

PRODUCT DATA SHEET

5100HD Gas Analyzer

Simultaneous measurement of moisture (as water vapor) and methane in natural gas

Moisture is one of the most concerning impurities found in natural gas. It must be removed to increase the BTU content of the gas stream, prevent the formation of hydrates, and to protect pipelines from corrosion. Measuring methane concentration is also important as non-traditional natural gas streams – such as landfill gas – may have significantly lower levels of methane in them, potentially reducing the energy content of the gas stream.

The AMETEK 5100HD is a laser-based analyzer designed to measure both moisture (H₂O) and methane in a natural gas sample stream; no need for multiple analyzers in remote locations. The 5100HD can measure nearly instantaneously, without delays following sudden increases or decreases in moisture or methane concentrations during upsets.

To ensure the optical performance of the AMETEK 5100HD, a sealed reference cell is used for continuous on-line optical system verification and offers high specificity. For customers looking to measure multiple components with one analyzer, the 5100HD can simultaneously measure water vapor and methane measurements in natural gas streams.

Non-contact measurement

The sample never contacts the key optical components, reducing maintenance.

Line lock

The reference cell is used to line-lock the laser on a desired wavelength. Any minor shift in the observed spectrum is used as feedback to adjust the laser, ensuring the proper operating wavelength. There is a real-time confirmation that the laser is locked on the desired absorption line.

Designed for use in difficult environments

Can be installed in many environments, including those defined as hazardous.



KEY BENEFITS

- Real-time performance monitoring
- Low maintenance cost and requirements
- Remote monitoring and maintenance access
- IP 65/Type 4X enclosure
- Fully-integrated sample handling

APPLICATIONS

- Tariff or custody transfer
- Storage inlet/outlet
- Natural gas as a feedstock or energy source

KEY MARKETS

- Natural gas
- Petrochemicals
- Power generation
- Refining

PERFORMANCE SPECIFICATIONS

| | |
|--|---|
| Operating range | Moisture (as water vapor): 0.25 - 60 lb/MMscf / 4 - 1900 mg/m ³ (5 to 2500 ppmv moisture) (other ranges available) Methane: 25 to 100% (other ranges available) |
| Accuracy | Moisture: Typically ±4 ppmv or 2% of reading, whichever is greater Methane: ±2% of range |
| Enclosure | IP-65, TYPE 4X |
| Ambient temperature | -20 to 50°C (-4 to 122°F) |
| Electrical classification | Approvals and Certifications: Certified to meet multiple ATEX, IECEx, CSA, NEC and Inmetro standards for hazardous areas Consult AMETEK for more details |
| Relative humidity | 0 to 90%, non-condensing |
| Sample flow rate | 1-2 LPM (2.1-4.2 SCFH) – application dependent |
| Sample cell pressure | 70 to 170 kPa absolute (10-25 psia) |
| Speed of response | < 1 second photometric response. Total system response is dependent on sample flowrate |
| Outputs | Keypad and display Fast Ethernet (IEEE802.3) for remote maintenance access or Modbus over TCP/IP RS485 serial port, isolated (supports Modicon Modbus RTU) (2) single isolated 4-20 mA internally or loop powered analog outputs (4) dry relay contacts. Contact rating 30 VAC, 60 VDC, 100 VA resistive |
| Electrical requirements | 120/240 VAC (108-132V/216-264V), 47-63Hz or 24VDC (22-26VDC) |
| Power requirements | 25-45W without heater, 425-445W with heater – typical |
| Physical dimensions (W x H x D) | 880mm x 674mm x 302mm (34.6 x 26.5 x 11.9in) – typical for NEC/CEC Class I Division 2 and ATEX/IECEx Zone 2 configurations |
| Weight | 60 kgs (132lbs) – typical for NEC/CEC Class I Division 2 and ATEX/IECEx Zone 2 configurations |
| Approvals and certifications | Certified to meet multiple ATEX, IECEx, CSA, NEC and Inmetro standards for hazardous areas. Consult AMETEK for more details |

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