

Model SDT-Ex




Intrinsically Safe Dewpoint Transmitter



Model SDT-Ex Intrinsically Safe Dewpoint Transmitter

Features:-

- 3 Wire, 24 V, 4-20 mA Dewpoint Transmitter
- Intrinsically Safe  ATEX II I GD Ex ia IIC T4
- Overall Range -100 °C to +20 °C Dewpoint
- Accuracy $\pm 2^{\circ}\text{C}$ ($\pm 3.6^{\circ}\text{F}$) Dewpoint
- Output configurable in °C Dewpoint, °F Dewpoint, ppm(v), g/m³ and lbs/MMSCF
- Weatherproof Rating IP66 – NEMA4X
- Open/Short Circuit Detection
- Linear 4-20 mA output signal
- Self contained, robust and reliable
- Supplied with Calibration Certificate Traceable to National & International Humidity Standards

The Shaw Moisture Meters Model SDT-Ex is a compact, 3 wire, 4-20 mA dewpoint transmitter designed to meet the stringent demands of industrial applications. The unit is fully self-contained within a robust housing providing weatherproof protection to IP66 / NEMA4X.

The Model SDT-Ex is certified Intrinsically Safe to ATEX II I GD Ex ia IIC T4 Ex ia D20 T135°C (-20°C \leq Ta +60°C) for use in hazardous areas using a signal isolator.

Utilising the Ultra High Capacitance Shaw Moisture Sensor, various dewpoint ranges are available covering an overall range from -120 °C to +20 °C Dewpoint. The 4-20 mA output is configurable in °C Dewpoint, °F Dewpoint, ppm(v), g/m³ and lbs/MMSCF.

Incorporating advanced electronics, the Model SDT derives its power from 7-28 Vdc non-isolated power source and is configured to output a linear, isolated, 4-20 mA signal for distances up to 1000 meters (3280 ft).

The Model SDT is supplied ready to use, with a calibration certificate traceable to National & International humidity standards, Instruction Manual and 2 meters (6.56 ft) of cable.

SPECIFICATIONS

DEWPOINT SENSOR

SENSING ELEMENT:

Shaw Ultra High Capacitance Aluminium Oxide Sensor

RANGES: Dewpoint = 0.1 °C / 0.2 °F resolution

LD: -120 °C to +20 °C dew point

ZD: -100 °C to +20 °C dew point

HD: -65 °C to +20 °C dew point

MP: 0.1 to 100.0 ppm(v) 0.1ppm resolution

LP: 0.01 to 10.00 ppm(v) 0.01ppm resolution

GH: 0.01 to 10.00 g/m³ 0.01g/m³ resolution

LB: 0.1 to 100.0 lbs/MMSCF 0.1 lbs/MMSCF resolution

NOTE: ppm, ppb, g/m³ & lbs/MMSCF ranges are stated at atmospheric pressure. Model SDT Transmitter can be configured to provide corresponding ranges for operation at other constant pressure. This must be stated at time of order.

AUTOCAL: Field calibration / Span check facility. Activated and operated via potentiometer on the Transmitter body.

FACTORY CALIBRATION: Supplied with Certificate of Calibration traceable to National Physics Laboratory (NPL)

ACCURACY: ± 2 °C (±3.6 °F) dew point

NPL traceable -90 °C to +20 °C (-130 °F to +68 °F)

TEMPERATURE COEFFICIENT: Temperature compensated

RESOLUTION: 0.016 mA

REPEATABILITY: Better than ±0.3 °C (±0.54 °F) dew point

OPERATING TEMPERATURE: -20 °C to +60 °C (-4 °F to +140 °F)

STORAGE TEMPERATURE: -20 °C to +70 °C (-4 °F to +158 °F)

RESPONSE TIMES:

Wet to Dry: -20 °C to -60 °C - less than 120 secs.

Dry to Wet: -120 °C to -20 °C - less than 20 secs.

SAMPLE FLOW RATE: Flow independent but ideally 2 to 5 litres per minute. Max: 25 litres / min.

CALIBRATION WARRANTY: 12 months from date of dispatch.

Electrical

Intrinsically Safe  **ATEX II I GD Ex ia IIC T4**

Ex iaD20T135°C (-20°C ≤Ta+60°C)

ELECTROMAGNETIC COMPATIBILITY (EMC):

Immunity: Complies with EN 61000-6-1:2001

Emissions: Complies with EN 61000-6-3:2000

WARM UP TIME: 10 seconds

FAULT CONDITIONS:

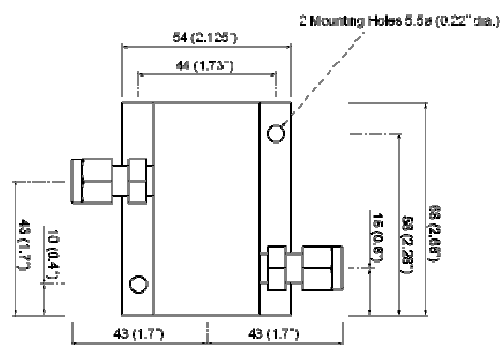
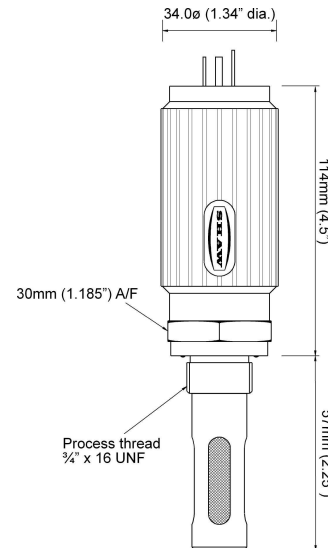
Open Circuit / Under Range: Output drives to 20.5 mA

Short Circuit / Over Range: Output drives to 20.75 mA

ISOLATION: Sensing Element connected to the 4-20 mA loop but isolated from Transmitter body.

OUTPUT SIGNAL: 4 to 20 mA Linear

OPERATING VOLTAGE: 7V-28V dc. Reverse polarity protected.



NOTE: The Assembly is shown with 1/4" OD tube fittings. The dimension across the tube fittings will vary for all other size fittings.

MECHANICAL

OPERATING PRESSURE: From 1 kPa (0.01 barA) to Maximum 35,000 kPa (350 barA)

OPERATING HUMIDITY (External): Maximum - 95% RH Non-condensing

CABLE TERMINATIONS: IP66 (NEMA4X) rated, size C, DIN EN 175301 connector at the Transmitter and other end terminated with bootlace ferrules.

CABLE: Supplied with 2m (6.56 ft) standard cable. Nominal diameter 3.4mm, 92 ohms/km at 20°C

TRANSMITTER ENCLOSURE: Hard Anodised Aluminium body with size C, DIN EN 175301 connector.

SENSOR PROTECTION: 316 Sintered stainless steel filter - 50 micron

PROBE MATERIAL (WETTED PARTS): 316 Stainless Steel

WEATHERPROOF CLASSIFICATION: IP66 / NEMA4X when Connector mated to Transmitter.

MECHANICAL CONNECTION: 3/4" UNF (16tpi) with integral Viton "O" ring seal.

MECHANICAL WARRANTY: 24 months in case of faulty workmanship and defective parts.

WEIGHT: 250grams (0.55 lbs) includes connector