



IQ.probe

Aluminum oxide moisture probe

Features

- Ambient to ppb moisture measurement
- 16-bit resolution
- Nonvolatile calibration data storage
- Calibrations traceable to National Institute of Standards and Technology (NIST) or National Physical Lab U.K. (NPL)
- Requires only twisted pair cabling, allowing probe to be located up to 3000 feet (914 m) from the analyzer

Applications

This Panametrics aluminum oxide moisture sensor probe measures moisture concentration in gases from trace to ambient levels. It is designed to be used in conjunction with the Panametrics dew.IQ analyzer in applications for industries including:

- Industrial gas
- Furnace gas/heat treating
- Power generation
- Air dryer
- Pharmaceutical
- Aerospace

Panametrics hygrometer systems and moisture probes

Panametrics aluminum oxide moisture probes have set the standard of performance and value in industrial moisture measurement for more than 60 years.

The IQ.probe is coupled to the Panametrics dew.IQ hygrometers by an interconnecting cable. Ease of use, wide measurement range and rigorous calibration standards make these systems the preferred choice for industrial moisture measurement worldwide.



Intelligence simplified

The real power of the IQ.probe comes from an electronics module that is attached to the moisture sensor probe. The 16-bit resolution allows it to detect parts per billion changes in moisture concentration. The electronics are self-calibrating ensuring long-term stability.

Sensor calibration data is stored in a nonvolatile EEPROM, so data entry to the dew.IQ is automatic.

Calibrations traceable to NIST or NPL

The aluminum oxide sensor is individually calibrated in one of the world's most advanced moisture calibration facilities. Developed over several decades, this facility generates precisely known moisture concentrations, traceable to national standards.

Data is gathered and stored by a dedicated computer system. Calibrations are repeated over a period of many months to ensure the stability of each individual moisture probe. Only those probes that meet Panametrics demanding specifications for accuracy and stability are shipped to customers.

Installation flexibility

The IQ.probe is designed to be located at the process, exactly where the measurement is needed. The sensor can withstand process temperature excursions up to 70°C and process pressures from vacuum up to 5000 psig (345 bar). No minimum flow rate is required. The probe can be located up to 3000 feet (0.9 km) from the analyzer, connected by inexpensive, unshielded, twisted-pair cable (AWG 22). As a result, the probe can be placed in the ideal location, without the cost, delays and installation problems associated with special cabling.



IQ.probe specifications

European compliance

Complies with EMC directive 2004/108/EC and PED 97/23/EC for EN <25

Type

Aluminum oxide moisture sensor

Calibration

Each sensor is individually computer calibrated against known moisture concentrations, traceable to NIST or NPL.

Overall range capability

-110° to 60°C (-166° to 140°F)

Available range options

- Standard: -80° to 20°C (-112 to 68°F) with data to -110°C (-166°F)
- Ultra-low: -110° to -50°C (-166 to -58°F)
- High range data: -80° to 60°C (-112 to 140°F)

Calibrated accuracy at 25°C (77°F)

- $\pm 3.6^{\circ}\text{F}$ ($\pm 2^{\circ}\text{C}$) above -148°F (-100°C)
- $\pm 5.4^{\circ}\text{F}$ ($\pm 3^{\circ}\text{C}$) below -148°F (-100°C)

Repeatability

- $\pm 0.4^{\circ}\text{F}$ ($\pm 0.2^{\circ}\text{C}$) above -148°F (-100°C)
- $\pm 5.4^{\circ}\text{F}$ ($\pm 3^{\circ}\text{C}$) below -148°F (-100°C)

Temperature

- Sensor operating temperature (process environment): -166° to 158°F (-110° to 70°C)
- Operating temperature for IQ.probe electronics module: 32° to 140°F (0° to 60°C)
- Storage temperature: 32° to 140°F (0° to 60°C)

Operating pressure

5 μHg to 5000 psig (345 bar)

Flow range

- Gases: Static to 10,000 cm/s linear velocity at 1 atm
- Liquids: Static to 10 cm/s linear velocity at density of 1 g/cc

IQ.probe/dew.IQ separation

3000 feet (900 m) maximum recommended length (consult factory for longer distances) using unshielded, twisted pair, AWG 22 cable



Panametrics, a Baker Hughes Business, provides solutions in the toughest applications and environments for moisture, oxygen, liquid and gas flow measurement. Experts in flare management, Panametrics technology also reduces flare emissions and optimizes performance.

With a reach that extends across the globe, Panametrics' critical measurement solutions and flare emissions management are enabling customers to drive efficiency and achieve carbon reduction targets across critical industries including: Oil & Gas; Energy; Healthcare; Water and Wastewater; Chemical Processing; Food & Beverage and many others.

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