WHEN MEASUREMENTS MATTER

Accurate, Wide Temperature Range

Higher end sensor where higher accuracy is required

Overview

The HMP155A provides reliable relative humidity (RH) and temperature measurements for a wide range of applications. It uses a HUMICAP®180R capacitive thin film polymer sensor to measure RH over the 0 to 100% RH range. A PRT measures temperature over the -80° to +60°C range. This rugged, accurate temperature/RH probe is manufactured by Vaisala.
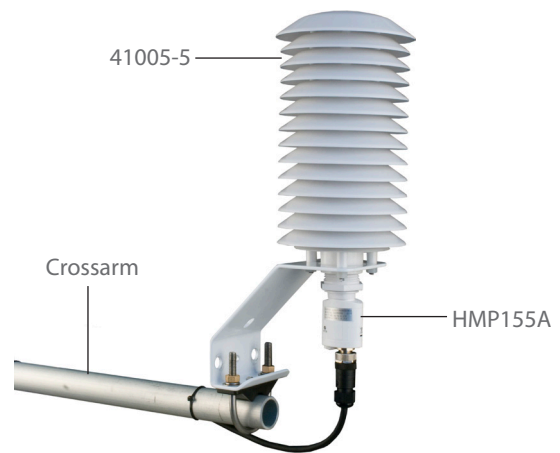
To reduce the current drain, power can be supplied to the HMP155A only during measurement when the sensor is connected to the datalogger's switched 12 V terminal. Dataloggers that do not have a switched 12 V terminal, such as the CR510 or CR7, can use the SW12V switched 12 V device to switch power to the sensor only during measurement.

Benefits and Features

❯ Well-suited for long-term, unattended applications
❯ Accurate and rugged
❯ Mounts to a mast, crossarm, or user-supplied pole
❯ Compatible with all Campbell Scientific dataloggers (including the CR200(X) series)

Sensor Mounts

The 41005-5 14-plate Radiation Shield should be used when the HMP155A is exposed to sunlight. The 41005-5 can attach directly to a mast or tower leg or to a CM202, CM203, CM204, or CM206 crossarm.

41005-5

Crossarm

HMP155A

Recommended Cable Lengths

2 m Height		Atop a tripod or tower via a 2 ft crossarm such as the CM202						
Mast/Leg	CM202	CM106B	CM110	CM115	CM120	UT10	UT20	UT30
2.7 m (9 ft)	3.3 m (11 ft)	4.3 m (14 ft)	4.3 m (14 ft)	5.8 m (19 ft)	7.3 m (24 ft)	4.3 m (14 ft)	7.3 m (24 ft)	11.3 m (37 ft)
Note: Add 1 m (2 ft) to the cable length if mounting the enclosure to the leg base of a CM106B, CM110, CM115, or CM120 tripod.								

Ordering Information

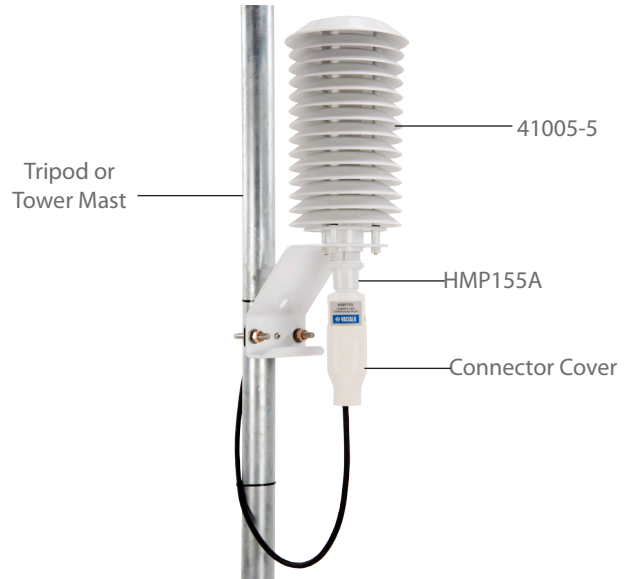### Air Temperature and Relative Humidity Probe

HMP155A-L   Vaisala Temperature/RH Probe with user-specified cable length. Enter cable length, in feet, after the -L. Must choose a cable termination option (see below).

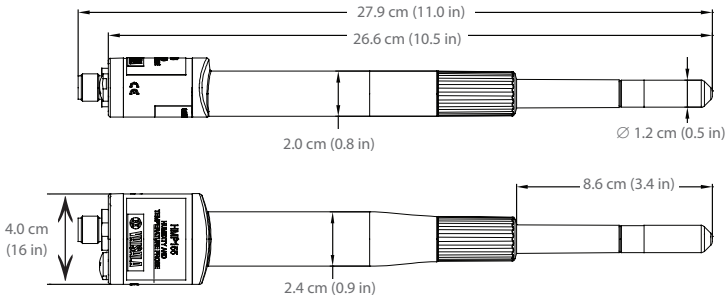### Cable Termination Options (choose one)

-PT   Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.

-PW   Cable terminates in connector for attachment to a prewired enclosure.

Accessories

SW12V   Switched 12 V device that uses a control port and a 12 V channel to switch power to the HMP155A instead of a switched 12 V terminal.

41005-5   14-Plate Gill Radiation Shield to house the HMP155A

41005-5

Tripod or Tower Mast

HMP155A

Connector Cover

Specifications

27.9 cm (11.0 in)
26.6 cm (10.5 in)
2.0 cm (0.8 in)
∅ 1.2 cm (0.5 in)
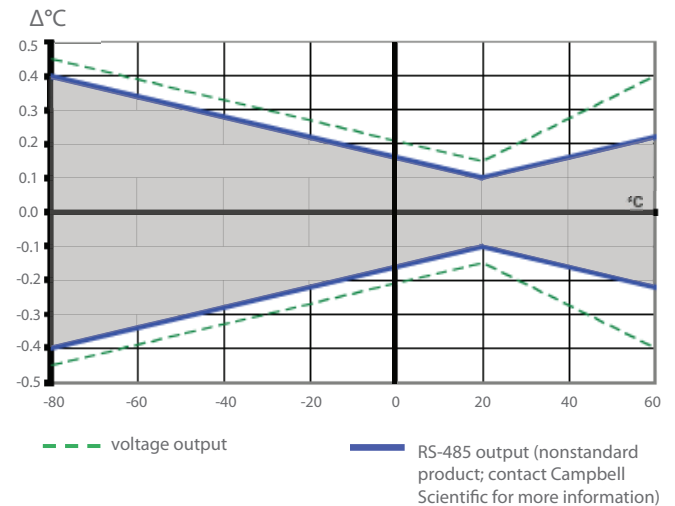
4.0 cm (16 in)
8.6 cm (3.4 in)
2.4 cm (0.9 in)

› Electromagnetic Compatibility: Complies with EMC standard EN61326-1 Electromagne

› Filter: Sintered PTFE

› Housing Material: PC

› Housing Classification: IP66

› Operating Humidity Range: 0 to 100%

› Voltage Output Range: 0 to 1 Vdc

› Average Current Consumption: ≤3 mA (analog output mode)

› Operating Voltage: 7 to 28 Vdc

› Settling Time at Power Up: 2 s

Air Temperature

› Temperature Sensor: Pt 100 RTD 1/3 class B IEC 751

› Measurement Range: -80° to +60°C

› Accuracy with Voltage Output
-80° to +20°C: ±(0.226 - 0.0028 x temperature)°C
+20° to +60°C: ±(0.055 + 0.0057 x temperature)°C
Entire Temperature Range: see graph at right

Relative Humidity (RH)

› Sensor: HUMICAP®180R

› Measurement Range: 0.8 to 100% RH, non-condensing

› Response Time[a]: 20 s (63% step change); 60 s (90% step change)

› Factory Calibration Uncertainty (+20°C)[b]
0 to 40% RH: ±0.6% RH
40 to 97% RH: ±1.0% RH

› Accuracy (including non-linearity, hysteresis and repeatability)
+15° to +25°C: ±1% RH (0 to 90% RH); ±1.7% RH (90 to 100% RH)
-60° to -40°C: ± (1.4 + 0.032 × reading) % RH
-40° to -20°C: ± (1.2 + 0.012 × reading) % RH
-20° to +40°C: ± (1.0 + 0.008 × reading) % RH
+40° to +60°C: ± (1.2 + 0.012 × reading) % RH

Δ°C

°C

- - - voltage output

—— RS-485 output (nonstandard product; contact Campbell Scientific for more information)

[a]The response time for the RH specification is for the HUMICAP®180R© at 20°C in still air with sintered PTFE filter and a 0% to 75% RH step change.

[b]The factory calibration uncertainty is defined as ±2 standard deviation limits. Small variations possible; see also calibration certificate.