VAISALA

DMP7 Dew Point and Temperature Probe

For Installations in Tight Spaces

Features

- Dew point measurement range −70 ... +80 °C (−94 ... +176 °F) $T_{d/f}$
- Dew point measurement accuracy up to ±2 °C (±3.6 °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 ... 10 bar (0 ... 145 psia).

Flexible Connectivity

The probe is compatible with Vaisala Indigo series of 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®: 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 [10 s]
From wet to dry	45 s [8 min]

Temperature

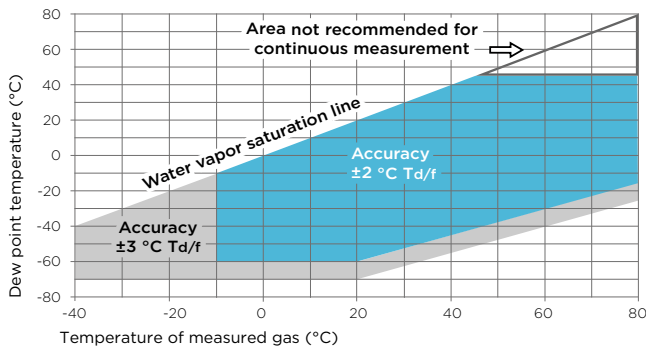|	
Measurement range	0 ... +80 °C (+32 ... +176 °F)
Accuracy	±0.2 °C at room temperature
Temperature sensor	Pt100 RTD Class F0.1 IEC 60751

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

Inputs and Outputs

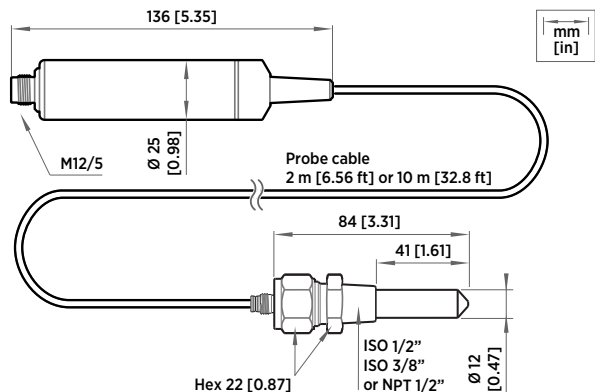|	
Operating voltage	18 ... 30 VDC
Current consumption	10 mA typical, 500 mA max.
Digital output	RS-485, non-isolated
Protocols	Modbus RTU
Output Parameters	
Relative humidity, temperature, dew point temperature, absolute humidity, mixing ratio, water concentration, water vapor pressure, water vapor saturation pressure, enthalpy	

Operating Environment

Operating temperature range for probe head	−40 ... +80 °C (−40 ... +176 °F)
Operating temperature range for probe body	−40 ... +80 °C (−40 ... +176 °F)
Storage temperature range	−40 ... +80 °C (−40 ... +176 °F)
Operating pressure range 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
EMC compatibility	EN61326-1, Industrial environment
Mechanical durability of probe head	Up to +180 °C (+356 °F) Up to 10 bar/145 psia

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

Mechanical Specifications

Connector	M12 5-pin A-coded male
Weight	310 g (10.9 oz)
Probe cable length	2 m (6.56 ft) or 10 m (32.8 ft)
Materials	
Probe	AISI316L
Probe body	AISI316L
Cable jacket	FEP

DMP7 Dimensions

Accessories

Swagelok ISO 3/8"	SWG12ISO38
Swagelok NPT 1/2"	SWG12NPT12
Swagelok ISO 1/2"	SWG12ISO12
USB PC connection cable [1]	242659

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

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