

Loop Powered Transmitter Series LPDT

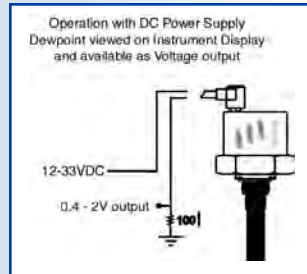
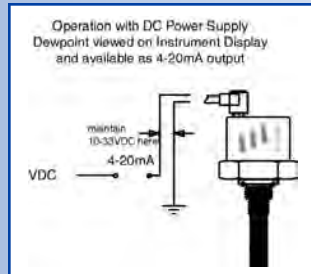
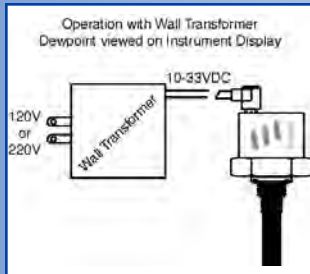
-100°C to +20°C Dewpoint



COSA's model LPDT is the world's smallest loop powered (2-wire) dewpoint transmitter. The compact LPDT is a fully functional instrument operated through a digital LCD display and the same user friendly interface of all COSA Hygrometers. The simple user interface consists of a miniature custom LCD display and three programming buttons that control set up functions, dewpoint and temperature measurement analog and digital output options, engineering unit selector and calibration.

- Miniature LCD Display
- Scaleable 4-20 analog output
- Digital output conforms to RS-232

Methods of Using and Interfacing the LPDT



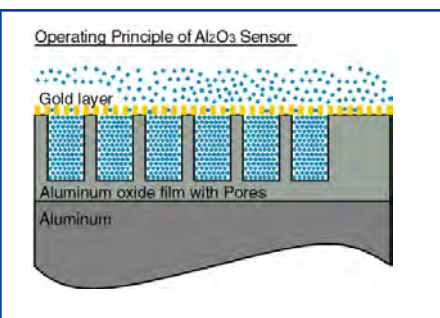
Xentaur Hyper-Thin-Film (HTF) Al₂O₃™ Moisture Sensor Technology

The **Xentaur** HTF Aluminum Oxide™ sensor installed in the model LPDT is the product of years of intensive research at **Xentaur's** laboratories. The breakthrough HTF sensor technology represents advances in thin film and metal oxide sciences and offers significant performance advantages over all other aluminum oxide moisture sensors.

The advantage of the **Xentaur** sensor is a proprietary manufacturing method in which the aluminum oxide layer is made to be hyper thin as well as extremely hygroscopic. This results in a very sensitive sensor with fast response.

High Capacitance Response:

Due to the hyper thin film and a special activation process, **Xentaur**

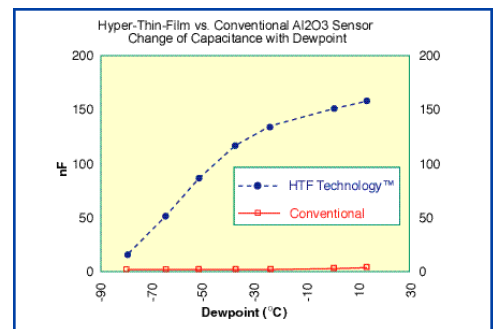


The operating principle of the HTF™ aluminum oxide sensors is that a hygroscopic layer of aluminum oxide adsorbs or releases water molecules within its pores, depending on the water vapor pressure in its environment. Thus, the electrical capacitance of the aluminum oxide layer

changes with the surrounding water vapor pressure. The electrical capacitance is measured between the aluminum core of the sensor and a porous conductive gold layer on the outside.

sensors have a capacitance change over their full range, several orders of magnitude larger than that of conventional aluminum oxide sensors. Additionally, this change is quasi linear and its sensitivity to temperature is negligible.

The advantages of a linear high capacitance response are: **better sensitivity, better repeatability and faster response times**. Also, the measurement system is less prone to noise and drift, and signal conditioning is kept to a minimum.



Specifications:

Dewpoint Sensor Element

Type:Hyper Thin Film high capacitance Al2O3

Dewpoint Range:
 XTR-100.....-148°F to +68 °F
 (-100°C to+20°C)
 XTR-65.....-85°F to + 68°F
 (-65°C to +20Ç)

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. @ 1 atm)Static to 100 m/s

Storage Temperature.....-40 °F to +176°F
 (-40°C to +80°C)

Calibration MethodField span check. NIST and NPL traceable multipoint calibration.

Temperature and Pressure Measurement

The instrument measures the sample temperature with a precision intergrated circuit sensor. Units may be optionally fitted with a pressure sensor.

Electronics

Input resolution:..... 0.1°C(dp)
 Indicators.....3.5 digit LCD with custom legends

Engineering units:°C, °F, PPM, LBS H2O/mm scf, gm H2O/M3

Controls:.....3 push buttons, all settings stored in EPROM
 Digital: RS-232 (bi-directional)

Alarms:The 4-20 mA of the digital output may be used by an external device to operate relays

Isolation:.....Sensor and case are isolated from the current loop and shunted with 33V transorbs.

Mechanical

EnclosureStainless steel (Weather proof cover optionally available)

Pressure operating Range:.....Standard: 500PSI (34bar)
 Optional: 5,000 PSI (340 bar)

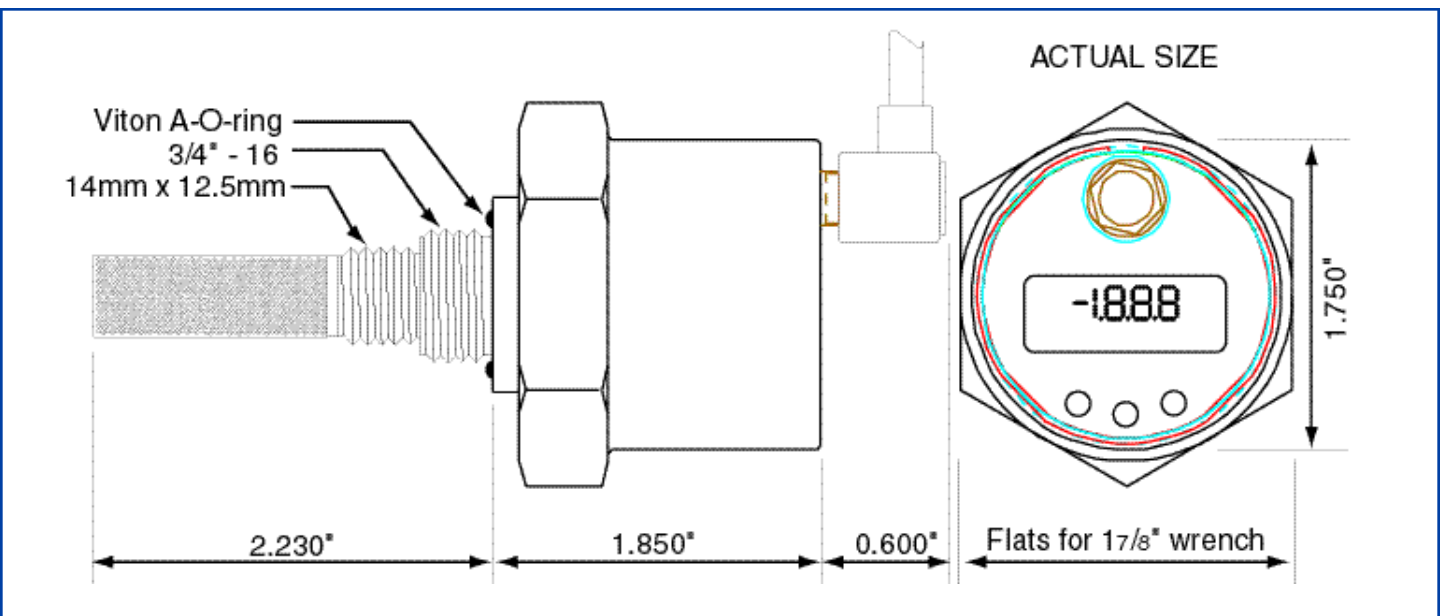
Electrical connections:2.1 mm power jack with retainer

Mechanical connections:.....14 mm x 1.25 mm and 3/4 -16 thread size

Cable:Two conductor cable

Power Requirements.....10 to 33 VDC, the instrument draws 4-20mA depending on measurement dew-point.

Warranty.....1 year



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