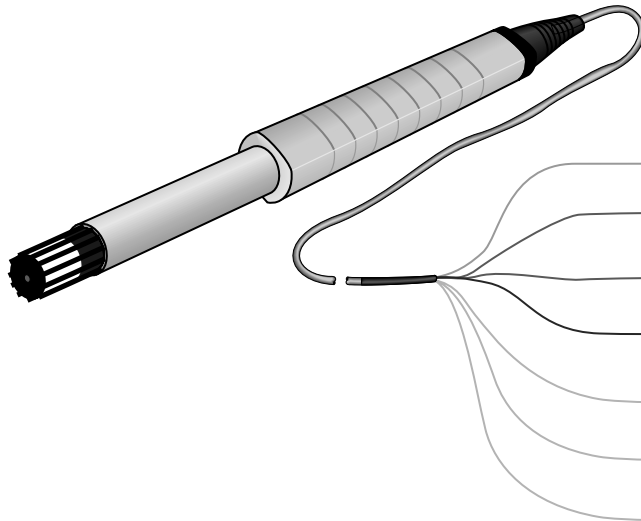


# Temperature and Relative Humidity Probe

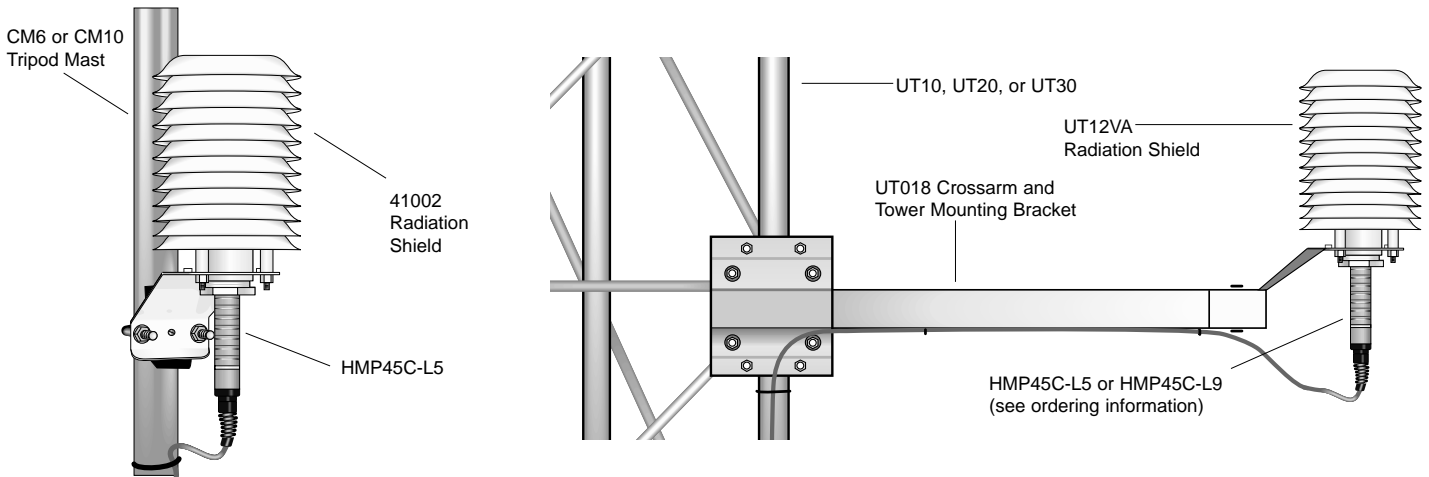
## Model HMP45C

The HMP45C is a rugged, accurate temperature/RH probe designed for long-term, unattended applications. The sensor is compatible with Campbell Scientific CR10(X), CR510, 21X, CR23X, CR5000, CR9000, and CR7 data-loggers. The HMP45C is manufactured by Vaisala, Inc. and uses their capacitive polymer H chip for the RH measurement. A PRT measures temperature. Campbell Scientific installs a switching circuit to supply power only during measurement. A radiation shield (Model 41002 or UT12VA) should be used when the probe is exposed to sunlight.



<u>Color</u>	<u>Function</u>
Red	+12V
Black	Power Ground
Orange	Power Control
Blue	RH Sensor
Yellow	Temp Sensor
Purple	Signal Ground
Clear	Shield

### Sensor Mounts



### Ordering Information

HMP45C-L5 = 5 ft lead length for use with Campbell Scientific's UT10 tower and CM6/CM10 tripods.

HMP45C-L9 = 9 ft lead length for use with UT30 30 foot tower, or UT20 20 foot tower.

HMP45C-L\_\_\_ = For specialized applications where sensor leads must be ordered to non-standard lengths. Maximum lead length is 1000 ft; enter lead length required (in feet) after L. Note: Each 100 ft of sensor cable increases the apparent RH reading by approximately 0.56% RH and the temperature by 0.56°C.



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## Specifications

Probe Length: 10 inches (25.4 cm)

Probe Body Diameter: 1 inch (2.5 cm)

Filter: 0.2  $\mu\text{m}$  Teflon® membrane

Filter Diameter: 0.75 inches (1.9 cm)

### RELATIVE HUMIDITY

RH Measurement Range: 0.8 to 100% non-condensing

RH Output Signal Range: 0.008 to 1 Vdc

RH Accuracy at 20°C:

against factory reference:  $\pm 1\%$  RH

field calibrated against references:  $\pm 2\%$  RH (0-90% RH)

field calibrated against references:  $\pm 3\%$  RH (90-100% RH)

Temperature Dependence of RH Measurement:  $\pm 0.05\%$  RH/°C

Typical Long-Term Stability: Better than 1% RH per year

Response Time (at 20°C, 90% response): 15 s with membrane filter

Settling Time: 500 ms

Supply Voltage (via CSI switching circuit): 12 Vdc Nominal

Current Consumption:  $\leq 4$  mA (Active)

Operating Temperature: -40° to +60°C

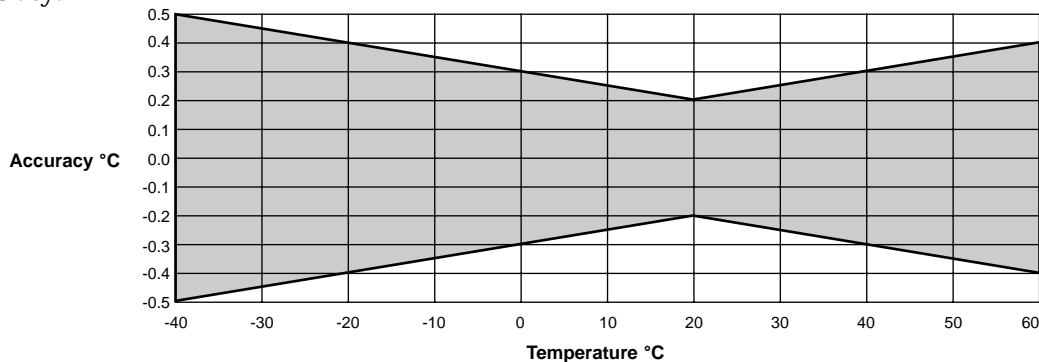
### TEMPERATURE

Sensor: 1000  $\Omega$  PRT

Measurement Range: -39.2° to +60°C

Output signal range: 0.008 to 1.0V

Accuracy:



**NOTE:** The black outer jacket of the cable is Santoprene® rubber. This compound was chosen for its resistance to temperature extremes, moisture, and UV degradation. However, this jacket will support combustion in air. It is rated as slow burning when tested according to U.L. 94 H.B. and will pass FMVSS302. Local fire codes may preclude its use inside buildings.



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