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.
The KACO proLOG can be connected to any KACO inverter.

### Technical Data

#### Type Si-12TC (Irradiance Sensor)
- **Range**: 0 W/m² to 1200 W/m²
- **Output Signal**: 0 V to 10 V
- **Accuracy**: +/- 5%
- **Cable**: 3 x 0.14 mm² (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 mm² (UC stable), 3 m

### Connection Cable Allocation

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>Irradiation (0-10V)</td>
<td>AI1, AI2</td>
</tr>
<tr>
<td>Red</td>
<td>Supply Voltage (12-24 VDC)</td>
<td>Red</td>
</tr>
<tr>
<td>Black</td>
<td>GND</td>
<td>Black</td>
</tr>
<tr>
<td>Brown</td>
<td>Module Temperature (0-10 V / Optional)</td>
<td>Brown</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice. KACO accessories 06/28/11