



# DMP5 Dew Point and Temperature Probe

For High Temperature Applications



## Features

- Measures humidity at temperatures up to +180 °C (+356 °F)
- Dew point measurement range -40 ... +100 °C (-40 ... +212 °F)  $T_{d/f}$
- Dew point measurement accuracy up to  $\pm 2$  °C ( $\pm 3.6$  °F)  $T_{d/f}$
- Sensor purge provides superior chemical resistance
- Condensation-tolerant
- Modbus RTU over RS-485
- Compatible with Indigo transmitters and Insight PC software
- Traceable calibration certificate

Vaisala DRYCAP® Dew Point and Temperature Probe DMP5 is designed for humidity measurement in applications with high temperatures. The long and robust steel probe and an optional installation flange allow easy installation with adjustable depth through insulation for example in ovens.

## Measure Humidity Directly in Hot Processes

DMP5 is built for direct measurement in hot and dry processes, up to +180 °C (+356 °F). As the probe can be directly placed in the process, there is no need for a sampling system or trace heating. As a result, high measurement accuracy and constancy are maintained. DMP5 provides unmatched dry-end measurement accuracy at temperatures up to 140 °C; however, it can operate safely at temperatures up to 180 °C. DMP5 incorporates the Vaisala DRYCAP® sensor, which is accurate, reliable, and stable. The sensor is condensation-tolerant and is immune to particulate contamination, oil vapor, and most

chemicals. Sensor warming minimizes the risk of condensation accumulating on the sensor. If the DRYCAP® sensor does get wet, it will rapidly dry and recover its swift response time. In low humidity conditions the sensor will auto-calibrate to ensure accurate measurement.

## 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.

## Services You Can Count On

Each probe is manufactured and individually calibrated in Vaisala's world-class facility in Finland. The traceable factory calibration certificate is included also in electronic format in the probe.

The interchangeable probes minimize the downtime associated with maintenance. Validate and maintain the accuracy by calibrating the instrument on the field or use the easy and thorough calibration service in Vaisala's service facilities in Helsinki, Boston, Beijing and Tokyo.

# Technical Data

## Measurement Performance

### Dew Point

Sensor	DRYCAP® 180S
Measurement range	-40 ... +100 °C (-40 ... +212 °F) T <sub>d/f</sub>
Accuracy	±2 °C (±3.6 °F) T <sub>d/f</sub> See the accuracy graph below
Response time 63 % [90 %] <sup>1)</sup>	
From dry to wet	5 s [10 s]
From wet to dry	45 s [5 min]

### Temperature

Measurement range	0 ... +180 °C (+32 ... +356 °F) <sup>2)</sup>
Accuracy at +100 °C (+212 °F)	±0.4 °C (±0.72 °F)
Temperature sensor	Pt100 RTD Class F0.1 IEC 60751

### Mixing Ratio

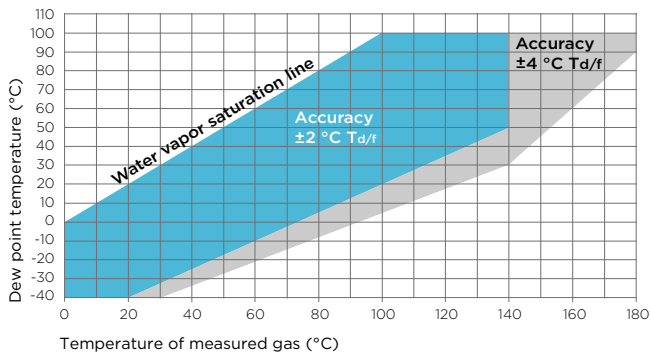
Measurement range (typical)	0 ... 1000 g/kg (0 ... 7000 gr/lbs)
Accuracy (typical)	±12 % of reading

### Absolute Humidity

Measurement range	0 ... 600 g/m <sup>3</sup>
Accuracy	±10 % of reading (typical)

1) Tested with sintered filter.

2) If sensor warming is enabled, temperature measurement is locked when humidity rises above 80 %RH and warming is switched on.



Dew Point Accuracy vs. Measurement Conditions

## Inputs and Outputs

Operating voltage	15 ... 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 ... +180 °C (-40 ... +356 °F)

Operating temperature range for probe body -40 ... +80 °C (-40 ... +176 °F)

Storage temperature -40 ... +80 °C (-40 ... +176 °F)

Measurement environment For air, nitrogen, hydrogen, argon, helium, and oxygen<sup>1)</sup>

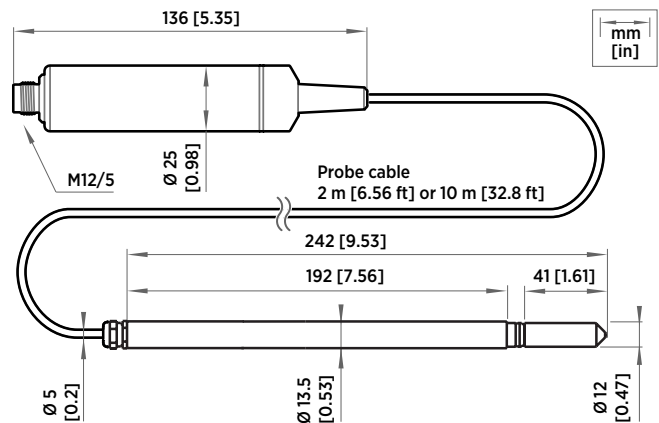
IP rating for probe body IP66

EMC compliance EN61326-1, Industrial environment

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

## Mechanical Specifications

Connector	M12 5-pin A-coded male
Weight	436 g (15.37 oz)
Probe cable length	2 m (6.56 ft) or 10 m (32.8 ft)
<b>Materials</b>	
Probe	AISI316L
Probe body	AISI316L
Cable jacket	FEP



DMP5 Dimensions

## Accessories

Mounting flange	210696
USB PC connection cable <sup>1)</sup>	242659

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



[www.vaisala.com](http://www.vaisala.com)

Published by Vaisala | B211791EN-A © Vaisala Oyj 2019

All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. Any reproduction, transfer, distribution or storage of information contained in this document is strictly prohibited. All specifications – technical included – are subject to change without notice.