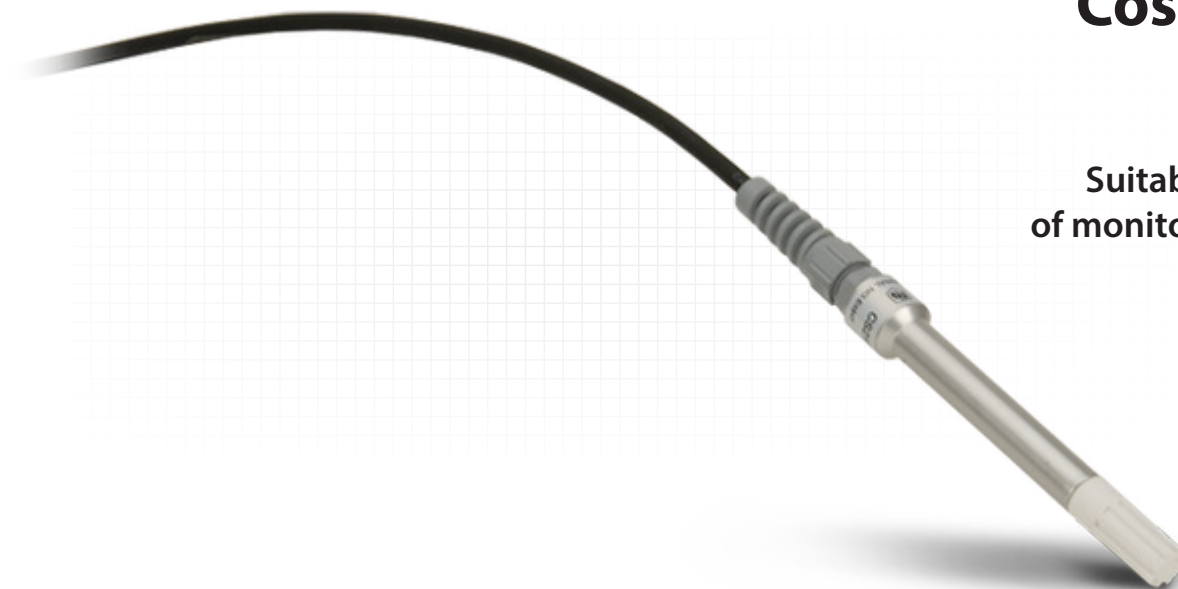


## Cost effective probe

Suitable for wide range  
of monitoring applications



### Overview

The CS215 utilises a novel, Swiss-made, combined relative humidity and temperature element based on CMOSens® technology that offers good measurement accuracy and stability.

These elements have been tested in Switzerland over a period of years in Alpine conditions and shown to work within their specifications through extreme weather.

The CS215 probe is specifically designed for field use with dimensions to suit common radiation shields (see over).

It features a digital SDI-12 output allowing simple connection and measurement by many datalogging systems.

### Benefits and Features

- › Uses a novel, combined digital humidity and temperature element
- › Field changeable element allows fast on site recalibration
- › Digital SDI-12 output allows long cables with no added errors
- › Simple datalogger programming
- › Low power consumption
- › Wide operating voltage

### Typical Applications

- › Automatic Weather Station
- › Environmental monitoring and control
- › Moisture monitoring in building materials



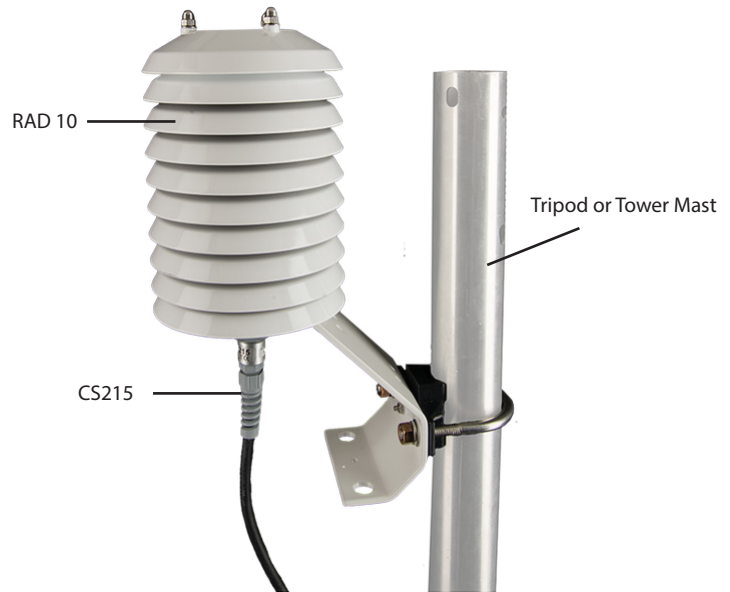
## Mounting

When the sensor is used outdoors it is standard practice to install the sensor within a housing, known as a shield, to prevent solar radiation heating the sensor and thereby creating errors in the measurements. The shield also gives a degree of protection from adverse weather, e.g. hail, driving rain. The most common type of shield is a relatively small, naturally ventilated screen that is low maintenance and requires no power.

Campbell Scientific offers and recommends the RAD10 shield for this probe as it performs better than most other shields of a similar design. Please request a leaflet for further details. For continuity with long term measurements some meteorological services sometimes require use of larger, more expensive, Stevenson screens.

Alternatively, for best accuracy a ventilated shield can be used, such as the 43502, although these require significant power. These are attached either to a crossarm or a tripod or tower mast using a U bolt.

Please contact Campbell Scientific for further details of these options.



## Field Calibration

Calibration is easy to carry out by simply changing the sensor element. As each sensor element is individually calibrated no further adjustments of the probe are required, i.e. changing the element returns the probe to the factory calibration state for both temperature and humidity.

This feature means the probe can be recalibrated in the field for a reasonable cost without interrupting the measurements for long periods.

## Specifications

- › Sensing Element: Sensirion SHT75
- › Communication Standard: SDI-12 V1.3 (responds to a subset of commands)
- › Supply voltage: 7-28V DC (new sensors only)
- › Current drain (typical):
  - Quiescent: 120µA quiescent,
  - During measurement: 1.7mA (takes 0.7 sec)
- › EMC Compliance: Tested and conforms to IEC61326:2002
- › Operating Temperature Range: -40° to +70°C
- › Housing
  - Material: Anodized aluminium
  - 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 µm.
- › 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)

### Relative Humidity Measurement

- › Measurement Range: 0 to 100% RH
- › Accuracy (at 25°C): ±2% over 10-90% RH, ±4% over 0-100% RH
- › Short term hysteresis: <1% RH
- › Temperature dependence: better than ±2% over -20° to 60°C
- › Long-term stability (typical): ±1.0% per year
- › Response time with filter: <20s (63% response time in still air)
- › Calibration traceability: NIST and NPL standards

### Temperature Measurement

- › Measurement range: -40°C to +70°C
- › Accuracy: ±0.3°C at 25°C, ±0.4°C over +5° to +40°C, ±0.9°C over -40° to +70°C
- › Response time with filter: <120 s (63% response time in air moving at 1 m/s<sup>-1</sup>)
- › Output resolution: 0.03% RH, 0.01°C

