GE
Sensing

Applications

This multichannel analyzer measures moisture in gases and non-aqueous liquids and oxygen (optional) in gases. Designed for permanent installations, it is used in conjunction with Moisture Image Series, TF and M Series moisture probes for industries including:

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

Features

- Optional pressure and temperature inputs used to calculate various parameters
- Calibrations traceable to National Institute of Standards and Technology (NIST)
- Rack, bench, panel, weatherproof (Type 4X) and explosion-proof (Type 7) configurations available
- Computer-enhanced response software for abrupt dry-down applications
- Real time matrix display of six parameters simultaneously
- Measures other parameters via auxiliary inputs
- Displays trace measurements in ppbv
- Built-in data logging
- PCMCIA card slot for additional memory and instrument program updates

Moisture Image® Series 1

Panametrics Moisture Analyzer

Moisture Image® Series 1 is a Panametrics product. Panametrics has joined other GE high-technology sensing businesses under a new name–GE Industrial, Sensing.

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Multifunction

The Moisture Image Series 1 is the multichannel, multifunction top-of-the-line model in the GE moisture series analyzer family. The Moisture Image Series 1 measures moisture, pressure and temperature in non-aqueous liquids and gases. There is also an option for measuring oxygen concentration in gases. In addition, the auxiliary inputs can accept readings from any sensor with 0/4 to 20 mA or 0 to 4 V output, including a variety of GE process control instruments. This feature makes the Moisture Image Series 1 a true multifunction analyzer, providing cost savings through system integration.

Multichannel

For additional cost savings, the Moisture Image Series 1 is available with up to six channels to significantly reduce the cost-per-measurement point while providing a variety of configurations to meet the needs of specific applications.

Graphic Display

This state-of-the-art instrument features simultaneous real-time display of six points of moisture, oxygen, temperature, pressure and other data from up to six channels on a large, backlit liquid crystal display (LCD). Menu-driven function keys provide easy access to data displayed in matrix and line-graph formats.

Moisture Image Series Probe

The Moisture Image Series 1 is complemented by the Moisture Image Series probe. It measures moisture, temperature and pressure, eliminating the need for additional external pressure transmitters and related power supplies. It is suitable for laboratory and industrial moisture measurement applications in gases and non-aqueous liquids over a wide range of process conditions.

The Moisture Image Series 1 can also be used with any Panametrics moisture probe configuration. All moisture probe calibrations are NIST traceable.

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Series 1 Specifications

Electronics

Intrinsic Safety
Galvanic isolation and energy-limiting circuitry for all inputs (except auxiliary):
BAS01ATEX7097
Ⓔx II (1) G [EEx ia] IIC –20°C to +50°C;
CSA C US Class I, Division 2, Groups B,C&D T4A–Assoc. Elec. Apparatus [Exia] and Class I, Division 1, Groups A,B,C&D T4

European Compliance
Complies with EMC Directive 89/336/EEC and 73/23/EEC LVD (Installation Category II, Pollution Degree 2)

Inputs
- Moisture: One to six channels
- Temperature: One to six channels
- Pressure: One to six channels
- Oxygen: One to six channels
- Auxiliary (optional): Two per installed channel; may be used for 0/4 to 20 mA and 0 to 4 V devices

Analog Outputs
Two per channel; internally optically isolated; 10-bit (0.1%) resolution

Programmable Switch-Selectable Outputs
- 0 to 2 V, 10 Ω minimum load resistance
- 0/4 to 20 mA, 400 Ω maximum series resistance

Digital Outputs
RS232 serial communications port; information is transmitted as ASCII

A/D Resolution
12-bit or 16-bit with MIS probe

Computer-Enhanced Response Software
Standard: Provides fast measurements in abrupt dry-down applications (three- to five-minute speed of response)

Data Logging
Up to 12 parameters simultaneously; stored in RAM; log length depends on number of items and time interval

Memory
- Standard: Battery-backed 64 kB RAM
- Optional: Additional 1 MB (or more) with PCMCIA card

PC-Interface Software
Optional: PanaView™ instrument interface software

Alarm Relays
- Two optional Form C relays per channel SPDT; rated for 2 A at 28 VAC/28 VDC
- Standard and hermetically sealed (for Division 2 hazardous areas per CSA) available for high and low limits on each channel; set to any level within the range of the instrument

Alarm Set Point Accuracy
±0.1°C dew point

Display
Graphic/text backlit LCD

Display Functions
Displays up to six channel/parameter combinations simultaneously using text and/or graphics

Power Requirements
Universal power supply adjusts automatically for 90 to 260 VAC, 50/60 Hz

Temperature
- Operating: 32°F to 140°F (0°C to 60°C)
- Storage: –22°F to 158°F (–30°C to 70°C)

Data Retention
Calibration data stored in battery-backed RAM

Autocalibration
Occurs on power-up and at user-selected time intervals

Configuration Dimensions (h x w x d)
- Rack mount: 5.22 x 19.00 x 17.03 in (13.26 cm x 48.26 cm x 43.26 cm)
- Bench mount: 5.85 in x 13.94 in x 17.03 in (14.86 cm x 35.41 cm x 43.26 cm)
- Panel mount: 8.25 in x 16.50 in x 17.03 in (20.96 cm x 41.91 cm x 43.26 cm)
- Weatherproof: 22.23 in x 16.23 in x 9.48 in (56.46 cm x 41.22 cm x 24.08 cm)
- Explosion-proof: Consult factory

Add 1.65 in. (4.19 cm) to accommodate strain relief tabs.

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Series 1 Specifications

Moisture Measurement

Type
GE Moisture Image Series, TF, and M Series thin-film aluminum oxide probes

Calibration Ranges (Dew/Frost Point)
- Standard: 68°F to -112°F (20°C to –80°C) with data to -166°F (–110°C)
- Ultralow: -58°F to -148°F (–50° to –100°C) with data to -166°F (–110°C)
- Extended high: 140°F to -112°F (60°C to –80°C) with data to -166°F (–110°C)

Accuracy (Dew/Frost Point)
- ±1.1°F (±2°C) from 140°F to -85°F (60°C to –65°C)
- ±1.6°F (±3°C) from -87°F to -166°F (–66°C to –110°C)

Repeatability (Dew/Frost Point)
- ±0.3°F (±0.5°C) from 140°F to -85°F (60°C to –65°C)
- ±0.5°F (±1.0°C) from -87°F to -166°F (–66°C to –110°C)

Operating Pressure
5 of Hg to 5000 psig (345 bar) limited by optional pressure sensor—see pressure sensor ranges

Other Moisture Parameters
Relative humidity (RH), parts per million by volume (ppmv), parts per million by weight (ppmw), parts per billion by volume (ppbv), pounds per million standard cubic feet (lb/MMSCF)

Temperature Measurement

Type
Optional thermistor built into moisture probe

Range
–22°F to 158°F (–30°C to 70°C)

Accuracy
±0.3°F (±0.5°C) at –22°F (–30°C)

Pressure Measurement

Type
Optional transducer built into TF and Moisture Image Series moisture probes or standard external pressure transmitter, 24 V, 4 to 20 mA

Range
0 to 5000 psig (1 to 345 bar); specify type and pressure range

Accuracy
±1% of full scale

Pressure Rating
Three times the span of the available range to a maximum of 7500 psig (518 bar)

Oxygen Measurement

Optional nondepleting electrolytic oxygen sensor. Additional details and specifications are available on request.

N4271 CE

920-043B

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