



CS240

PT-1000 Class A, Back-of-Module Temperature Sensor



Proven Rugged Design

Class A accuracy at any cable length

Overview

The CS240 is a surface mountable PRT that measures back-of-module temperature for solar energy applications. It uses a precision PT-1000 class A PRT to provide the highest level of

accuracy. To withstand the harsh treatment commonly seen in MET station installation, the PRT is safely housed inside a specially designed self-adhesive aluminum disk.

Benefits and Features

- ▶ Precision PT1000 Class A sensing element
- ▶ Compliant with IEC 60751, DIN EN 60751 (according to IEC 751)
- ▶ Various cable lengths available
- ▶ Rugged design holds up in harsh conditions and conduit installations
- ▶ Self-adhesive backing for easy mounting that lasts decades
- ▶ 2-wire and 4-wire configuration to satisfy data logger channel count and accuracy—even at long cable lengths
- ▶ Quick sensor head connection for easier installation and replacement
- ▶ NIST traceability provided with purchase of optional 3-point temperature calibration

Detailed Description

The CS240 consists of a PT-1000 class A PRT encased in an aluminum disk. The disk protects the PRT, particularly during installation when pulled through conduit, and promotes heat transfer from the surface. An adhesive tab on the disk fastens the CS240 to the measurement surface. If the temperature may exceed 70°C, Extreme sealing tape is also required to secure the probe.

The CS240 provides PV stakeholders with highly accurate back-of-module temperature, even at long cable lengths, for use in power performance modeling and simulation of solar energy applications. Back-of-module temperature is critical for any evaluation of effective irradiance and power conversion.



Specifications

Sensor	1000 Ω DIN Class A RTD
Measurement Description	Back-of-module temperature
Operating Temperature Range	-40° to +135°C
Cable Temperature Rating	105°C
Class A PRT Accuracy	$\pm (0.15 + 0.002t)$
Temperature Coefficient	TCR = 3850 ppm/K
Element Type	Precision 1000 ohm Class A platinum sensing element (PT-1000)
Long-Term Stability	Maximum R_o drift 0.04% (after 1000 h at 400°C)
Measuring Current	0.1 to 0.3 mA
Disk Material	Anodized aluminum
Cable Jacket Material	Black semi-gloss PVC, UL VW-1 sunlight-resistant for outdoor use
Sensitivity	$\pm 0.06 \Omega$ or $\pm 0.15^\circ\text{C}$
Disk Diameter	2.54 cm (1.0 in.)
Overall Probe Length	6.35 cm (2.5 in.)
Overmolded Joint Dimensions	5.72 x 1.12 x 1.47 cm (2.25 x 0.44 x 0.58 in.)
Weight	90.7 g with 3.2 m cable (0.2 lb with 10.5 ft cable)

Conductors

Wire Size and Type	24 AWG (7/32) tinned copper
Insulation Type	PVC
UL	AWM 10012 1000V 105°C
Filler	Fibrillated polypropylene as required for uniform round construction
Drain	24 AWG (7/32) tinned copper (cabled, touching foil)
Shield	Aluminum/Mylar (100% coverage, 25% minimum overlap, foil facing in)
Nominal Wire Diameter	0.61 mm (0.024 in.)

Compliance

-NOTE-	<i>Compliance information can be found in the Documents section of the web page.</i>
Approvals	UL AWM 2586 1000V 105°C; CSA AWM 600V 105°C FT
EMC Compliance	Conforms with Electromagnetic Compatibility Directive (EMC).
RoHS2	Conforms with the Restriction of Hazardous Substances Directive (RoHS2).

For comprehensive details, visit: www.campbellsci.com/cs240 



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