

IRRADIANCE SENSOR SI-12TC

Article nos.: 423.000, 423.002, 423.004



FUNCTIONAL DESCRIPTION

The short-circuit current of a Silicon solar cell is proportional to the solar radiation. The Si-12TC sensors use a monocrystalline solar cell (Schott Solar) that is operated in short-circuit mode using a low-impedance resistor. All sensors have active temperature compensation.

Mechanical design:

The solar cell is embedded in ethylene vinyl acetate (EVA) between glass and a Tedlar film. The laminated cell is integrated into a housing made of anodized aluminum. The structure of the Si sensor therefore corresponds to that of a PV module. A UV-resistant cable is used to make the electrical connection.

Optional temperature measurement: (article nos.: 423.001, 423.003, 423.005)

In addition to measuring radiation, the Si-12TC-T sensors enable measurement of the solar cell temperature. The measurement is performed by means of a temperature sensor directly laminated on the cell.

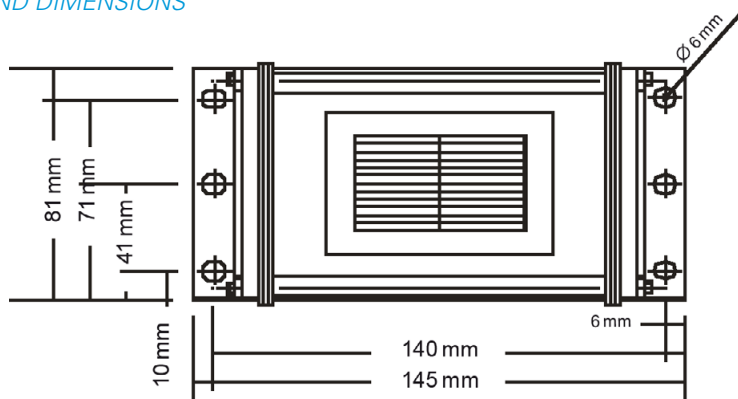
Features:

- Measurement of solar radiation with temperature compensation
 - Extended measurement range up to 1,200 W/m²
 - Individual calibration with a reference test signal
 - Easy to install
 - 3 m, 15 m or 30 m connection cable (UV-resistant)
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TECHNICAL DATA

General:	Current measuring shunt:	0.1 Ω (temp. compensation = 22 ppm/K)
	Working temperature:	-20°C to 70°C
	Power supply:	DC: 12 to 24 V
	Current consumption:	0.3 mA
	Cell size:	50 mm x 34 mm
	Weight:	340 g
Type Si-12TC: (solar radiation)	Measurement range:	0 to 1,200 W/m ²
	Output signal:	0 to 10 V
	Measurement precision:	$\pm 5\%$ of final value
	Connection cable:	3 x 0.14 mm ² (UV-resistant)
Type Si-12TC-T: (solar radiation, module temperature)	Measurement range:	-20°C to 80°C
	Output signal:	1.84 V + T[°C] * 92 mV/°C
	Measurement precision:	$\pm 1.5\%$ at 25°C
	Nonlinearity:	0.5°C
	Max. deviation:	2°C
	Connection cable:	4 x 0.14 mm ² (UV-resistant)

TERMINAL ASSIGNMENT AND DIMENSIONS



Color	Assignment
Orange	Measuring signal for radiation (0 to 10 V)
Red	Power supply (DC: 12 to 24 V)
Black	GND
Brown	Measuring signal for temperature, optional