



# 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](http://www.vaisala.com/insight).

# Technical data

## Measurement performance

### Dew point

Sensor	DRYCAP® 180M
Measurement range	-70 ... +80 °C (-94 ... +176 °F) T <sub>d/f</sub>
Measurement range for continuous use	-70 ... +45 °C (-94 ... +113 °F) T <sub>d/f</sub>
Accuracy up to 20 bar/290 psia	±2 °C/±3.6 °F T <sub>d/f</sub> See accuracy graph
Accuracy, 20 ... 40 bar/290 ... 580 psia	Additional inaccuracy +1 °C T <sub>d/f</sub>
Response time 63 % [90 %] <sup>1)</sup> :	
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

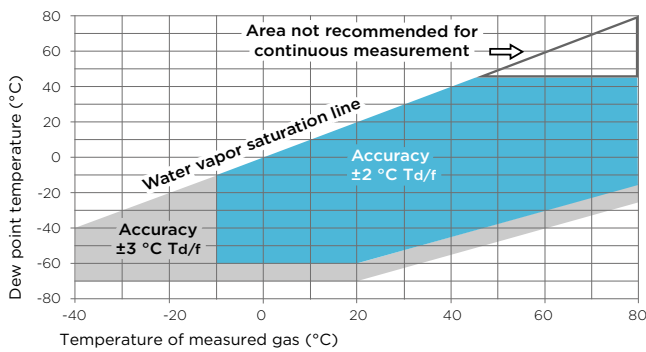
### Relative humidity

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

<sup>1)</sup> 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 <sup>1)</sup> , 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

<sup>1)</sup> 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

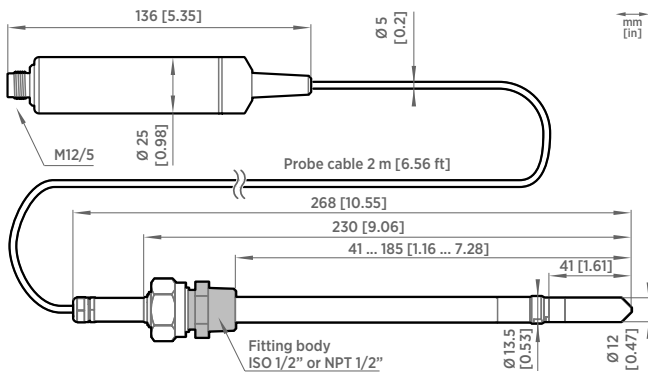
Absolute humidity (g/m <sup>3</sup> )	Relative humidity (%RH)
Absolute humidity at NTP (g/m <sup>3</sup> )	Relative humidity (dew/frost) (%RH)
Dew point temperature (°C)	Temperature (°C)
Dew/frost point temperature (°C)	Water concentration (ppm <sub>v</sub> )
Dew/frost point temperature at 1 atm (°C)	Water concentration (wet basis) (vol-%)
Dew point temperature at 1 atm (°C)	Water mass fraction (ppm <sub>w</sub> )
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)
<b>Materials</b>	
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 <sup>1)</sup>	242659

<sup>1)</sup> Vaisala Insight software for Windows available at [www.vaisala.com/insight](http://www.vaisala.com/insight).