

Model SDT Dewpoint Transmitter

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.

Utilising the Ultra High Capacitance Shaw Moisture Sensor, various dewpoint ranges are available covering an overall range from -100 °C to +20 °C dewpoint (-148 °F to +68 °F). The 4 - 20 mA output is configurable in °C dewpoint, °F dewpoint, ppm(v), g/m³ and lb/MMSCF.

Incorporating advanced electronics, the Model SDT can derive its power from 7 - 28 V DC non-isolated power source and is configured to output a linear, isolated, 4 - 20 mA signal for distances up to 1,000 metres.

Weighing in at only 175 g (0.385 lb), 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 unit is fully self contained within a robust housing providing weatherproof protection to IP66/NEMA 4.

The Model SDT is supplied ready to use, with a Calibration Certificate traceable to National and International Humidity Standards, instruction manual and two metres (6.56 ft) of cable.



Features

- 2 wire, 24 V, 4 - 20 mA dewpoint transmitter
- Various ranges: overall range -100 °C to +20 °C dewpoint (-148 °F to +68 °F)
- Output configurable in °C dewpoint, °F dewpoint, ppm(v), g/m³ and lb/MMSCF
- Accuracy ±2 °C dewpoint (±3.6 °F)
- Weatherproof rating IP66/NEMA 4
- Maximum cable length 1,000 m (3,281 ft)
- Open/short circuit detection
- Linear 4 - 20 mA output signal
- Signal output up to 1,000 metres
- Self contained, robust and reliable
- Weighs only 175 g (0.385 lb)
- Supplied with Calibration Certificate traceable to National and International Humidity Standards

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) dewpoint
HD: -65 °C to +20 °C (-85 °F to +68 °F) dewpoint
P (Purple): -100 / 0 °C (-148 / +32 °F) dewpoint, 0-6,000 ppm(v)
G (Grey): -80 / 0 °C (-112 / +32 °F) dewpoint, 0-6,000 ppm(v)
R (Red): -80 / -20 °C (-112 / -4 °F) dewpoint, 0-1,000 ppm(v)
B (Blue): -80 / +20 °C (-112 / +68 °F) dewpoint, 0-23,000 ppm(v)
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 lb/MMSCF 0.1 lb/MMSCF resolution
- **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 Physical Laboratory (NPL)
- **Accuracy**
± 2 °C (±3.6 °F) dewpoint 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) dewpoint
- **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: -100 °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 - 20 mA Linear
- **Operating Voltage**
7 - 28 V DC reverse polarity protected
- **Maximum Series Resistance**
= {40 x (Supply Voltage – 7)} ohms

MECHANICAL

- **Operating Pressure**
From 1kPa (0.01 barA) to maximum 35,000kPa (350 barA)
- **Operating Humidity (External)**
Maximum - 95% RH non-condensing
- **Cable Terminations**
IP66/NEMA 4X rated, size C, DIN EN 175301 connector at the transmitter and other end terminated with bootlace ferrules
- **Cable**
Supplied with 2 m standard cable. Nominal diameter 3.4 mm, 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/NEMA 4X when connector mated to transmitter.
- **Mechanical Connection**
¾" UNF (16tpi) with integral Viton "O" ring seal.
- **Mechanical Warranty**
24 months in case of faulty workmanship and defective parts.
- **Weight**
175 grams (includes connector)

Ordering Information

To order a Model SDT Dewpoint Transmitter

Model SDT - (Range)

R - Choose required range:

ZD: -100 °C to +20 °C (-148 °F to +68 °F) dewpoint

HD: -65 °C to +20 °C (-85 °F to +68 °F) dewpoint

P (Purple) -100 / 0 °C (-148 / +32 °F) dewpoint 0 - 6,000 ppm(v)

G (Grey) -80 / 0 °C (-112 / +32 °F) dewpoint 0 - 6,000 ppm(v)

R (Red) -80 / -20 °C (-112 / -4 °F) dewpoint 0 - 1,000 ppm(v)

B (Blue) -80 / +20 °C (-112 / +68 °F) dewpoint 0 - 23,000 ppm(v)

MP: 0.1 to 100.0 ppm(v)

LP: 0.01 to 10.00 ppm(v)

GH: 0.01 to 10.00 g/m³

LB: 0.1 to 100.0 lb/MMSCF

Example:

To order a Model SDT with a measuring range of -80 °C to 0 °C (-112 °F to +32 °F) dewpoint (grey sensor), please order as **SDT-G**

To order a Sensor Holder for use with SDT

F - Choose fitting size for sensor holder:

4: ¼" **8:** ⅜" **6:** 6 mm

Example:

To order a Sensor Holder with ¼" fitting please order as **SDT-SEH-4**

Related Products

Model SU4 - Sample Conditioning Unit

The Model SU4 sample conditioning unit will reduce the pressure from the dryer to give a pressure and flow suitable for measurement. It combines a pressure reduction control, sensor holder and a flow meter for up to 10 litres per minute, (1 -2 litre is usual for continuous use), mounted on a stove enamelled back plate.



Moisture measurement under pressure will not give the correct answer but room pressure used in the Model SU4 will read correctly.

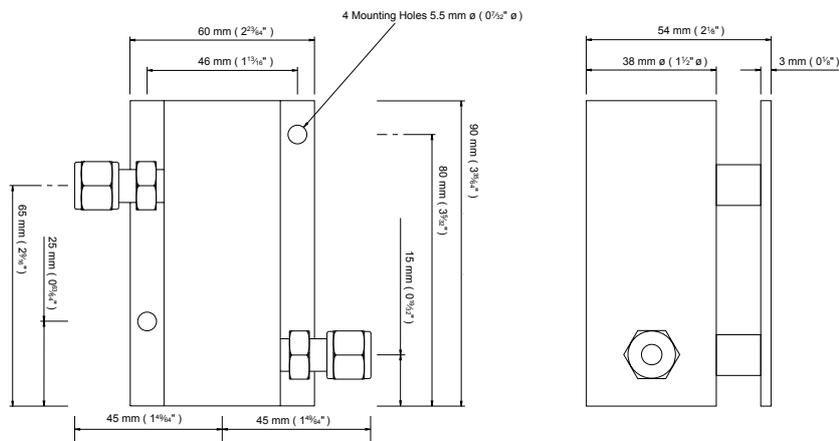
The Model SU4 comes with pneumatic connections with a choice of ⅛", ¼" or 6 mm compression fittings if required for inlet and outlet.

[SU4 Specification Sheet](#)

Also available:

Model 5714, 4 - 20 mA display, 4 digit LED indication, 2 alarm relays and analogue output.

Sensor Holder Assembly Diagram



NOTE:
The assembly is shown with 6.35 mm (1/4 inch) OD tube fittings.
The dimension across the tube fittings will vary for all other size fittings.

Dewpoint Transmitter

