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WHEN MEASUREMENTS MATTER

CS325DM-L

Silicon Irradiance Reference Sensor

Overview

The CS325DM, manufactured by Atonometrics as the RC18, is a silicon solar irradiation sensor commonly used as a "reference cell" in solar photovoltaic (PV) monitoring applications. This solar radiation sensor has a temperature operating range that allows it to work effectively in different environments. The sensor element was designed to correspond to PV modules, including spectral selectivity and incident angle modifier. The data signals are Modbus RTU RS-485 or analog.

Benefits and Features

- Rugged design with wide temperature operating range
- Analog and/or digital outputs available
- Spectral selectivity and incident angle modifier correspond to crystalline PV module
- Built-in cell temperature measurement and signal compensation

Specifications

Sensor	Silicon solar irradiation sensor
Measurement Description	Solar irradiance measurements for outdoor monitoring of PV systems
Irradiance Measurement Range	0 to 1500 W/m^2
Operating Temperature Range	-35° to +80°C
Input Power	8 to 28 Vdc (12 to 28 Vdc for 0 to 10 V analog output)
Photovoltaic Cell	Crystalline Si, 20 mm x 20 mm, ~135 mA @ 1 sun
Window	Low-iron solar glass, or CdTe-matching filter
Cell Temperature Measurement	-40° to +100°C, Pt100 RTD
Calibration Data	Internally calibrated; no calibration data to manage
Enclosure Material	Powder-coated cast aluminum housing
IP Rating	IP67
Cable Type	Shielded, weather-resistant, UV-rated, 24 AWG/0.2 mm^2

Cable Connector	M12 circular connector, IP67
Response Time	0.15 s
Electronics Non-Linearity	±0.03% of range
Repeatability	±0.02% of range
Temperature Drift	±0.4% at 1000 W/m^2 (-35° to +80°C)
Factory Calibration of Electronics	±0.1% of reading ±0.2% of range
Irradiance Calibration	±1.8% (calibrated to NREL-traceable reference standard)
Overall Measurement Uncertainty	±2.0% of reading ±4 W/m^2
Stability	0.5% per year
Mounting	4 mounting holes with diameter 5.50 mm (0.217 in.)
Dimensions	115.1 x 65.0 x 30.0 mm (4.53 x 2.56 x 1.18 in.)
Weight	0.3 kg (0.6 lb)

Digital

Communications Protocols	Modbus over RS-485, user-settable Modbus address
Baud Rate	Up to 57.6 kbps
Current Consumption	Typically 8 to 15 mA

Analog

Analog Output Options	⟩ 0 to 10 V ⟩ 0 to 1.5 V ⟩ 4 to 20 mA
Analog Output Signals	⟩ Irradiance ⟩ Cell temperature ⟩ Short-circuit current
Current Consumption	⟩ 15 to 55 mA (4 to 20 mA mode) ⟩ Typically 8 to 15 mA (0 to 1.5 V or 0 to 10 V mode)
Output Impedance	2 kohm (0 to 1.5 V or 0 to 10 V mode)
Internal Voltage Drop	Allow 3.5 V minimum (4 to 20 mA mode)

For comprehensive details, visit: www.campbellsci.com/cs325dm-l