CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

HMP155A-L

Temperature and Relative Humidity Probe

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.

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)

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

Sensor	HUMICAP 180R
Measurement Range	0 to 100% RH (non-condensing)
Response Time	❱ 60 s (90% step change) ❱ 20 s (63% step change) ❱ 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.
	❱ ±1.0% RH 40 to 97% RH ❱ ±0.6% RH 0 to 40% RH
-NOTE-	Accuracy specifications include non-linearity, hysteresis, and repeatability.
Accuracy at 15° to 25°C	❱ ±1.7% RH (90 to 100% RH) ❱ ±1% RH (0 to 90% RH)
Accuracy at -60° to -40°C	±(1.4 + 0.032 × reading) % RH
Accuracy at -40° to -20°C	±(1.2 + 0.012 × reading) % RH
Accuracy at -20° to +40°C	±(1.0 + 0.008 × reading) % RH
Accuracy at 40° to 60°C	± (1.2 + 0.012 × reading) % RH

Air Temperature

Sensor	Pt 100 RTD 1/3 class B IEC 751
Measurement Range	-80° to +60°C
Accuracy with Voltage Output	❱ ±(0.226 - 0.0028 x temperature)°C (-80° to +20°C) ❱ ±(0.055 + 0.0057 x temperature)°C (+20° to +60°C)
Entire Temperature Range	Refer to graph in probe manual.