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**TURCK**

# PS+ Industrial Pressure Sensors



# PS+ Industrial Pressure Sensors with IO-Link

## Switch point LEDs

Two LEDs visible from all sides indicate the state of the two switching outputs

## Process value display

The 4-digit 14-segment display can show process values clearly in red or green

## Inscription

The laser inscription of the translucent front cap and the stainless steel housing is abrasion resistant and offers a high contrast

## Adjustability

The sensor head is freely rotatable around 340° and the display can be inverted 180°, thus simplifying the positioning of the electrical connection and user interface after mounting



## Sloped display

The 45° display angle of the user interface offers greater convenience for operation and reading

## Status LEDs

Additional LEDs indicate the status of the power supply, errors, the locking state as well as IO-Link communication

## Translucent front cap

The front cap consists of a scratch-proof, temperature and impact resistant plastic

## MODE, ENTER and SET

Touch-sensitive touchpads with a large surface area ensure straightforward menu navigation, even with gloves



## Capacitive touchpads

The sensor is operated using capacitive touchpads. These do not require any moving parts and are therefore abrasion and wear-free. An additional seal, as required with conventional mechanical operating elements, is unnecessary.



## NPN/PNP auto output

The sensor output is automatically set according to the connected electrical input. A massive reduction in variants and an intelligent concept save time and costs because of the reduced effort required for configuration and error prevention.

The pressure sensors of the PS+ series enable the reliable and reproducible measurement of process pressures in industrial applications. The large number of different pressure ranges and process connections results in a wide range of variants, by which most applications can be implemented.

### Conventional applications

Pressure sensors are very frequently used in the following application fields:

- Hydraulic applications
- Cooling circuits
- Lubricant applications

### Higher system availability

The stainless steel housing in conjunction with the single-piece cover is an extremely robust design. The absence of mechanical operating elements ensures a high wear resistance. The reduced number of sealing surfaces offers maximum protection from humidity and dust penetrating inside the device – even outdoors thanks to the mate-

rials resistant to UV radiation and salt spray. The new sealing concepts enable protection classes IP6K7K, IP6K7 and IP6K9K. The PS+ series also offers exceptional resistance to vibration and shock.

The measuring cells of the PS+ series have a burst pressure of at least four times the maximum nominal pressure. The minimum/maximum pressure memory forms a digital “drag pointer”, making an even better analysis of processes possible.

### Simple operation

The pressure switch points can be set in a few steps in the usual way, either according to the Turck or VDMA standard. The 14-segment display offers users optimum support in navigating the menus. The display can show process values in red or green so that it can be adapted to the lighting conditions of the particular plant. The color change can be linked here to the switching outputs in order to indicate the actual switching status via the switch point LEDs.

### Advanced functions

The advanced functions enable the sensor to be reset to its previous settings (Undo function) as well as to the factory settings. The switching behavior of the outputs can be set to “Normally Open” (NO) and “Normally Closed” (NC). Additional hysteresis and filter functions enable the optimum adaptation of the sensor even with complex applications.



#### Multicolor display

The display can show all indicated information in green and also in red. This makes it possible to adapt the device optimally to the particular lighting conditions of the application. Several setting options also allow the display color to be linked to the status of the sensor switching outputs.



#### Automatic signal detection

Devices with an analog output automatically detect whether the connected interface expects a current or voltage signal. This automatic setting of the analog output reduces configuration time and helps to prevent errors.

## Simple mounting and commissioning

The PS+ Series offers a variety of useful features to make mounting, connection and commissioning of the sensors as effective and straightforward as possible.

- The large selection of different process connections ensures a simple connection to the process environment
- The freely rotatable sensor housing allows the display and plug connector to be aligned even after mounting.
- The automatic detection of output signals simplifies the connection to the controller environment
- The option of either Turck standard or VDMA menu guidance ensures intuitive operation of the sensor
- The different IO-Link process data profiles enable the sensor to be adapted to existing systems and thus reduce the programming effort required



Image in original size



### Maximum robustness

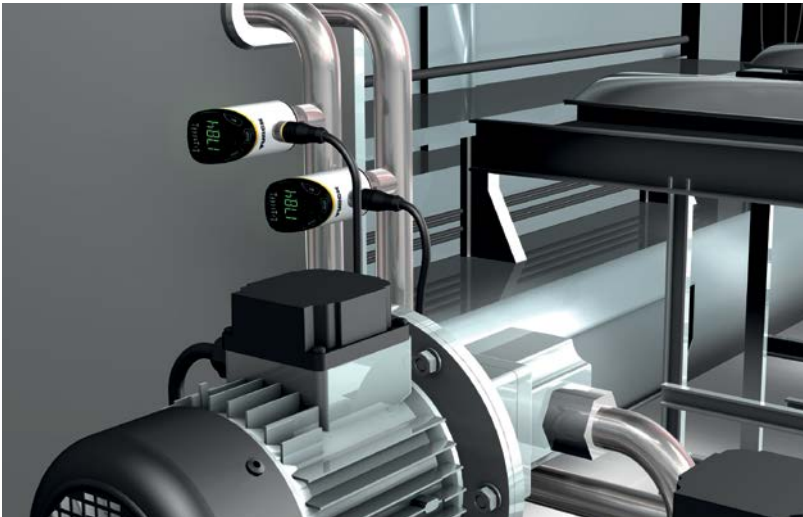
The IP protection classes 6K6K, 6K7 and 6K9K, excellent resistance to shock and vibration, as well as a high pressure resistance ensure increased system availability. The design without mechanical push-buttons also minimizes the number of sealing surfaces required.



### Variable data mapping

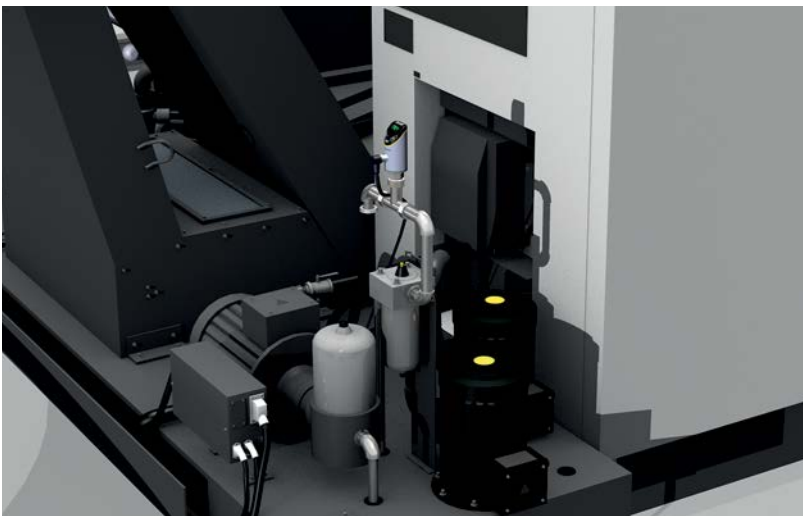
IO-Link process data profiles enable the flexible connection of the sensor with a large degree of freedom. This allows convenient adaption to existing systems with a 1:1 replacement of existing devices – even from third party manufacturers. This eliminates the need for complex adaptations to the controller environment.

# Typical Applications



## Controlling hydraulic pressure in pressing plants

Pressure sensors monitor the hydraulic pressure in presses. If an overpressure occurs due to a forming defect, this is detected immediately and reported to the controller. The PS+ series of intuitively operable sensors not only features high overpressure resistance but can also withstand the vibrations in pressing plants. Eliminating the need for a fully potted design means that the pressure sensors are light and therefore have a low resonance mass. Another feature also helps to prevent failures: Users can read out minimum and maximum pressures via IO-Link.



## Monitoring the supply of cooling lubricant

Pressure sensors monitor the correct supply of cooling lubricant in order to ensure precise machining of workpieces with minimum wear on the tool. The regular occurrence of shocks here presents a challenge to the reliable operation of the sensors. Turck has taken these kinds of stresses into account in the development of the PS+ series and offers the pressure sensors of the PS510 series with a fully welded metal measuring cell as well as an optional pressure peak aperture. The multi-color display provides optimum indication of any deviations from the set pressure value.



## Measuring process pressure on scissor lifts

Hydraulic scissor lifts for lifting and positioning heavy workpieces place demanding requirements on the pressure sensors of the hydraulic cylinders: Pressures of up to 400 bar can occur at the beginning of the lift. Turck's robust pressure sensors of the PS+ series therefore also come with a metal measuring cell (PS510), offering an overpressure resistance of up to seven times the nominal pressure. The sensors also offer protection from accidental operating errors. This is implemented with the locking mechanism and password function provided.



# Types and Features

Type code	Ident-No.	Electrical outputs	Measuring cell	Pressure range	Process connection
PS510-10V-01-LI2UPN8-H1141	100001531	1 PNP/NPN output + 1 analog or PNP/NPN output	Metal	-1...10 bar	G1/4 female thread
PS310-1-04-LI2UPN8-H1141	100001512		Ceramic	0...1 bar	G1/4 male thread
PS510-400-05-LI2UPN8-H1141	100002992		Metal	0...400 bar	7/16-20UNF male thread
PS510-40V-08-LI2UPN8-H1141	100001563		Metal	-1...40 bar	G1/2 male thread
PS510-400-01-2UPN8-H1141	100001741	2 PNP/NPN outputs	Metal	0...400 bar	G1/4 female thread
PS510-10V-03-2UPN8-H1141	100001675		Metal	-1...10 bar	1/4"-18 NPT male thread
PS510-10V-02-2UPN8-H1141	100001674		Metal	-1...10 bar	1/4"-18 NPT female thread

PS510: Sensors with a metal measuring cell and maximum pressure of 10...600 bar with an accuracy of 0.25 %  
 PS310: Sensors with a ceramic measuring cell and maximum pressure range of -1...10 bar with an accuracy of 0.5 %  
 The table shows a selection of typical sensor types. For the complete range please visit [www.turck.com](http://www.turck.com)

## Features

- Innovative operating concept
- Up to 600 bar relative pressure
- Accuracy up to 0.25 %
- IO-Link 1.1
- Automatic signal detection
- Up to seven-fold overpressure resistance
- High protection class (IP6K6K, IP6K7, IP6K9K)
- 180° invertible multi-color display
- Rotatable sensor body

## Additional information

Further information and application examples on the PS+ sensor series are provided at [www.turck.com/ps](http://www.turck.com/ps)



## Award-winning industrial design

The sensors of the PS+ series won the iF DESIGN AWARD in the Industry/Tools category. The prize has been awarded every year since 1954 for outstanding achievements in product design. The innovative cross-platform operating concept particularly impressed the jury.



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