

KAHN Hygrometers

Easidew PRO I.S. Hygrometer

For continuous moisture measurement of flammable and non-flammable gases in hazardous areas utilizing an intrinsically safe dewpoint sensor and a safe area panel-mounted display.

- Heavy duty, stainless steel, process type sensor housing
- FM & cCSAus certified sensor for use in hazardous areas
- -148°F to +68°F (-100°C to +20°C) dewpoint range
- 0.001 to 9999 PPMv moisture content range
- 0 to 1000 Lb/MMSCF moisture content range
- Dual alarm relays and scalable 4-20 mA output
- Multiple engineering unit display
- Interchangeable sensors
- NIST traceable

General Description

The Easidew PRO I.S. Hygrometer consists of the digital display with integral signal conditioning board, Easidew PRO I.S. Transmitter/Sensor, Galvanic Isolation Interface and 25-foot interconnecting cable. The sensor can be installed directly in the gas line or in a separate sampling gas stream by utilizing an optional sample block or sampling system. The digital display can be easily installed in a control panel or optional NEMA 4 enclosure. Both the display and the Galvanic Isolation Interface must be installed in the safe area.

Two independent, adjustable set-point relays are provided, which can be used to provide an operator alarm should the dewpoint exceed user programmable limits. A 4-20 mA linear output is included for retransmission.

The digital display is rated for 85-265 VAC 50/60 Hz power, mounts in a 1/8 DIN cutout and features a large easily readable indicator with programmable brightness. An optional low voltage display is available. Engineering units offered include °F, °C, PPMv (pressure compensated), Lb/MMSCF (pressure compensated) and g/m³ (pressure compensated) for natural gas.

The optional second process input accepts a 4-20 mA signal from any 2-wire transmitter. It can be configured as a separate display for pressure, temperature, flow or other process variable. When displaying in PPMv, Lb/MMSCF or g/m³, line pressure can be entered manually, or a pressure transmitter can be connected to the optional second input to provide automatic pressure compensation.



Sensor

The 2-wire loop-powered Easidew PRO I.S. Transmitter, which serves as the sensor, is powered by 24 VDC from the digital display. The Easidew PRO I.S. incorporates Kahn's advanced ceramic sensor technology coupled with advanced digital measurement circuitry to produce a fully calibrated and interchangeable sensor. All calibration data is stored within the transmitter memory so that even untrained personnel can accomplish calibration exchange or service in seconds. The Easidew PRO I.S. Transmitter is simply disconnected, removed from its sample block and replaced by a new, fully calibrated unit.

The Easidew PRO I.S. Transmitter calibration is traceable to NIST at 13 points over the range from -148°F to +68°F dewpoint to an accuracy of ±3.6°F dewpoint. The inherent stability of our advanced ceramic moisture sensor means that the Easidew PRO I.S. Transmitter will provide years of reliable operation.

Certified Intrinsically Safe

The Easidew PRO I.S. Transmitter is FM and cCSAus certified for use in Class I, Division 1, Groups A, B, C, & D T4 hazardous locations when used with an approved galvanic isolation barrier for signal and power supply connections (2-wire). The Easidew PRO I.S. can therefore be safely used in virtually all industrial gas measurement applications.

What is Dewpoint?

Dewpoint is the temperature at which the water vapor pressure of a gas equals the saturated vapor pressure. It is therefore the temperature at which condensation “just begins” to occur if a gas is cooled.

Dewpoint is a fundamental unit directly equivalent to water vapor pressure or parts per million. It is a very convenient measure of actual water content (absolute humidity).

Calibration

The Kahn Easidew PRO I.S. Hygrometer is factory calibrated to insure consistent, accurate readings. The calibration of all Kahn hygrometers is traceable to the National Institute of Standards and Technology through master Kahn optical hygrometers, which have been directly calibrated at the NIST and are periodically recalibrated. A certificate of traceability is available with any of these instruments.

Applications

- Industrial gas manufacturing
- CNG filling stations
- Natural gas production
- Natural gas distribution
- Natural gas dryers
- Hydrogen coolant in electric power generators
- Furnaces and heat treating
- Biofuel extraction/processing
- Instrument air in hazardous areas
- Other hazardous area applications

SPECIFICATIONS

Measurement Range:

-148°F to +68°F dewpoint
-100°C to +20°C dewpoint
0.001 to 9999 PPMv moisture content (Pressure compensated)
0 to 1000 Lb/MMSCF of natural gas (Pressure compensated)

Accuracy:

±3.6°F (±2°C) dewpoint

Sensor:

Easidew PRO I.S. Transmitter
Ceramic sensor technology
4-20 mA output to display

Display:

Panel mount, red LED
Units: °F, °C, PPM, Lb/MMSCF, g/m³

Power Requirements:

85-265 VAC, 50/60 Hz
Optional: 9-60 VDC

Display Output:

4-20 mA or 0-10 VDC analog (user selectable), linear, current source, scalable over measurement range
RS232 (optional)
RS485 (optional)
Relay, Dual, Adjustable (10A / 240VAC)

Sensor FM and cCSAus certifications:

Class I, Division 1, Groups A, B, C & D
T4 hazardous areas with safety barrier

Operating Temperature:

Sensor: -40°F to +140°F (-40°C to +60°C)
Compensated: -4°F to +122°F (-20°C to +50°C)
Display: +32°F to +122°F (0°C to +50°C)

Operating Pressure:

Vacuum to 5000 PSIG

Flow Rate:

2 to 10 SCFH (1 to 5 l/min) mounted in sample block;
0 to 30 ft/sec (0 to 10 m/sec) velocity when inserted directly

Safety Barrier:

Galvanic Isolation type

Sensor Environment Protection:

NEMA 4 (IP66); 316SS process housing
80µ Sintered SS metal sensor guard
10µ HDPE sensor guard (optional)

Sensor Cable:

25 feet standard
Optional: Up to 1000 feet

Traceable Certification:

-100°F to +68°F dewpoint traceable to NIST. For dewpoints < -100°F, direct reference to a fundamental optical dewpoint hygrometer

Weights:

Sensor: 2.90 lb. (1.3 kg)
Display: 0.95 lb. (0.4 kg)

Sensor Installation:

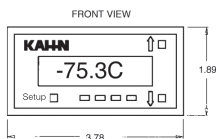
5/8"-18 UNF mounting thread
Sample block (optional)
Wall mounting bracket (optional)

Display Installation:

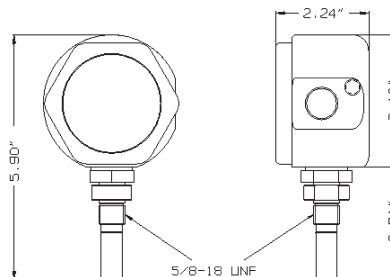
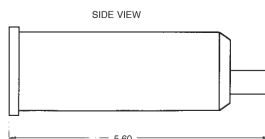
1.77" x 3.62" (1/8 DIN) panel cutout

Other Options, Accessories:

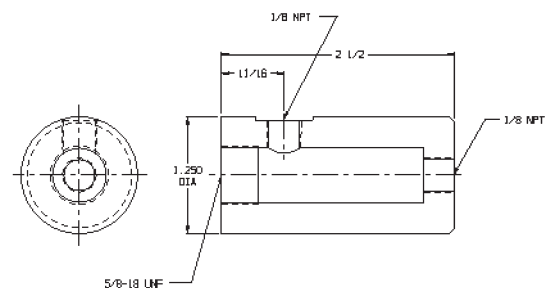
NEMA 4 Enclosure (display/barrier)
Second process input channel
HP or LP coalescing/particulate filter
Open sensor alarm relay
Sampling system
Intrinsically Safe Barrier Unit



Digital Display Meter



Easidew PRO I.S. Dewpoint Transmitter



Stainless Steel Sample Block

NOTE: The information included herein was correct at the time of publication and supercedes all previous data. It is our policy to continually improve our products to insure even better performance. Consequently current Kahn products may incorporate modifications not shown on these pages.

Number 0520-EPR-IS-HYGR Printed in USA

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