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.

**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.

**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
- Compatible with Indigo transmitters and Insight PC software
- Traceable calibration certificate: 6 points for humidity, 1 point for temperature
- M10×1.5 cable gland included for mounting the probe head

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 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.
## Measurement data

### Relative humidity

**Measurement range**: 0 ... 100 %RH

**Accuracy at +23 °C (+73.4 °F)**: ±0.8 %RH (0 ... 90 %RH)

**Factory calibration uncertainty**:
- ±0.7 %RH (0 ... 40 %RH)
- ±1 %RH (40 ... 95 %RH)

**$T_{63}$ response time**:
- 15 s

**Sensor**: HUMICAP

### Temperature

**Measurement range**: −40 ... +120 °C (−40 ... +248 °F)

**Accuracy at +23 °C (+73.4 °F)**: ±0.1 °C (±0.18 °F)

**Factory calibration uncertainty**:
- ±0.1 °C (±0.18 °F) at +23 °C (+73.4 °F)

**$T_{63}$ response time**:
- 70 s

1) Defined against calibration reference, including non-linearity, hysteresis, and repeatability.
2) Defined as ±2 standard deviation limits. Small variations possible; see calibration certificate.
3) In still air

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### Outputs and inputs

**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, dew point temperature difference, wet-bulb temperature, absolute humidity, mixing ratio, water concentration, water vapor pressure, water vapor saturation pressure, enthalpy

### Mechanical specifications

**Connector**: M12 5-pin A-coded male

**Weight**: 68 g (2.40 oz)

**Materials**:
- Probe: AISI316
- Probe body: PBT
- Cable overmolds: FEP

** Probe cable 2 m (6.56 ft)**

**Attachment point**

**HMP9 humidity measurement accuracy as a function of temperature**

**HMP9 temperature measurement accuracy over full range**

### Operating environment

**Operating temperature of probe body**: −40 ... +60 °C (−40 ... +140 °F)

**Operating temperature of probe head**: −40 ... +120 °C (−40 ... +248 °F)

**Storage temperature**: −40 ... +60 °C (−40 ... +140 °F)

**Operating environment**: Suitable for outdoor use when protected from rain

**Measurement environment**: For air, nitrogen, hydrogen, argon, helium, and oxygen

**IP rating**: IP65 for probe body

**EMC compliance**: EN 61326-1, industrial electromagnetic environment

### Accessories

- Solar radiation shield DTR502B with sensor head support 215130
- DTR502B and 215130
- USB PC connection cable

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

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