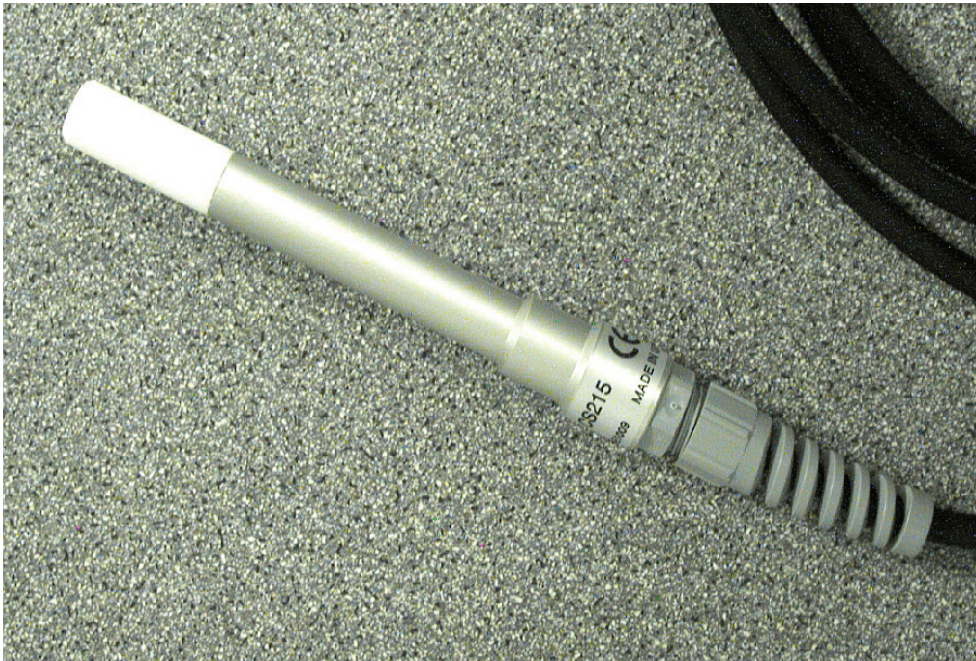


# CS215 Temperature and Relative Humidity Probe

and 41303-5 Unaspirated Radiation Shield



**A cost effective probe suitable for a wide range of monitoring applications**

## **Introduction**

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.

## **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.

## **Key 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

## **Typical Applications**

Automatic Weather Stations

Environmental monitoring and control

Moisture monitoring in building materials

## CS215 Specifications

**Sensing Element:** Sensirion SHT75

**Relative Humidity Measurement:**

MEASUREMENT RANGE: 0 to 100% RH

ACCURACY (AT 25°C): ±2% over 10-90%,  
±4% over 0-100%

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: <10s (63%  
response time in air moving at 1 m/s)

CALIBRATION TRACEABILITY: to NIST and  
NPL standards

**Temperature Measurement:**

MEASUREMENT RANGE: -40°C to +70°C

ACCURACY: ±0.4°C over +5 to +40°C,  
±0.9°C over -40°C to +70°C

RESPONSE TIME WITH FILTER: <120 s  
(63% response time in air moving at 1 m/s)

**Electrical:**

SUPPLY VOLTAGE: 6-16V DC

CURRENT CONSUMPTION: Typically 70µA  
quiescent, 1.7mA during measurement  
(takes 0.7 sec)

EMC COMPLIANCE: Tested and conforms to  
BS EN61326:2002

**Sensor output:**

COMMUNICATION STANDARD: SDI-12  
V1.3 (responds to a subset of commands)

Output resolution: 0.03%RH, 0.01°C

**Physical:**

OPERATING TEMPERATURE RANGE: -40°C  
to +70°C

WEIGHT: 150g (incl. 3m of cable)

STANDARD CABLE LENGTH: 3m

CABLE TYPE: Low-temperature cable with  
Santoprene outer jacket

HOUSING MATERIAL: Anodised aluminium

HOUSING CLASSIFICATION: IP65 (NEMA 4)

SENSOR PROTECTION: Sintered high density  
polyethylene filter cap, average pore size 13  
µm

DIMENSIONS: Diameter 12mm at sensor tip,  
18mm at cable end; Length 180mm including  
cable strain relief.

## Gill 41303-5 Shield

The Gill 41303-5 Six-Plate Radiation Shield is a naturally-ventilated shield designed for smaller ambient air temperature and relative humidity sensors. It protects the sensors from error-producing solar radiation and precipitation.

The convenient size and light weight of this shield make it useful for a variety of applications. It is especially well suited for remote weather stations where power supplies are limited.

It has specifications as follows:

**Radiation error (at 1080 Wm<sup>-2</sup> intensity):**

0.4°C RMS @ 3ms<sup>-1</sup>

0.7°C RMS @ 2ms<sup>-1</sup>

1.5°C RMS @ 1ms<sup>-1</sup>

**Material**

White thermoplastic UV-stabilised for long-term weather resistance. Gloss white painted aluminium mounting bracket (with moulded plastic V-block and stainless steel U-bolt) which allows it to be attached to a vertical pipe of any diameter between 25 and 50mm.

**Size**

Overall 120mm diameter x 120mm height (shield only); 200 x 280 x 130mm including bracket.

**Weight**

0.5kg



A CS215 probe shown mounted in a special cut-away version of the 41303-5 shield.

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*Campbell Scientific products are available from:*