

PRODUCT BROCHURE

# HDT-LQ™

On-Line Moisture in  
Liquid Hydrocarbon Measurement



**Fast**

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**Accurate**

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**Low Maintenance**

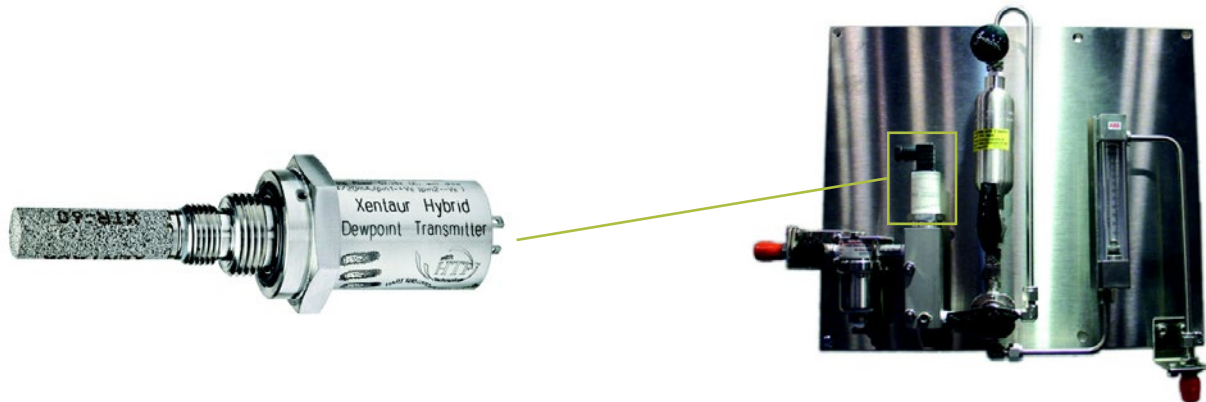
- Liquid Hydrocarbon Streams in the Most Challenging Conditions (Hexane, Hexene, Benzene, Mixtures, Complex Matrices)
- Oils and Lubricants
- Solvents
- Refrigerants



Based on years of dedicated research and development and proprietary scientific breakthroughs, our HDT-LQ™ Series Transmitter combines our Dew Point Transmitter HDT™ Series with a Specialized HTF™ aluminum oxide sensor for work in liquid Hydrocarbons. Our HDT-LQ Series Digital Moisture in Liquid HC Transmitters are designed as compact, simple, and reliable instruments, which will continually monitor dissolved water in hydrocarbon liquids.

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## The Complete Moisture Package



**Xentaur Dewpoint Transmitter (HDT) with XTR-LQ HTF™ Sensor** Measures Water Concentrations from <1ppmw to Saturation

**Optional ESS-LQ Slip Stream Sample System** Continuous Measurement with "Grab" Sample option

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## Theory Of Measurement

Al2O3 oxide sensors measure changes in partial water vapor pressure (PWVP). They follow these basic principles of physical chemistry.

Henry's Law       $PPMW(\mu\text{g} / \text{g}) = PWVP * K$







K is Henry's constant. This constant is affected by sample matrix and temperature.

The HDT-LQ measures the dissolved water in the HC Stream (water still in gaseous phase within the liquid HC). The dissolved water is a set ratio of the total water for specific liquids. Using a Karl Fisher (KF) Titrator for total water measurement, the end user will be able to quickly build trends/graphs between the live HDT-LQ process measurement and Lab KF measurements.

The HDT-LQ will give the end user quicker, continuous response time results as compared to the slower KF measurements, allowing the end user to make critical decisions quickly, increasing efficiency and decreasing waste.



# SPECIFICATIONS

The HDT is a loop powered HART enabled dew point transmitter	
<b>Enclosure</b>	Stainless Steel, IP65 NEMA 4X
<b>Dimensions &amp; Weight</b>	1.25" Dia. x 5.68" long including sensor & connector; 0.5 lbs
<b>Pressure operating range</b>	Standard: 500 PSI (34 bar). Optional: 5,000 PSI (340 bar)
<b>Operating Temperature</b>	14°F to 158°F (-10°C to +70°C)
<b>Mechanical connection</b>	3/4-16UNF-2A thread and M14 x 1.25 CLASS g6 thread
<b>Electrical connections</b>	Industrial Standard 9.4 mm, 4 pin connector. IP65 NEMA 4X
<b>Cable</b>	Two conductor cable. Min. #24AWG; for total cable length >5000ft. min. #20AWG (Cable must be shielded to meet CE requirements.)
<b>Power Requirements</b>	5 to 28 VDC, the instrument draws 4-20mA depending on measured dew point
<b>Input resolution</b>	0.1°C dew point
<b>Indicators</b>	None
<b>Engineering units</b>	°C(dp), PPMW(µg/g)
<b>Controls</b>	HART interface, user's selections are stored in EEPROM
<b>Outputs</b>	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 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.
<b>Alarms</b>	The 4-20mA signal may be used by an external device to operate relays
<b>Isolation</b>	Sensor and case are referenced to the current loop negative side
<b>Warranty</b>	One year for full workmanship and defective parts
HDT/HTF SENSOR ELEMENT XTR-LQ	
<b>Type</b>	Hyper-Thin-Film (HTF™) high capacitance Al2O3
<b>Dew point range XTR-LQ</b>	-80°C to 25°C
<b>Partial Water Vapor Pressure Range</b>	0.0005mb to 31.65 mb
<b>Capacitance</b>	5nF to 225nF
<b>Accuracy</b>	±3°C(±5.5°F) Dew point
<b>Repeatability</b>	±0.9°F(±0.5°C)
<b>Temperature Range</b>	+14°F to +158°F (-10°C to +70°C)
<b>Storage temperature</b>	-40°F to +176°F (-40°C to +80°C)
<b>Calibration method</b>	Multipoint calibration table with temperature compensation over the full range
Approvals/Classifications	
 II 1 G Ex ia IIC/IIB T6/T4 Ga For T6 : -20°C ≤ Ta ≤ +40°C For T4 : -20°C ≤ Ta ≤ +85°C	 II 1 D Ex ia IIIC T 115°C -20°C ≤ Ta ≤ +85°C
Intrinsically Safe (Entity) for use in Class I, II and III, Division 1, Groups A, B, C, D, E, F and G; Temperature Class T4 Ta = 85°C; Temperature Class T6 Ta = 40°C in accordance with Control Drawing No. DPT.00.D.7042;	
Intrinsically Safe (Entity) for use in Class I, Zone 0, AEx ia IIC T4 Ta = 85°C; T6 Ta = 40°C; in accordance with Control Drawing No. DPT.00.D.7042;	
Nonincendive for use in Class I, Division 2, Groups A, B, C, and D; Temperature Class T4 Ta = 85°C; Temperature Class T6 Ta = 40°C;	
Suitable for use in Class II and III, Division 2, Groups E, F and G; Temperature Class T4 Ta = 85°C; Temperature Class T6 Ta = 40°C;	
   	

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For a complete range of products, applications, systems, and service options, please contact us at: [info@process-insights.com](mailto:info@process-insights.com)

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REVOLUTIONIZING MEASUREMENT

**EVERYWHERE**