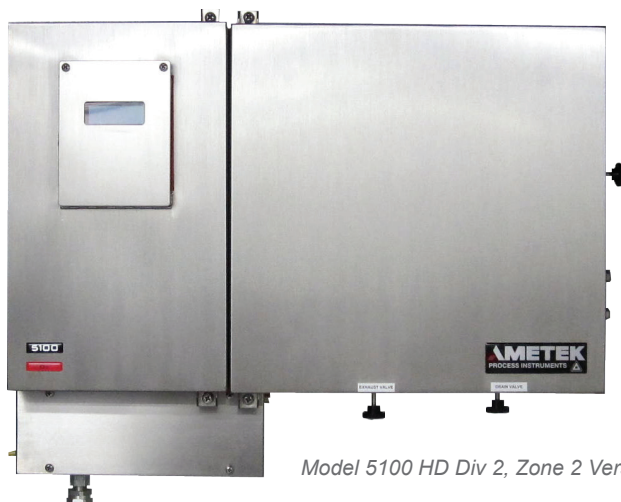


Model 5100 HD Gas Analyzer for Measuring Moisture in Natural Gas

Based on Tunable Diode Laser Absorption Spectroscopy (TDLAS)



Model 5100 HD Div 2, Zone 2 Version

The AMETEK model 5100 HD is an extractive type analyzer designed for hot/wet sample analysis. The 5100 HD can be configured to analyze not only oxygen but also H₂S, H₂O, CO₂, CO, CH₄, C₂H₂, C₂H₄ and many other small gas molecules. There is no sample conditioning required for the analyzer system other than particulate filtering and assuring the sample does not condense at the maximum integrated oven temperature of 150°C. The analyzer uses a completely digital implementation of the Wavelength Modulation Spectroscopy (WMS) approach.

A key feature of the Model 5100 HD is the use of sealed reference cells, which contain known amounts of analyte gases measured, for referencing the emission wavelengths of the lasers. The use of reference cells enables both the ability to line-lock the lasers and to continuously verify the instrument performance.

Features and Benefits

- || **Noncontact Measurement**
Noncontact measurement offers low maintenance
- || **All Digital Signal Processing**
32-bit microcontroller capable of sophisticated signal processing
- || **Web-Based Interface**
Connect through a remote PC using standard web browser
- || **Connectivity**
Modbus, Ethernet and analog
- || **Real-Time Performance Monitoring**
Laser line-lock verification using internal reference cell
- || **NEMA 4X Enclosure houses the electronic components**
Designed for outdoor installation
- || **Fully-Integrated Sample Handling**
Standard feature
- || **Resistant to Contamination**
No interference from gas phase amines, glycol, methanol, H₂S and mercaptans

Model 5100 HD Gas Analyzer - Moisture Measurements

Specifications

Laser Specification: Class 1m

Environment:

Ambient Temperature: -20°C to +50°C (-4°F to 122°F).

Electrical Classification:

NEC/CEC: Class I, II, III, Division 1 Groups B, C, D, F, G, T3, CE, IP-65 NEMA 4X (A T5 rating can be obtained by eliminating the oven).

ATEX/IEC Ex Zone 1, IIB+H2, T3, CE, IP-65 NEMA 4X (Pending) (A T5 rating can be obtained by eliminating the oven).

INMETRO Certification for Zone 2 - Ex nA nC ic op is IIC T3 Gb, IP65

Relative Humidity: 0% to 90%, non-condensing

Sample Flow Rate: 1 to 10 LPM recommended (2 - 20 SCFH)

Sample Cell Pressure: 70 to 170 kPa absolute (10-25 psia)

Outputs:

4-line x 20-character alphanumeric VF display.

Fast Ethernet (IEEE802.3)

RS-485 serial port, isolated (supports Modicon Modbus RTU)

RS-232 serial port (for service use only)

(1) isolated 4-20 mA loop-powered analog output standard (can be configured to output results such as analyte concentration and dewpoint) (a second output is available as an option)

(4) dry relay contacts. Contact rating 30 VAC, 60 VDC, 100 VA resistive

Speed of Response: <2 seconds (photometric); <15 seconds to T90 including sample surge. Total system response is dependent on sample flowrate

H₂O - Analyte Range (% level ranges):

0-5000ppm
0-2500ppm
0-1000ppm
0-250ppm
0-100ppm (accuracy ±2ppm)
0-20ppm (accuracy ±2ppm)

Accuracy¹: ±2ppm or 2% of reading, whichever is greater

Electrical Requirements:

120 VAC (108-132V); 47-63 Hz, or 240 VAC (216-264), 47-63 Hz
24 VDC (Consult AMETEK)

Power Requirements:

450W; 105W without sample cell heater

Physical: HxWxD:

(5100 HD Div 2 Zone 2 Model)
67.4 cm x 88 cm x 30.2 cm (26.5" x 34.6" x 11.9")

Weight: 60 kg (132 lb)

¹ Consult factory for specifications on other measuring ranges

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