



DMP8 Dew Point and Temperature Probe

For pressurized pipelines



Features

- Dew point measurement range $-70 \dots +80 \text{ }^{\circ}\text{C}$ ($-94 \dots +176 \text{ }^{\circ}\text{F}$) $T_{d/f}$
- Dew point measurement accuracy up to $\pm 2 \text{ }^{\circ}\text{C}$ ($\pm 3.6 \text{ }^{\circ}\text{F}$) $T_{d/f}$
- Operating pressure of probe head $0 \dots 4 \text{ MPa}$ ($0 \dots 40 \text{ bar}$)
- Adjustable installation depth
- Tolerates condensation, oils, dust, and most chemicals
- Sensor purge provides superior chemical resistance
- Modbus RTU over RS-485
- Compatible with Indigo transmitters and Insight PC software
- Traceable calibration certificate

Vaisala DRYCAP® Dew Point and Temperature Probe DMP8 is designed for industrial low-humidity applications such as industrial drying, compressed air systems, and semiconductor industry. It can be installed in a 1/2" NPT or ISO thread with adjustable insertion depth.

Stability at low dew points

The Vaisala DRYCAP® sensor is immune to particulate contamination, water condensation, oil vapor, and most chemicals. The sensor tolerates condensation and recovers perfectly if exposed to liquid water. Fast reaction time and stability make its performance unmatched also in dynamic and low dew point applications. Outstanding stability provides a long calibration interval.

Chemical purge minimizes effects of contaminants

In environments with high concentrations of chemicals and cleaning agents, the chemical purge option helps to maintain measurement accuracy between calibration intervals.

The chemical purge involves heating the sensor to remove harmful chemicals. The function can be initiated manually or programmed to occur at set intervals.

Easy installation

Thanks to its sliding sealing, it is easy to adjust the installation depth of the DMP8 probe head.

An optional ball-valve installation kit allows for inserting or detaching the probe from a pressurized line.

Flexible connectivity

The probe is compatible with Vaisala Indigo series transmitters, and it can be used as a standalone digital Modbus RTU transmitter over RS-485 serial bus. For

easy-to-use access to field calibration, device analytics, and configuration functionality, the probe can be connected to Vaisala Insight software for Windows®. For more information, see www.vaisala.com/insight.

Technical data

Measurement performance

Dew point

| | |
|---|--|
| Sensor | DRYCAP® 180M |
| Measurement range | -70 ... +80 °C (-94 ... +176 °F) T _{d/f} |
| Measurement range for continuous use | -70 ... +45 °C (-94 ... +113 °F) T _{d/f} |
| Accuracy up to 20 bar/290 psia | ±2 °C/±3.6 °F T _{d/f} See accuracy graph |
| Accuracy, 20 ... 40 bar/290 ... 580 psia | Additional inaccuracy +1 °C T _{d/f} |
| Response time 63 % [90 %] ¹⁾ : | |
| From dry to wet | 5 s [15 s] |
| From wet to dry | 45 s [8 min] |

Temperature

| | |
|--------------------|--------------------------------|
| Measurement range | 0 ... +80 °C (+32 ... +176 °F) |
| Accuracy | ±0.2 °C at room temperature |
| Temperature sensor | Pt100 RTD Class F0.1 IEC 60751 |

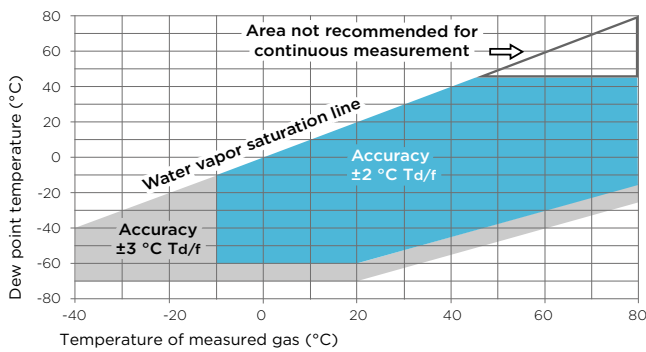
Relative humidity

| | |
|----------------------------------|-----------------------------|
| Measurement range | 0 ... 70 %RH |
| Accuracy (RH <10 %RH, at +20 °C) | ±0.004 %RH + 20% of reading |

Concentration by volume (ppm)

| | |
|-----------------------------|------------------------|
| Measurement range (typical) | 10 ... 2500 ppm |
| Accuracy (at +20 °C, 1 bar) | 1 ppm + 20% of reading |

1) Tested with sintered filter.



Dew point accuracy vs. measurement conditions

Operating environment

| | |
|--------------------------------------|---|
| Operating temperature for probe head | -40 ... +80 °C (-40 ... +176 °F) |
| Operating temperature for probe body | -40 ... +80 °C (-40 ... +176 °F) |
| Storage temperature | -40 ... +80 °C (-40 ... +176 °F) |
| Operating pressure for probe head | 0 ... 40 bar (0 ... 580 psia) |
| Measurement environment | For air, nitrogen, hydrogen, argon, helium, oxygen ¹⁾ , and vacuum |
| IP rating for probe body | IP66 |
| Mechanical durability of probe head | Up to +180 °C (+356 °F) Up to 70 bar/1015 psia |

1) Consult Vaisala if other chemicals are present. Consider safety regulations with flammable gases.

Inputs and outputs

| | |
|---------------------|----------------------------|
| Operating voltage | 15 ... 30 V DC |
| Current consumption | 10 mA typical, 500 mA max. |
| Digital output | RS-485, non-isolated |
| Protocols | Modbus RTU |

Output parameters

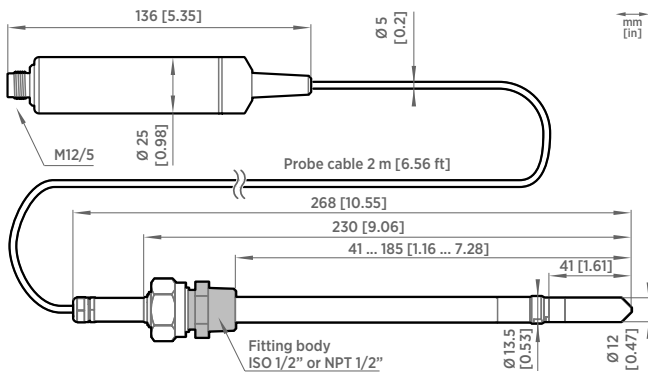
| | |
|--|---|
| Absolute humidity (g/m ³) | Relative humidity (%RH) |
| Absolute humidity at NTP (g/m ³) | Relative humidity (dew/frost) (%RH) |
| Dew point temperature (°C) | Temperature (°C) |
| Dew/frost point temperature (°C) | Water concentration (ppm _v) |
| Dew/frost point temperature at 1 atm (°C) | Water concentration (wet basis) (vol-%) |
| Dew point temperature at 1 atm (°C) | Water mass fraction (ppm _w) |
| Dew point temperature difference (°C) | Water vapor pressure (hPa) |
| Enthalpy (kJ/kg) | Water vapor saturation pressure (hPa) |
| Mixing ratio (g/kg) | |

Compliance

| | |
|-------------------|---|
| EU directives | EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) |
| EMC compatibility | EN 61326-1, industrial environment |
| Compliance marks | CE, China RoHS, RCM |

Mechanical specifications

| | |
|--------------------|------------------------|
| Connector | M12 5-pin A-coded male |
| Weight | 512 g (18.1 oz) |
| Probe cable length | 2 m (6.56 ft) |
| Materials | |
| Probe | AISI 316L |
| Probe body | AISI 316L |
| Cable jacket | FEP |



DMP8 dimensions

Accessories

| | |
|--|--------------|
| Fitting body ISO R 1/2" with leak screw | ISOFITBODASP |
| Fitting body ISO R 1/2" (no leak screw) | DRW212076SP |
| Fitting body NPT 1/2" (no leak screw) | NPTFITBODASP |
| Sampling cell | DMT242SC |
| Sampling cell with Swagelok connectors | DMT242SC2 |
| Ball valve set for pressurized pipelines | BALLVALVE-1 |
| Duct installation flange for ISO R 1/2" thread | DM240FASP |
| Thread adapter ISO 1/2" to NPT 1/2" | 210662SP |
| Blind plug ISO 1/2" | 218773 |
| Indigo USB adapter ¹⁾ | 242659 |

¹⁾ Vaisala Insight software for Windows available at www.vaisala.com/insight.

VAISALA

www.vaisala.com

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