



Accurate and Rugged

Superior performance
and reliability

Overview

The HC2S3 is a rugged, accurate temperature/RH probe that is ideal for long-term, unattended applications. The probe uses a Rotronic's IN1 capacitive sensor to measure RH and a 100 ohm PRT to measure temperature. For optimum results, the HC2S3 should be recalibrated annually.

The HC2S3 comes with a polyethylene filter that protects its sensor from fine dust and particles and minimizes water absorption and retention. Alternatively, a teflon filter is available for marine environments. The response time is slower when using the teflon filter.

Benefits and Features

- › Rugged, high accuracy temperature/relative humidity probe
- › Ideal for use on long-term and unattended applications
- › Unpluggable sensor module allowing easy exchange in the field
- › Proven sensor from well respected Swiss manufacturer
- › Low power consumption - typically 2 mA
- › Compatible with all Campbell Scientific dataloggers (including the CR200(X) series)

Sensor Mounts

The RAD10 radiation shield should be used when the HC2S3 is exposed to sunlight. The RAD10 attaches to a horizontal or vertical crossarm, mast, or user-supplied pipe with a 2.5 to 5.3 cm (1.0 in. to 2.1 in) outer diameter.



Specifications

- › Electronics Operating Limits: -40° to +100°C
- › Storage Temperature: -50° to +100°C
- › Diameter: 15 mm (0.6 in)
- › Length without connector: 85 mm (3.3 in)
- › Length with connector: 183 mm (7.25 in)
- › Weight: 10 g (0.35 oz)
- › Filter: Polyethylene (standard) or Teflon (optional)
- › Current Consumption: < 4.3 mA @ 5 Vdc; < 2.0 mA @ 12 Vdc
- › Supply Voltage: 5 to 24 Vdc
- › Startup Time: 1.5 s typical^a
- › Maximum Startup Current: < 50 mA for 2 μs
- › Analogue Outputs
 - Offset at 0 V: ±3 mV (maximum)
 - Deviation for Digital Signal: <±1 mV (0.1°C, 0.1% RH)

Air Temperature

- › Temperature Sensor: PT100 RTD, IEC 751 1/3 Class B
- › Measurement Range: -40° to +60°C (default)^b
- › Output Signal Range: 0 to 1 V
- › Accuracy at 23°C: ±0.1°C with standard configuration settings
- › Long Term Stability: < 0.1°C per year

Sensor Time Constant [63% of step change (1 m s⁻¹ air flow at sensor)]

- › Standard PE Filter: ≤ 22 s
- › Optional Teflon Filter: ≤ 30 s (typical 4 s)

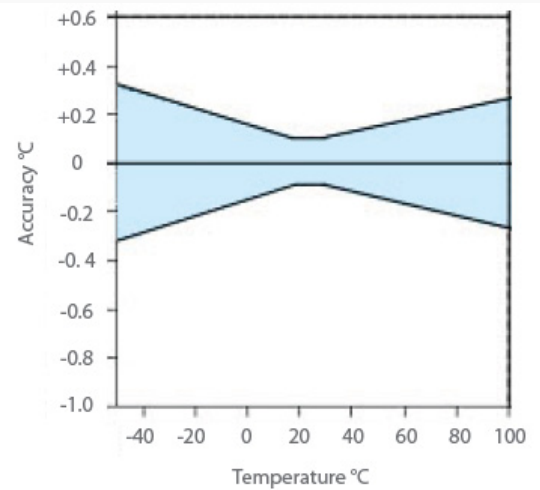
Relative Humidity (RH)

- › Sensor: ROTRONIC® Hygromer IN⁻¹
- › Measurement Range: 0 to 100% RH, non-condensing
- › Output Signal Range: 0 to 1 Vdc
- › Long-Term Stability: < 1% RH per year
- › Accuracy at 23°C: ±0.8% RH with standard configuration settings

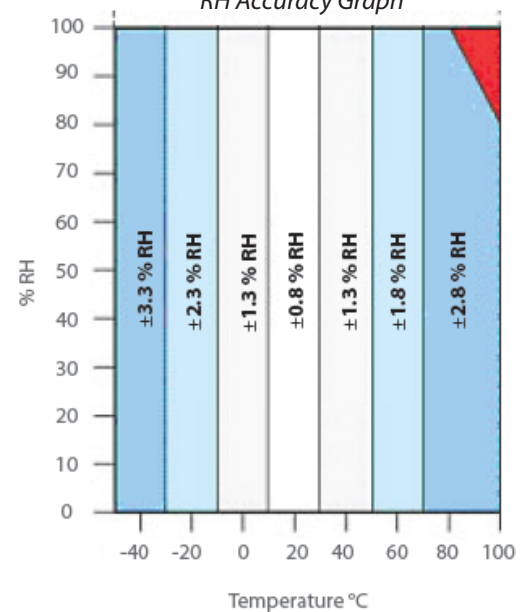
Sensor Time Constant [63% of a 35 to 80% RH step change (1 m s⁻¹ air flow at sensor)]

- › Standard PE Filter: ≤ 22 s
- › Optional Teflon Filter: ≤ 30 s (typical 10 s)

Temperature Accuracy Graph



RH Accuracy Graph



Ordering information

Air Temperature and Relative Humidity Probe

HC253 Rotronics Temperature/RH Probe with user-specified cable length. Standard cable length is 3 m with options for longer cables in multiples of 5 m. The maximum cable length is 300 m.

Accessories

- #27755 Teflon Filter for marine environments
- RAD10 Unaspirated radiation shield
- 43502 Aspirated radiation shield

Notes:

^aThe startup time is Rotronics specification. Campbell Scientific recommends 2 s at 60°C, 3 s at 0°C, and 4 s at -40°C.

^bThe 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.

