Druck
a Baker Hughes business

Application story

Depth of Druck's experience prevents leaks for water authorities

Druck's customer is a manufacturer of data logging equipment, used in the monitoring of water distribution systems. As with many of Druck's customers, they install sensors into the component or assembly that they in turn supply to their customer.

Industry supplied
Hydrology

Application
Water leakage detection

Product/service
DPS503D digital communication pressure sensor

Customer type
Manufacturer of data loggers

The ultimate customer

The ultimate customer is a regional water authority in the UK which serves 8 million people and has 46,000 km of drinking water pipes. Leakage in water distribution systems is costly and can affect water authorities and their customers worldwide. Leaky pipes reduce the efficiency of water distribution systems with a significant proportion of the expensive treated water being lost. Catastrophe management is an expensive approach to maintaining pipework systems, when large scale leaks can cause property damage. Such events require immediate unscheduled attention and disrupt supply to customers.

Druck's customer's challenge

The challenge for Druck's customer was to create a system that can log the pressure accurately enough over time around the water network to correctly identify pressure drops and therefore small leaks. The data logger then transmits that data reliably and presents it to the water authority in a way that enables them to reduce leakage and avoid catastrophe management.

Water authorities are very cost sensitive and therefore the system described needed to be competitively priced. The cost to the water authority arises in two stages, firstly the purchase, installation and commissioning of the capital equipment and then the ongoing costs relating to maintenance and repair.

Druck's challenge

Druck's challenge was to supply a pressure sensor to measure the water level with sufficient accuracy, resolution and stability to correctly identify small leaks. The sensor is a derivative of Druck's DPS5000 series that is certified for use in hazardous areas underground where methane can collect. Other requirements were as follows:

- To reduce power consumption in order to lower power supply costs and reduce Druck's customer's capital costs.

- Ensuring robust construction to survive submersion, as many units are installed in underground chambers which flood during rainfall.
- High levels of stability and low power consumption also increase service intervals, which reduces maintenance costs.

Druck's solution

Druck's DPS503D digital communication pressure sensors were selected to provide:

- **High accuracy:** The digital compensation on a high-performance module differentiates Druck's sensor's performance over and above the competition.
- **Robustness:** The experience Druck have of designing and manufacturing suitable products for the water industry gives Druck one of the most reliable construction methods for a waterproof/submersible pressure sensor design.
- **Reliability:** Druck's welded construction and silicon sensing elements are wear resistant.
- **Low power:** Druck's DPS5000 digital communication pressure sensor series uses a narcoleptic microprocessor that is asleep most of the time thus reducing power consumption.
- **Stability:** Druck's high grade silicon in a machined module gives market leading stability.
- **High resolution 24-bit A/D:** Druck employs high quality electronics to give differentiated performance and reliability.
- **FM and ATEX approval:** Druck's DPS5000 digital communication pressure sensors are fully certified according to a wide variety of national and regional standards.

Picture 1: Druck DPS5000 digital pressure sensor

Druck's added value

The introduction of Druck's DPS5000 part number DPS503D, has provided significant benefits:

- High performance means that the water authority can correctly identify small leaks and get them fixed a long time before a catastrophic event occurs.
- High resolution means that the data logger supplier can reduce the variation of pressure ranges, by using higher pressure units to cover lower pressure applications, thus reducing inventory costs and time to market.
- Robust design means less failures in the field particularly after a flood event that would cause inferior sensors to fail.
- Low power and high stability mean that service intervals.

View the DPS5000 datasheet here: https://www.bakerhughesds.com/sites/g/files/cozyhq596/files/2020-02/920-660d_dps5000_i2c_datasheet_0.pdf

Find out about Druck's products and services for the Hydrology Industry here: https://info.industrial.ai/digital-solutions-druck-19-accuracy-under-pressure-hydrology-brochure-lp.html

Find out more information about Druck on LinkedIn here: https://www.linkedin.com/company/druckcompany/?viewAsMember=true

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