

# Handheld pyranometer type 105HP

SolData Instruments  
att: Frank Bason  
Silkeborg, DENMARK

soldata@soldata.dk  
telephone: +45-86 84 11 96  
telefax: +45-86 84 15 97

## Description

This instrument is designed to measure the global solar irradiance, i.e. diffuse plus direct solar irradiance. The hand pyranometer is designed for quick manual measurements of global irradiance e.g. on solar heat collectors or photovoltaic (PV) panels. (For permanent outdoor measurements please see the Sol-Data 80SPC pyranometer.)

The output signal is displayed directly on a digital display with a resolution of  $\pm 1 \text{ W/m}^2$ . It is possible to use the output signal from the 4 mm safety jack connectors for data collection (100 mV corresponds to ca.  $1000 \text{ W/m}^2$ ).



105HP Handheld pyranometer

## Typical Application

A direct current output voltage from a photovoltaic electrical power supply is 100 volts with a current load of 16 A. The hand pyranometer shows the global irradiance to be  $989 \text{ W/m}^2$ . Find the instantaneous efficiency if the effective cell area is 15 square meters.

System output power:

$$P_{EL} = 100 \text{ V} \cdot 16 \text{ A} = 1600 \text{ W}$$

Total incident solar power:

$$P_{SUN} = 989 \text{ W/m}^2 \cdot 15 \text{ m}^2 = 14835 \text{ W}$$

Efficiency:

$$E = P_{EL}/P_{SUN} = 1600/14835 = 11\%$$



## SPECIFICATIONS

**Size:** 160 x 110 x 50 mm

**Mass:** 500 grams

**Detector:** silicon photovoltaic cell

**Spectral responsivity:** silicon 300-1100 nm

**Output:** 3½ digit LCD digital display

**Temperature compensation:** -10 to +50°C

**Responsivity:** ca. 100 mV pr.  $\text{kW/m}^2$

**Calibration:**  $\pm 5\%$  against Kipp-Zonen CM21

Over 1500 SolData instruments are in use in Europe, Asia and Australia assisting in data collection and building climate control.



The SolData Handheld Pyranometer 105HP is designed for performing field measurements of the global solar irradiance when evaluating the performance of solar thermal or photovoltaic solar energy systems.