

HMP45A & HMP45D Relative Humidity and Temperature Probes; Solar Radiation Shield



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



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

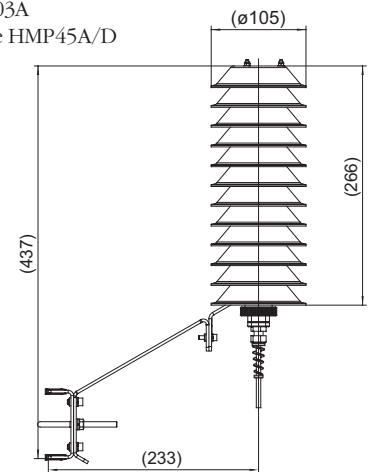
Features/Benefits

- 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)

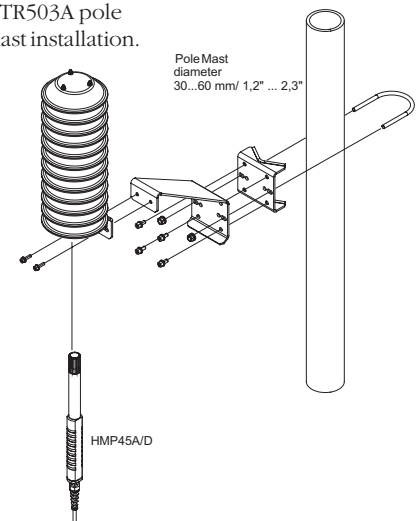
Dimensions

Dimensions in mm.

DTR503A
for the HMP45A/D



DTR503A pole mast installation.



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.

On-site, one-point calibration

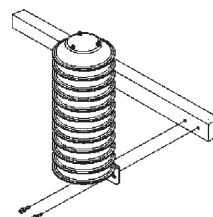
One-point calibration of relative humidity and temperature can be done in the field using Vaisala's HMI41 Humidity Indicator.

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.

DTR503A horizontal beam installation.



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

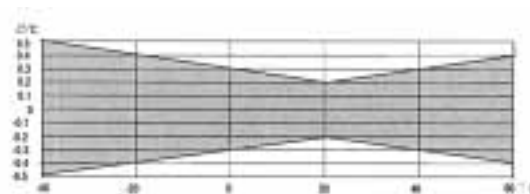
Relative Humidity

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)	±0.2 °C	

Accuracy over measurement range:



Temperature sensor Pt 1000 IEC 751

HMP45D

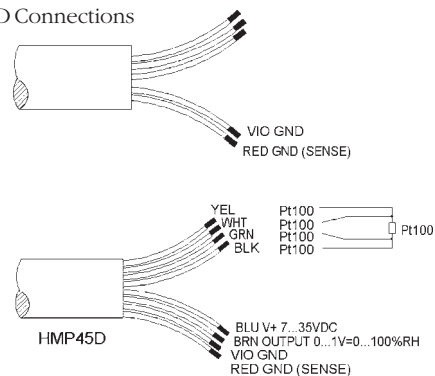
Measurement range	-40...+60 °C	
Output signal	resistive four wire connection	
Temperature sensor	Pt 100 IEC 751 1/3 Class B	

Complies with EMC standard EN61326-1:1997 + Am 1:1998; Generic Environment.

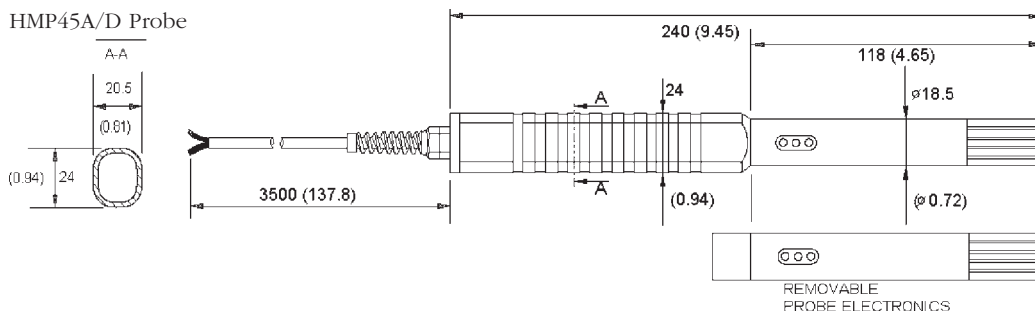
Dimensions

Dimensions in mm.

HMP45A/D Connections



HMP45A/D Probe



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DTR Solar Radiation and Precipitation Shields



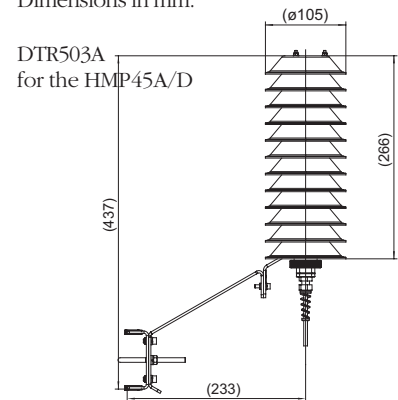
DTR50 Solar Radiation and Precipitation Shields are available in either a 9 or 12-plate, model.

Features/Benefits

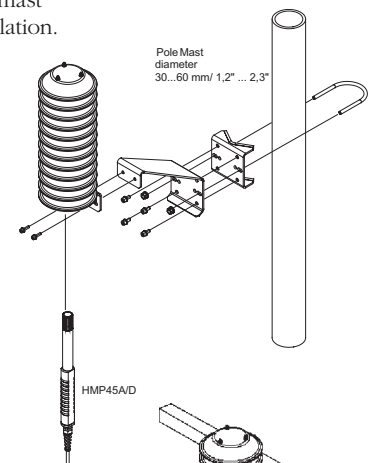
- Protects temperature and humidity probes from scattered, as well as, direct solar radiation and rain.
- Maintenance-free
- Naturally ventilated
- Installs easily on a vertical pole, horizontal beam or flat surface
- Suitable for a wide range of applications
- Choice of shields and mounting accessories

Dimensions

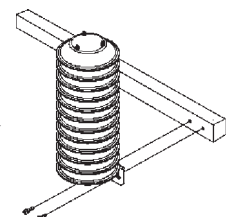
Dimensions in mm.



DTR503A pole mast installation.



DTR503A horizontal beam installation.



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

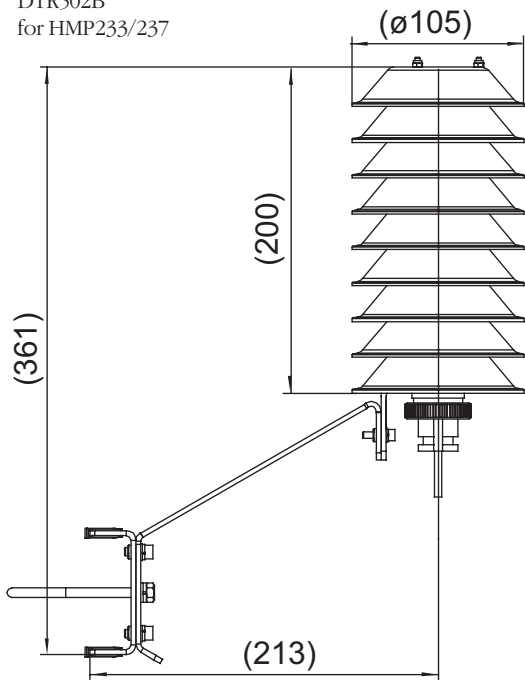
- Twelve plate shield:
 - DTR503A for HMP45A/D
 - DTR503B for HMD60/70
 - DTR503C for HMD40/50

Technical Data

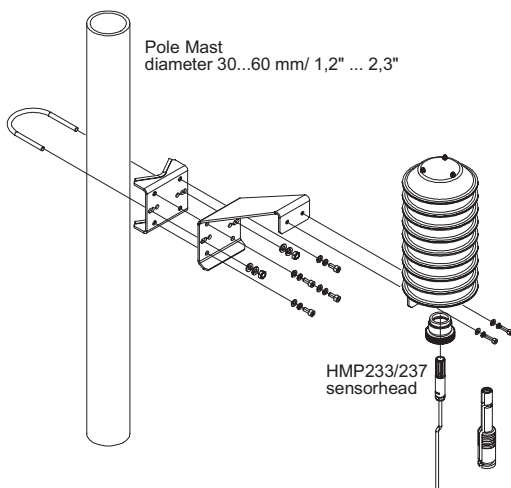
Dimensions

Dimensions in mm.

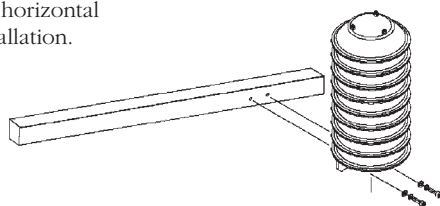
DTR502B
for HMP233/237



DTR502B pole mast installation.



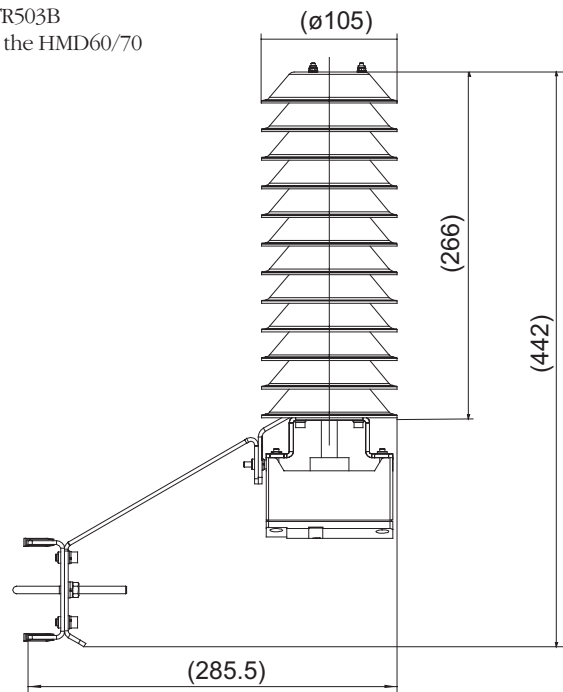
DTR502B horizontal beam installation.



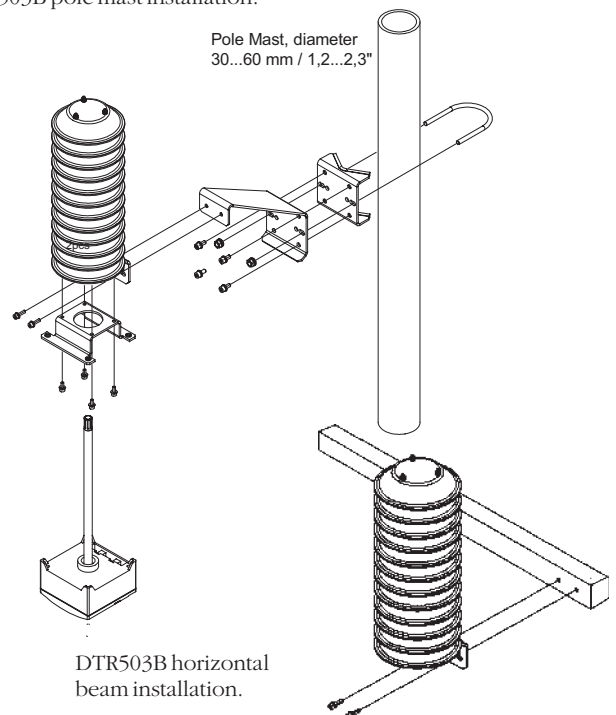
Dimensions

Dimensions in mm.

DTR503B
for the HMD60/70



DTR503B pole mast installation.



DTR503B horizontal beam installation.

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