Panametrics

Datasheet

PM880

Panametrics portable hygrometer

The PM880 hygrometer is a complete, intrinsically safe, portable system with options and accessories to meet all industrial moisture measurement needs.
This hygrometer is small, lightweight, and easy-to-use. The large LCD displays moisture readings in dew point (°C or °F), ppmv, ppmw, lb/MMSCF (natural gas) and a variety of other unit options. Data can be viewed in alphanumeric or graphic formats. A rechargeable battery pack and battery charger make this the ideal go-anywhere moisture analyzer.

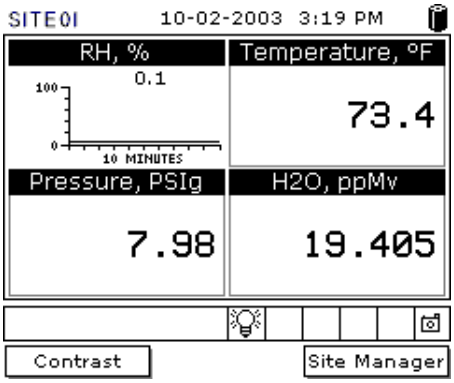
PANA037DS Rev. 4

Features

- Hand-held portable design
- Intrinsically safe
- IP67 rated
- Large graphic display
- Internal data logger
- IrDA® communication with PC (Optional)
- Stores up to 60 log/site files
- Simple programming via graphic user interface
- Compatible with all Panametrics moisture probes
- Lightweight hand-held sample system
- Convenient carrying bag to store hygrometer and all accessories

The PM880 comes in a soft carrying case with zippered compartments, a handle and a shoulder strap. The case accommodates the PM880, a sample system, flexible hosing, probes with protective covers, a Moisture Image Series probe electronics module, an operating manual, a battery pack, a battery charger and probe cables.

Training for the PM880 is available on-site, in the factory or online. Panametrics offers extended warranties and service agreements for the PM880 as well as a range of services including NIST-traceable calibration, field calibration, rentals and moisture surveys.



The PM880's large LCD displays moisture readings in dew point (°C or °F), ppmv, ppmw, lb/MMSCF (natural gas) and a variety of other unit options in graphic or alphanumeric

PM880 accessories

Included

1. Zippered soft carrying case
2. MISP2 moisture probe with probe cable or M Series moisture probe with probe cable
3. Portable sample system
4. PM880 battery and charger

Optional

5. Flexible Stainless Steel Braided Hose
6. PC infrared adapter

Applications

This rugged, intrinsically safe, portable hygrometer measures moisture in gases and non-aqueous liquids. It is used in conjunction with Moisture Image® Series (MIS), TF and M Series moisture probes for applications including:

- Natural gas
- Chemical and petrochemical gases
- Non-aqueous liquid applications
- Air separation plants
- Tanker preparation and filling
- Industrial gases
- Gas cylinder preparation and filling
- Shipboard applications
- SF6 circuit breakers
- Furnace gases/heat treating
- General plant/facility maintenance

Technical Specifications

Overall

Channels	Single channel
Dimensions	• Size: 9.4 x 5.5 x 1.5 in. (238 x 138 x 38 mm) • Weight, electronics: 2.5 lb (1.13 kg) • Weight, sample system: 4 lb (1.8 kg)
Enclosure	Type 4X, IP67

Electronics

Internal battery	Rechargeable. PM880 batteries can be installed or removed in hazardous areas. Batteries must be recharged in non-hazardous areas only.
Battery life	15 to 24 hours depending on type of probe; battery life reduced when operating below 32°F (0°C)
Battery charger	• Switchable input: 115 or 230 VAC, 50/60 Hz • Requires approximately three hours for full battery recharge
Memory	FLASH memory
Operating temperature	14 to 122°F (–10 to 50°C) To ensure maximum battery life, Panametrics does not recommend storage at temperatures exceeding 95°F (35°C) for longer than one month.
Keypad	25-key, rubberized, tactile membrane
Display	240 x 200 pixel, graphic backlit LCD display
Printer/terminal output	Infrared communication port
Cables	Cable type dependent on probe type: M Series, or Moisture Image Series. LEMO®-to-bayonet connector
Cable length	• Standard: 10 ft (3 m) • Optional: Consult Panametrics for other lengths
Hazardous area classification	Intrinsic-safety certification: Baseefa (2001) Ltd. Ⓔx II 1 G EEx ia IIC T3 (–20°C ≤ Ta ≤ +50°C) Baseefa02ATEX0191; and CSA C US Class I, Division 1, Groups A, B, C & D, Type 6
European compliance	EMC Directive 2004/108/EC, EN61326-1:2013, Class A, Table 2, Industrial Environment

Operational

Site parameter programming	Menu-driven, graphic, operator interface uses keypad and soft-function keys. Online help functions. Memory storage for saving site parameters.
Data logging	Memory capacity to log over 100,000 moisture data points. Programmable keypad for log units, update times, and start/stop times.
Display functions	Displays measurements and logged data in alphanumeric or graphic format.
Display units	• Moisture: DP temperature, ppmv, ppmw, % RH, lb/MMSCF and others • Temperature: °F, °C and °K • Pressure: psig, bar, kPa (gauge), kg/cm2 (gauge) and others

Moisture measurement

Compatibility	Compatible with all Panametrics aluminum oxide moisture probes: M Series, and Moisture Image Series. Each probe type requires a different type of I/O cable.
Calibration	Panametrics moisture sensors are computer-calibrated to National Institute of Standards and Technology (NIST) traceable moisture concentrations.

Dew/frost point temperature

Calibration ranges (dew/frost point)	Standard: 50 to -112°F (+10 to –80°C) with data from +68 to -166°F (+20 to –110°C)
Accuracy (dew/frost point)	• ±3.6°F (±2°C) above -148°F (-100°C) • ±5.4°F (±3°C) below -148°F (-100°C)
Repeatability (dew/frost point)	• ±0.4°F (±0.2°C) above -148°F (-100°C) • ±0.9°F (±0.5°C) below -148°F (-100°C)
Operating pressure	5 µ of Hg to 5000 psig (345 bar) limited by pressure sensor (see pressure measurement specifications)

Temperature measurement

Optional thermistor available for all Panametrics moisture probes

Range	–22 to 158°F (–30 to 70°C)
Accuracy	±0.9°F (±0.5°C) at -22°F (–30°C)

Pressure measurement

Optional pressure sensor available for TF Series and Moisture Image Series moisture probes

Ranges	• 30 to 300 psig (3 to 21 bar) • 50 to 500 psig (4 to 35 bar) • 100 to 1000 psig (7 to 69 bar) • 300 to 3000 psig (21 to 207 bar) • 500 to 5000 psig (35 to 345 bar)
Accuracy	±1% at full scale
Proof pressure	Three times span of available range up to maximum 7500 psig (518 bar)

Sample system

The SS880A standard sample system comprises an inlet needle valve, a built-in coalescing filter and sample cell with a bypass needle valve and venting tube, a pressure gauge (various ranges), and an outlet needle valve with venting tube.

Wetted parts	316 stainless steel
Operating pressure	Configurations available for 300, 500, 1000, 2000, or 3000 psig (21, 35, 69, 137, 207 bar), dependent on pressure gauge
Maximum pressure rating	• Standard: 3000 psig (207 bar) • Optional: 5000 psig (345 bar)
Other options	• Inlet pressure regulator, 0 to 500 psig (1 to 345 bar) outlet • Armored flowmeter, 1.3 to 13 SCFH • 10-ft (3-m), flexible, polytetrafluoroethylene-lined, braided–stainless steel hose with 1/4-inch tube connections. Not recommended for dew point temperatures below –103°F (–75°C). • IrDAR communication with PC

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