Intrinsically Safe Sensors

NAUTITECH Intrinsically Safe sensors designed for use in Group 1 and Zone 0 allowing for safe operations in potentially explosive methane rich atmospheres. Applications include environmental monitoring, shutdown/start up system on continuous miners, roof bolters, longwall machines, and shuttle cars. All sensors are approved Ex ia, Group I IEC60079

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| CX053   |              | Gas Detector            | - Detects methane gas (0-5% v/v)  
- Non-dispersive infra-red (NDIRS) gas sensing  
- Short warm-up and fast response times  
- Digital transmission of gas concentration  
- CAN 2.0b communications interface with compatible modules  
- Highly visible patented light ring design  
- Integrated self-diagnostics  
- Event logging  
- Bluetooth wireless port (V4.0LE)  
- Location not restricted  
- Suited for direct installation in hazardous environments | Methane is measured by utilizing proven sensing elements combined with a safety processor which provides visualisation and user configurability. Gas levels and device status are digitally transmitted to compatible modules using CAN 2.0b interface  
Ch4 detection 0-5% v/v  
-10°C to 40°C | Ch4 detection 0-5% v/v  
-10°C to 40°C | L: 157 mm  
W: 100 mm  
H: 77 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 160 mA  
Power: 1.5 W |
| CX105   |              | Smart Piezo Valve       | - 3/ 2 Way Normally closed Valve  
- Low Power Operation  
- Manifold mounting  
- Suited for direct installation in hazardous environments | The manifold mount Piezo Valve is digitally actuated over a one wire communication interface. The digital interface also allows the transmission of the device’s serial number, type and status  
Process Pressure 150 kPa to 800 kPa  
-20°C to 70°C | Process Pressure 150 kPa to 800 kPa  
-20°C to 70°C | L: 75 mm  
W: 20 mm  
H: 55 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 5 mA |
| CX070   |              | Differential Pressure Sensor | - Digital compensation and transmission of Differential pressures  
- One Wire communications interface with compatible modules  
- Location not restricted  
- Suited for direct installation in hazardous environments | Process pressure is measured by utilising sensing elements combined with a signal processing circuit and is digitally conditioned and transmitted to compatible modules using a one wire digital interface  
Configured for Common Mode Pressures up to 20 MPa  
-20°C to 120°C | Configured for Common Mode Pressures up to 20 MPa  
-20°C to 120°C | L: 128 mm  
W: 80 mm  
H: 29 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 10 mA |
| CX051   |              | Temperature Sensor      | - Intelligent temperature sensor  
- Digital interface  
- Serial number is remotely readable  
- Sensor type is remotely readable  
- Explosion protected, CoC  
- Elevated ambient temperatures  
- Thermal response options  
- Safety file available  
- Suited for safety shutdown systems in hazardous environments such as underground coal mines and diesel machinery | Temperature is measured by resistance temperature elements and signal processing circuits. The output is a digital signal which must be polled by a compatible module  
Temperature Range -20°C to 150°C  
-20°C to 120°C | Temperature Range -20°C to 150°C  
-20°C to 120°C | L: 128 mm  
W: 80 mm  
H: 29 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 6 mA |
| CX050   |              | Speed Sensor            | - Intelligent speed (RPM) sensor  
- Digital interface  
- Serial number is remotely readable  
- Sensor type is remotely readable  
- Explosion protected, CoC  
- Elevated ambient temperatures  
- Suited for direct installation in hazardous environments such as underground coal mines and diesel machinery | A pulse sensor detects the motion of ferromagnetic objects (typically gear teeth) moving past its sensing tip. Pulses generated by the sensor are converted into a digital signal that may be scaled and shifted to reflect the speed of the passing object. The speed sensor (SSG) has been designed specifically for measuring engine RPM whilst operating safely in potentially explosive methane rich atmospheres  
Factory configured, calibrated, and tested.  
Speed Range 0-2400 RPM | Speed Range 0-2400 RPM | L: 125 mm  
W: 29 mm  
H: 29 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 7.5 mA |
| CX075   |              | Cantilever Level Sensor | - Redundant level sensor elements and floats  
- Digital interface  
- Serial number is remotely readable  
- Sensor type is remotely readable  
- Explosion protected, CoC  
- Elevated ambient temperatures  
- Thermal response options  
- Safety file available  
- Suited for safety shutdown systems in hazardous environments | Level is determined by measuring the position of a magnet present in each of the float arms and with is conditioned by signal processing circuits. The output is a digital signal which must be polled by a compatible module  
Level determined by magnet positioned in each float arm  
-40°C to 120°C | Level determined by magnet positioned in each float arm  
-40°C to 120°C | L: 128 mm  
W: 80 mm  
H: 29 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 13 mA |
# Intrinsically Safe Sensors

**NAUTITECH** Intrinsically Safe sensors designed for use in Group 1 and Zone 0, allowing for safe operations in potentially explosive methane-rich atmospheres. Applications include environmental monitoring, shutdown/start-up systems on continuous miners, roof bolters, longwall machines, and shuttle cars. All sensors are approved Ex ia, Group I IEC60079

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| CX055 | ![Sensor Image](Image) | Angle Sensor       | - Digital compensation and transmission of Angle  
- One Wire communications interface with compatible modules  
- Explosion protected  
- Location not restricted  
- Suited for direct installation in hazardous environments | Process Angle is measured by utilising sensing elements combined with a signal processing circuit and is digitally conditioned and transmitted to compatible modules using a one wire digital interface. | Preconfigured for selected range | -20°C to 120°C | L: 119 mm  
W: 111.1 mm  
H: 90 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 6 mA |
| CX087 | ![Sensor Image](Image) | Make-up Tank Level Sensor | - Measures process level  
- Measures process temperature (optional)  
- Digital interface  
- Serial number is remotely readable  
- Sensor type is remotely readable  
- Explosion protected, CoC  
- Elevated ambient temperatures  
- Safety file available  
- Suited for safety shutdown systems in hazardous environments | The sensor consists of two independent circuits allowing different process variables. Temperature is measured using an element located at the base of the shaft. Level is determined by measuring the pressure produced from displacing a column of water and is conditioned by signal processing circuits. Output is a digital signal which must be polled by a compatible module. | Calibrated and tested, ready to use no site configuration required | -40°C to 120°C | L: 200 mm  
W: 100 mm  
H: 235 mm  
Dimensions variable to suit application | Applied Voltage: 7.0 - 9.0 VDC  
Current: 15 mA |
| CX052 | ![Sensor Image](Image) | Absolute Pressure Sensor | - Digital compensation and transmission of pressures  
- One Wire communications interface with compatible modules  
- Explosion protected  
- Location not restricted  
- Suited for direct installation in hazardous environments | Process Pressure is measured by utilising a sensing element combined with a signal processing circuit and is digitally conditioned and transmitted to compatible modules using a one wire digital interface. | Preconfigured for Pressures up to 20 Mpa. Variants possible for absolute pressure ranges from 200 kPa - 35,000 kPa | -20°C to 120°C | L: 114 mm  
W: 29 mm  
H: 29 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 6 mA |
| CX086 | ![Sensor Image](Image) | Position Sensor     | - Digital compensation and transmission of Position  
- One Wire communications interface with compatible modules  
- Explosion protected  
- Location not restricted  
- Suited for direct installation in hazardous environments | Process Position is measured by utilising sensing elements combined with a signal processing circuit and is digitally conditioned and transmitted to compatible modules using a one wire digital interface. | Preconfigured for selected range but calibration required after installation | -20°C to 120°C | L: 119 mm  
W: 111.1 mm  
H: 90 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 6 mA |
| CX080 | ![Sensor Image](Image) | Level Temperature Sensor | - Measures process level  
- Measures process temperature  
- Digital interface  
- Serial number is remotely readable  
- Sensor type is remotely readable  
- Explosion protected, CoC  
- Elevated ambient temperatures  
- Safety file available  
- Suited for safety shutdown systems in hazardous environments | The sensor consists of two independent circuits allowing different process variables. Temperature is measured using an element located at the base of the shaft. Level is determined by measuring the pressure produced from displacing a column of water and is conditioned by signal processing circuits. Output is a digital signal which must be polled by a compatible module. | Calibrated and tested, ready to use no site configuration required | -40°C to 120°C | L: 1100 mm  
W: 100 mm  
H: n/a  
Dimensions variable to suit application | Applied Voltage: 7.0 - 9.0 VDC  
Current: 15 mA |
| CX071 | ![Sensor Image](Image) | Manifold Pressure Sensor | - Digital compensation and transmission of absolute pressures  
- One Wire communications interface with compatible modules  
- Explosion protected  
- Location not restricted  
- Manifold mounting  
- Suited for direct installation in hazardous environments | Process pressure is measured by utilising sensing elements combined with a signal processing circuit and is digitally corrected and transmitted to compatible modules using a one wire digital interface. | 1. Pressure Range 0-700 kPa  
2. Pressure Range 0-100 MPa | -20°C to 70°C | L: 78 mm  
W: 25 mm  
H: 24 mm | Applied Voltage: 7.0 - 9.0 VDC  
Current: 10 mA |