrane

Electrical connection
1 standard assignment
4-pin

Special type
3GD Ex zone

Special type
3GD Ex zone
PC Series

The smart IO-Link pressure transmitter

-1…600 bar relative pressure
- Ceramic measuring cell with switchpoint accuracy 0.5 % f.s.
- IO-Link
- Full stainless steel housing 1.4305
- Protection class IP69K
- Compact and rugged design
- Excellent EMC properties
- 2 switching outputs or communication via IO-Link

With its compact, display-less design in a full stainless steel housing, the sensors of the PC series are particularly resilient. For the smart connection of the PC series IO-Link is available as output signal. IO-Link simplifies the exchange of information, as well as parameterization and thus reduces the operation and maintenance effort considerably. In addition to IO-Link there are also switching outputs available.

PC 250R Functional principle –

Measuring range
01VR -1…0 bar g
001R 0…1 bar g
001V -1…1 bar g
003V -1…2.5 bar g
010V -1…10 bar g
016V -1…16 bar g
025V -1…25 bar g
040V -1…40 bar g
100R 1…100 bar g
250R 1…250 bar g
400R 1…400 bar g
600R 1…600 bar g

Functional principle
PC Pressure switch

H1 1 4 1 Electrical connection

Assignment
1 standard assignment

Number of contacts
4 4-pin

Connector type
1 straight

Connector type
H1 receptacle, M12 x 1
PT-2 Series
The front-flush type for viscous media

-1…400 bar relative pressure
Accuracy 0.5 % f.s.
Stainless steel 1.4435 (AISI 1.4542)
Protection class IP67
Fully welded construction
Excellent EMC properties
-40…+85 °C media temperature
4…20 mA

The sensors of the PT-2 series are particularly suitable for highly viscous, fibrous or crystallization-prone fluids. The front-flush design prevents dead spaces where deposits can adhere. This makes the devices especially suitable for adhesive application. Thanks to the fully welded housing the PT-2 sensors measure reliably, even under very harsh application conditions.

### Functional principle
- **Measuring range**
  - 010R 0…10 bar g
  - 016R 0…16 bar g
  - 025R 0…25 bar g
  - 040R 0…40 bar g
  - 060R 0…60 bar g
  - 100R 0…100 bar g
  - 160R 0…160 bar g
  - 250R 0…250 bar g
  - 400R 0…400 bar g

- **Pressure connection**
  - 6 G¾" male thread, front-flush
  - 9 G½" male thread, front-flush

- **Design**
  - 2 front-flush membrane, cylinder without display

### Electrical connection
- **Assignment**
  - 1 standard assignment

- **Number of contacts**
  - 4 4-pin

- **Connector type**
  - 1 straight

- **Connector type**
  - H1 receptacle, M12 x 1
PK-N/PK-P Series

The specialist for pick-and-place applications

-1…12 bar relative pressure
Accuracy 0.2 % f.s.
NC/NO programmable switchpoints
2 switching outputs (PNP) or 1 switching output and IO-Link
Protection class IP65
Shock and vibration proof
Nano lightweight design
Response time < 2.5 ms (200 Hz)
Programmable keylock
Suitable for dry/oiled air and inert gases

The PK series has been developed specifically for the requirements in pneumatic applications. Compact, precise and lightly built, the sensors are suited for versatile use in the field of handling and automation systems. The sensors feature two switching outputs, which can be programmed in the hysteresis function as openers or closers.

PK 01VR – N 12 AL – 2UP 8 X – V1 1 4 1

PK 01VR Functional principle – N 12 AL Mechanical version – 2UP 8 X Electrical version –

- Measuring range
  01VR -1…0 bar g
  01V -1…1 bar g
  010R 0…10 bar g
  10V -1…10 bar g
  012R 0…12 bar g

- Functional principle
  PK Pressure sensor, compact

- Housing material
  blank Plastic (Design P)
  AL Aluminium (Design N)

- Pressure connection
  12 G1/8" female thread
  13 G1/4" male thread
  14 NPT1/8" male thread

- Design
  N Cylinder, axial display
  P Cylinder, radial display

V1 1 4 1 Electrical connection

- Assignment
  1 standard assignment

- Number of contacts
  4 4-pin

- Connector type
  1 straight

- Connector type
  V1 receptacle, M8*

* M12 x 1 optional

PK-N

PK-P

PK

IO-Link

Indication
X… LED display

Voltage range
8 15 (18)…30 VDC

Output type
2UP 2 switching outputs PNP
2UPN 2 switching outputs/IO-Link

1 BN +
3 BU –
2 WH out 2
4 BK out 1/IO-Link

1 BN +
3 BU –
2 WH S2
4 BK S1

2016|08
PT1000/PT2000
For the most demanding applications in machine construction

-1...1000 bar relative pressure
0...16 bar absolute pressure
For media temperatures in the range of -40...+135 °C
Compact space-saving design
Stainless steel 1.4404/AISI 316L
ATEX approval
Marine and drinking water approval
Increased interference immunity
With numerous process connections

Whether in mining, the marine industry, or for demanding pressure applications in machine building, extremely rough conditions are the norm. Specifically for these tough requirements Turck offers the new PT1000/2000 pressure transmitters.

Maximum resistance to vibration, continuous shocks and permanent pressure and temperature changes - even in aggressive media - make the pressure transmitters a reliable equipment for your plant safety and process control.

PT 10R – 10 03 – I2 – H1143 – D830

PT 10R Pressure range

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>psi relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1...0 bar</td>
<td>-15...0 psi</td>
</tr>
<tr>
<td>-1...1 bar</td>
<td>-15...15 psi</td>
</tr>
<tr>
<td>-1...1.5 bar</td>
<td>-15...22.5 psi</td>
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<tr>
<td>-1...2.5 bar</td>
<td>-15...37.5 psi</td>
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<tr>
<td>-1...5 bar</td>
<td>-15...75 psi</td>
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<tr>
<td>-1...10 bar</td>
<td>-15...150 psi</td>
</tr>
<tr>
<td>-1...15 bar</td>
<td>-15...225 psi</td>
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<tr>
<td>-1...20 bar</td>
<td>-15...300 psi</td>
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<tr>
<td>-1...25 bar</td>
<td>-15...375 psi</td>
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<tr>
<td>-1...30 bar</td>
<td>-15...450 psi</td>
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<tr>
<td>-1...35 bar</td>
<td>-15...525 psi</td>
</tr>
<tr>
<td>-1...40 bar</td>
<td>-15...600 psi</td>
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<tr>
<td>-1...50 bar</td>
<td>-15...750 psi</td>
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<tr>
<td>-1...60 bar</td>
<td>-15...900 psi</td>
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<tr>
<td>-1...75 bar</td>
<td>-15...1200 psi</td>
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<td>-1...100 bar</td>
<td>-15...1600 psi</td>
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<td>-1...150 bar</td>
<td>-15...2400 psi</td>
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<tr>
<td>-1...200 bar</td>
<td>-15...3200 psi</td>
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<td>-1...250 bar</td>
<td>-15...4000 psi</td>
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<td>-15...4800 psi</td>
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<td>-1...350 bar</td>
<td>-15...5600 psi</td>
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<td>-1...400 bar</td>
<td>-15...6400 psi</td>
</tr>
<tr>
<td>-1...500 bar</td>
<td>-15...8000 psi</td>
</tr>
<tr>
<td>-1...600 bar</td>
<td>-15...9600 psi</td>
</tr>
<tr>
<td>-1...750 bar</td>
<td>-15...12000 psi</td>
</tr>
<tr>
<td>-1...1000 bar</td>
<td>-15...16000 psi</td>
</tr>
</tbody>
</table>

Mechanical version

<table>
<thead>
<tr>
<th>Male thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/8&quot;, DIN 3852 Form E</td>
</tr>
<tr>
<td>G1/4&quot;, DIN 3852 Form E</td>
</tr>
<tr>
<td>G1/2&quot;, front sealing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/4&quot;</td>
</tr>
<tr>
<td>1/2&quot;-14 NPT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tube connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting tube - (Tube: Ø 6/4, Steel 1.4301/AISI 304)</td>
</tr>
</tbody>
</table>

Design/Functional principle

Cylindrical ceramic measuring cell
Cylindrical metal measuring cell fully welded

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### Electrical connections

**H1143**
- **M12 x 1 connector**
  - 2L IN=1 OUT=3
  - 3L IN=1 OUT=4 GND=3

**H1144**
- **M12 x 1 connector**
  - 2L IN=1 OUT=4
  - 3L IN=1 OUT=2 GND=3

**H1141**
- **M12 x 1 connector**
  - 2L IN=1 OUT=2
  - 3L IN=1 OUT=2 GND=4

**DA91**
- **Design A**
  - 2L IN=1 OUT=2
  - 3L IN=1 OUT=2 GND=3

**DC91**
- **Design C**
  - 2L IN=3 OUT=1
  - 3L IN=3 OUT=2 GND=1

**DC92**
- **Design C**
  - 2L IN=1 OUT=2
  - 3L IN=1 OUT=3 GND=2

**DC95**
- **Design C**
  - 2L IN=1 OUT=2
  - 3L IN=1 OUT=3 GND=2

**Cable with quick connect**
- **CM2.0**
  - 2.0 m
  - IN= brown OUT= green
  - GND= white

**TC11**
- **Cable gland quick connect, PG9**
  - IN=1, OUT=2, GND=3

**Metri Pack**
- **MP1**
  - Metri Pack 150
  - 2L IN=8, A= OUT
  - 3L IN=8, Out C, GND= A

**RA15**
- **Rast connector 2.5**
  - IN=1, GND=2, OUT=3

**WM0.5**
- **Wire connection**
  - 2 L IN=red, OUT blue
  - 3 L IN=red, OUT blue, black GND

**Notes**
- (1) Pressure range [-1...60 bar], [-30...750 psi]
- (2) Pressure range [-1...1000 barg], [-30...14500 psig]
- (3) 24 VAC variant not with M12 x 1, RAST, connector and wire connection
- (4) No ratiometric output, No AC supply
- (5) As an accessory with DT04-3P or 4P connector possible
- (6) Preferred types
- (7) only with H1143 and DA91

**Output type**
- **Current output**
  - I2 4...20 mA, 7.0...33.0 VDC, 2-wire
  - I4 4...20 mA, 7.0...33.0 VDC, 2-wire increased interference immunity

- **Voltage output**
  - U1 0...10 V, 12...33 VDC, 3-wire
  - U2 1...6 V, 8.0...33.0 VDC, 3-wire
  - U3 0...5 V, 7.0...33.0 VDC, 3-wire
  - UA 0...10 V, 24 VAC ± 15 %/12...33 VDC, 3-wire
  - U6 ratiometric 10...90 %, 4.5...5.5 VDC, 3-wire
  - UX ratiometric 10...90 %, 4.5...5.5 VDC, 3-wire

**Standard**
- O For oxygen applications
- D830 With EPDM seal
- W Drinking water approval
- X Pressure peak protection

**I2 Output type**

<table>
<thead>
<tr>
<th>Electrical connections</th>
<th>D830 Special type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1143</strong></td>
<td></td>
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<tr>
<td><strong>H1144</strong></td>
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<td><strong>H1141</strong></td>
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<tr>
<td><strong>DA91</strong></td>
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<tr>
<td><strong>DC91</strong></td>
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<tr>
<td><strong>DC92</strong></td>
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<tr>
<td><strong>DC95</strong></td>
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<tr>
<td><strong>Cable with quick connect</strong></td>
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<tr>
<td><strong>CM2.0</strong></td>
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<tr>
<td><strong>TC11</strong></td>
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<tr>
<td><strong>Metri Pack</strong></td>
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<tr>
<td><strong>MP1</strong></td>
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<tr>
<td><strong>RA15</strong></td>
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<tr>
<td><strong>WM0.5</strong></td>
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Accessories
Connection and function accessories

Product-specific installation accessories ensure maximum degrees of freedom in the application. We offer accessories for operating, mounting and protection of the pressure sensors. Available are, among other things, mounting accessories for easy and safe mounting of the PK sensor series as well as accessories, which safely protect the PS sensor series against mechanical destruction. With a cooling section for the PS and PT sensors, high media temperatures can be reduced, so that the pressure detection even at temperatures over 200 °C is possible.

<table>
<thead>
<tr>
<th>PTS-MB</th>
<th>PCS-G1/4A4</th>
<th>PTS Cover</th>
<th>PK-N-MZ-001</th>
<th>PK-P-MZ-001</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Fixing clamp" /></td>
<td><img src="image" alt="Cooling section" /></td>
<td><img src="image" alt="Closure cap for PS series" /></td>
<td><img src="image" alt="PK-N mounting kit" /></td>
<td><img src="image" alt="PK-P mounting kit" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>RKC4.4T-2/TEL</th>
<th>PCV-G1/8A4</th>
<th>PCV-G1/4A4</th>
<th>PCV-G1/2A4</th>
<th>PCV-N1/4A4</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Cables" /></td>
<td><img src="image" alt="Threaded nipple G1/8&quot; on G1/4&quot;" /></td>
<td><img src="image" alt="Threaded nipple G1/4&quot; on G1/4&quot;" /></td>
<td><img src="image" alt="Threaded nipple G1/2&quot; on G1/4&quot;" /></td>
<td><img src="image" alt="Threaded nipple N1/4&quot; on G1/4&quot;" /></td>
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</tbody>
</table>
In addition to pressure sensors, Turck offers an extensive portfolio of sensors for the monitoring of flow velocity, filling level as well as temperature and capacitive position sensing.

### Flow sensors/Flow meters
The failure of flow leads, often and inevitably, in almost all applications of production and process technology to significant impairments and outages. The monitoring of the flow plays an essential role. Turck offers different flow monitoring systems from universal to the special use.

### Temperature measurement
To operate machines and equipment safely and efficiently, the temperature must be controlled continuously as a critical parameter in many industrial processes. Combined with numerous connection options and variable output signals, the Turck temperature sensor portfolio guarantees maximum flexibility in temperature measurement.

### Level control
For level detection in liquids or solids, Turck offers special level sensors that detect levels according to the capacitive measuring principle or continuously monitor the filling level. Like all fluid sensors from Turck, the level sensors are also very robust, reliable and resistant to aggressive operating conditions.
28 subsidiaries and over 60 representations worldwide!

www.turck.com