# PYRANOMETER SMP11

**Item No.: 423.029**

## DESCRIPTION OF FUNCTIONS

The SMP11 is suitable for use in any weather conditions. It is used both in climate and water sciences as well as meteorology. With this device, the entire irradiation can be measured. The pyranometer has both an RS485 Modbus interface, as well as an current interface (4 ... 20 mA), ensuring easy connection to any meteocontrol data logger.

## TECHNICAL DATA

<table>
<thead>
<tr>
<th>ISO classification:</th>
<th>Secondary Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply:</td>
<td>5 ... 30 V DC</td>
</tr>
<tr>
<td>Current consumption (at 12 V DC):</td>
<td>100 mW</td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>-40 ... 80 °C</td>
</tr>
<tr>
<td>Protection class:</td>
<td>IP67</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>H: 92,5 mm (with dome) / Ø 150 mm (enclosure)</td>
</tr>
</tbody>
</table>

**Current interface (4 ... 20 mA)**

- Maximum range of the analogue output: 0 ... 1600 W/m²

**Bus interface (RS-485)**

- Maximum range of the Bus interface: -400 ... 4000 W/m²
- Protocol: Modbus RTU

- Spectral range (50 % points): 285 ... 2800 nm
- Response time (63 %): < 0,7 s
- Response time (95 %): < 2 s
- Zero offset a (thermal radiation: 200 W/m²): < 7 W/m²
- Zero offset b (temperature change: 5 K/h): < 2 W/m²
- Stability deviation (per year): < 0,5 %
- Non-linearity (100 ... 1,000 W/m²): < 0,2 %
- Directional error (at 80 ° and 1,000 W/m²): < 10 W/m²
- Temperature error: < 1 % (-20 ... 50 °C) < 2 % (-40 ... 70 °C)

- Inclination error (at 1,000 W/m²): < 0,2 %
- Expected daily accuracy: < 2 %
- Error accuracy: 0,1 °
**CONFIGURATION**

**Bus interface**
- **Interface:** Current interface
- **Protocol:** Modbus RTU
- **Adjustable baud rates:** 1200, 2400, 4800, 9600, 19200, 38400, 115200, 460800
- **Default baud rate:** 19200
- **Selectable data formats:** 8N1, 8N2, 8E1, 8E2, 8O1, 8O2, 7N1, 7N2, 7E1, 7E2, 7O1, 7O2
- **Default data format:** 8N1
- **Default slave address:** 51-60, see identification label
- **Note:** Changes regarding communication settings are only possible in connection with an USB converter on RS485 and the manufacturer’s software.

**Current interface**
- **Gradient:** 100
- **Offset:** -400
- **Unit:** W/m²
- **Abbreviation:** G_Hx* / G_Mx*

**MEASUREMENT VALUES RECORDED**

**Bus interface**
- G_H / G_M**
- T_U

**Current interface**
- G_Hx / G_Mx

**PARTICULARITIES**

* x is a placeholder for a consecutive number. If more than one sensor of a given type is installed, the numbering starts with 1. Otherwise, 0 is used.

** Ambient temperature**

Depending on whether the irradiation in the horizontal plane or at the module level is to be measured, a corresponding modbus file can be selected (horizontal or module level).