

GD1 - CO2

Laser Open Path Gas Detector

Fail safe
Fast speed of response
Calibration free



The Simtronics GD1 sets a new standard for toxic gas detection. Using a tuneable laser diode the GD1 delivers enhanced coverage and fail safe detection. The performance improvement marks a genuine step change for safety systems and life cycle cost savings.

The GD1-CO2 has been designed with features that provide an effective response to the detection of carbon dioxide (CO2).

The GD1-CO2 can be used onshore or offshore and is particularly suited to the detection of CO2 in carbon capture and storage (CCS) applications as well as where CO2 is used for enhanced oil recovery (EOR).

At the heart of the detector is a tuneable laser diode that eliminates environmental effects from sun, rain and fog. The laser scans single absorption lines where there is no interference from other gases.

The GD1-CO2 needs no recalibration and can replace multiple standard detectors to cover the same risk.

The complete optomechanical design and construction is so stable that an ultra fast speed of response can be achieved whilst providing unparalleled service life and detector stability, thus saving on maintenance and service costs.

Supplied with worldwide hazardous area approvals. Suitable for use in systems with SIL 2 requirement.

For modern detection systems the GD1-CO2 is complemented by the GD10P-CO2 point IR detector.

FEATURES

- Optical infrared CO2 gas detection
- Tuneable laser diode / laser scanning
- No undisclosed source of failure
- Large area of coverage
- High sensitivity
- Fast acting
- Vibration and misalignment tolerant optics
- Heated optics, transmitter and receiver

HART®

BENEFITS

- No sensor recalibration or replacement
- Superior detector stability and specificity.
- Suitable for use in SIL 2 systems
- Fewer devices cover the same risk
- Suitable for personnel safety purposes.
- Fastest possible speed of response
- Ease of alignment and setup
- High performance in arduous conditions
- Non-proprietary user interface and improved preventative maintenance



Technical Data

GENERAL

Detection method	Near IR laser scanning
Signal source	Tuneable laser diode Laser Class 1, eye safe
Detected gas	CO2
Range	0 - 250,000 ppm.m
Path length	5 - 50 m
Self test	Continuous
Calibration	Factory set, no field recalibration

PERFORMANCE

Lifetime stability	Zero: $\pm 2\%$ of Full scale deflection Span: $\pm 3\%$ of Full scale deflection
Response time	5 sec.

OPTICS

Alignment	$\pm 0.3^\circ$
Optics	Heated (Transmitter and Receiver)
Obscuration	>90%

OUTPUT SIGNAL

Standard	4-20mA source or sink, max. load impedance 500 Ohm HART®	
Fault signals	Fault	1 mA
	Beam Block	2 mA
	Warning	3 mA

ELECTRICAL

Power supply	24 V DC, range 18-32 V DC
Power consumption	<15 W
Cable entry	M20

TEMPERATURE RANGE

Operating	-40°C to + 65°C (-40°F to +149°F)
Hazardous area	-55°C to + 75°C (-67°F to +167°F)
Humidity (operation)	100% RH

MATERIAL

Tx and Rx Housing	Stainless steel (ASTM 316)
Junction Box	GRP

WEIGHT

Approx.	5.5 Kg (12 lbs) per Tx or Rx unit
Approx.	2.0 Kg (4.4 lbs) per Tx or Rx junction Box

DIMENSIONS

Tx and Rx Housing	Ref. outline drawing
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WARRANTY

5 years full warranty on detector system

APPROVALS

ATEX rating Tx/Rx	Ex II 2 G	Ex d IIC T6/T5
ATEX rating JB	Ex II 2 (1) G	Ex emb[ia] IIC T4/T5/T6
ATEX certificate	DNV 08 ATEX 18877X	
IECEX	DNV 10.0002X	
Ingress	IP66/IP67 IEC 60529	
SIL	Suitable for use in SIL2 systems	

ACCESSORIES

GD1-X00-TT01	Alignment kit
GD1-X00-TT02	Test cell

