PRODUCT NEWS

Intrinsically safe ultrasonic sensors

As mining operations increasingly prioritise automation and sustainability, the demand for durable, non-contact sensing solutions continues, with heavy duty equipment being put to the test as it is used in locations where hazards are constant. Migatron Corporation's intrinsically safe ultrasonic sensors are engineered to provide high-resolution distance measurement and object detection without physical contact. Built for use in explosive atmospheres/hazardous locations, these ultrasonic sensors can maintain compliance across a range of material handling and storage applications. With an Ma equipment protection level (Ex ia I Ma), these sensors can remain energised and operational in mines with firedamp and/or coal dust, with intrinsically safe approvals from ANZEx, ATEX, IECEx, and MSHA (approval pending).

RPS-409A-IS2

The RPS-409A-IS2 is one of the first ultrasonic sensors ever to receive an ANZEx certificate for use in Australia and New Zealand. While also being certified in Europe (ATEX) and internationally (IECEx), this sensor meets the demands of level detection and distance measurement in explosive environments, meeting global standards for intrinsic safety. The RPS-409A-IS2 is built to be durable and reliable for applications involved in the mining industry. This sensor has built-in temperature compensation to provide accurate readings throughout the entire operating temperature range. The RPS-409A-IS2 has a short circuit protected analogue voltage output and a Sync/Tx line, which can be used for connecting multiple sensors together (Sync) to prevent cross talk, or to control when the sensor transmits (Tx). The sensor is also designed for PLC and computer analogue input cards that are used today, where the numerical values that are programmed help determine the zero and span of the sensor. There is no need for calibration or training; simply applying power to the sensor will tell you precisely how far away your target is by means of the output voltage, making it user-friendly.

Figure 1. RPS-409A-IS2 (Top), RPS-429A-IS (Middle), RPS-409A-MSHA (Bottom).

RPS-429A-IS

Similar to the RPS-409A-IS, the RPS-429A-IS is an intrinsically safe ultrasonic sensor that can also be used in explosive atmospheres and hazardous areas. Certified for locations classified as Zone 0, 1, 2, 20, 21, or 22 for ATEX/IECEx, this sensor provides the accurate readings that are needed for applications such as conveyor belt alignment or machinery placement, even in areas where methane and combustible dust are in the atmosphere. The RPS-429A-IS comes in two different output versions: Analog current 4-20 mA 2-wire current loop version or analogue voltage 1-5 V 4-wire analogue voltage version, but either way is engineered with an IP66/IP67 rated enclosure and built-in temperature compensation. Depending on the type of application, the RPS-429A-IS is available in a variety of sensing ranges such as 4 – 40 in. and 6 – 80 in.

RPS-409A-MSHA (approval pending)

The RPS-409A-MSHA is an intrinsically safe ultrasonic sensor that is approved for use in gassy mines by the Mine Safety and Health Administration (MSHA) when used with intrinsic safety barrier MTL7787+. This sensor is self-contained in a 30 mm barrel style enclosure, and is powered by 24 V dc with reverse polarity protection. Like the RPS-409A-IS2 sensor, the RPS-409A-MSHA has accurate readings throughout the whole operating temperature range with built-in temperature compensation. The sensor has a short circuit protected 1 – 10 V dc analogue output, with the analogue voltage being a fixed volts per inch based on the maximum range of the sensor. When hooked up to a cable with an IP67 rating or higher, the RPS-409A-MSHA can be relied on in intense environments within the mining industry, with the sensor being completely sealed. GMR