

IO-Link under Pressure

Simple, intuitive and reliable – these are characteristics of the new pressure sensors of the PS+ series, which offer complete access to all sensor parameters via IO-Link 1.1

In the industrial environment, functionality justifiably counts more than appearance. All the better then, when products can stand out both in terms of user benefits as well as looks, and bring customers to the conclusion that: they not only look good but can also do a lot. This is precisely the boast of the new PS+ series pressure sensors, and has been underlined by the winning of the prestigious iF Design Award. From now on, users can also be impressed by its technical benefits. The Plus sign in the name of the sensor series stands for two central customer benefits: simplified commissioning and the guarantee of high plant availability.

Problem-free installation of the pressure sensors and the fast familiarization of users with the menu structure were key requirements in the development of the sensors over several years. The specifications also

included the suitability for standard process connections and electrical outputs, as well as the coverage of pressure ranges up to 600 bar. A large degree of flexibility for the installation is provided, as the sensor head can be rotated freely around 340° and the display can be inverted for overhead installation. The sensors automatically detect whether the controller or bus module expects PNP or NPN signals. This same also goes for current and voltage when analog output signals have to be evaluated. This puts plug and play technology into daily practice.

Another feature is a unique compatibility mode within IO-Link systems. The PS+ series not only supports the Turck data profile for the integration but can also emulate other commonly available profiles. This means that the sensor replacement goes unnoticed by the controller.

QUICK READ

At the Hannover Messe Turck is presenting the PS+ series pressure sensors as the first of a new fluid sensor series. They combine functionality together with award-winning design. The keypad features capacitive touch pads that enable unimaginably simple operation. The absence of mechanical operating elements increases robustness and helps to meet the requirements of ISO protection types IP6K6K, IP6K7 and IP6K9K. Flexible installation (overhead and rotatable around 340°) and measuring ranges up to 600 bar open up a large number of new application fields. Temperature and flow sensors with the same look and feel will be added to Turck's fluid sensor platform in the coming months.

Operation with smartphone haptic technology

The sensor is operated in the same way as a smartphone. The touch-sensitive keypads can also be operated wearing various types of gloves without any force or even cumbersome gadgets, and guide the user intuitively through the plain text menu. The menu structure can be set up according to either the Turck or the VDMA standard. The absence of any mechanical operating elements is another benefit: Abrasion, wear and reduced impermeability belong to the past.

The design of sensors has to take the reality of different application environments into account. This includes the ability to be commissioned quickly and the prevention of operating errors. The locking mechanism of the PS+ series therefore prevents unwanted actuation: The device can be enabled with a swipe and also a password if required. Status LEDs provide continuous indication of operating states and faults, and a programmable color change from green to red (and vice versa) on the display makes it possible to indicate whether defined switch points have been overshoot.

Heavy duty metal pressure cells

The operating concept illustrates how design and functionality are mutually interdependent. A high level of availability, however, has even greater importance than user friendliness since pressure sensors are



Pressure monitoring on a hydraulic press: The variable mounting options enable PS+ sensors to be optimally positioned in any mounting location

expected to perform measuring and monitoring functions over several years. The sealing concept of the PS+ series makes it tremendously robust so that the PS+ fully meets the requirements of ISO degrees of protection IP6K6K, IP6K7 and IP6K9K. The materials used are also resistant to UV radiation and salt spray, so that nothing can stop these devices from being used for outdoors applications.

Acclaimed: The pressure sensors of the PS+ series are the first devices based on Turck's new fluid sensor platform; its innovative operating concept particularly impressed the jury of the iF Design Award



Turck offers the pressure sensors both with tried and tested ceramic measuring cells (PS310) and also the fully welded metal measuring cells (PS510). These fully welded measuring cells have an overpressure resistance of up to seven times the rated pressure. If required, the sensors can also be fitted with peak pressure apertures. The ability to read measured and minimum and maximum pressures provides a function like a digital “drag indicator with long term storage”. This function is very relevant in condition monitoring applications, i.e. continuous machine monitoring for predictive maintenance. Compared to the previous models, the developers were able to reduce the weight of the pressure sensors by eliminating the need for a potted design.

Modular series extension

The pressure sensors presented at the Hannover Messe represent the start of a generational change. With its new fluid sensor portfolio Turck is implementing a platform strategy and will also be launching in the coming months additional temperature and flow sensors on the market that will be based on this. Devices for level measurement will be offered at a later time. The modular design will give all fluid series sensors a uniform appearance and also the same familiar handling. In this way, customers will be able to expand and maintain their plants simply since employees only have to be trained for a single operating

The PS+ offers user-friendly operation via capacitive touchpads; this makes the sensor fully resistant to abrasion and wear

COMMUNICATION CONCEPT FOR INDUSTRY 4.0

With their communication concept, the PS+ sensors are another addition to Turck's set of building blocks for Industry 4.0. As specialists in the acquisition, transfer and conditioning of data, the consistency and transparency of sensor data are central requirements for Turck. This is why the company supports open standards like IO-Link 1.1, via which the PS+ devices can implement bidirectional communication with the controller. This enables the sensor to not only send digital process values but also receive parameters such as switch points. The devices of the PS+ series are the only pressure sensors to offer different IO-Link process data profiles, which allow the flexible integration of a sensor in existing system landscapes with a 1:1 replacement of existing devices – even from third party manufacturers. This eliminates the need for complex adaptations to the controller environment.

concept. The platform concept, which is well-established in the automotive industry, also offers the user other benefits: It helps in the creation of a wide range of product variants and shortens delivery times, so that the specially requested sensors can already be made available within a few days.

Conclusion

Turck has already been supplying the fluid sensor market for over 20 years, and the pressure sensors of the PS+ series represent a significant expansion of the existing product range. The devices are designed for fast and straightforward commissioning. Flexible mounting options, an intelligent system integration facility and the innovative keypad with the haptic technology of smartphones. The sensors are far more resistant to external influences and challenging application effects such as pressure peaks. The PS+ series is thus the herald of an extensive further development, which brings improvements without additional costs as well as offering an impressive design.

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