

# Model SDT

## Dewpoint Transmitter



### Model SDT - Dewpoint Transmitter

#### Features:-

- 2 Wire, 24 V, 4-20 mA Dewpoint Transmitter
- Various Ranges: Overall Range -100 °C to +20 °C (-148 °F to +68 °F) Dewpoint
- Output configurable in °C Dewpoint, °F Dewpoint, ppm(v), g/m<sup>3</sup> and lbs/MMSCF
- Accuracy  $\pm 2^{\circ}\text{C}$  ( $\pm 3.6^{\circ}\text{F}$ ) Dewpoint
- Weatherproof Rating IP66 – NEMA4X
- Maximum Cable Length 1000m (3280 ft)
- Open/Short Circuit Detection
- Linear 4-20 mA output signal
- Self contained, robust and reliable
- Weighs only 175 g (0.385 lbs)
- Supplied with Calibration Certificate Traceable to National & International Humidity Standards

The Shaw Moisture Meters Model SDT is a compact, 2 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.

Utilising the Ultra High Capacitance Shaw Moisture Sensor, various dewpoint ranges are available covering an overall range from -100 °C to +20 °C (-148 °F to +68 °F) Dewpoint. The 4-20 mA output is configurable in °C Dewpoint, °F Dewpoint, ppm(v), g/m<sup>3</sup> 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).

Weighing in at only 175 g (0.385 lbs), the Model SDT is light enough to be supported by its' connection direct into the pipeline or can be placed in a dedicated sample cell.

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

**ZD:** -100 °C to +20 °C (-148 °F to +68 °F) dew point

**HD:** -65 °C to +20 °C (-85 °F to +68 °F) 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/m<sup>3</sup>      0.01g/m<sup>3</sup> resolution

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

*NOTE: ppm, ppb, g/m<sup>3</sup> & 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 for operating range.

**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

#### **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 21.0 mA

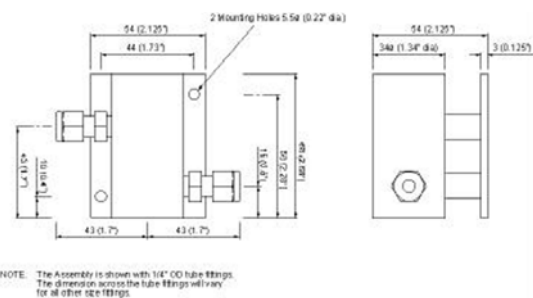
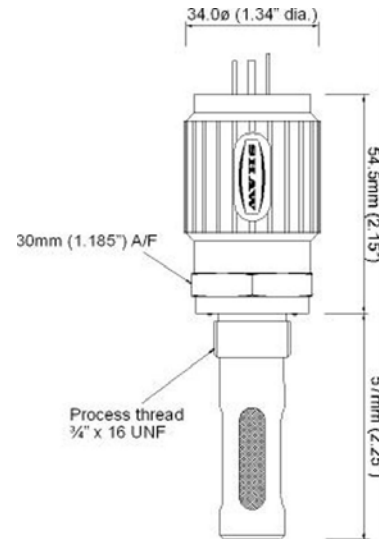
**ISOLATION:** Sensing Element connected to the 4-20 mA loop but isolated from Transmitter body.

**OUTPUT SIGNAL:** 4 to 20 mA Linear

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

#### **MAXIMUM SERIES RESISTANCE:**

$$= \{40 \times (\text{Supply Voltage} - 7)\} \text{ ohms}$$



### 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:** 175grams (0.385 lbs) includes connector