

# SOLAR I-Vw

MULTIFUNCTION DEVICE FOR TESTS AND MAINTENANCE ON SINGLE-PHASE INSTALLATIONS.  
(THREE-PHASE WITH ACCESSORY MPP300 ▶see page 20)

- ▶ Measurement of **efficiency of a single-phase photovoltaic system**
- ▶ Measurement of **I-V Curve** of a **module** or of a **string**
- ▶ Measurement of **open-circuit voltage** and of **short-circuit current Voc/Isc**
- ▶ Database of **30.000 selectable photovoltaic modules**

SOLAR I-Vw allows both **testing** a single-phase (three-phase with optional MPP300) photovoltaic system and **verifying I-V Curve**.

Thanks to remote unit SOLAR02, it is possible to test the system complying with the requirement of simultaneity as provided for by the reference standard. SOLAR02 is a datalogger which, **synchronized with SOLAR I-Vw**, acquires the data relevant to **irradiation and temperature while tests carried out by SOLAR I-Vw** are carried out.

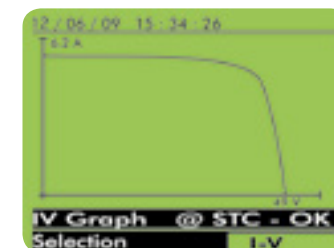
For measuring **I-V curve**, SOLAR I-Vw manages an **internal database of modules**, (which can be updated at any time by the user) **to compare the measured data with the rated values**, thus allowing the **immediate evaluation** whether the string or the module **fulfills the efficiency parameters declared by the manufacturer**.

Current and voltage measurement at modules/strings output is measured with the 4-terminal method, which allows extending measuring cables without considering any compensation of their resistance, thus obtaining always precise measurements. At the end of the test, the display of I-V Curve on the screen is a clear indication about the compliance with the specifications declared by the panel manufacturer.

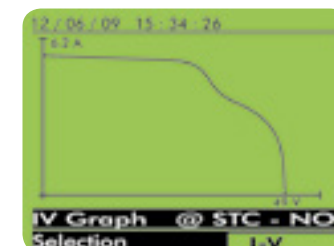
Measuring a I-V Curve on a string through remote synchronization of irradiation and temperature

Measurement of curve IV with environmental sensors connected to SOLAR IVw

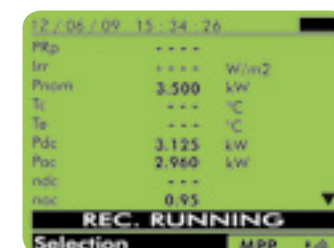
Measurement of single-phase efficiency with remote environmental sensors



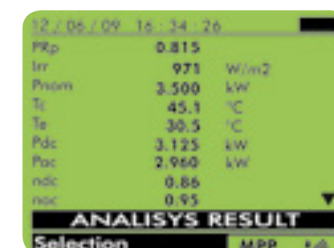
I-V Curve: **OK**



I-V Curve: **NOT OK**



Measuring system efficiency



Result of efficiency measurement.

## Functions

### Maintenance of photovoltaic system

- Measurement of PV module/string output voltage up to 1000V DC
- Measurement of PV module/string output current up to 15A DC
- 128 spots per I-V Curve in STD or Capacitive mode
- Measurement of Voc-Isc-Pmax-Vmpp-Imp-Fill Factor
- Measurement of cell temperature through external probe
- Measurement of irradiation [W/m²] through reference cell
- Measurement of DC and rated power at module/string output
- Detection of I-V Curve with direct measurement of Irr/Temp parameters
- Detection of I-V Curve by means of SOLAR-02
- Measurement of resistance of series Rs of panels
- Measuring method with 4 terminals
- Direct comparison with reference conditions (STC – 1000W/m², 25°C)
- Test result OK / NO
- Internal database for managing up to 30 PV modules (30.000 modules by software)
- Internal memory for data saving
- Recalling measured data on the display
- Optical/USB interface for transferring data onto the PC
- Help on line on the display

### Efficiency measurements of the photovoltaic system

- DC/AC TRMS single-phase voltage
- DC/AC TRMS single-phase current
- Single-phase DC power / AC active power
- Solar irradiation [W/m²] with reference cell HT304N
- Panel and environmental temperature through probes
- Remote unit SOLAR02 with RF connection
- Display of environmental data in real time
- Use of compensation relationships Cells/Environment on Pdc
- Parameter recording of a PV system with 5s to 60min programmable IP.

## Main features

<b>Display:</b>	LCD custom, 128x128pxl, with backlight
<b>Power supply:</b>	6x1.5V alkaline batteries type AA LR06
<b>Automatic power off:</b>	after 5 minutes in stand-by
<b>Duration for PV testing:</b>	1.5 hours (@IP=5s); 8 days (@IP=10min)
<b>Duration for I-V Curve:</b>	> 200 curves
<b>PC interface:</b>	opto-isolated optical / USB
<b>Safety:</b>	IEC/EN61010-1
<b>Safety and measuring accessories:</b>	IEC/EN61010-031, IEC/EN61010-032
<b>Measurement of I-V Curve:</b>	IEC/EN60891, IEC/EN62446
<b>Insulation:</b>	double insulation
<b>Pollution level:</b>	2
<b>Measurement category:</b>	CAT II 1000V DC, CAT III 300V (to earth)
<b>Size:</b>	Max 1000V between inputs 235x165x75 mm
<b>Weight (batteries included):</b>	1.3 kg

## Accessories provided

SOLAR02	Remote unit RF or Irradiation and Temperature
KITGSC4	Set of 4 banana cables 4mm + 4 alligator clips
KITPVMC3	Set of 2 adapters with compatible connectors MC3
KITPVMC4	Set of 2 adapters with compatible connectors MC4
HT4005K	Standard 200AC/1V clamp, diameter 40mm
HT4004N	Standard DC 10-100A/1V clamp, diameter 32mm
HT304N	Reference cell for irradiation measurement
PT300N	PT1000 probe for cell/environmental temperature
M304	Mechanical inclinometer
TOPVIEW2006	Windows software + optical/USB C2006 cable
VA500	Transport case
	User manual on CD-ROM
	ISO9000 calibration certificate
	Quick user guide

## Optional accessories

MPP300	Testing accessory on multi-string systems
HT4005N	Standard AC 0÷5A, 0÷100A clamp, diameter 20mm
HT96U	Standard 1-100-1000A AC clamp, diameter 54mm
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm
HT98U	Standard 1000A DC clamp, diameter 50mm
HP30C2	Standard 200-2000A AC clamp, diameter 70mm
HP30C3	Standard 3000A AC clamp, diameter 70mm
HP30D1	Standard clamp, diameter 83mm 1000A DC
SP-0400	Shoulder strap to use the device with free hands
KITPVEXT25M	Set of 2 banana cables 4mm, Green/Black, 25m
606-IECN	Connector with magnetic terminal