Status Scientific Controls

Gas Detection Technology

FGD10B Flameproof (Ex d) Gas Detector

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

Features

- **Compact and lightweight (160 x 125 x 127mm)**
- **Available in pressure die cast aluminium or stainless steel grade 316**
- **Plug-in replaceable gas sensors**
- **Wide power supply range of 8 to 24 volts dc**
- **Industry standard 4 to 20 mA output**
- **Optional weather guard**
- **Display version with control relays available – FGD10A (see separate data sheet TD18/020)**

The FGD10B is an explosion protected ATEX and IECEx certified fixed gas detector for use in potentially explosive atmospheres.

Calibration of the FGD10B can be carried out simply by using ZERO and SPAN buttons inside the instrument provided that the concentration of the calibration gas is the same as that used for factory calibration of the detector. Alternatively, the purpose designed plug-in handheld configuration unit shown on page 2 may be used together with any appropriate test gas concentration.

Calibration of the unit requires the removal of the front cover of the flameproof enclosure and therefore must only be carried out either in a safe area where there is no risk of the presence of an explosive gas or within the hazardous area by authorised personnel under controlled conditions after it has been established that no flammable gases are present in the area. Note that a management or health and safety department permit may be required for this to be carried out.

The unit may be optionally fitted with a protective weather guard.

Available gas types & sensor ranges

GAS TYPE	SENSOR TECH	RANGES AVAILABLE
Ammonia	Electrochemical	0-1000ppm
Carbon Dioxide	Infrared	0-500ppm 0-1000ppm 0-2000ppm 0-5000ppm 0-10000ppm 0-2% 0-5% 0-100%
Carbon Monoxide	Electrochemical	0-50ppm 0-100ppm 0-1000ppm
Flammable	Infrared & Pellistor	0-100% LEL 0-100% Vol
Hydrogen Sulphide	Electrochemical	0-50ppm 0-100ppm 0-200ppm
Oxygen	Electrochemical	0-21%

FGD10B Series of Flameproof (Ex d) Gas Detectors

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Specification

Materials	Instrument Body – Aluminium Pressure Die Casting or Stainless Steel 316 Sensor Insert – Stainless Steel Grade 316 Sensor Bullet – Stainless Steel Grade 303 (Grade 316 also available) Optional Weatherguard – Stainless Steel Grade 304 & Nylon 66
Cable entries	2 x 20mm or ½" NPT or ¾" NPT
Weights	FGD10B Oxygen, Toxic, Pellistor – 1 Kg FGD10B Infrared – 1.25Kg Weatherguard – 225 grams
Gas types	Flammable, Oxygen or Toxic
Input voltage	8 to 24 volts dc
Input power	5 Watts maximum
Internal fuse	340mA surface mount 'Multifuse' , Bourns, MF-MSMF014-2
Analogue output	4 to 20mA (10 bit resolution)
Sensor types	NDIR Infrared, Electrochemical or Pellistor
Measurement range	Dependant upon sensor type
Response time	Sensor response times vary according to the sensor type.
Measurement resolution	Flammable gases - 1% LEL or 1% volume. Toxic gases - 0.1ppm for FSD < 50ppm, 1ppm for FSD> 50ppm. Oxygen - 0.1% volume.
IP rating	Enclosure IP68, Sensor IP65
Operating temperature	Varies with sensor type, typically - 20 to +40 ^{o}C
Humidity range	0 to 95% RH non-condensing
Operating pressure	Atmospheric + or - 10%
Dimensions	160mm x 125mm x 127mm

Hazardous Area Certification

Certificate numbers	IECEx SIR 08.0009X, Code Ex d IIC SIRA 08ATEX1031X, Code Ex d IIC
Standards	IEC 60079-0 : 2004 (Edition 4) IEC 60079-1 : 2007-04 (Edition 6) EN 60079-0:2018 EN 60079-1:2014 EN50270:2006
Temperature codes	T4 (Ta -20 ^{o}C to +60 ^{o}C) T5 (Ta -20 ^{o}C to +50 ^{o}C) – not applicable to infrared versions. T6 (Ta -20 ^{o}C to +35 ^{o}C) - not applicable to infrared versions.
Zones	1 & 2

Accessories

Optional Configuration Unit

The FGD10B can be calibrated via a purpose designed keypad. The keypad allows the user to view the current gas level, calibrate the sensor with the ability to change the span level and calibrate the 4 to 20 mA loop.

Sampling Adaptors

Sampling adaptors are available for applying calibration gases to the detector and for permanent installations where the sample gas can flow over the sensor.

Weather Guard

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

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