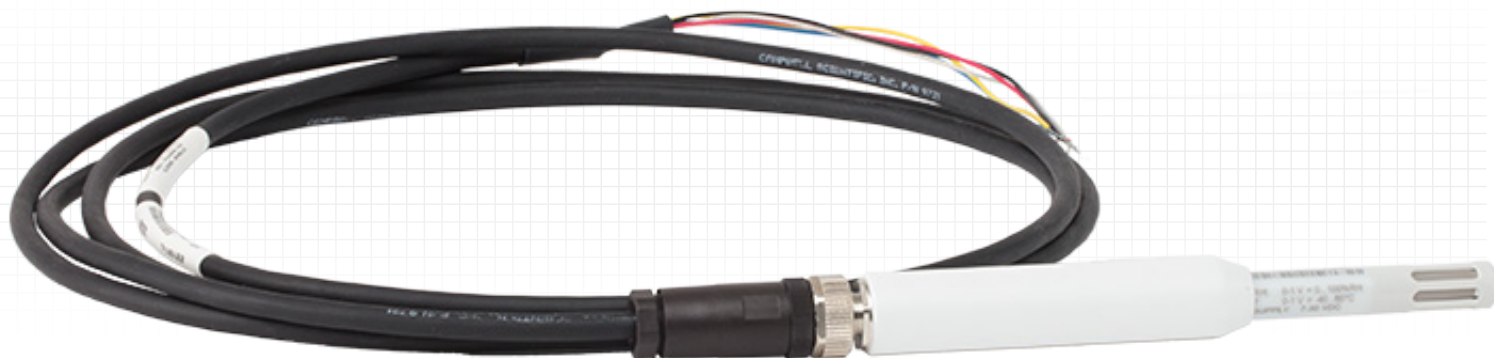


Accurate, Rugged

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
- › Compact and easily interchangeable
- › Low power consumption
- › Compatible with all Campbell Scientific dataloggers

Sensor Mounts

When exposed to sunlight, the EE181 must be housed in a 10-plate solar radiation shield. Campbell Scientific recommends the MetSpec RAD10E, which uses a double-louvered design that offers improved sensor protection from driving rain, snow, and insect intrusion. This shield also has lower self-heating in bright sunlight combined with higher temperatures ($> 24^{\circ}\text{C}$ ($\sim 75^{\circ}\text{F}$)) and low wind speeds ($< 2 \text{ m s}^{-1}$ ($\sim 4.5 \text{ mph}$)) giving a better measurement.

The EE181 will work with R. M. Young 10-plate solar radiation shields (41003-5 or 41003-5A) but these shields require a special adapter (pn 28415) to accommodate the sensor girth.

The RAD10E and 41003-5 attach to a crossarm, mast, or user-supplied pipe with a 2.5 to 5.3 cm (1.0 to 2.1 in) outer diameter. The 41003-5A solar radiation shield attaches to a CM500-series pole or a user-supplied pole with a 5.1 cm (2.4 in) outer diameter.



Ordering Information

Air Temperature and Relative Humidity Probe

EE181-L Air 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 that attaches to a prewired enclosure.
- C Cable terminates in a connector for attachment to a CS110 Electric Field Meter or ET107 weather station.

Mounts

- RAD10E** 10-plate MetSpec solar radiation shield with U bolts for attachment to a Campbell Scientific crossarm or mast.
- 41003-5** 10-plate R. M. Young solar radiation shield with U bolts for attachment to a Campbell Scientific crossarm or mast. Requires the 28415 adapter (see below).
- 41003-5A** 10-plate R. M. Young solar radiation shield with band clamp for attachment to a CM500-series or similar pole. Requires the 28415 adapter (see below).
- 28415** Adapter for mounting the sensor in a 41003-5 or 41003-5A solar radiation shield.

Cable Length Recommendations¹

2 m Height	CM106B ²	CM110 ²	CM115 ²	CM120 ²	UT10	UT20	UT30
3.4 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)

Notes:

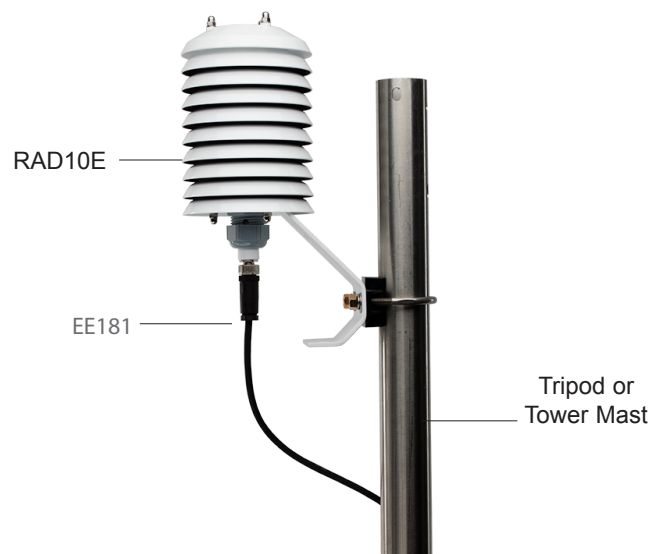
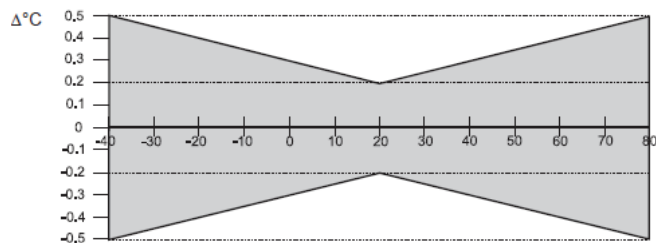
1. The lengths assume the sensor is mounted at the end of a 2 ft crossarm.
2. The lengths assume the enclosure is mounted to the tripod mast. If it is mounted to the leg base, add 0.6 m (2 ft) to the cable length.

Specifications

- › Supply Voltage: 7 to 30 Vdc (typically powered by the datalogger's 12 V supply)
- › Current Consumption: < 1.2 mA
- › Filter Description: 30 µm pore size, stainless steel mesh
- › Start-up Time: 2 s
- › Length: 16.0 cm (6.3 in)
- › Sensor Diameter: 2.1 cm (0.83 in)
- › Weight with 5 m cable: 290 g (10.2 oz)
- › Compliance: View the EU Declaration of Conformity at www.campbellsci.com/ee181-l
- › Housing
 - Body Material: plastic
 - Classification: IP65

Air Temperature

- › Air Temperature Sensor: 1000 Ω Platinum Resistance Thermometer (PRT)
- › Measurement Range: -40° to +60°C
- › Output Signal Range: 0 to 1 Vdc
- › Accuracy:



Relative Humidity (RH)

- › Sensor: Capacitance
- › Measurement Range: 0 to 100% RH, non-condensing
- › Output Signal Range: 0 to 1 Vdc
- › Temperature Dependence: typically 0.03% RH/°C
- › Accuracy (including hysteresis, non-linearity, and repeatability)

Temperature	Accuracy
-15° to +40°C	±(1.3 + 0.003 • RH reading) % RH (0 to 90% RH) ± 2.3% RH (90 to 100% RH)
-25° to +60°C	± (1.4 + 0.01 • RH reading) % RH
-40° to +60°C	± (1.5 + 0.015 • RH reading) % RH