

Status Scientific Controls

gas detection technology...



FGD3-Series Intrinsically Safe Gas Detectors - For Detection of Oxygen, Toxic and Flammable (Hydrocarbon) Gases



Optional Weatherguard

Features

- ❖ Suitable for use in Zones 1 and 2 hazardous areas.
- ❖ Competitively priced
- ❖ Marine version available for IR versions
- ❖ Optional weatherguard
- ❖ Single operator calibration
- ❖ Inbuilt sensor diagnostics
- ❖ Industry standard 4 to 20 mA output
- ❖ Plug-in replaceable sensors
- ❖ Digital display of gas reading

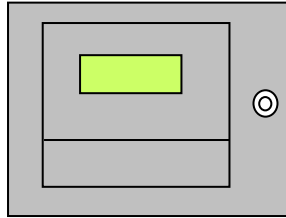
Description

The FGD3 series of gas detectors are intrinsically safe products for use in Zone 1 & 2 hazardous areas when used in conjunction with an intrinsically safe supply. Features include digital display, light weight, flame retardant case, multiple plug-in replaceable sensor options and single operator calibration. The FGD3 series of gas detectors use the industry standard 4-20mA current loop to convey the gas levels detected to a control unit. The detector heads use either a two-wire or a three-wire connection depending on sensor type, comprising a current loop pair that provides the power required by the detector head electronics, and a third connection where necessary to provide power for infrared and pellistor sensors and associated circuitry.

A marine version of the FGD3 Infrared is also available. This version is housed in a cast aluminium enclosure to provide higher RFI immunity where high power portable radios are used in the close confines of a vessel. The enclosure is plated and painted in order to withstand the harsh salt spray environment of the marine industry. The digital display is fitted with a sliding stainless steel front cover which remains over the display window when not being viewed thereby maintaining the RFI shielding properties of the enclosure during normal operation.

An optional weather guard is available for installations exposed to the atmosphere or contaminants and is also suitable for use in other areas where hosing down takes place. The weather guard reduces the possibility of water or other contaminants entering into the gas sensor thereby improving the overall reliability of the gas detector in harsh environments. The weather guard is attached with tamperproof screws to ensure that it is not inadvertently removed.

TYPICAL INSTALLATION USING STATUS SCIENTIFIC CONTROLS MCU CONTROL UNIT



MCU Control unit fitted with i.s. Output Module Type FGDI0

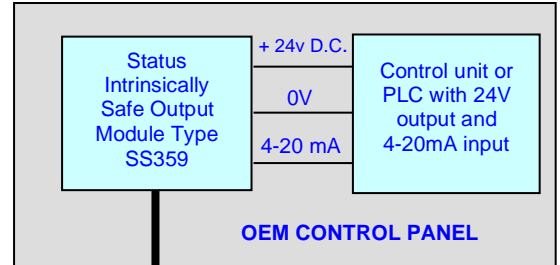
Safe area

Hazardous area



FGD3 Infrared Gas Detector

TYPICAL INSTALLATION USING AN OEM CONTROL PANEL



Safe area

Hazardous area



FGD3 Infrared Gas Detector

The Intrinsically Safe Output Module shown below provides the necessary interface between a non-intrinsically safe, mains powered system (as shown above, right) and an FGD3 Infrared Gas Detector. Note that an intrinsically safe earth must be connected to the module to ensure safety.

Intrinsically Safe Output Module Type SS359 Specification

| | | | | |
|----------------------------|-------------------------|-------------------------------|-------|-------|
| Inputs | 14-28vDC 12-24V | Current Loop Sensor Supply | | |
| Temperature | -20 - +40°C | | | |
| Humidity range | 0-95% RH non-condensing | | | |
| Operating pressure | Ambient + or - 10% | | | |
| Internal Resistance | Current Loop | : 270R ±5% | | |
| Source Resistance | Sensor Supply | : 12.0R ±5% | | |
| Intrinsically Safe Outputs | Terminals | Uo | Io | Po |
| | 1 & 2 | 28V | .112A | .8W |
| | 3 & 4 | 7.5V | .66A | 1.24W |
| Certificate No. | Baseefa 03ATEX0590X | | | |
| Code | II (1) G [EEx ia] IIC | | | |
| Zones | 1 or 2 | | | |



DIN rail mounting

| Specification | |
|-------------------------------------|---|
| Material | : Plastic (ABS and Polycarbonate blending) Marine Version - Cast Aluminium Alloy |
| Cable entry | : 1 x M20 or ½" NPT |
| Dimensions | : 122 x 122 x 75 mm |
| Weights | : Plastic Version (excluding weatheguard) - 660grams Marine Version (excluding weatheguard) - 1Kg Weatheguard - 225 grams |
| Display type | : LCD |
| Gas Types | : Oxygen Toxic Flammable Note: Infrared sensors have no response to Hydrogen |
| Operating voltages | : 8 to 24 volts dc (for 4 to 20 mA signal) (infrared and pellistor versions also requires an additional dc supply to power the sensor). |
| Output Signal | : 0mA - open circuit 2mA - fault 4mA - zero gas 20mA - full scale gas 22mA - over-range |
| Max. Cable Loop Resistance | : Signal - 560 ohms at 24vdc Pellistor Sensor - 19 ohms at 7.5vdc Infrared Sensor - 15 ohms at 7.5vdc |
| Sensor Type | : Electrochemical NDIR Infrared Pellistor (catalytic bead) |
| Measurement range | : Dependent upon sensor type |
| Response time | : Sensor response times vary according to the sensor type. |
| Measurement Resolution | : Dependent upon sensor type |
| IP rating | : Enclosure IP66, Sensor IP65 |
| Operating Temperature | : Varies with sensor type, typically - 20 to +40 °C |
| Storage temperature | : - 20 to +50 °C |
| Humidity Range | : Oxygen - 0 to 99% RH non-condensing Toxic - 15 to 95% RH non-condensing Infrared - 0 to 95% RH non-condensing Pellistor - 0 to 95% RH non-condensing |
| Operating Pressure | : Ambient + or - 10% |
| Hazardous Area Certification | |
| Certificate Numbers | : Oxygen & Toxic Sensors - BAS 01ATEX2300, Code II 2 G Ex ia IIC T4 Gb (-20 °C ≤ Ta ≤ +60 °C) Infrared & Flammable sensors - BAS 01ATEX2300, Code II 2 G Ex db ia IIC T4 Gb (-20 °C ≤ Ta ≤ +60 °C) |
| Standards | : EN 60079-0:2018 EN 60079-1:2014 EN 60079-11:2012 |
| Zones | : 1 & 2 |

Available gas types and sensor ranges.

| Gas Type | Sensor Type | Ranges Available | Resolution |
|-------------------|-----------------------------|----------------------------------|-------------------|
| Ammonia | Electrochemical | 0-100ppm | 1ppm |
| | | 0-1000ppm | <12ppm |
| Carbon Dioxide | Infrared | 0-2% | 0.1% |
| | | 0-5% | 0.1% |
| | | 0-100% | 1% |
| Carbon Monoxide | Electrochemical | 0-500ppm | 1ppm |
| Chlorine | Electrochemical | 0-20ppm | 0.1ppm |
| Flammable | Infrared & Pellistor | 0-100%LEL 0-100%Vol | 1%LEL 1%Vol |
| Hydrogen | Pellistor & Electrochemical | 0-100%LEL | 1%LEL |
| | | 0-1000ppm (Electrochemical only) | 2ppm |
| Hydrogen Chloride | Electrochemical | 0-30ppm | 1ppm |
| Hydrogen Cyanide | Electrochemical | 0-30ppm | 1ppm |
| Hydrogen Sulphide | Electrochemical | 0-50ppm | 1ppm |
| Nitric Oxide | Electrochemical | 0-100ppm | 1ppm |
| Nitrogen Dioxide | Electrochemical | 0-20ppm | 0.1ppm |
| Oxygen | Electrochemical | 0-21% | 0.1% |
| Sulphur Dioxide | Electrochemical | 0-20ppm | 0.1ppm |
| VOC | Electrochemical | 0-20ppm | 0.1ppm |

* Specifications are valid at 20°C, 50% RH and 1013 mBar.

Designed and Manufactured in the UK

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