



DMP7 Dew Point and Temperature Probe

For installations in tight spaces



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 $\pm 2 \text{ }^{\circ}\text{C}$ ($\pm 3.6 \text{ }^{\circ}\text{F}$) $T_{d/f}$
- Sensor purge provides superior chemical resistance
- Tolerates condensation, oils, dust, and most chemicals
- Modbus RTU over RS-485
- Compatible with Indigo transmitters and Insight PC software
- Traceable calibration certificate

Vaisala DRYCAP® Dew Point and Temperature Probe DMP7 is designed for low-humidity applications. Thanks to its short probe length, it fits in installations with limited space such as semiconductor manufacturing equipment. Other applications include industrial drying, compressed air systems, dry rooms, and blanket gases in metal heat treatment.

Stability at low dew points

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.

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.

Pressure-tight installation

Optional pressure-tight Swagelok fitting is available for DMP7. When installed using the fitting DMP7 is suitable for installations with pressure in range $0 \dots 10 \text{ bar}$ ($0 \dots 145 \text{ psia}$).

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 ± 2 °C (± 3.6 °F) $T_{d/f}$ See accuracy graph
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

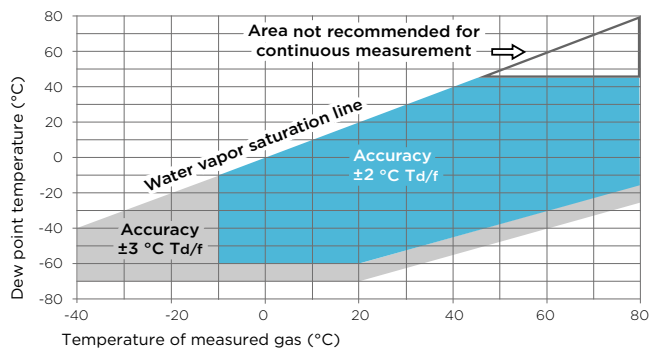
Relative humidity

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 ... 10 bar (0 ... 145 psia)
Measurement environment	For air, nitrogen, hydrogen, argon, helium, oxygen ¹⁾ , and vacuum
IP rating for probe body	IP66

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

Compliance

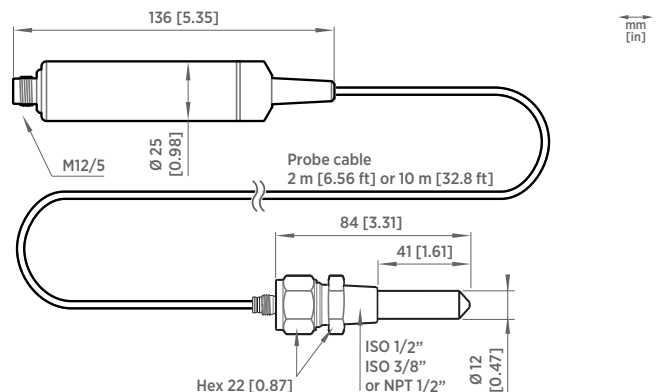
EU directives	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU)
EMC compatibility	EN 61326-1, industrial environment
Compliance marks	CE, China RoHS, RCM

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)	

Mechanical specifications

Connector	M12 5-pin A-coded male
Weight	310 g (10.9 oz) with 2 m (6.56 ft) cable
Materials	
Probe	AISI 316L
Probe body	AISI 316L
Cable jacket	FEP



DMP7 dimensions

Accessories

Swagelok ISO 3/8"	SWG12ISO38
Swagelok ISO 1/2"	SWG12ISO12
Swagelok NPT 1/2"	SWG12NPT12
Indigo USB adapter ¹⁾	USB2

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