

# RED LINE PRIME – XDI-F1

## CARBON DIOXIDE INFRA RED GAS SENSOR

- ATEX/IECEX explosion proof
- CANbus/ 4~20mA output
- Addressable or standalone
- 3 alarm points
- Robust and weatherproof
- Automatic diagnostic system surveillance and fault monitoring
- Optional 2 alarm relays plus fault relay or 3 alarm relays
- Data logging
- Hyperterminal communications RS232



The Red Line Prime sensor uses proven non-dispersive single beam dual-wave length infrared principles to detect and monitor the presence of gases. This non-poisoning sensing technique relies on the target gas having a unique well-defined absorption signature. This is used to identify the presence of the target gas and is highly specific. Using a suitable infrared source, an analysis of the optical absorption through the gas allows the concentration of the target gas to be determined. All sensor driving is internal to the transmitter and full fault monitoring of the sensor and transmitter is continuous.

### General Data

This information relates to the device operating continuously. The device may be calibrated for other gases.

### Carbon Dioxide Sensor

Operation – continuous diffusion	NDIR (dual wave-length)
Measuring Ranges Prime 2	0~2000 ppm
	0~5000 ppm
	0~2% volume
	0~5% volume
	0~10% volume
	0~100% volume
Prime 3	0~100% volume
Accuracy	± 5% F.S.D
Warm up time to zero	< 30 seconds
Response time to target gas T90	< 35 seconds
Long term zero drift	± 5% F.S.D

The 4~20mA output provides a fault indication by reducing the output to below 2mA, with the recovery from fault condition being automatic.

## ELECTRICAL DATA

### Input voltage – 3 wire device

18 to 35V DC – 24v DC nominal  
(polarity protected)

### Output

4~20mA (link selectable as sink or source)

### Maximum current consumption

130mA

### Maximum loop resistance in source mode

250R

### Resolution

0.15% of span

### Output resolution

0.02mA

### Maximum offset drift

± 20uA

### Over-range output

21.3mA (typical)

### Fail signal

4~20mA reduced to 2mA

### Fail indicator

Open collector output to 0V

### Relays – Optional

Low / high / fault alarms S.P.C.O. 0.5A @30v DC

### Logging

Intervals – variable time

Rollover/stop

Storage – 2880 readings

## ENVIRONMENTAL DATA

IP64 + water shield IP65  
with hydrophobic screen IP66

### Operating Conditions

5 to 95% RH non-condensing

### Temperature

-15 ~ +55°C – safe area use

for hazardous area use see temperature ranges on  
C1227 (Ex certification summary)

### Storage Conditions

0 ~ 99% RH non-condensing

-20 ~ +60°C

This document is not contractual and the equipment specification may be modified at any time without prior notice.

## MECHANICAL DATA

### Certification

Explosion proof ATEX-IECEX

II 2G Ex db IIC T6...T4 Gb

II 2D Ex tb IIIC T85°C...T135°C Db

### Replaceable plug in sensor

In-situ

### Sensor accessory mounting thread

33mm ø 1.25 pitch – 6 full threads

### Enclosure – Type XDI

Aluminium alloy – optional stainless steel

### Gas Sensor – Type F1

Stainless steel – 316 S16

### Weight

3.95Kg

### Cable Entry

One – 20 mm 1.5 pitch

Options 25 mm – 3/4 NPT

### Mounting Detail

Two M5 (126 mm CRS)

### Approximate dimensions-terminal enclosure

126 mm dia. 83 mm deep

### Accessories:

1. Collector Cone + universal fitting
2. Universal Fitting  
(Test Gas Applicator Spray Deflector)
3. Flow Block – nylatron
3. Flow Block – stainless steel
4. Water Shield – stainless steel
- Duct Mount Kit
- Detector head Weather Shield
- F1 sensor Thermal Jacket

