



EE181-L

Air Temperature and Relative Humidity Sensor



Accurate, Rugged

Ideal for long-term, unattended applications

Overview

The EE181 is a rugged, accurate air temperature and relative humidity (RH) probe that is ideal for long-term, unattended applications. It includes a proprietary coating on the RH element that increases the life of the element and protects it

from dirt, dust, salt, or other contaminants. A 1000 Ω PRT measures air temperature for the -40° to $+60^{\circ}\text{C}$ range. For optimum results, the EE181 should be recalibrated annually.

Benefits and Features

- › Well-suited for long-term, unattended applications
- › Accurate, rugged, reliable
- › Outstanding long-term stability
- › Wide operating temperature range
- › User cleanable
- › Compact and easily interchangeable
- › Low power consumption
- › Compatible with most Campbell Scientific dataloggers

Specifications

Measurement Description	Temperature, relative humidity
Signal Type/Output	Analog voltage
Supply Voltage	7 to 30 Vdc (typically powered by the datalogger's 12 V supply)
Average Current Consumption	< 1.2 mA
Filter Description	30 μm pore size, stainless-steel mesh
Startup Time	2 s
Housing Body Material	Plastic

Housing Classification	IP65
Field Replaceable Chip or Recalibrate	Recalibrate
Operating Temperature Range	-40° to $+60^{\circ}\text{C}$
Sensor Diameter	2.1 cm (0.83 in.)
Length	16.0 cm (6.3 in.)
Weight	290 g (10.2 oz) with 5 m cable

Air Temperature

Sensing Element	1000 Ω Platinum Resistance Thermometer (PRT)
Measurement Range	-40° to +60°C
Storage Temperature Range	-40° to +80°C
Output Signal Range	0 to 1 Vdc
Accuracy	$\pm 0.2^\circ\text{C}$ (at +23°C)

Relative Humidity

Sensing Element	Capacitance
Measurement Range	0 to 100% RH (non-condensing)

Output Signal Range	0 to 1 Vdc
Temperature Dependence	Typically 0.03% RH/°C
Accuracy	<ul style="list-style-type: none">› $\pm (1.5 + 0.015 \cdot \text{RH reading}) \% \text{RH}$ (at -40° to +60°C)› $\pm (1.4 + 0.01 \cdot \text{RH reading}) \% \text{RH}$ (at -25° to +60°C)› <i>-NOTE- Accuracy specifications include hysteresis, non-linearity, and repeatability.</i>› $\pm (1.3 + 0.003 \cdot \text{RH reading}) \% \text{RH}$ (at -15° to +40°C, 0 to 90% RH)› $\pm 2.3\% \text{RH}$ (at -15° to +40°C, 90 to 100% RH)

For comprehensive details, visit: www.campbellsci.com/ee181-l



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