Using wireless digital automation to monitor steam traps

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If a steam trap leaks, energy is wasted, making leaks costly for your bottom line and the environment. Even worse, blocked or failed-closed steam traps can cause the entire asset to fail, damaging equipment or pipeline infrastructure.

At large enterprises such as refineries and gas plants, the big concern is lost production time. And in a typical year, up to ten per cent of steam traps will fail within those industries.

Some degree of failure and blockage is inevitable no matter what the industry, yet even with the attendant risk and financial burden, many large companies still manually check every one of their steam traps on critical applications once a year, listening to each trap in turn. It's a reactive maintenance model that can lead to unpredictable expense and inefficient use of resources. Logically, it also means a failing trap could have been failing for up to one year, with all the costs and losses associated.

At Spirax Sarco we're pioneering a system that uses wireless automation to fine-tune a predictive maintenance model that means businesses can prioritize maintenance during scheduled downtime instead of losing production time to unforeseen failures.

Wireless automated intelligent monitoring enables proactive and preventative action via the collection of data which will highlight failing as well as failed traps and lower the risk of line blockages from failed-closed traps, or equipment damage owing to increased water-hammer from ineffective condensate removal.

The advantages of wireless over wired devices are manifold. Wireless doesn't need extended downtime to install and commission, or require off-site personnel be granted access to an entire site. Wireless costs less to fit, and can be expanded to accommodate new variables in pressure, temperature and flow-rate.

Whereas wired solutions confine access to certain parts of the process and increase the burden on already stretched maintenance resources, wireless technology offers greater insight, lower engineering costs, and helps improve operations overall.

Wireless networks are flexible, making it easy to add to, redistribute, or remove devices from our technology, at little-to-no cost. Plant processes can be monitored from many locations by many users, maintaining connectivity and therefore visibility.

Program the system with the pressure and orifice size of each trap, and monitor this against the leak level to calculate total cost of lost steam. Alarms will notify the user that a trap is operating outside its parameters, at which point a maintenance engineer can be called and preventive measures taken, cutting the risk of steam trap failure on critical lines.

Wireless devices are highly practical as they can be powered independently by batteries or energy harvesters. And, since steam traps require only daily reporting, excellent battery life is assured.

Many manufacturers find wireless more convenient, flexible, and easier to use than wired alternatives. Many customers report substantial savings when using wireless technology compared to traditional monitoring instrumentation.