Dew Point Transmitter
Series XDT
100°C to +20°C Dewpoint

COSA INSTRUMENT

http://www.cosa-instrument.com

COSA Digital Dewpoint Transmitters - XDT Series

General

The COSA digital dewpoint transmitters are designed as compact, simple and reliable instruments, which will continually monitor air dryer performance, compressed air quality and dry gas moisture, from ambient dewpoint levels to as low as -148°F (-100°C).

Applications

COSA dewpoint transmitters are used wherever the dew point in a gas is critical. Applications include: monitoring and control of air dryers, plastic dryers, welding and laser gases, petrochemical feedstock gases, natural gas, clean rooms, glove boxes, transformer and switch gear insulation gases, cryogenic gases, heat treating furnaces, industrial specialty gases and many more.

Electronics

The transmitter electronics take full advantage of state of the art microprocessor technology and offer many advanced intelligent features. With optional dual alarms, analog and digital outputs, the COSA dewpoint transmitters can be used as indicators, alarm units or controllers.

Programmable Alarm Relays Option

The two optional alarm relays can be independently programmed to switch at any dewpoint with variable hysteresis, which makes the transmitter ideally suited as an energy saving controller for desiccant dryers in “dew point demand” mode or safety cutoff in process control, high power laser, etc. The status of the relays is shown on the display with flashing HI or LO indicators while displaying the dewpoint.

Analog and Digital Outputs Options

Analog and digital outputs are isolated from the sensor. The analog current or voltage output can be programmed to span the full or a portion of the range and is linear to the selected engineering units. The RS-232 interfaces into the serial port of any PC or Mac, for a simple operation with any standard communications program.

User friendly interface

The instrument is operated through a menu driven user interface consisting of a custom LCD display with optional backlight, and four push buttons.

Engineering Units

The user can select from the following engineering units: Dewpoint in °C or °F, ppmv, g H2O/m3, lbs H2O/ million scf.

Pressure Correct Function

Results are displayed at sensor pressure (atmospheric) or by pushing the Pressure Correct key at a user selectable alternate pressure, such as the line pressure.

SpanCheck in the Field

This field calibration procedure is fully automated and the user is prompted through a simple one minute procedure, which requires no additional equipment.

Error Indication

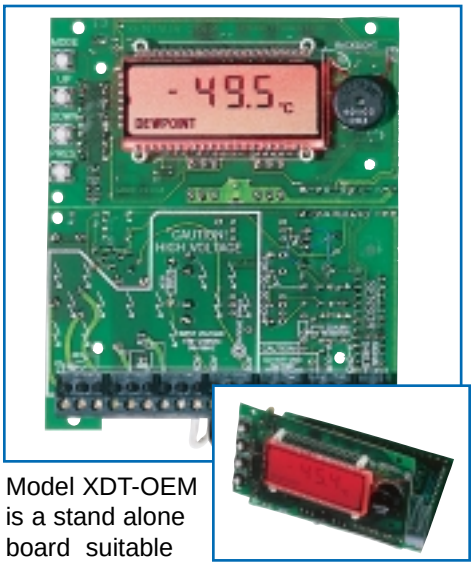
The instrument has indication for sensor open, short or electronic system failure, which can activate any of the alarm relays.

NIST / NPL Traceability Option

Certificates for NIST and NPL traceability are available upon request. Instruments can be recertified periodically at COSA’s laboratories.

Same Transmitter - Multiple Configurations

Model XDT-OEM



Model XDT-OEM is a stand alone board suitable for mounting in existing enclosures. Connections are made through a pluggable screw terminal block which allows cables to leave the board vertically or horizontally.

The electronic board can be broken into two parts and sandwiched to accommodate space constraints. (See insert.)

Model XDT-PM/C

Model XDT-PM houses the transmitter in a panel mount industry standard DIN 43700 box, 3” (7.5cm) deep. Connections are made through a pluggable screw terminal block.

The panel mount model is available with the push buttons on the outside of the front panel (shown above) or with the push buttons hidden behind the front panel.

Model XDT-NEMA

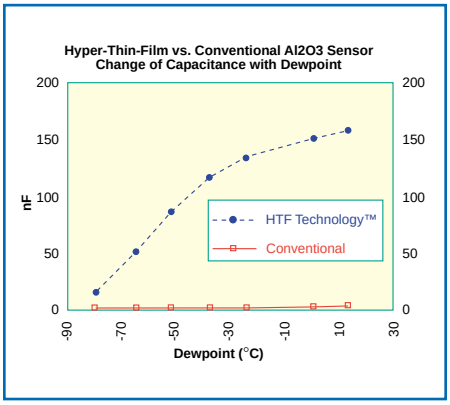
Model XDT-NEMA houses the transmitter in a NEMA 4 (IP65) enclosure. Ideally suited for industrial environments.

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

The Xentaur HTF Aluminum Oxide™ sensor is the product of years of intensive research and has been thoroughly field proven. Xentaur HTF™ technology offers significant performance advantages over all other aluminum oxide moisture sensors.

High Capacitance Response:

Due to a hyper-thin film and a special activation process, Xentaur 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.

Interchangeable Sensors

HTF Al2O3 high capacitance sensors can be manufactured with high uniformity. Consequently, sensors are freely interchangeable without factory calibration or changing of EPROMS, as is required with conventional aluminum oxide sensors.

SpanCheck without reference standards:

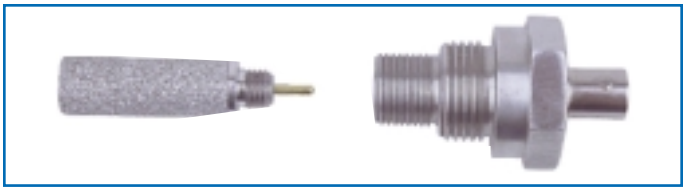
Xentaur HTF™ high capacitance sensors have a very low residual capacitance when dry, and saturate at a predesigned level of humidity above +68°F (+20°C). This allows a span check of the sensor by cupping the sensor in the palm of one's hand for one minute, and adjusting the instrument to its upper range limit. The advantages of this span check system are obvious: Xentaur sensors can be field calibrated anywhere, anytime without using expensive and cumbersome calibration standards. Sensors do not have to be returned to the factory for recalibration, which also eliminates the need for a second stand-by sensor.

Waterproof Sensors

Xentaur HTF™ sensors are available in waterproof versions. Waterproof sensors can be fully immersed in water and will go back into operation after drying down.

Advanced Mechanical Sensor Design

Xentaur HTF™ sensors have been designed for the requirements of tough industrial environments. The sensor element is encapsulated in a 100 micron stainless steel sintered filter. The filter housing is screwed onto a stainless steel sensor fitting which is available for pressures of up to 5000 PSI (FM tested). When sensor elements have to be replaced the



sensor fitting can be saved. The sensor fitting has two mounting threads, which make it easy to use existing sample cells. The cable is connected through a BNC connector.

Technical Specifications of Xentaur HTF™ Sensors

Sensor element:

Type: . . . . . .Hyper Thin Film high capacitance AL_2O_3

Dew point range:

XTR-100 . . . . . .-148°F to +68°F (-100°C to +20°C)

XTR-65 . . . . . .-85°F to +68°F (-65°C to +20°C)

Capacitance: . . . . . .15 nF to 200 nF

Accuracy: . . . . . .±5.5°F (± 3°C)

Repeatability: . . . . . .±0.9°F (±0.5°C)

Response time*: . . . . . .For a step change from -40°C to -60°C:
. . . . . 63% in 90 seconds
90% in 450 seconds

Temperature range: . . . . . .-22°F to 104°F (-30°C to +50°C)

Sample Flow range
(linear velocity at 1 atm): . .Static to 100 m/s

Storage temperature: . . . . . .-40°F to +120°F (-40°C to 50°C)

SpanCheck: . . . . . .Sensor saturates at dew point above +68°F (+20°C)

Fitting:

Pressure operating range: . .Standard: 500 PSI (34 bar)
Optional: 5000 PSI (340 bar)

Mechanical connections: . . . .14mm x 1.25 mm threads, and 3/4"-16 threads

Electrical connections: . . . . .Female BNC connector

Sensor cable: . . . . . .Coaxial cable (75 Ω with maximum capacitance of 50 pF/m).
Maximum cable length:3,000 ft.

* These response times are not directly comparable to competitors data because of differences in measurement methodology and data presentation. Please inquire for detailed comparisons between Xentaur and other major sensor manufacturers.

visit:

http://www.xentaur.com

HTF Al2O3™ Advantages:

- **up to 600x more sensitive than conventional sensors**
- **Sensors are freely interchangeable**
- **Field calibration without reference standards**
- **Faster response**
- **Better repeatability**
- **Longer sensor life**
- **Less drift**
- **Negligible temperature coefficient**

Technical Specifications XDT Series:

Transmitter:

Sensor type: . . . . . .High capacitance Al_2O_3

Input Resolution: . . . .0.1°C dew point

Indicators: . . . . . .LCD with optional backlight, 3.5 digits and custom legends for units and mode, audio alert

Engineering units: . . .Dew point in °F and °C, ppmv, g H_2O/m^3, lbs H_2O/mm scf,

Controls: . . . . . .5 push buttons, all settings stored in EEPROM

Output options: . . . . .4 -20mA or 0-24mA outputs, linear to selected engineering units, programmable span and range, 0.1°C dew point resolution.
RS-232 , baud rate 9600, resolution 0.1°C dewpoint

Isolation: . . . . . .Sensor is isolated from the power supply, analog output and RS-232.

Alarm relays option: . .Two programmable alarm relays with programmable variable hysteresis, rated at 10A @240V
Failure indication programmable to trigger alarm relays.

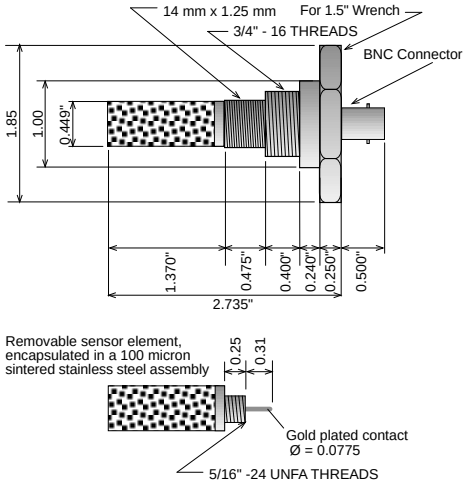
Power requirements: .100 - 240 VAC, 50 or 60 Hz, autoranging

Connections: . . . . . .pluggable screw terminal block

Enclosure: . . . . . .Polycarbonate, Nema 4/4x Dimensions 4.7" x 6.3" x 3.5" (w x h x d); DIN 43700 - 3" deep.

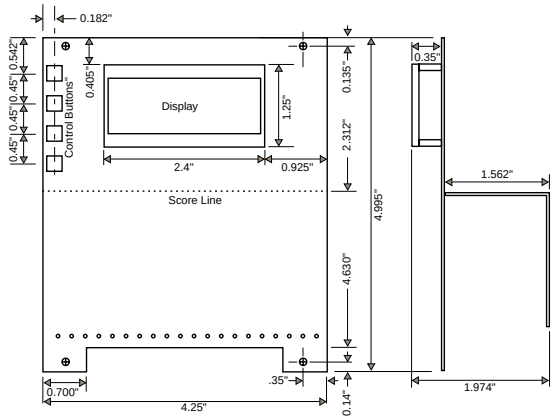
Warranty: 1 year for full workmanship and defective parts.

Dimensions of Element and Fitting:



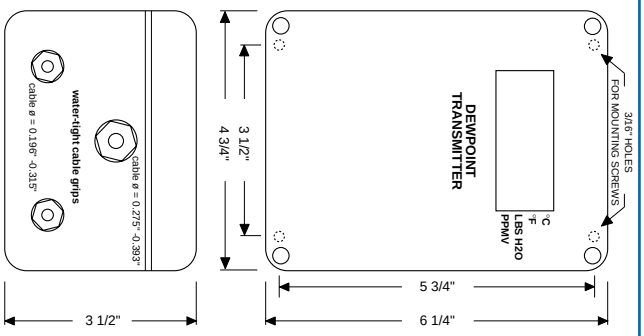
Represented by:

Dimensions XDT-OEM

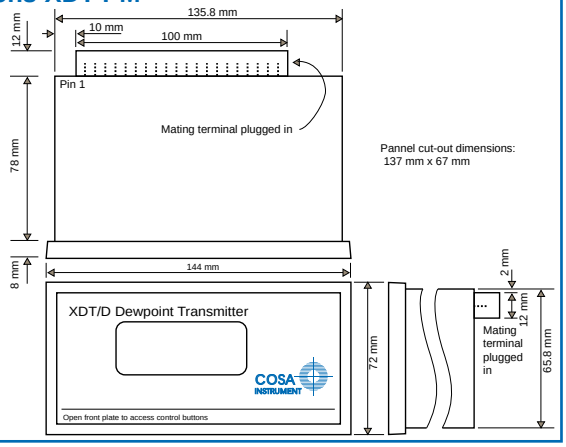


Temperature range of electronics: 14° to 122°F (-10° to 50°C)

Dimensions XDT-NEMA



Dimensions XDT-PM



Cosa Instrument Corporation
55 Oak Street, Norwood, NJ 07648
Tel: (201) 767-6600 • Fax: (201) 767-6804
e-mail: cosa@cosaic.com
1404 E. North Belt Drive., Suite 160, Houston, TX 77032
Tel: (281) 539-0601 • Fax: (281) 539-0644

http://www.cosa-instrument.com

COSA INSTRUMENT