

ABB level transmitter helps Robinson Bros keep the lid on explosive chemical

ABB level measurement gives faultless service in demanding CS₂ application

A magnetostrictive level transmitter from ABB is enabling Robinson Brothers to meet strict safety standards regarding the storage of highly reactive carbon disulphide (CS₂).

Robinson Brothers uses CS₂ as part of its Midlands-based speciality chemicals manufacturing operation. CS₂ is so reactive that it has to be stored under a layer of water to prevent it from igniting, and the level of the interface between the water and CS₂ requires constant monitoring. Any associated measurement devices are therefore safety-critical.

Level measurement was previously achieved using a very simple magnetic float-based device that provided a local indication of the level but didn't link in to any wider control system. But an ongoing programme of improvements at the plant called for an updated solution equipped with the latest communications.

"Although other techniques were considered, a return to the tried and trusted method of a float, updated with the addition of a magnetostrictive level transmitter, was preferred," explains E&I manager Tom Rutter. "This [float] principle of measurement had given many years of faultless service in what is a demanding application."

In simple terms, magnetostrictive systems can be thought of as a "float on a stick". The "stick" is actually a sensing tube wrapped around a wire that receives regular electrical pulses. Each current pulse interacts with the magnetic field created by the magnetic float to produce a torsional stress wave in the wire. This stress wave travels at a fixed speed along the wire to a patented piezo-magnetic sensing element in the transmitter assembly. The transmitter measures how long it takes for the wave to reach the sensor, which indicates how far away the float sits as it moves up and down the sensing tube in step with the liquid interface.

Robinson Brothers therefore called in instrumentation specialist ICA Services, which is an official ABB WirelessHart distributor. Because CS₂ is so volatile and prone to ignition, it's one of the few chemicals that requires instrumentation to be certified to the most extreme, ATEX Exd IIC T6, protection standard. It can also be used in safety instrumented systems to meet the toughest SIL1 performance standards.

Thankfully, ICA's partnership with ABB enabled it to recommend the AT100 magnetostrictive level transmitter, which meets both these criteria. "The system provides process signals which output to both our local and site monitoring systems and it meets our own internal requirement of SIL1-capable instrumentation," says Mr. Rutter.

AT100 transmitters provide continuous level indication, and transmission of an analog and/or digital signal for monitoring or control. The unique design boosts the resolution of the device to more than 100 times greater than a conventional reed switch-type device.

"The unit has performed well since its installation," says Mr. Rutter. In fact, it has proved so successful that Robinson Brothers is buying four more AT100 transmitters for use on its other CS₂ process systems.

For more information, email moreinstrumentation@gb.abb.com ref. 'magnetostrictive level' or visit www.abb.co.uk/measurement. Alternatively, for more about ICA Services and Robinsons Brothers, please visit www.icaservices.co.uk or www.robinsonbrothers.co.uk.

ENDS

For help with any technical terms in this release, please go to: www.abb.com/glossary

For more information: Les Slocombe
Email: moreinstrumentation@gb.abb.com
Tel: 0870 600 6122

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