Campbell SCIENTIFIC

# HMP155A

## Air Temperature and Relative Humidity Sensor

# 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®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.

## 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

To reduce the current drain, power can be supplied to the HMP155A only during measurement when the sensor is connected to the data logger's switched 12 V terminal. Data loggers 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

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|---|---|
| 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.) |

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|---|---|
| Body Height | 2.4 cm (0.9 in.) |
| Body Width | 2.0 cm (0.8 in.) |

## Relative Humidity

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|---|---|
| Sensing Element | HUMICAP 180R |
| Measurement Range | 0 to 100% RH (non-condensing) |
| Response Time | ❱ 60 s (90% step change)<br>❱ 20 s (63% step change)<br>❱ 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. |
| Factory Calibration Uncertainty | ❱ The factory calibration uncertainty is defined as ±2 standard deviation limits. Uncertainty is at +20°C. Small variations are possible; see also the calibration certificate.<br>❱ ±1.0% RH 40 to 97% RH<br>❱ ±0.6% RH 0 to 40% RH |
| Accuracy | ❱ ± (1.2 + 0.012 × reading) % RH (at 40° to 60°C)<br>❱ ±1% RH (at 15° to 25°C, 0 to 90% RH)<br>❱ *-NOTE- Accuracy specifications include non-linearity, hysteresis, and repeatability.*<br>❱ ±1.7% RH (at 15° to 25°C, 90 to 100% RH)<br>❱ ±(1.0 + 0.008 × reading) % RH (at -20° to +40°C)<br>❱ ±(1.2 + 0.012 × reading) % RH (at -40° to -20°C)<br>❱ ±(1.4 + 0.032 × reading) % RH (at -60° to -40°C) |

## Air Temperature

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|---|---|
| Sensing Element | PT 100 RTD 1/3 class B IEC 751 |
| Measurement Range | -80° to +60°C |
| Accuracy | ❱ ±(0.226 - 0.0028 x temperature) °C (-80° to +20°C)<br>❱ ±(0.055 + 0.0057 x temperature) °C (+20° to +60°C) |

For comprehensive details, visit: www.campbellsci.com/hmp155a



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