Status Scientific Controls

Gas Detection Technology

STATUS SCIENTIFIC

FGD3 Intrinsically Safe Gas Detector

For Detection of Oxygen, Toxic and Flammable (Hydrocarbon) Gases

Features

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

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 light weight, flame retardant case, multiple plug-in replaceable sensor options and single operator calibration. The detector heads use either a two-wire or three-wire connection depending on sensor type. Where necessary the third connection provides power for infrared and pellistor sensors and associated circuitry.

A version of the FGD3 Infrared with metal enclosure 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 close confines. The enclosure is plated and painted in order to withstand harsh environments.

An optional weather guard is available for installations exposed to the atmosphere or contaminants and 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

Available gas types & sensor ranges

GAS	SENSOR TECH	RANGES AVAILABLE
Ammonia	Electrochemical	0-100ppm 0-1000ppm
Carbon Dioxide	Infrared	0-2% 0-5% 0-100%
Carbon Monoxide	Electrochemical	0-500ppm
Chlorine	Electrochemical	0-20ppm
Flammable	Infrared & Pellistor	0-100%LEL 0-100%Vol
Hydrogen	Pellistor	0-100%LEL 0-1000ppm (E'chemical only)
Hydrogen Chloride	Electrochemical	0-30ppm
Hydrogen Cyanide	Electrochemical	0-30ppm
Hydrogen Sulphide	Electrochemical	0-50ppm
Nitric Oxide	Electrochemical	0-100ppm
Nitrogen Dioxide	Electrochemical	0-20ppm
Oxygen	Electrochemical	0-21%
Sulphur Dioxide	Electrochemical	0-20ppm
VOC	Electrochemical	0-20ppm

FGD3 Intrinsically Safe Gas Detector

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Specification

Material	Plastic (ABS and Polycarbonate blending) Metal Version – Cast Aluminium Alloy
Cable entry	1 x M20 or ½" NPT
Dimensions	122 x 122 x 75 mm
Weights	Plastic Version – 660grams Metal Version – 1Kg Weatherguard – 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
Maximum 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 ^{O}C
Storage temperature	- 20 to +50 ^{O}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%

The Intrinsically Safe Output Module shown below provides the necessary interface between a non-intrinsically safe, mains powered system 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°C - +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 3 & 4	28V 7.5V	.112A .66A	.8W 1.24W
Certificate No.	Baseefa 03ATEX0590X			
Code	II (1) G [EEx ia] IIC			
Zones	1 or 2			

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