The HMP45A and HMP45D Humidity and Temperature Probes are excellent for measuring humidity in weather stations.

**Versatile probes**
The HMP45A and HMP45D humidity and temperature probes are designed for a wide range of instrumentation (e.g. recorders, data loggers, laboratory equipment and weather stations.)

The probes interface easily, are simple to service, operate from a wide range of supply voltages and consume little power.

The HMP45A/D is an excellent solution for measuring humidity in weather stations. However, the HMP243, with warmed sensor head, is a better solution if condensation continuously disturbs measurement.

**Vaisala's HUMICAP® Sensor**
The combined performance of the HUMICAP®180 sensor and IP65 protected probe provides accurate and repeatable humidity and temperature measurements in high humidity.

**Easy field maintenance**
Field calibration is easy. The probe head containing the sensor and electronics can be quickly removed from the probe body, a replacement installed and the measurements continued while the other sensor head is calibrated in a laboratory.

The DTR503A shield provides protection from both scattered and direct solar radiation, and precipitation.

**On-site, one-point calibration**
One-point calibration of relative humidity and temperature can be done in the field using Vaisala's HMI41 Humidity Indicator.

**Shield protects sensor**
Vaisala's DTR503A Radiation Shield is a naturally ventilated, maintenance-free, 12 plate plastic shield that protects the humidity and temperature sensors from both scattered and direct solar radiation, and precipitation. The plastic material in the plates offers excellent thermal characteristics and UV stabilized construction. The white outer surface reflects radiation, while the black inside absorbs accumulated heat.

The shield is easy to install and is suitable for a wide range of applications. It can be installed on a vertical pole, horizontal beam, or flat surface.

**Features/Benefits**
- HMP45A/D provides up to 100 %RH with high accuracy
- HUMICAP®180 Sensor for excellent accuracy, negligible hysteresis and long-term stability in high humidities, and is resistance to dust and most chemicals.
- Easy field calibration
- DTR503A Solar Radiation Shield
- IP65 housing protects against dust, water spray, and electromagnetic interference.
- NIST traceable (certificate included)

**Dimensions**
Dimensions in mm.

Feature: DTR503A pole mast installation.
- Pole/Mast diameter 30...60 mm 1.2” .. 2.3”
- DTR503A pole mast installation.

Feature: HMP45A/D
- HUMICAP®180 sensor for excellent accuracy, negligible hysteresis and long-term stability in high humidities, and is resistance to dust and most chemicals.
- NIST traceable (certificate included)
- Easy field calibration
- DTR503A Solar Radiation Shield
- IP65 housing protects against dust, water spray, and electromagnetic interference.

**Dimensions**
Dimensions in mm.

Feature: DTR503A for the HMP45A/D
- Pole/Mast diameter 30...60 mm 1.2” .. 2.3”
- DTR503A for the HMP45A/D

**Features/Benefits**
- HMP45A/D provides up to 100 %RH with high accuracy
- HUMICAP®180 Sensor for excellent accuracy, negligible hysteresis and long-term stability in high humidities, and is resistance to dust and most chemicals.
- Easy field calibration
- DTR503A Solar Radiation Shield
- IP65 housing protects against dust, water spray, and electromagnetic interference.
- NIST traceable (certificate included)
Technical Data

General
Operating temperature range -40...+60 °C
Storage temperature range -40...+80 °C
Supply voltage 7...35 VDC
Settling time 500 ms
Power consumption <4 mA
Output load >10kohm (to ground)
Weight 350 g (incl. package)
Cable length 3.5 m
Housing material ABS plastic
Housing classification (electronics) IP65
Sensor protection:
  - standard: membrane filter part no. 2787HM
  - optional:
    - sintered filter 37 µm part no. 6685
    - sintered filter 216 µm part no. 6686
    - grid part no. 6597

Relative Humidity
HMP45A & HMP45D
Measuring range: 0.8 to 100 %RH
Output scale: 0...100 %RH equals 0...1 VDC
Accuracy at +20 °C (incl. nonlinearity and hysteresis)
  - against factory references ±1 %RH
  - field calibration against references ±2 %RH (0...90 %RH)
  - ±3 %RH (90...100 %RH)
Typical long-term stability < 1 %RH / year
Temperature dependence ±0.05 %RH / °C
Response time (90% at +20 °C) 10 s with membrane filter
Humidity sensor HUMICAP® 180

Temperature
HMP45A
Measurement range -39.2...+60 °C
Output scale -40...+60 °C equals 0...1 VDC
Accuracy at +68 °F (+20 °C)
  - field calibration against references
  - ±1 %RH

Temperature sensor Pt 100 IEC 751

HMP45D
Measurement range -40...+60 °C
Output signal resistive four wire connection
Temperature sensor Pt 100 IEC 751 1/3 Class B


Dimensions
HMP45A/D Connections

HMP45A/D Probe

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Specifications subject to change without prior notice.
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DTR Solar Radiation and Precipitation Shields

The DTR Series of solar radiation and precipitation shields support humidity probe installations in outdoor applications.

**Shield protects sensor**
The maintenance-free DTR Shields protect the humidity and temperature sensors from solar radiation and precipitation. They provide excellent ventilation while blocking both direct and reflected solar radiation.

The special plastic used in the plates has excellent thermal characteristics; the white outer surface reflects radiation; the black inside absorbs accumulated heat. The shields can be easily installed on either a vertical pole, horizontal beam, or a flat surface.

The DTR Shields can be used with the following Vaisala probes:
- HMP45A/D
- HMP233/237
- HMD40/50
- HMD60/70

### Choice of models and Installation accessories
Two models are available:
- **Nine-plate shield:**
  - DTR502A for HMP45A/D
  - DTR502B for HMP233, 237

- **Twelve plate shield:**
  - DTR503A for HMP45A/D
  - DTR503B for HMD60/70
  - DTR503C for HMD40/50

### Features/Benefits
- Protects temperature and humidity probes from scattered, as well as, direct solar radiation and rain.
- Maintenance-free
- Naturally ventilated
- Installs easily on a vertical pole, horizontal beam or flat surface
- Suitable for a wide range of applications
- Choice of shields and mounting accessories

### Dimensions
Dimensions in mm.

**DTR503A**
- Pole mast installation:
  - Pole mast diameter: 30...60 mm / 1.2” ... 2.3”
  - DTR503A for the HMP45A/D

**DTR503A horizontal beam installation:**
- Beam diameter: 60...80 mm / 2.4” ... 3.1”

**DTR50  Solar Radiation and Precipitation Shields**
- Available in either a 9 or 12-plate, model.
Technical Data

**Dimensions**

Dimensions in mm.

**DTR502B**
for HMP233/237

- Pole Mast:
  - Diameter 30...60 mm / 1.2...2.3”

- HMP233/237 sensorhead

- DTR502B pole mast installation.

- DTR502B horizontal beam installation.

**DTR503B**
for the HMD60/70

- Pole Mast, diameter
  - 30...60 mm / 1.2...2.3”

- DTR503B pole mast installation.

- DTR503B horizontal beam installation.

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