

Loop-powered Hybrid Dewpoint Transmitter MODEL HDT



-76°F to 86°F (-60°C to 30° C) (dp)

For Compressed Air and Refrigerant Dryer Applications

- Rugged, Waterproof, HTF™ Aluminum Oxide Sensor Technology
- Loop-powered (2-wire)
- Analog (4-20 mA) Output
- Digital (HART Compliant) Output
- Programmable Alarm Signal
- NEMA 4X IP66 Stainless Steel Enclosure
- Compact Design
- Temperature Compensated Calibration
- Suitable for installations at pressure or ambient

HTF™ High Capacitance Aluminum Oxide Sensor

The HDT uses a Xentaur Hyper-Thin-Film (HTF™) high capacitance aluminum oxide sensor with a measuring range of -76°F to 86°F (-60°C to +30°C) (dp). HTF™ sensors provide a degree of accuracy, speed of response and stability unavailable from instruments using conventional aluminum oxide or polymer sensors.

Sensor model XTR-60 is designed to work in tough, high pressure and even in liquid applications. The sensor is non-affected by condensation and water slugs; once dried, it will resume measurement without requiring recalibration.

HART-compliant, IP66/NEMA4X Transmitter

The model HDT is a HART compliant IP66/NEMA4X hybrid dewpoint transmitter, providing loop powered analog as well as a digital output. Housed in a 1.25" dia. stainless steel case it has an overall length of 5.68", including the standard industrial 9.4mm 4 pin connector. This makes the HDT the world's smallest dewpoint transmitter.

Analog Output Loop

The instrument draws 4-20mA from the power supply. The 4-20mA is linear to °C(dp) with an output resolution of 0.1°C(dp) or 0.25uA, whichever is greater. The output range is programmable.

Digital Output Loop

The instrument can supply a digital output by modulating

the 4-20mA loop line. The interface is defined by HART. In the digital mode the HDT can be remotely operated and the dewpoint as well as temperature (and pressure if installed) can be read. In the digital mode multiple units can operate on the same loop cable as a multi-channel instrument. In this configuration each HDT draws only 4mA independent of the measured dewpoint

Built-in Alarm

The HDT provides a factory programmable dewpoint alarm signal through a digital output pin. Additionally, relays or external devices can be operated through the analog or digital loops.

Connections

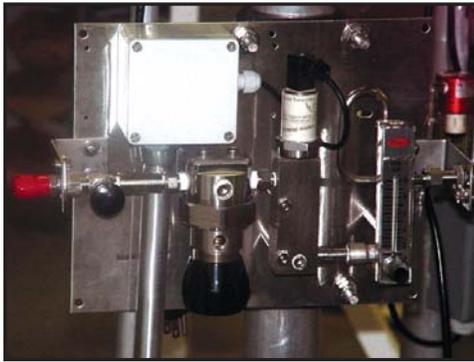
The HDT has two different thread types, which makes the upgrade of existing installations easy. The HDT connects through inexpensive two-conductor cables over long distances.

Measurement Accuracy/Stability

The HDT transmitter uses a multipoint calibration table which provides temperature compensated dewpoint readings for temperatures from +14°F to +158°F (-10°C to +70°C) (t). Thus, the HDT provides accurate dewpoint measurements over its full range even under extreme temperature conditions, such as when installed outdoors or close to heat sources.



Typical sample system for measuring atmospheric pressure



Typical sample system for measuring line pressure



Digital display panel meter provides power and display; relays are optional.



Specifications of HDT

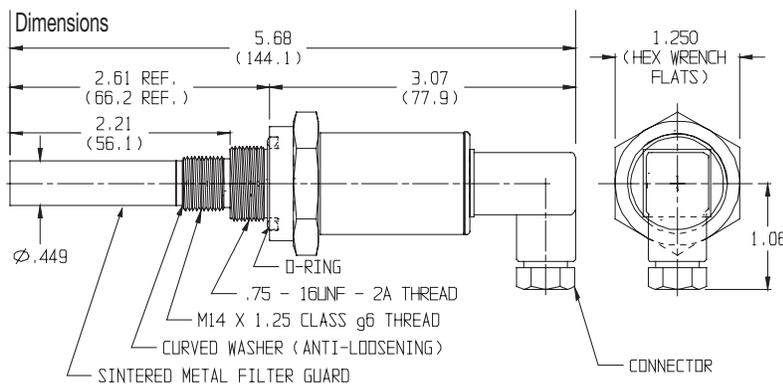
The HDT is a loop powered HART enabled dewpoint transmitter.
 Enclosure:Stainless Steel, IP66 NEMA 4X.
 Dimensions & Weight:..... ~1.25" Dia. x ~5.68" long including sensor & connector; 0.5 lbs.
 Pressure operating range: ...Standard: 500 PSI (34 bar). Optional: 5,000 PSI (340 bar).
 Operating Temperature:14°F to 158°F (-10°C to +70°C).
 Mechanical connection:14mm x 1.25mm threads, and 3/4"-16 threads.
 Electrical connections:Industrial Standard 9.4 mm, 4 pin connector. IP66 NEMA 4X
 Cable:Two conductor cable. Min. #20AWG; for total cable length >5000ft.: min. #20AWG (Cable must be shielded to meet CE requirements.)
 Power Requirements:5 to 28 VDC, the instrument draws 4-20mA depending on measured dewpoint.
 Input resolution:0.1°C dewpoint.
 Indicators:None.
 Engineering units:°C(dp), °C(t).
 Controls:HART interface, user's selections are stored in EEPROM.

Outputs:Analog and digital outputs are available.
 A. 4-20mA drawn by the instrument from the power supply. The 4-20mA is linear to °C(dp), the range is programmable. Output resolution is 0.1°C(dp) or ~ 0.25uA whichever is greater.
 B. The instrument can supply digital output by modulating the 4-20mA loop line. The interface is defined by HART. In the digital mode the HDT can be remotely operated and the dewpoint as well as temperature (and pressure if installed) can be read. In the digital mode multiple units can operate on the same loop cable as a multi-channel instrument. In this configuration each HDT draws only 4mA independent of the measured dewpoint
 Alarms:The 4-20mA signal may be used by an external device to operate relays. In addition, a digital output pin is provided which can be factory (or specially equipped customer) programmed to provide dewpoint alarm indications.
 Isolation:Sensor and case are referenced to the current loop negative side.
 Warranty:1 year

Specifications of HTF™ Dewpoint Sensor Element XTR-60

TypeHyper-Thin-Film (HTF™) high capacitance Al₂O₃
 Dewpoint range..... -76°F to 86°F (-60°C to +30°C)
 Capacitance:15nF to 200nF
 Accuracy:±5.5°F (±3°C)

Repeatability:±0.9°F(±0.5°C)
 Temperature Range:..... +14°F to +158°F (-10°C to +70°C)
 Sample flow range:
 (linear vel. @ 1atm): Static to 100 m/s
 Storage temperature: -40°F to +176°F (-40°C to +80°C)
 Calibration method:..... Multipoint calibration table with temperature compensation over the full range



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