

# Status Scientific Controls

gas detection technology...



SCIENTIFIC

## FGD3 Intrinsically Safe Gas Detectors - For Detection of Flammable Gases



Hazardous Area Certificate Number

BAS 01ATEX2300

II 2 G Ex iad IIC T4 Gb (-20°C<Ta<+60°C)

Zones 1 and 2



Optional Weatherguard

### Features

- ❖ Detects a wide range of Hydrocarbon gases and Hydrogen.
- ❖ Sensors available for either 0-100% LEL or 0-100% volume gas.
- ❖ Suitable for use in Zones 1 and 2 hazardous areas.
- ❖ Three wire connection.
- ❖ 8 to 24 volt dc operation (plus additional supply of 4 to 7 volts dc to power the sensor).
- ❖ Industry standard 4 to 20mA output.
- ❖ Digital display.
- ❖ Single operator calibration.
- ❖ Optional weather guard available.

### Description

The FGD 3 Flammable Gas Detector uses 'pellistor' technology to detect a wide range of hydrocarbons, fuel gases and hydrogen. The sensor can be set to detect either methane or general hydrocarbons. Pellistor sensors can be fitted to detect hydrocarbons over the range 0 to 100% Lower Explosive Limit (LEL) or 0 to 100% Volume gas. The detectors use the industry standard 4-20mA current loop to convey the gas levels detected to a control unit. This means that under zero gas conditions 4mA is drawn from the supply, and under full scale gas conditions 20mA is drawn from the supply. The current varies linearly for gas levels between zero and full scale. The detector heads use a three-wire connection. While the loop current supplies the power required by the detector head electronics within the detector head, a second supply must be provided to power the pellistor sensor.

#### EXAMPLES OF GASES DETECTED

**METHANE  
HYDROGEN  
PROPANE  
BUTANE  
ETHANE  
PENTANE  
HEXANE  
OCTANE  
ETHANOL  
IPA  
SOLVENTS**

## Marine Version

A marine version of the FGD3 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.

## Weather Guard

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.

## Collector Cone

A collector cone is available which can be fitted around the sensor inlet in order to concentrate any gas present around the sensor and hence improve the detection ability. Mounting brackets are also available.

## Mounting Kits

A Swivel Mounting Bracket and Ceiling Mounting Kit is available for use with this range of gas detectors. In addition, a duct mounting kit is also available, please contact Status Scientific Controls to discuss your particular application.

## Gas Detector - Ordering Details (add suffix ' -US' for USA)

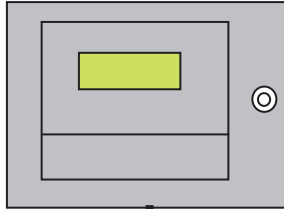
Stock No.	Description
SS415	FGD3 Flammable (0-100% Volume) Detector Head
SS416	FGD3 Flammable (0-100% LEL) Detector Head
SS417	FGD3 Flammable (0-100% LEL) Detector Head for Fuels

Note - Standard gland entry is 20mm x 1.5mm pitch thread.  
For USA and Canada, gland entry is ½" NPT thread.

## Accessories - Ordering Details

Stock No.	Description
SS359	Intrinsically Safe Output Module - see page 3
SS374	Swivel Mounting Bracket
SS375	Ceiling Mounting Bracket
SS429	Collector Cone
SS475	FGD3 Weatherguard

### TYPICAL INSTALLATION USING STATUS SCIENTIFIC CONTROLS MCU CONTROL UNIT



MCU Control unit fitted with I.S. Output Module Type FGDIO

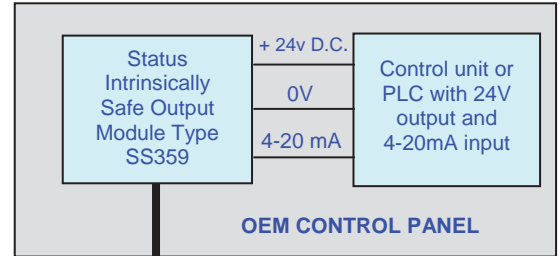
Safe area

Hazardous area



FGD3  
Flammable  
Gas Detector

### TYPICAL INSTALLATION USING AN OEM CONTROL PANEL



Safe area

Hazardous area



FGD3  
Flammable  
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 Flammable 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	Terminal s	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			



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 Weatherguard - 225 grams
Display type	:	LCD
Gas Types	:	Hydrocarbons including Methane, Hydrogen, Ammonia
Operating voltages	:	8 to 28V dc (for 4 to 20 mA signal) 5.8 to 7.5V dc (for sensor supply)
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 Sensor - 19 ohms at 7.5vdc
Sensor Type	:	Pellistor (catalytic bead)
Measurement ranges	:	0-100% LEL (5% vol CH <sub>4</sub> ), 0-100% Volume
Response time	:	T <sub>90</sub> < 10 sec (Methane)
Measurement Resolution	:	1% LEL
IP rating	:	Enclosure IP66, Sensor IP65
Operating Temperature	:	- 20 to +40 °C
Storage temperature	:	- 20 to +50 °C
Humidity Range	:	0 to 95% RH non-condensing
Operating Pressure	:	Ambient + or - 10%

## Hazardous Area Certification

Certificate Number	:	BAS 01ATEX2300, Code II 2G Ex iad IIC T4 Gb (-20°C<Ta<+60°C)
Standards	:	EN 60079-0:2009 EN 60079-1:2007 EN 60079-11:2007
Zones	:	1 & 2