AMETEK®
PROCESS INSTRUMENTS

MEASURES: H_2O in CO_2

PRODUCT DATA SHEET

5100P TDLAS

Moisture in Carbon Dioxide Analyzer

Lightweight and rugged transportable moisture (water vapor) analyzer delivering reliable, accurate measurements in carbon dioxide streams

Carbon dioxide (CO_2) pipelines, like natural gas pipelines, require monitoring for leaks caused by corrosion. Combined with CO_2, any moisture present can lead to corrosion. The 5100P analyzer provides easy-to-use moisture analysis using tunable diode laser absorption spectroscopy (TDLAS) in a durable, transportable package for measurements in CO_2. Intuitive to start-up and log data, the 5100P is the tool of choice for users needing to perform measurements in remote locations or verify fixed analyzer installations.

Minimal maintenance required

The non-contact TDLAS sensing technology means that both the laser source and the detector are kept separate from the process. This eliminates the need for routine calibration, cleaning of the sensor or interferences from process contaminants, increasing measurement uptime and reducing total cost of ownership. To reduce the possibility of over-pressuring the cell, or introducing contaminants, an integrated sample conditioning panel is included.

Measurement confidence

To ensure accurate measurement, every 5100P is factory-calibrated and tested prior to shipment. An internal reference prevents wavelength shift when operated in the field. Although the 5100P, with its high-sensitivity, moisture-specific measurement, will not be impacted by other constituents in the CO_2 stream, the laser-source output must be monitored and controlled continuously to deliver an accurate moisture measurement every time.

Increased efficiency

With an integrated sample system, using the 5100P is simple and easy. A measurement can be made in minutes, while the TDLAS technology in the 5100P delivers an immediate response to changes in moisture content. Users no longer have to wait hours for the sensor to equilibrate and can make more measurements in less time. The 5100P is certified for use in hazardous areas, so there are no costly enclosures or hot work permits needed to operate the analyzer.

KEY BENEFITS

- Fast-response, highly accurate measurements using TDLAS technology
- Accurate moisture measurements within minutes of powering up the analyzer
- Lightweight package simplifies transport of the device between locations
- Certified for use in hazardous areas
- Integrated sample system removes contaminants
- Rechargeable battery for at least eight hours of operation

APPLICATIONS

- Monitor water concentrations in CO_2 removal processes
- Measure water concentrations in CO_2 pipelines
- Identify presence of water in enhanced oil recovery processes, when CO_2 is used
- Ensure CO_2 purity specifications

KEY MARKETS

- Natural gas processing
- CO_2 transportation and sequestration
- Oil exploration and recovery

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PERFORMANCE SPECIFICATIONS

Technology	Tunable diode laser absorption spectroscopy
Speed of response	<1 second photometer response; <15 seconds to T90 at 2 SLPM of sample gas
Range	0 to 3500 ppmv
Accuracy	2% of reading or ±20 ppmv (whichever is greater)
Repeatability	2% of reading or ±20 ppmv (whichever is greater)
Limit of detection	20 ppmv H_2O in CO_2
User interface	On-board display and USB
Battery type	Rechargeable sealed lead acid battery
Sample cell pressure	Atmospheric
Ambient temperature	-20 to +50ºC (-4 to +122ºF)
Sample temperature	-20 to +50ºC (-4 to +122ºF)
Inlet pressure range for sample panel	1.03 to 17.2 barg (15 to 250 psig)
Recommended sample flow rate	1 to 2 SLPM (2 to 4 SCFH)
Dimensions (W x H x D)	401 x 251 x 209 mm (9.9 x 8.2 x 15.8 in.) approximately 13.2 kg (29.1 lbs)
Sample wetted parts	304 stainless steel, 316 stainless steel, SiO_2 glass, EPDM
Power requirements	110-240 VAC 50-60 Hz for battery charging and instrument use when battery is depleted
Environmental rating	Pollution degree: 2 Overvoltage category: I Maximum altitude: 2000 meters Ingress rating: IP 65
Certifications	ATEX/IECEx Zone 2 CSA/UL Class I, Div 2, Groups A, B, C, D

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AMETEK® PROCESS INSTRUMENTS

One of a family of innovative process analyzer solutions from AMETEK Process Instruments.
Specifications subject to change without notice.