



HMP9 Compact Humidity and Temperature Probe



Features

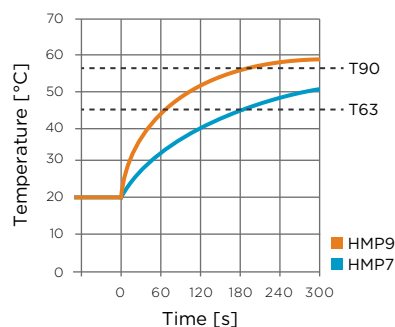
- Miniature probe head with low thermal mass for superior response time
- RH accuracy up to 0.8 %RH
- Temperature accuracy up to 0.1 °C (0.18 °F)
- Temperature measurement range -40 ... +120 °C (-40 ... +248 °F)
- Sensor purge provides superior chemical resistance
- Modbus RTU over RS-485
- Plug & play compatible with Indigo series of transmitters
- Traceable calibration certificate: 5 points for humidity, 1 point for temperature
- M10×1.5 cable gland included for mounting the probe head

Vaisala HUMICAP® Humidity and Temperature Probe HMP9 is designed for easy installation into rapidly changing environments where fast response time, measurement performance, and chemical tolerance are essential.

Miniature Probe Head with HUMICAP® Performance

The main feature of HMP9 is its 5 mm (0.2 in) diameter miniature probe head. Despite the small footprint, the probe head contains a HUMICAP® sensor that provides its industry standard humidity measurement performance.

HMP9 has great stability, fast response time, and low hysteresis in a wide range of applications. This makes it the superior choice in applications where the mechanical properties or replaceable filters of the heavier probes are not needed.



HMP9 T Response Time Compared to HMP7

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.

Flexible Connectivity

The probe is plug and play compatible with Vaisala Indigo series of transmitters, or 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® 7, 8.1 and 10: see www.vaisala.com/insight).

Technical Data

Measurement Performance

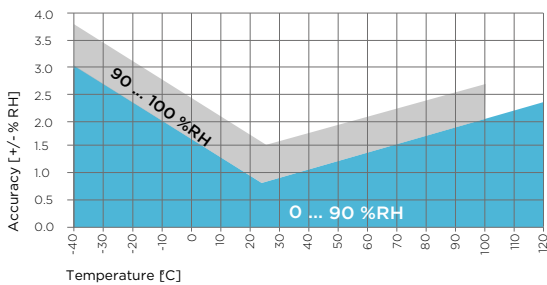
Relative Humidity

Sensor	HUMICAP I
Measurement range	0 ... 100 %RH
Accuracy at +23 °C (+73.4 °F) ^{1) 2)}	±0.8 %RH (0 ... 90 %RH)
T ₆₃ response time ³⁾	15 s

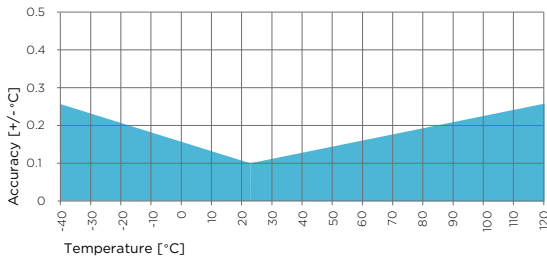
Temperature

Measurement range	-40 ... +120 °C (-40 ... +248 °F)
Accuracy at +23 °C (+73.4 °F) ²⁾	±0.1 °C (±0.18 °F)
T ₆₃ response time ³⁾	70 s

- 1) Including non-linearity, hysteresis, and repeatability
 2) Defined against calibration reference
 3) In still air



HMP9 Humidity Measurement Accuracy as a Function of Temperature (Including Non-Linearity and Repeatability)



HMP9 Temperature Measurement Accuracy over Full Range (Including Non-Linearity and Repeatability)

Operating Environment

Operating temperature range for probe body	-40 ... +60 °C (-40 ... +140 °F)
Operating temperature range for probe head	-40 ... +120 °C (-40 ... +248 °F)
Operating environment	Suitable for outdoor use when protected from rain
IP rating	IP65

Electromagnetic Compatibility

Complies with EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements - Industrial environment

Inputs and Outputs

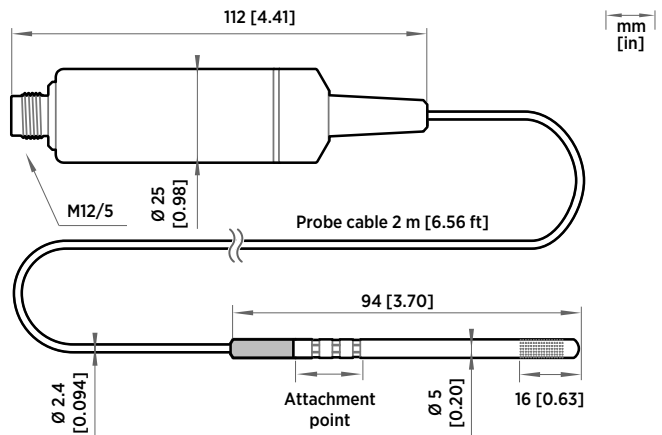
Operating voltage	15 ... 30 VDC
Current consumption	5 mA typical, 400 mA max.
Digital output	RS-485, non-isolated
Default serial settings	19200 bps N 8 2
Protocol	Modbus RTU

Output Parameters

Relative humidity, temperature, dew point temperature, wet-bulb temperature, absolute humidity, mixing ratio, water concentration, water mass fraction, water vapor pressure, enthalpy

Mechanical Specifications

Connector	M12/5
Weight	68 g (2.40 oz)
Materials	
Probe	AlSi316
Probe body	PBT
Cable overmolds	FEP



HMP9 Probe Dimensions

SI Traceable Calibration

Uncertainty of relative humidity calibration ($k = 2$)	±0.5 %RH (0 ... 40 %RH) ±0.8 %RH (40 ... 95 %RH)
Uncertainty of temperature calibration ($k = 2$)	±0.1 °C (±0.18 °F) at +23 °C (+73.4 °F)

