



## Accurate, Wide Temp 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<sup>®</sup> 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.

Manufacturer's note: In changing temperature conditions with high humidity, the probe temperature can lag behind the temperature of surrounding air and this can cause risk of condensation on the sensor. A wet probe cannot observe the actual humidity in the ambient air. If the condense water is contaminated, the life span of the probe may shorten and the calibration may change.

### Benefits and Features

- ▶ Well-suited for long-term, unattended applications
- ▶ Accurate and rugged
- ▶ Mounts to a mast, crossarm, or user-supplied pole
- ▶ Compatible with most Campbell Scientific data loggers

### Detailed Description

The HMP155A uses a HUMICAP180R capacitive thin film polymer sensor to measure RH, and a PRT to measure temperature.

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.

### Specifications

Electromagnetic Compatibility	Complies with EMC standard EN61326-1 Electromagnetic
Filter Description	Sintered PTFE
Housing Body Material	PC
Housing Classification	IP66

Voltage Output	0 to 1 Vdc
Average Current Consumption	≤ 3 mA (analog output mode)
Operating Voltage	7 to 28 Vdc
Settling Time	2 s (at power up)

Field-Replaceable Chip or Recalibrate	Recalibrate
Tip Diameter	1.2 cm (0.5 in.)
Length	27.9 cm (11 in.)
Head Height	4 cm (1.6 in.)
Body Height	2.4 cm (0.9 in.)
Body Width	2.0 cm (0.8 in.)

### Relative Humidity

Sensing Element	HUMICAP 180R
Measurement Range	0 to 100% RH (non-condensing)
Response Time	<ul style="list-style-type: none"> <li>› 60 s (90% step change)</li> <li>› 20 s (63% step change)</li> <li>› 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.</li> </ul>
Factory Calibration Uncertainty	<ul style="list-style-type: none"> <li>› The factory calibration uncertainty is defined as <math>\pm 2</math> standard deviation limits. Uncertainty is at +20°C. Small variations are possible; see also the calibration certificate.</li> <li>› <math>\pm 1.0\%</math> RH 40 to 97% RH</li> </ul>

	› $\pm 0.6\%$ RH 0 to 40% RH
Accuracy	<ul style="list-style-type: none"> <li>› <math>\pm (1.2 + 0.012 \times \text{reading}) \% \text{ RH}</math> (at 40° to 60°C)</li> <li>› <math>\pm 1\% \text{ RH}</math> (at 15° to 25°C, 0 to 90% RH)</li> <li>› <i>-NOTE- Accuracy specifications include non-linearity, hysteresis, and repeatability.</i></li> <li>› <math>\pm 1.7\% \text{ RH}</math> (at 15° to 25°C, 90 to 100% RH)</li> <li>› <math>\pm (1.0 + 0.008 \times \text{reading}) \% \text{ RH}</math> (at -20° to +40°C)</li> <li>› <math>\pm (1.2 + 0.012 \times \text{reading}) \% \text{ RH}</math> (at -40° to -20°C)</li> <li>› <math>\pm (1.4 + 0.032 \times \text{reading}) \% \text{ RH}</math> (at -60° to -40°C)</li> </ul>

### Air Temperature

Sensing Element	PT 100 RTD 1/3 class B IEC 751
Measurement Range	-80° to +60°C
Accuracy	<ul style="list-style-type: none"> <li>› <math>\pm (0.226 - 0.0028 \times \text{temperature})^\circ\text{C}</math> (-80° to +20°C)</li> <li>› <math>\pm (0.055 + 0.0057 \times \text{temperature})^\circ\text{C}</math> (+20° to +60°C)</li> </ul>
Entire Temperature Range	Refer to graph in probe manual.

For comprehensive details, visit: [www.campbellsci.com.au/hmp155a](http://www.campbellsci.com.au/hmp155a) 

