Economical reliability of electronic pressure switches

Hygienic design: the pressure switches are suitable for applications in sterile process technology

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Automated processes increase the process safety of sterile production processes. They eliminate the potential for errors that inevitably exists when all routine control tasks are carried out manually. This also applies for the upstream and downstream cleaning and sterilisation processes. Thus, even simple pressure monitoring tasks are carried out electronically – conveniently with a switch.

The control of the replenishment of ultra-pure water or sterile air is a classic example for a straightforward switching task in the supply units. Electronic pressure switches are used in such applications, not only for measurement technology reasons, but also for efficiency ones: Plant control, whether through PLC or relays, is more economical when using such decentralised elements.

From these determining factors of reliability and economy, the requirement profile for the pressure switches is derived. They must be robust in order to survive in harsh industrial environments. Commissioning, maintenance and service operations must be uncomplicated and fast, so that plant downtime is avoided, or is, at least, reduced to the shortest possible duration. In such applications, electronic switches with transistor switching output and an integrated digital display have proven particularly useful. There generally a limit value, e. g. for over or under-pressure or level, has to be monitored. For the connection to machine control, a binary, digital input is sufficient for this purpose. The digital display is a helpful component during commissioning and maintenance, enabling the measured value to be checked conveniently and directly on site in the system.

Single switch model with a wide variance

For pressure switches, the typical applications in sterile process technology require numerous measuring ranges up to 25 bar with gauge, vacuum or absolute pressure. Should continuous measurement be required over and above the switching function, the operator will need an instrument with an additional analogue output (up to 20 mA). On the basis of these requirements, one can generate a wide variance with a single switch model. With the PSA-31 from Wika, for example, there are around two million combinations in total (from the possible process connections, measuring ranges and output signals) possible as a standard design.

Simple operation and good readability

The three-key system and the alpha-numeric display of the PSA-31 ensure fast, intuitive menu navigation without the need for additional assistance. The simple operation of the pressure switch is supported by the large and ergonomic arrangement of the keys, giving the operator a clear, tactile feedback.

The pressure switch operates with a 14-segment display. Its high resolution considerably increases the readability of the parameters in the setup and thus minimises the risk of mistakes. The display can always be positioned to face the operator and the M12 connection aligned according to the desired cable routing of the plant. Also a display is available, which can be rotated through 180°. The readability of the display is made even easier by the inclined angle, and it offers a large viewing angle due to the LED technology.

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