CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

CS215

Temperature and Relative Humidity Probe

Competitively Priced; SDI-12 Output

General purpose temperature and RH probe

Overview

The CS215 is a temperature and relative humidity probe that uses a Swiss-made digital humidity and temperature element that makes accurate and 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.

Benefits and Features

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

Technical Description

The CS215 uses the Sensirion SHT75, a combined relative humidity and temperature element, to provide accurate, stable measurements. The Sensirion SHT75 element is field-replaceable, eliminating the downtime typically required for the recalibration process. The CS215 outputs an SDI-12 signal that's measurable by many Campbell Scientific dataloggers.

The CS215 should be housed in a solar radiation shield—typically the 41303-5A. The 41303-5A 6-plate naturally aspirated shield attaches to a mast, crossarm, or tower leg.

Specifications

Sensing Element	Sensirion SHT75
Measurement Description	Temperature, relative humidity
Signal Type/Output	SDI-12
Communication Standard	SDI-12 V1.3 (responds to a subset of commands)
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 < 3µm.
Supply Voltage	7 to 28 Vdc (for serial numbers E13405 and newer)

	❱ The supply voltage is typically powered by the data logger's 12 V supply. ❱ 6 to 18 Vdc (for older models)
Typical Current Drain	❱ 120 µA (quiescent) ❱ 1.7 mA (measurement takes 0.7 s)
EMC Compliance	Tested and conforms to IEC61326:2002.
Operating Temperature Range	-40° to +70°C
Field Replaceable Chip or Recalibrate	Field-replaceable chip
Diameter	❱ 1.2 cm (0.5 in.) at sensor tip ❱ 1.8 cm (0.7 in.) at cable end
Length	18.0 cm (7.1 in.) including strain relief
Weight	150 g (5.3 oz) with 3.05 m (10 ft) cable

Relative Humidity

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

Air Temperature

Measurement Range	-40° to +70°C
Output Resolution	0.01°C
Accuracy	❱ ±0.4°C (5° to 40°C) ❱ ±0.9°C (-40° to +70°C) ❱ ±0.3°C (at 25°C)
Response Time with Filter	< 120 s (63% response time in air moving at 1 m s^{-1})

CAMPBELL SCIENTIFIC
80 Hathern Road, Shepshed, LE12 9GX UK | +(0)1509 828888 | sale@campbellsci.co.uk | www.campbellsci.eu
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