

Irradiance Sensor
(model Si-12TC)

Irradiance + Temp. Option
(model Si-12-TC-T)

Irradiance Sensor with Module Temperature Sensor option

The solar sensor is used for professional monitoring of a photovoltaic system. The measured irradiance can be used to determine the expected yield of a photovoltaic system, which can then be compared with the actual yield.

Functional Description

The short-circuit current of a silicone solar cell is proportional to the solar irradiance. The Si-12TC sensors use a monocrystalline solar cell (from the Schott Solar company), which is operated by a low-impedance resistor in the short circuit. All sensors are equipped with active temperature compensation. This means that the measurement accuracy is increased with the help of a special temperature sensor which is laminated to the rear of the solar cell. Each individual sensor is calibrated using a pyranometer, which is calibrated regularly.

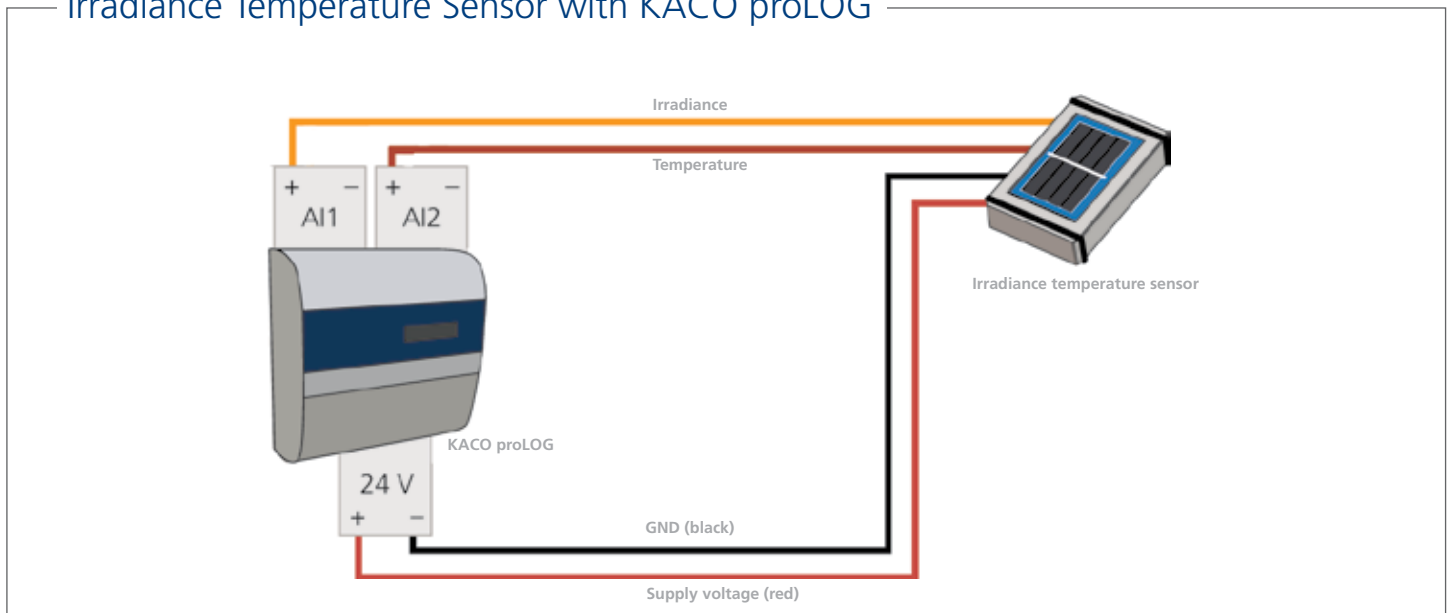
Mechanical Design

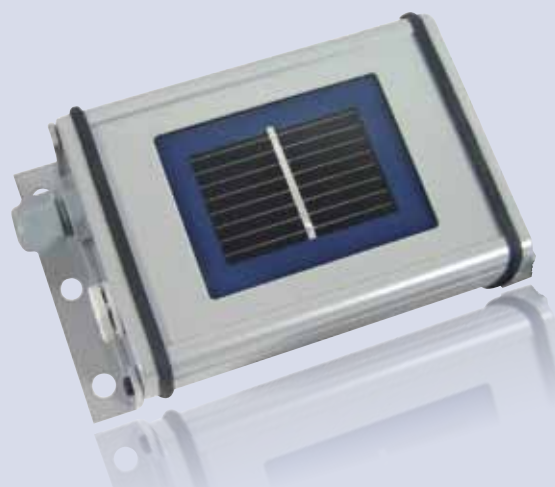
The solar cell is embedded in ethylene vinyl acetate (EVA) between the glass and a layer of Tedlar. The laminated cell is integrated into a housing made of powder-coated aluminium. The Si sensor design therefore corresponds to that of a PV module. The electrical connection is established via a UV-resistant cable.

Optional Temperature Measurement

In addition to measuring the radiation, the Si-12TC-T sensors also allow measurement of the solar cell temperature. This measurement is made by a temperature sensor that is directly laminated to the cell.

Irradiance Temperature Sensor with KACO proLOG



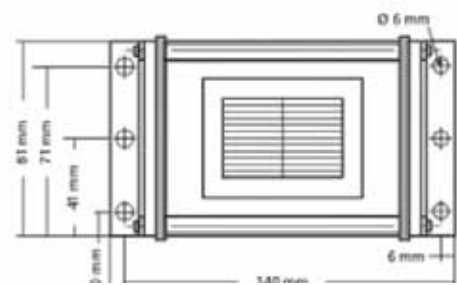
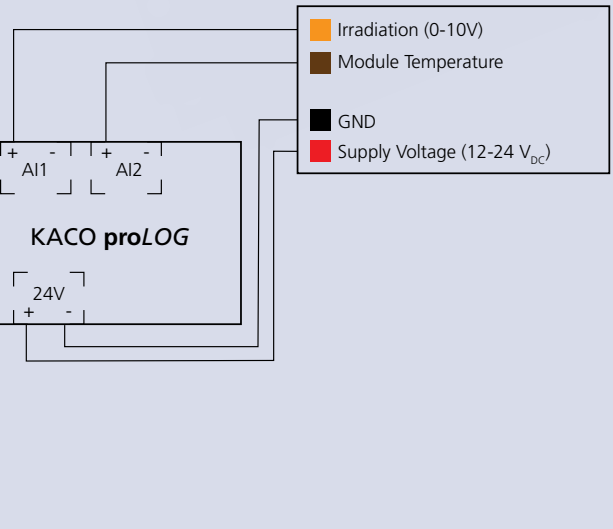


Technical Data	Irradiance Sensor
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Type Si-12TC (Irradiance Sensor)	
Range	0 W/m ² to 1200 W/m ²
Output Signal	0 V to 10 V
Accuracy	+/- 5%
Cable	3 x 0.14 mm ² (UV stable)

Type Si-12TC-T (Irradiance and Module Temperature)	
Range	-4 °F to 176 °F (-20 °C to 80 °C)
Output Signal	1.84 V to T [°C] * 92 mV/°C
Accuracy	+/- 5% of final value
Linearity Deviation	0.5 °C
Max. Temp. Deviation	2 °C
Cable	4 x 0.14 mm ² (UC stable), 3 m

Connection Cable Allocation	
Orange	Irradiance (0-10V)
Red	Supply Voltage (12-24 V _{DC})
Black	GND
Brown	Module Temperature (0-10 V / Optional)



KACO Sensor and Monitoring Options

