SENSOR ELECTRONICS

SEC Signature DIR

H_20 Infrared Process Gas Analyzer

Document #1460114 Revision A ECO 000320

Features

- *Infrared sensing technology*
- *Designed for nonextractive sampling installation*
- *Virtually maintenance free*
- *Explosion proof*
- *Immune to poisoning and etching*
- *Designed for harsh environments*
- *Compact and lightweight*
- *Fast response time*
- *Simple calibration*
- *Self-compensating optical system (patented)*
- *Linear output*
- *Programmable heated optical chamber*
- *Independent pressure compensation input*
- *Operates in anaerobic atmospheres*
- *Continual self diagnostics*
- *4 to 20 mA output*

Operation / Description

The SEC Signature DIR is a self-contained dual chamber optical gas analyzer designed for non-intrusive continuous monitoring of process gases. The infrared optical system is self-compensating for most aging, environmental, and contamination effects resulting in excellent measurement integrity. An industry standard analog output provides complete remote alarm, fault and calibration signals. The analog output from the device can be connected to chart recorders, data acquisition systems or a process control system.

The SEC Signature DIR measures infrared light absorption due to molecular resonances. The monitor is tuned to the infrared signature of the target gas or vapor, measuring light at wavelengths absorbed by the target gas and at wavelengths not absorbed by the target gas. The gas concentration is determined by calculating the ratios of the analytical and reference levels. Embedded linearization algorithms keep the output accurate over the entire measuring range and embedded compensation algorithms maintain measuring accuracy over changing environmental conditions.

The SEC Signature DIR employs a reliable, directly opposed optical system. No mirrors or reflecting surfaces are used in this device. All optical surfaces are heated to discourage measurement error due to condensation. Rugged sapphire windows protect the optics eliminating the corrosive effects found in many process monitoring applications.

Once the unit is spanned to a specific mid range gas concentration (a one time operation), routine calibration consists of only rezeroing the device periodically.

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SPECIFICATIONS

Part Number: D010000G020300G

Range: H2O 0-300 mg/liter

Construction: Anodized aluminum and sapphire

Mechanical Connection: 3/4" NPT

Weight: 2.65 lbs

Accuracy:
± (5% of reading + 0.3% of full scale)
With optical comp enabled add 2% of reading
With pressure comp enabled add 2% of reading

Repeatability: ± 2%

Operating Voltage: 18 – 32 VDC ⎓

Max. Power Consumption: 35 watts

Current Draw (@ 24 VDC): 1.0 A (average)

Analog Outputs: Ch 1: 0-20mA (sourced)

Digital Output: Interactive P.C. link (White Wire)

Input Compensation Channel: 4-20mA (400Ω)

Wire Connections:
Red wire (+ 24 VDC) ⎓
Black wire (D.C. common)
Yellow wire (4-20 mA output signal Ch 1)
White wire (Digital interface)
Brown wire (Pressure Compensation input)

Rating: Class 1, Div 1, Groups B,C,D (-40 to + 75º C)

Humidity: 0-99% (Non-condensing)

Operating Temperature: 0-75° C

Operating Pressure: 0- 55 PSIA

Installation Category: Cat. 1, Pollution Degree 2

Dimensions: 5.5" (H) x 4.25" (W) (inches)

Current Output	Status
4-20 mA	Normal measuring mode
0.0 mA	Unit Fault
0.2 mA	Reference channel fault
0.4 mA	Analytical channel fault
0.8 mA	Unit warm up
1.0 mA	Optics fault
1.2 mA	Zero drift fault
1.6 mA	Calibration fault
2.0 mA	Unit spanning
2.2 mA	Unit zeroing
4.0 mA	Zero gas level
5.6 mA	10% Full Scale
8.0 mA	25% Full Scale
12 mA	50% Full Scale
16 mA	75% Full Scale
20 mA	Full scale
>20 mA	Over-range

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