

DMP1 Dew Point and Temperature Probe

For dry rooms and cleanrooms



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 improves long-term stability and chemical resistance
- Tolerates condensation, oils, dust, and most chemicals
- Modbus RTU over RS-485
- Compatible with Vaisala Indigo products and Insight PC software
- Traceable calibration certificate

Vaisala DRYCAP® Dew Point and Temperature Probe DMP1 is designed for low-humidity applications, for example in dry room monitoring in battery manufacturing or cleanroom monitoring in semiconductor production facilities.

Benefits

DMP1 is optimal for maintaining process reliability and correct dryness levels in battery and semiconductor manufacturing with an optional Indigo300 local display. By placing the probes to critical spots and at adequate intervals, the entire dry-controlled facility can be reliably monitored. The Vaisala DRYCAP sensor is immune to particulate contamination, water condensation, oil vapor, and most chemicals.

Rapid response in minutes

Fast reaction time and stability make DMP1 performance unmatched also in dynamic and low dew point applications.

Sensor purge minimizes effects of contaminants

In environments with high concentrations of chemicals and cleaning agents, the sensor purge option helps to maintain measurement accuracy between calibration intervals. Sensor purge involves heating the sensor to remove harmful chemicals.

Flexible connectivity

The probe can be used as a standalone digital Modbus RTU transmitter over an RS-485 serial bus, and it can also be connected to Indigo transmitters and the Indigo80 handheld indicator. 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 vaisala.com/insight.

Vaisala Indigo product family

Indigo transmitters extend the capabilities of Indigo-compatible measurement probes. The transmitters can display measurements on the spot as well as transmit them to automation systems through analog signals, digital outputs, and relays.

The probe can be connected directly to the Indigo300 locking wheel without a cable to enable wall mounting, especially for installations in dry rooms where the entire dew point transmitter needs to be inside the dry space. The concept is easy to clean and suitable also for cleanrooms. When needed, the cable length between the probe and the transmitter can be extended to up to 30 meters.

The Indigo80 handheld indicator is ideal for spot-checking and process monitoring, as well as for configuring and troubleshooting the probe. For more information, see vaisala.com/indigo80.



DMP1 with Indigo300

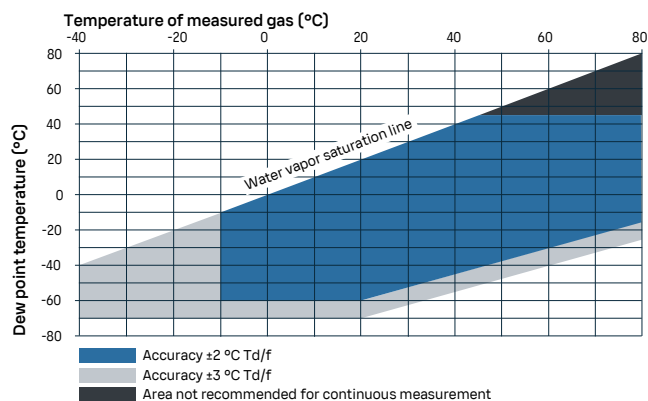
Technical data

Measurement performance¹⁾

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 %] ²⁾	
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

1) Specified for an air flow greater than 0.2 m/s.

2) Specified for the sintered filter HM47280.



Dew point accuracy vs. measurement conditions

Operating environment

Operating temperature	-40 ... +80 °C (-40 ... +176 °F)
Storage temperature	-40 ... +80 °C (-40 ... +176 °F)
Measurement environment	For air, nitrogen, hydrogen, argon, helium, oxygen ¹⁾
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 and regulations	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	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/frost point depression (°C)	Water vapor pressure (hPa)
Enthalpy (kJ/kg)	Water vapor saturation pressure (hPa)
Mixing ratio (g/kg)	

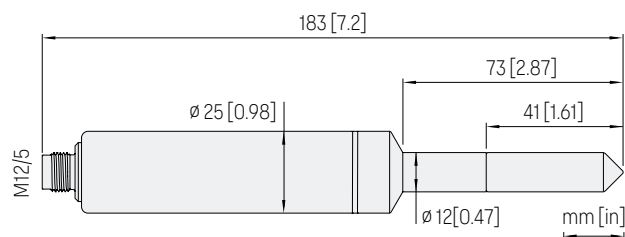
Mechanical specifications

Connector	M12 5-pin A-coded male
Weight	180 g
Materials	
Probe	AISI 316L
Probe body	AISI 316L

Accessories

Indigo USB adapter ¹⁾	USB2
Sintered stainless steel filter	HM47280SP

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



Dimensions



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