

ATEX Rated sensor Installation Manual Type AOSP



The AOSP sensor has been designed for hazardous environments and is ATEX, UKCA, IECEx certified. The sensor gives a NAMUR output and will detect the presents of any liquid including petrochemicals, water, fuel oil etc. The sensor is provided with a 316 Stainless Steel brackets with 0-5mm height adjustment and 10m long interface cable.

The mode of operation is the principle of total internal reflection. An LED and photo-transistor are housed in a polymer (Grilamid) dome. When no liquid is present, light from the LED is internally reflected from the dome to the photo-transistor. When a liquid covers the dome, the effective refractive index at the dome-oil boundary changes allowing some light from the LED to escape. Thus the amount of light received by the photo-transistor is reduced indicating the presents of a liquid.

Hazardous area certification



II 1 Ex ia T4 Ga (-30 to +80C)



Ex ia IIC T4 Ga (-30 to +80C)

Technical Speciation

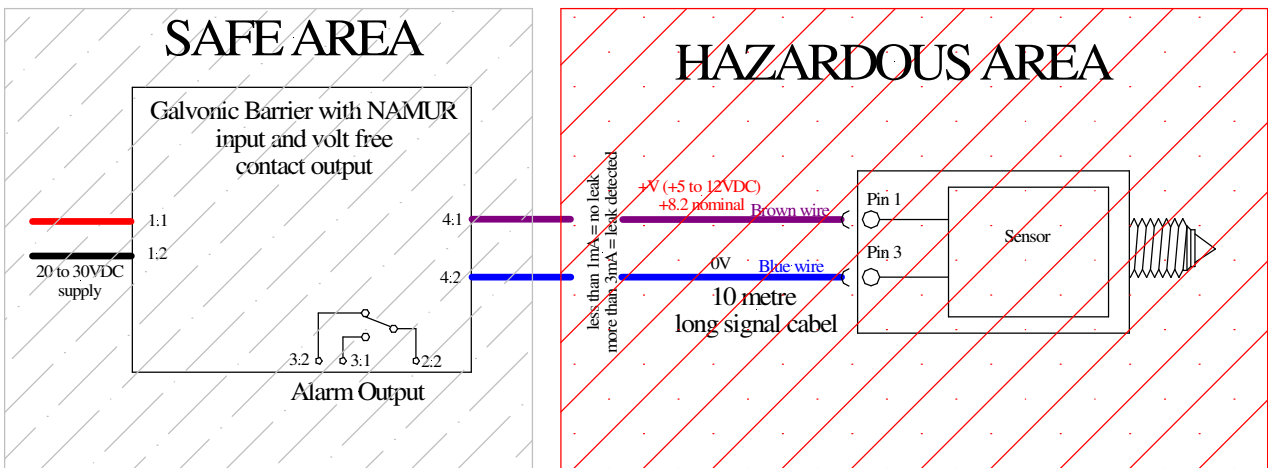
| | | |
|------------------------------|--|----------------------------------|
| Power supply | | +5VDC TO 12VDC (+8.2v nominal) |
| Supply current | | Liquid detected >3mA; dry <1mA |
| Output type | | NAMUR |
| Sensor tip | | Grilamid |
| Operating temperature | | -30 to +80 °C, -22 °F to +176 °F |
| Storage temperature | | -40 to 80 °C, -40 °F to +176 °F |
| Pressure | | Maximum 32 Bar, 464 psi |
| Housing material | | 316 Stainless steel |

This product requires a suitably rated galvanic barrier with NAMUR input and volt free contact output.

Installation

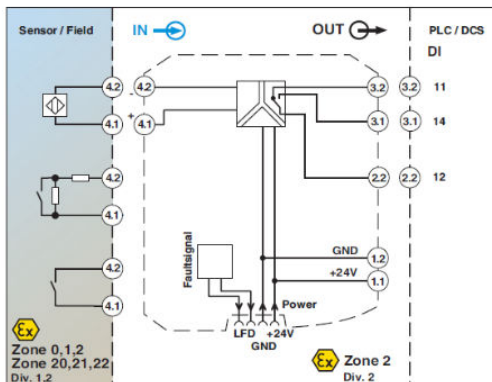
The detection sensor is susceptible to damage and should not be fitted to areas where it is likely to be damaged or walked on. As the sensor will also detect water, it should not be positioned outdoors unless under cover. The sensor can be screwed or stuck to the floor using the supplied stainless-steel bracket.

Sensor Wiring

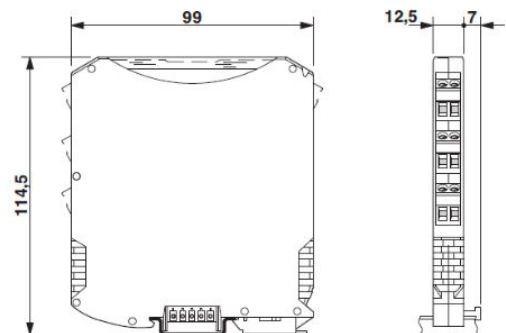


Galvanic barrier

Block diagram



Dimensional drawing



The interface cable should be terminated between the sensor and the barrier in the following manner.

| Sensor connections | Signal Cable Wire Colour | Barrier terminal number |
|--------------------|--------------------------|-------------------------|
| +VDC pin 1 | Brown | 4.1 |
| 0VDC pin 2 | Blue | 4.2 |

Barrier connections

| Function | Barrier terminal number |
|----------------------------|-------------------------|
| Sensor +VDC (pin 1) | 4.1 |
| Sensor 0VDC (pin 2) | 4.2 |
| Supply +20 to 30VDC | 1.1 |
| Supply 0V | 1.2 |
| Volt free contact (common) | 2.2 |
| Volt free contact (N/O) | 3.1 |
| Volt free contact (N/C) | 3.2 |

The galvanic barrier requires a 20 to 30VDC supply to power both itself and the sensor. The unit has an isolation amplifier that is designed to interface with NAMUR sensors and isolates high DC (direct current) levels from the sensor. If an error occurs in the unit, the LED (light-emitting diode) indicator will illuminate to let you know. There's also an indicator that signals supply voltage and switching state, making it simple to use. The device has three-way isolation, while preventing short circuit hazards and current interference for greater safety and efficiency.

The barrier is built for use with proximity sensors and switches in explosive atmospheres. It can also be used in other monitoring applications such as laboratory testing, technical measurements and medical equipment.

Maintenance

The sensor should be tested at least once a year for correct operation. A check should also be made on a regular basis or at least every six months to ensure that the sensor is not contaminated with dirt, damaged or has been moved away from its correct location. If the sensor is found to be contaminated with dirt, it should be cleaned using a brush and soapy water, then dried using clean tissue paper and re-tested.