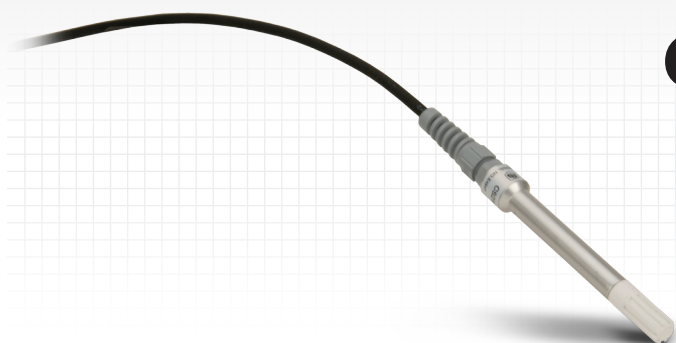


**CS215***Temperature and Relative Humidity Probe*

Competitively Priced; SDI-12 Output

General purpose
temperature and RH sensor

Overview

The CS215 uses the Sensirion SHT75, a combined relative humidity and temperature element, to provide accurate, stable measurements. The element is based on Sensirion's CMOSens technology, which has been tested for more than two years in

alpine conditions. The CS215 outputs an SDI-12 signal that is measurable by most Campbell Scientific dataloggers.

The Sensirion SHT75 element is field-replaceable, eliminating the downtime typically required for the recalibration process.

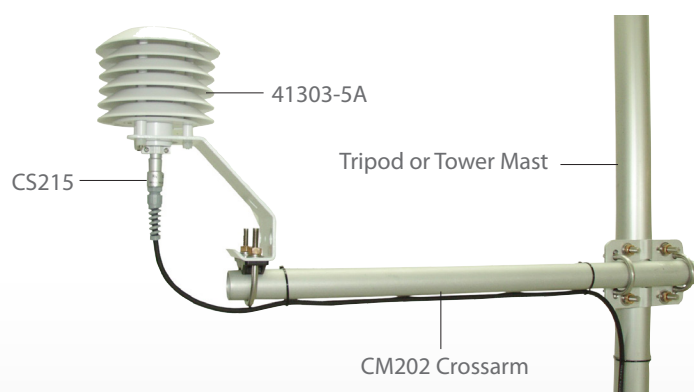
Benefits and Features

- Accurate and stable measurements
- Field changeable element allows on-site recalibration
- Low power consumption
- Each sensor element is individually calibrated so no further adjustment of the probe is required
- Digital SDI-12 output

Sensor Mounts

When exposed to sunlight, the CS215 must be housed in a 41303-5A, 41303-5B, or RAD06 6-plate naturally aspirated radiation shield. The 41303-5A and RAD06 attaches 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 41303-5B attaches to a CM500-series pole or a user-supplied pole with a 5.1 cm (2.4 in) outer diameter. The RAD06

and RAD10 use a double-louvered design that offers improved sensor protection from driving rain, snow, insect intrusion and 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 RAD10 10-plate radiation shield can be used for slightly improved accuracy.



The 41303-5A 6-plate radiation shield attaches to a crossarm by placing the U bolt in the bottom holes.



The RAD10 10-plate radiation shield attaches to a mast by placing the U bolt in the side holes. Use of this 10-plate shield improves accuracy.

questions & quotes: 435.227.9080

www.campbellsci.com/cs215



Ordering Information

Air Temperature and Relative Humidity Probe

CS215-L CSL 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 for attachment to a prewired enclosure.

Radiation Shields

- 41303-5A** 6-Plate Radiation Shield with U-bolts for attachment to a Campbell Scientific crossarm or mast.
- 41303-5B** 6-Plate Radiation Shield with Band Clamp for attachment to a CM500-series or similar pole.
- RAD06** 6-Plate MetSpec Radiation Shield with U-bolts for attachment to a Campbell Scientific crossarm or mast.
- RAD10** 10-Plate MetSpec Radiation Shield with U bolts for attachment to a Campbell Scientific crossarm or mast.
- 41003-5** 10-Plate Radiation Shield with U-bolts for attachment to a Campbell Scientific crossarm or mast. Requires adapter (pn 6637).
- 41003-5A** 10-Plate Radiation Shield with Band Clamp for attachment to a CM500-series or similar pole. Requires adapter (pn 6637).

Recommended Cable Lengths

2-m Height		Atop a tripod or tower via a 2-ft crossarm such as the CM202								
Mast/Leg	CM202	CM6	CM106	CM10	CM110	CM115	CM120	UT10	UT20	UT30
2.7 m (9 ft)	3.3 m (11 ft)	3.3 m (11 ft)	4.3 m (14 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)

Note: Add 1 m (2 ft) to the cable length if mounting the enclosure to the leg base of a CM106, CM110, CM115, or CM120 tripod.

Specifications

- Sensing Element: Sensirion SHT75
- Communication Standard: SDI-12 V1.3 (responds to a subset of commands)
- Power Supply Voltage Range: 7 to 28 Vdc* (typically powered by the datalogger's 12 Vdc supply)
- Typical Current Drain
 - Quiescent: 120 μ A
 - During Measurement: 1.7 mA (takes 0.7 s)
- EMC Compliance: Tested and conforms to IEC61326:2002
- Operating Temperature Range: -40° to +70°C
- Housing Material: Anodized aluminum
- Housing Classification: IP65 (NEMA 4)
- Sensor Protection: Outer glass-filled polypropylene cap. Inner expanded PTFE filter. Filter material has a porosity of 64% and a pore size of <3 μ m
- Length Including Strain Relief: 18.0 cm (7.1 in)
- Diameter at Sensor Tip: 1.2 cm (0.5 in)
- Diameter at Cable End: 1.8 cm (0.7 in)
- Weight with 10 ft cable 150 g (5.3 oz)

Air Temperature

- Measurement Range: -40° to +70°C
- Output Resolution: 0.01°C

- Accuracy
 - 25°C: $\pm 0.3^\circ\text{C}$
 - +5° to +40°C: $\pm 0.4^\circ\text{C}$
 - 40° to +70°C: $\pm 0.9^\circ\text{C}$
- Response Time with Filter: < 120 s (63% response time in air moving at 1 m s⁻¹)

Relative Humidity (RH)

- Measurement Range: 0 to 100% RH (-20° to +60°C)
- Output Resolution: 0.03% RH
- Accuracy at 25°C
 - 10% to 90% range: $\pm 2\%$ RH
 - 0% to 100% range: $\pm 4\%$ RH
- Short Term Hysteresis: < 1% RH
- Temperature Dependence: better than $\pm 2\%$ (-20° to 60°C)
- Stability (Typical): $\pm 1.0\%$ per year
- Response Time with Filter: < 20 s (63% response time in still air)
- Calibration Traceability: NIST and NPL standards



The RAD6 6-plate shield attaches to a mast by placing the U bolt in the side holes.

*Older sensors (serial numbers less than E13405) had a power supply voltage range of 6 to 18 Vdc.



**CAMPBELL
SCIENTIFIC**

Campbell Scientific, Inc. | 815 W 1800 N | Logan, UT 84321-1784 | (435) 227-9000 | www.campbellsci.com
USA | AUSTRALIA | BRAZIL | CANADA | CHINA | COSTA RICA | ENGLAND | FRANCE | GERMANY | SOUTH AFRICA | SPAIN

© 2005, 2015
Campbell Scientific, Inc.
June 22, 2015