



MODCON

LEADERS IN PROCESS ANALYSIS AND CONTROL



Safety *Solutions*

for *Industrial* Facilities

Infrared and Toxic series

MODEL FGD10B «Series MOD-7100»



The FGD10B is an explosion protected ATEX and IECEx certified fixed gas detector for use in potentially explosive atmospheres. It comprises an instrument enclosure with two cable gland entries. The enclosure contains the connection terminals, electronics and gas sensor which is located in the base of the enclosure or screwed to the base in a stainless steel housing. The unit may be optionally fitted with a protective weather guard as shown in the photograph opposite.

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 (refer to the instrument calibration certificate for details).

Alternatively, the purpose designed plug-in hand held configuration unit shown above 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 under either of the following conditions:-

1. In a safe area where there is no risk of the presence of an explosive gas.
2. Within the hazardous area by authorized 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.

Versions available for the detection of:

- Hydrocarbon Gases - using temperature-compensated infrared sensors.
- Carbon Dioxide - using temperature-compensated infrared sensors.
- Oxygen or Toxic Gases – using electrochemical sensors.
- Flammable gases - using 'Pellistor' technology.

Features

- Available in pressure die cast aluminium or stainless steel grade 316
- Compact and light weight
- Optional weather guard
- Plug-in replaceable gas sensors
- Plug-in replaceable gas sensors
- Wide power supply range of 8 to 24 volts dc
- Industry standard 4 to 20 mA
- Display version with control relays available – FGD10A

Sensors for gas type measurement:

- Hydrocarbon gases - Infrared Sensor
- Carbon dioxide-Infrared Sensor
- Oxygen and toxic gases are used Electrochemical Sensors
- Flammable gases - measured by solid-state sensor technology "Pellistor"

Gas Sensors Characteristics model MOD-7100

Gas	Sensor Type	Range	Calibration Gas	Calibration Gas- Concentration	Conversion Factor - If Required	Sensor Warranty
Hydrocarbons	Pellistor	0-100% LEL	CH4	1.486% VOL	N/A	2 Years
Methane	Infrared	0-100% Volume	CH4	99.9% VOL	N/A	5 Years
Methane	Infrared	0-100% LEL	CH4	1.486% VOL	N/A	5 Years
Propane	Infrared	0-100% LEL	PROPANE	1.109% VOL	N/A	5 Years
Pentane	Infrared	< 0.7 % v	PROPANE	1.109% VOL	1.109%Vol = 0.89% vol Pentane= 59% LEL	5 Years
Butane	Infrared	0-100% LEL	PROPANE	1.109% VOL	1.109%Vol = 1.07% vol Butane= 67% LEL	5 Years
Ethane	Infrared	0-100% LEL	PROPANE	1.109% VOL	1.109%Vol = 1.15% Vol Ethane= 46% LEL	5 Years
Ethanol	Infrared	<0.1 % v	CANNOT OFFER AT THIS RANGE			5 Years
Ethylene	Infrared	0-100% LEL	METHANE	2.5% VOL	2.5% Vol = 91% LEL	5 Years
Ethylene Oxide	Infrared	< 2% v	PROPANE	1.109% VOL	1.109%Vol = 1.74% Vol ETO= 58% LEL	5 Years
Hexane	Infrared	< 0.6 %	PROPANE	1.109% VOL	1.109%Vol = 1.0% Vol Hexane= 91% LEL	5 Years
Propylene	Infrared	< 0.5 % v	PROPANE	1.109% VOL	1.109%Vol = 1.67% Vol Propylene= 84% LEL	5 Years
Isopropanol	Infrared	< 30 ppm	CANNOT OFFER AT THIS RANGE			5 Years
Methanol	Infrared	< 20 ppm	CANNOT OFFER AT THIS RANGE			5 Years
Toluene	Infrared	<0.1 % v	CANNOT OFFER AT THIS RANGE			5 Years
Xylene	Infrared	< 60 ppm	CANNOT OFFER AT THIS RANGE			5 Years
O2	Electrochemical	0-25%	O2	21.169% VOL	N/A	2 Years

SECTION - GAS DETECTORS

Gas	Sensor Type	Range	Calibration Gas	Concentration	Conversion Factor - If Required	Sensor Warranty
CO2	Infrared	0-5% Volume	CO2	2.040% VOL	N/A	5 Years
CO2	Infrared	0-100% Volume	CO2	99.90%	N/A	5 Years
CO2	Infrared	0-1000ppm	CO2	1007PPM	N/A	5 Years
CO2	Infrared	0-2000ppm	CO2	1007PPM	N/A	5 Years
CO2	Infrared	0-5000ppm	CO2	2501PPM	N/A	5 Years
CO2	Infrared	0-10000ppm	CO2	2501PPM	N/A	5 Years
H2S	Electrochemical	0-100ppm	H2S	25PPM	N/A	2 Years
H2S	Electrochemical	0-2000ppm	H2S	80PPM	N/A	2 Years
H2S	Electrochemical	0-25 ppm	H2S	25PPM	N/A	2 Years
CO	Electrochemical	0-50 ppm	CO	67PPM	N/A	2 Years
CO	Electrochemical	0-1000ppm	CO	468.6PPM	N/A	2 Years
CO	Electrochemical	0-200ppm	CO	67PPM	N/A	2 Years
Cl2	Electrochemical	0-20ppm	CL2	15PPM	N/A	1 year
SO2	Electrochemical	0-20ppm	SO2	15PPM	N/A	1 year
HCL	Electrochemical	0-30ppm	HCL	10PPM	N/A	1 year
NH3	Electrochemical	0-50 ppm	NH3	45.8PPM	N/A	1 year
NH3	Electrochemical	0-1000ppm	NH3	500PPM	N/A	1 year
NH3	Electrochemical	0-1000ppm	NH3	500PPM	N/A	1 year
NH3	Electrochemical	0-100ppm	NH3	45.8PPM	N/A	1 year
HCN	Electrochemical	0-20 ppm				1 year
HCN	Electrochemical	0.5 -1.5 ppm	CANNOT OFFER AT THIS RANGE			1 year
NO2	Electrochemical	0-20ppm	NO2	13.5PPM	N/A	1 year
NO	Electrochemical	0-20 ppm	NO	145PPM	N/A	1 year
H2	Electrochemical	0-1000ppm	H2	897.8PPM	N/A	1 year
H2	Electrochemical	0-4% Volume	H2	1.020% VOL	N/A	1 year

Gas	Sensor Type	Range	Calibration Gas	Concentration	Conversion Factor - If Required	Sensor Warranty
VOC	Electrochemical	0-20ppm	CO	67ppm	Divide by 3.3 = 20.3PM Formalde- hyde	1 year
Benzene	Infrared	0-100% LEL	METHANE	1.5% VOL or 2.5% VOL	1.5% Vol CH4 = 53% LEL Benzene 2.5% Vol CH4 = 75% Ben- zene	5 Years
H2	Pellistor	0-100% LEL	H2	1.020% VOL	N/A	2 Years
Methanol	Infrared	0-100% LEL	PROPANE	1.109% VOL	1.109%Vol = 2.28% Vol Methanol =38% LEL	5 Years
Flammable	Infrared	0-100% LEL	CH4	1.486% VOL	N/A	5 Years
CO2	Infrared	0-5% Volume	CO2	2.040% vOL	N/A	5 Years

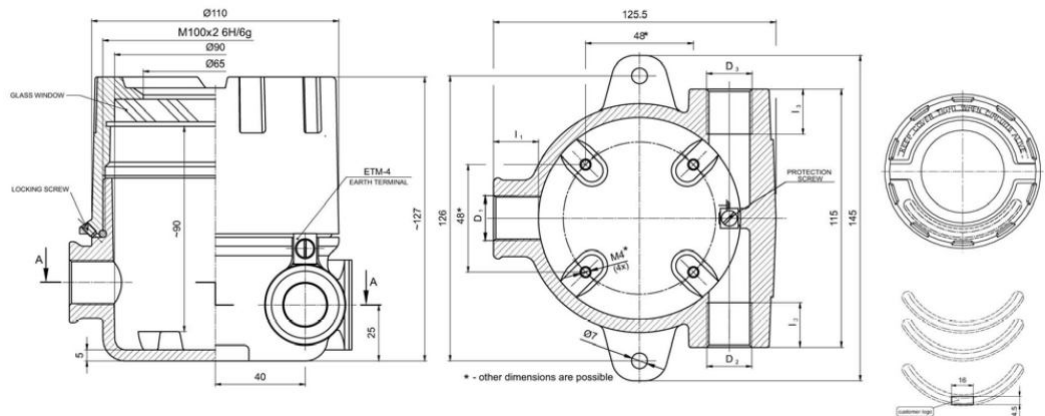
PLEASE NOTE:

WITH REGARDS TO THE GAS USED TO CALIBRATE THE SENSORS, IF A DIFFERENT CONCENTRATION THAN THAT LISTED ABOVE IS USED, PLEASE CONTACT US SO THAT WE CAN ADVISE TRUE CORRECTION FACTORS AS IT IS NOT LINEAR

Mechanical Specifications

Material	Instrument Body – Aluminium Pressure Die Casting or Stainless Steel 316 Sensor Insert – Stainless Steel Grade 316 IR Sensor Housing – Stainless Steel Grade 303 (Grade 316 available) Magnetic Pen – Stainless Steel Grade 316 Optional Weatherguard – Stainless Steel Grade 304 & Nylon 66
Cable entries	2 x 20mm or 1/2" NPT or 3/4" NPT
Weights	FGD10A Oxygen, Toxic, Pellistor (excluding weatherguard) – 1Kg FGD10A Infrared 1.25Kg Weatherguard – 225 grams

Dimensions



IP rating	Enclosure IP68, Sensor IP65
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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 : 2006 EN60079-1 : 2007
Temperature Codes	T4 (Ta -20 to +60 deg C) T5 (Ta -20 to +50 deg C) – not applicable to infrared versions. T6 (Ta -20 to +35 deg C) - not applicable to infrared versions.
Zones	1 & 2

Performance

Gas types	Flammable, Oxygen or Toxic,
Sensor types	NDIR Infrared, Electrochemical , Catalytic or Pellistor
Measurement range	Dependent upon sensor type
Response time	Flammable Gases - typically T90 < 15 sec (CH4) Toxic and Oxygen 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.
Keypad	4-Button operated external keyboard

Electrical Specifications

Input voltage	8 to 24 volts dc
Input power	5 Watts maximum
Internal fuse	1 Amp antisurge 'Nanofuse'
Relay contact rating	3 Amps, 300 Volts ac
Output Options	4 to 20mA (10 bit resolution)
RS232 output	Communications with PC at 19200 baud



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