

DMT152 Dewpoint Transmitter for Low Dewpoint Measurement in OEM Applications



Features/Benefits

- Compact
- Accurate
- Vaisala DRYCAP® technology with a polymer sensor
- Measures dewpoint down to -80 °C (-112 °F)
- Reduced maintenance costs due to long calibration interval
- Fast response time
- Withstands condensation
- NIST traceable
- Applications: compressed air, plastics drying, dry chambers, pure gases, and high-voltage circuit breakers

The small and powerful DMT152 measures dewpoint down to -80 °C.

DMT152

The Vaisala DRYCAP® Dewpoint Transmitter DMT152 is designed for measuring low dewpoint in OEM applications, even down to -80 °C. The excellent long-term stability and reliability of its performance is based on the latest DRYCAP® polymer sensor technology.

Low maintenance

The DMT152 mechanics have been designed for harsh environments requiring protection against dust, dirt, and splashed water.

The DRYCAP® technology has a low maintenance need due to its excellent long-term stability and durability against condensation.

Applications

The DMT152 is an ideal choice for industrial applications where it is necessary to control very low humidity. Most typical areas of use are air and plastics dryers, dry chambers, pure gases, and high-voltage circuit breakers.

The DMT152 measures accurately and reliably also in the challenging combination of low humidity and hot air, which is typical in plastics drying.

Compressed air and dewpoint measurement

Moisture in compressed air can cause many problems to end products, the process, and the components of the air distribution system itself.

Therefore, reliable on-line dewpoint measurement is a prerequisite to manufacturing high-quality end products.

Although excess humidity is eliminated by using different types of dryers, dewpoint measurement is required to make sure that the dryer is functioning correctly.

Reduced production costs

In addition to detecting possible operational failures of desiccant dryers, dewpoint measurement can also be used to control the desiccant

regeneration interval. It provides users with significant energy savings and a consistent quality of dry air output.



The optional Vaisala MI70 indicator can be used as a display for the DMT152 and for logging data.

Technical Data

Measured variables

Dewpoint temperature

| | |
|---|---|
| Measurement range | -80 ... -30 °C (-112 ... -22 °F) T_d |
| Accuracy | ± 2 °C (3.6 °F) T_d |
| Non-calibrated range | -100 ... +20 °C (-148 ... +68 °F) T_d |
| Analogue output scalings | |
| option 1 | -80 ... +20 °C (-112 ... +68 °F) T_d |
| option 2 | -100 ... 0 °C (-148 ... +32 °F) T_d |
| option 3 | user-specified output scaling |
| Response time 63 % [90 %] at a gas temperature of +20 °C (+68 °F) and pressure of 1 bar | |
| -80 → -30 °C (-112 → -22 °F) T_d | 10 s [20 s] |
| -30 → -80 °C (-22 → -112 °F) T_d | 2 min [30 min] |

ppm volume concentration

| | |
|--|---|
| Measurement range (typical) | 0 ... 500 ppm |
| Accuracy at +20 °C (+68 °F), 1013 mbar | $\pm(0.2 \text{ ppm} + 20 \% \text{ of reading})$ |

Operating environment

| | |
|-------------------|-------------------------------------|
| Temperature | -40 ... +60 °C (-40 ... +140 °F) |
| Relative humidity | 0 ... 100 % RH (up to +20 °C/68 °F) |
| Pressure | 0 ... 50 bar (725 psia) |
| Measured gases | non-corrosive gases |
| Sample flow rate | no effect on measurement accuracy |

Outputs

| | |
|---|---|
| Two analog outputs (scalable) | 4 ... 20 mA, 0 ... 20 mA (3-wire) |
| | 0 ... 1 V, 0 ... 5 V, 0 ... 10 V |
| Accuracy of analog outputs | $\pm 0.01\% / \pm 0.01 \text{ mA}$ |
| Typical temperature dependence | |
| voltage output | $\pm 0.001 \% \text{ of span} / ^\circ\text{C}$ |
| current output | $\pm 0.005 \% \text{ of span} / ^\circ\text{C}$ |
| Digital output | RS485 (2-wire) |
| On/Off output is available (instead of the 2nd analog output) | |
| purge or autocalibration inactive | 0 V, 0 mA, or 4 mA |
| purge or autocalibration active | 1 V, 5 V, 10 V, or 20 mA |
| OR exceeded T_d or ppm limit | user selectable |

General

| | |
|-------------------------------------|-------------------------------------|
| Sensor | Vaisala DRYCAP® 180U |
| | Thin-film capacitive polymer sensor |
| Recommended calibration interval | 2 years |
| Operating voltage with RS485 output | 11* ... 28 VDC |
| voltage output | 15* ... 28 VDC |
| current output | 21 ... 28 VDC |

*For extended temp. down to -40 °C (-40 °F) or pressure up to 50 bar (725 psia), the supply voltage is 21 ... 28 VDC.

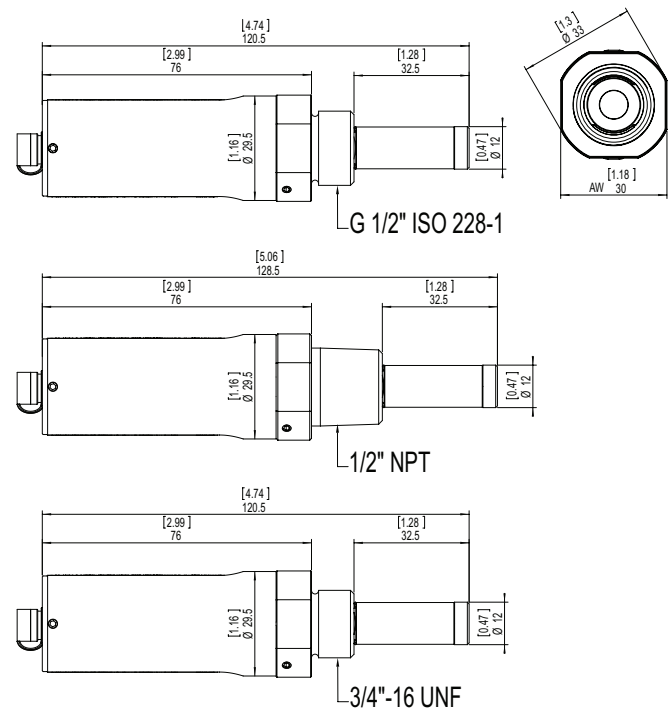
| | |
|--|----------------------------------|
| Supply current | |
| normal measurement | 20 mA + load current |
| during self-diagnostics | max. 220 mA pulsed |
| External load for | |
| voltage output | min. 10 kOhm |
| current output | max. 500 Ohm |
| Housing material (wetted parts) | AISI316L |
| Stainless steel mesh filter | AISI303, filter grade 18 µm |
| Mechanical connections | |
| option 1 | ISO G½" |
| option 2 | NPT ½" |
| option 3 | UNF 3/4" - 16 |
| Housing classification | IP65 (NEMA 4) |
| Storage temperature range | -40 ... +80 °C (-40 ... +176 °F) |
| Weight (ISO G½") | 190 g (6.70 oz) |
| Complies with EMC standard EN61326-1, Electrical equipment for measurement control and laboratory use - EMC requirements; Industrial environment | |

Accessories

| | |
|--|------------|
| Connection cables with 4-pin M8 connector snap-on connector, 2 m/6.5 ft. | 211598 |
| thread connector (shielded), 3 m/9.8 ft. | HMP50Z300 |
| thread connector (shielded), 10 m/32.8 ft | HMP50Z1000 |
| Connection cable for MI70 hand-held indicator | 219980 |
| USB cable for pc connection | 219690 |
| Sampling cells (available for ISO G½") | |
| basic sampling cell | DMT242SC |
| with Swagelok 1/4" male connectors | DMT242SC2 |
| with a quick connector and leak screw | DSC74 |
| two-pressure sampling cell | DSC74B |
| cooling/venting coil | DMCOIL |

Dimensions

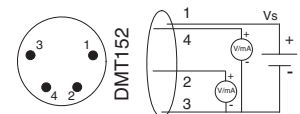
Dimensions in mm (inches)



Wiring

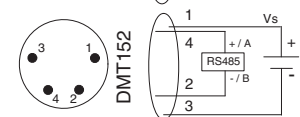
Wiring of connector I (4-pin M8)

- 1 = VDC supply + (brown)
- 2 = Signal Ch 1+ (white)
- 3 = GND (blue)
- 4 = Signal Ch2+ (black)



Wiring of connector II (4-pin M8)

- 1 = VDC supply + (brown)
- 2 = RS485 - /B (white)
- 3 = GND (blue)
- 4 = RS485 + /A (black)



The supply voltage connection is protected against simultaneous use in connector I and II.

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DMT152 Dewpoint Transmitter

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | PRICE | |
|--|--|-----------|-----------|-------|---|---|---|---|---|---|----|----|----|----|-------------|---------|--|
| Vaisala DRYCAP® Dewpoint Transmitter DMT152 | | | | | | | | | | | | | | | | | |
| 1 Mechanical connection | ISO G1/2" thread | A | | | | | | | | | | | | | | \$1,440 | |
| | NPT 1/2" thread | B | | | | | | | | | | | | | | \$1,440 | |
| | UNF 3/4"-16 thread | C | | | | | | | | | | | | | | \$1,440 | |
| 2 Measurement parameters | Td/f, ppm | | 1 | | | | | | | | | | | | | | |
| | Td/f, ppm and ppmw for SF6 gas | | 2 | | | | | | | | | | | | | | |
| 3 Analog output Ch1 & Ch2 + RS-485 as standard | 0...1 V | A | | | | | | | | | | | | | | | |
| | 0...5 V | B | | | | | | | | | | | | | | | |
| | 0...10 V | C | | | | | | | | | | | | | | | |
| | 4...20 mA | D | | | | | | | | | | | | | | | |
| | 0...20 mA | E | | | | | | | | | | | | | | | |
| 4 Analog output parameter or function for Ch1 | Td/f | | | | | | | | | | | | | | | | |
| | Td/f | | | | | | | | | | | | | | | | |
| | ppm | | | | | | | | | | | | | | | | |
| | ppm | | | | | | | | | | | | | | | | |
| | Td/f, free scale | Define: | Low | High | | | | | | | | | | | | | |
| | ppm, free scale | Define: | Low | High | | | | | | | | | | | | | |
| | ppmw for SF6, free scale | Define: | Low | High | | | | | | | | | | | | | |
| | Alarm level on/off output | Define: | Parameter | Level | | | | | | | | | | | | | |
| | Autocalibration & purge on/off output* | | | | | | | | | | | | | | | | |
| | 5 Analog output parameter or function for Ch2 | Td/f | | | | | | | | | | | | | | | |
| Td/f | | | | | | | | | | | | | | | | | |
| ppm | | | | | | | | | | | | | | | | | |
| ppm | | | | | | | | | | | | | | | | | |
| Td/f, free scale | Define: | Low | High | | | | | | | | | | | | | | |
| ppm, free scale | Define: | Low | High | | | | | | | | | | | | | | |
| ppmw for SF6, free scale | Define: | Low | High | | | | | | | | | | | | | | |
| Alarm level on/off output | Define: | Parameter | Level | | | | | | | | | | | | | | |
| Autocalibration & purge on/off output* | | | | | | | | | | | | | | | | | |
| 6 Output units | Metric units (Celsius) | | | | | | | | | | | | | | | | |
| | Non-metric units (Fahrenheit) | | | | | | | | | | | | | | | | |
| 7 Pressure setting for ppm calculation | None - no ppm output | | | | | | | | | | | | | | | | |
| | Ambient 1 bara / 14,76 psia | | | | | | | | | | | | | | | | |
| | Special (max 50 bar abs) Define pressure: _____ bar | | | | | | | | | | | | | | | | |
| 8 Sensor Protection | Stainless steel mesh filter | | | | | | | | | | | | | | | | |
| 9 Cable for analog outputs and power supply (Port I) | None | | | | | | | | | | | | | | | | |
| | 2 m (6.6 ft) cable with snap-on connector (211598) | | | | | | | | | | | | | | | \$25 | |
| | 3 m (9.8 ft) shielded cable with threaded connector (HMP50Z300SP) | | | | | | | | | | | | | | | \$20 | |
| | 10 m (32.8 ft) shielded cable with threaded connector (HMP50Z1000SP) | | | | | | | | | | | | | | | \$180 | |
| 10 Cable for RS485 line and power supply (Port II) | None | | | | | | | | | | | | | | | | |
| | 2 m (6.6 ft) cable with snap-on connector (211598) | | | | | | | | | | | | | | | \$25 | |
| | 3 m (9.8 ft) shielded cable with threaded connector (HMP50Z300SP) | | | | | | | | | | | | | | | \$20 | |
| | 10 m (32.8 ft) shielded cable with threaded connector (HMP50Z1000SP) | | | | | | | | | | | | | | | \$180 | |
| 11 Installation accessories ONLY for ISO1/2" thread | None | | | | | | | | | | | | | | | | |
| | Sampling cell (DMT242SC) | | | | | | | | | | | | | | | \$80 | |
| | Sampling cell with swagelok 1/4" male connectors (DMT242SC2) | | | | | | | | | | | | | | | \$100 | |
| | Sampling cell with quick connector and leak screw (DSC74) | | | | | | | | | | | | | | | \$100 | |
| | Two-pressure sampling cell (DSC74B) | | | | | | | | | | | | | | | \$220 | |
| | Two-pressure sampling cell with venting coil DSC74C (DSC74C) | | | | | | | | | | | | | | | \$340 | |
| 12 Special features | None | | | | | | | | | | | | | | | | |
| 13 Package | Standard cardboard | | | | | | | | | | | | | | | | |
| | Plastic case | | | | | | | | | | | | | | | \$20 | |
| 14 User's guide | None | | | | | | | | | | | | | | | | |
| | Multilingual quick guide | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | Total | | |
| | | | | | | | | | | | | | | | Total value | | |

* Indicates when autocalibration or sensor purge are activated - measurement is not active

Selections in bold are included in the prices of the basic versions.
 Selections in italic are available at an extra price.

Example of order code with typical settings:

DMT152 B 1 D B E 2 0 A 1 0 0 A 1 X

| Accessories: | Description | Order Code: | PRICE |
|--------------|--------------------------------------|-------------|-------|
| | Connection cable for MI70 indicator | 219980 | \$100 |
| | USB serial interface cable | 219690 | \$100 |
| | Sealing ring set ISO (copper, 3 pcs) | 221524 | \$15 |
| | Sealing ring set UNF (copper, 3 pcs) | 221563 | \$15 |
| | Stainless steel mesh filter 8 µm | 220957 | \$50 |
| | 100...240 VAC external power supply | POWER-1 | \$200 |