SWITCHES AND SENSORS MADE EASY

INDUSTRIAL WIRELESS FOR RETROFIT PROJECTS

The greatest effort required when installing e.g. position switches or sensors on (already) existing machines is usually the laying of power and signalling cables. Read on to find out how wireless switching devices can make this task a great deal simpler.

Mounting a sensor on a robot head, monitoring a tensioning system on the rotary plate of a machine, (remotely) querying the position of a valve or maintenance flap: retrofit tasks like these on existing machines and plants are often per se not the problem. The challenge is

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how to send power and signals to the retrofitted components. The necessary cables, potentially over a distance of several metres, are often more costly and troublesome to install than the purchasing and mounting of the switch or sensor itself. And when the mounting is on moving machine parts, elements such as slip rings or drag chains are required, both of which are also subject to wear and tear, making the task even more complex.

WIRELESS NOT WIRED – SIMPLE

One example which is as simple as it is effective is the rolling or sectional gates between production zones or inside a building envelope. Opening (and then closing) a gate via a pull-wire switch before reaching it, maybe even from a forklift, saves a few seconds every time. Switches like these can be installed quickly and easily from the ceiling, but laying cables to them requires considerable effort.

This effort can be eliminated if a wireless pull-wire switch is used. On actuation, it transmits a signal to a receiver unit inside a control cabinet – with the additional benefit that it can easily be moved elsewhere. "Teaching in", i.e. the coupling of a switch to its receiver, is quick and easy, and the wireless system permits multiple wireless switching devices to be operated within the same transmission range.

WIDE PRODUCT RANGE WITH TRIED-AND-TESTED WIRELESS SYSTEM

The wireless system used here is sWave from the steute business division Controltec, developed specifically for industrial applications. Signals are transmitted reliably, without interference and at high speed, even in adverse conditions such as radiation or coexistence with other wireless systems.

WIRELESS FLEXIBILITY

Wireless is trendy – and is also one of the most effective problem solvers for industrial applications. Especially in times when increasing demands for flexibility and efficiency are impacting company routines, it is more important than ever to optimise processes and reduce costs by deploying technology purposefully. The wireless switches and sensors from steute are used in countless applications and, thanks to their modular construction principle, can be adapted to multiple use cases. The sWave wireless technology provides a reliable basis throughout.

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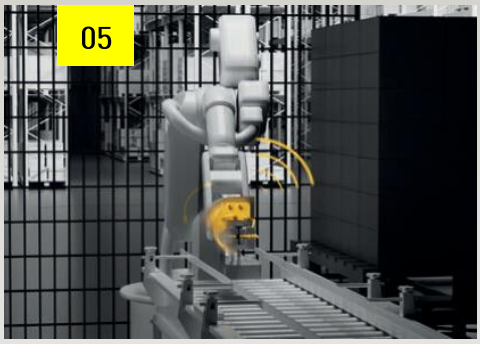
02 Wireless signal transmission: various position switch series are available for this task, also for Ex zones

03 Ideal for retrofit projects: wireless command devices are easy to install and just as easy to relocate

04 Inductive sensors can communicate via a radio module (centre left) with the corresponding receiver unit (centre right) or also with gateway receivers



05 Wireless sensors are the perfect solution for rotating machine elements, such as robot heads

The steute sWave range includes various switchgear series with integrated transmitter units, including position switches, foot switches, multifunctional handles, magnetic sensors, optical sensors and command devices. The switching devices also have integrated (battery) power.

» **IN MANY CASES, WIRELESS SWITCHING DEVICES ARE PRACTICABLE ALTERNATIVES TO CABLED SWITCHING DEVICES**

The range additionally includes product series, e.g. inductive sensors, which can be connected to an sWave receiver unit via a wireless universal transmitter. The battery is inside the transmitter.

TWO-COMPONENT INJECTION MOULDING: SIMPLIFIED PROCESS MONITORING

The versatility of these wireless switching devices – beyond the actuation of industrial gates – is demonstrated by a few use cases. The first example is from plastics processing or, more precisely, two-component injection moulding, which often involves rotary plates. The basic plastic part is created inside the tool and then, after a rotation of e.g. 90 or 180 degrees, the second component is injected. This avoids delay and speeds up production.

A challenge here is monitoring the slide feed position of the injection moulding tool, and thus ultimately its correct closure. If the slide feed is not in the correct position and the tool closes anyway, repairs will be required.

With a wireless position switch or inductive sensor, users can prevent this from happening and at the same time eliminate the need for extensive cabling subject to wear and tear. The wireless switching device registers the end

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position of the slide feed and sends a corresponding signal to a wireless receiver unit inside the control cabinet. The next injection moulding step does not start until the signal "slide feed closed" has been sent to the machine control unit.

METAL WORKING AND ROBOTICS: GRIPPER MONITORING

Similar solutions have also been realised for metal working – for example monitoring the positions of workpieces on press brakes. Another application involves tensioning systems on rotary plates or carriages in CNC machines.

In the field of robotics, sWave wireless switching devices are well established. A foundry was able to solve its problem that a robot was acting more or less "blindly" when removing wax clusters from a hanging rack. If the hanger was not bolted securely onto the robot head, both the complex wax clusters and the casting machine could become damaged. The maintenance team at the casting company installed a wireless inductive sensor on the rotating robot head. It detects both the hanger and its secure bolting to the robot head, thus ruling out any damage. The separate transmitter unit is located on the back of the robot head, while the receiver unit is inside the control cabinet – an intelligent retrofit solution which works perfectly.

FLAP SHUT? VALVE CLOSED?

In many other use cases, wireless switching devices have also proven to be practicable alternatives to cabled devices – especially in retrofit projects. Maintenance flaps and machine access areas, for example, can be monitored in this way, as well as the positions of valves.

CONCLUSION

Company technicians and maintenance teams should take this possibility into account when searching for a practical retrofit solution for querying, positioning and monitoring tasks – especially in cases involving moving components or long-distance cabling to end devices.

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