

# PYRANOMETER SMP10

Item No.: 423.034



## DESCRIPTION OF FUNCTIONS

The SMP 10 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 insolation can be measured.

## TECHNICAL DATA

|   |  |
|---|--|
| ISO- classification:                                    | Secondary Standard                             |
| Response time (63%):                                    | < 0,7 s  |
| Response time (95%):                                    | < 2 s  |
| Zero-Offsets:   |  |
| Thermal radiation (200 W/m <sup>2</sup> )               | < 7 W/m <sup>2</sup>                           |
| Temperature dependence (5 K/h)                          | < 2 W/m <sup>2</sup>                           |
| Stability deviation (per annum):                        | < 0,5 %  |
| Non-linearity (0 ... 1000 W/m <sup>2</sup> ):           | < 0,2 %  |
| Directional error (at 80 ° and 1000 W/m <sup>2</sup> ): | < 10 W/m <sup>2</sup>                          |
| Temperature dependence of the sensitivity:              | < 1 % (-20 ... 50 °C)<br>< 2 % (-40 ... 70 °C) |
| Inclination error (at 1000 W/m <sup>2</sup> ):          | < 0,2 %  |
| Analogue output (4 ... 20 mA):                          |  |
| Maximum range of the analogue output:                   | 0 ... 1600 W/m <sup>2</sup>                    |
| Bus interface (2-wire RS485):                           |  |
| Maximum range of the Bus interface:                     | -400 ... 4000 W/m <sup>2</sup>                 |
| Protocol:   | Modbus RTU                                     |
| Error accuracy:   | 0,1 °  |
| Operating temperature::                                 | -40 ... 80 °C                                  |
| Protection class:                                       | IP67   |
| Spectral range (50 % points):                           | 285 ... 2800 nm                                |
| Supply voltage:   | 5 ... 30 V DC                                  |
| Power consumption (at 12 V DC):                         | 100 mW   |
| Expected daily accuracy:                                | < 2 %  |

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## CONFIGURATION

### *Bus interface*

|                          |  |
|--------------------------|--|
| Interface:               | 2-wire RS-485  |
| 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/m <sup>2</sup> |
| Abbreviation: | G_Hx* / G_Mx*    |

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## MEASUREMENT VALUES RECORDED

### *Bus interface*

|             |                                |
|-------------|--------------------------------|
| G_H / G_M** | Irradiance in horizontal plane |
| T_U         | Temperature                    |

### *Current interface*

|             |                                |
|-------------|--------------------------------|
| G_Hx / G_Mx | Irradiance in horizontal plane |
|-------------|--------------------------------|

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## 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.

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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).

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