PV
INSTALLATION TESTERS

PERFORMANCE
MAINTENANCE
TROUBLESHOOTING

TROUBLESHOOTING

I-V400

MULTIFUNCTION INSTRUMENT FOR VERIFICATION OF I-V CHARACTERISTIC OF PHOTOVOLTAIC STRINGS AND MODULES

I-V 400 is the ideal solution for the ordinary and scheduled maintenance of photovoltaic systems. With I-V 400, searching for possible failures and problems in systems is extremely rapid, efficient and intuitive. I-V 400 carries out the field measurement of the I-V characteristic and of the main characteristic parameters both of a single module and of module strings.

The instrument measures, together with the I-V characteristic of the device being tested, also the values of its temperature and incident irradiation. The acquired data are then processed to extrapolate the I-V characteristic at standard test conditions (STC) in order to proceed with the comparison with the nominal data declared by the modules' manufacturer, thus immediately determining whether or not the string or the module being tested respects the characteristics declared by the manufacturer.

The operator must not do any calculation, nor any difficult operation. The instrument carries out the comparison rapidly and automatically, immediately providing the OK / NO result of the test.

IEC/EN62446

NEW

PVCHECK

MULTIFUNCTION INSTRUMENT TO CHECK SAFETY, PARAMETERS AND PERFORMANCE OF A PV PLANT

In accordance with IEC/EN62446 guidelines, PVCHECK verifies the continuity of the protective conductors and the associated connections, and executes insulation resistance measurement of the active conductors without the need of short-circuiting the positive and negative terminals. PVCHECK allows verification of a PV string's parameters by measuring the open-circuit voltage and short-circuit current under operative conditions and reporting the results to STC (by means of radiation measurement). It provides an immediate outcome for both absolute measurements and for measurements compared with the previously tested PV strings. PVCHECK also allows carrying out performance analysis of PV array (DC) under operative conditions (connected to the inverter) providing an indication of the power generated and the efficiency of the field.

MPP300

ACCESSORY FOR MEASURING AND RECORDING THE EFFICIENCY OF SINGLE-PHASE AND THREE-PHASE MULTI-STRING SYSTEMS

MPP300, used together with SOLAR300N or SOLAR I-V, allows measuring and recording the main parameters which characterize single-phase and three-phase, single-string and multi-string (up to three strings) photovoltaic systems. MPP300 is perfect for use in systems with three-MPPT three-phase inverter and in three-phase systems provided with three single-phase inverters. MPP300 interfaces with SOLAR300N and SOLAR I-V which are used for MPP300 settings, to start/stop recording and to enable the download of the recorded values.

ACCESSORY FOR MAINTENANCE

PERFORMANCE
MAINTENANCE

SOLAR300N

MULTIFUNCTION INSTRUMENT FOR TESTING SINGLE-PHASE AND THREE-PHASE PHOTOVOLTAIC SYSTEMS AND ANALYZING MAINS QUALITY IN COMPLIANCE WITH STANDARD EN50160

SOLAR300N allows carrying out all tests required for the verification of the efficiency of single-phase and three-phase photovoltaic systems.

SOLAR300N is provided with a remote unit, synchronized with the main unit. The remote unit is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters (irradiation and temperature). SOLAR300N is connected upstream and downstream of the inverter in order to acquire the electric parameters (continuous power and alternating power). The synchronization between the two units guarantees the necessary contemporaneity of measurements, the two separate and independent units make measurements comfortable and safe.

SOLAR300N is also a powerful instrument for the complete analysis of mains quality in compliance with standard EN50160 (harmonic analysis, analysis of voltage anomalies, flicker, unbalance, etc.).

SOLAR I-V

MULTIFUNCTION INSTRUMENT FOR TESTING AND VERYFYING SINGLE-PHASE PHOTOVOLTAIC INSTALLATIONS

SOLAR I-V has been designed to meet any requirement of photovoltaic installation specialists.

Further to providing the possibility of measuring and recording the efficiency of single-string and single-phase photovoltaic systems, SOLAR I-V also measures the I-V characteristic both of a single module and of module strings.
Thanks to SOLAR I-V, the operator can test the photovoltaic system and, should it give a negative result, immediately identify the problems of the system in order to promptly solve them.
SOLAR I-V is provided with the remote unit SOLAR-02 which permits the remote measuring of irradiation and temperature with preliminary automatic synchronization between main unit and remote unit. SOLAR-02 is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters. The synchronization between the two units guarantees the necessary contemporaneity of measurements.

The measured values, correctly reported at standard test conditions, are immediately compared with the values declared by the manufacturer to give the OK / NO result of the test. The operator must not do any calculation, the instrument carries out the comparison rapidly and automatically.

PERFORMANCE
TROUBLESHOOTING
MAINTENANCE

INSTRUMENTS FOR TESTING AND VERIFYING

PHOTOVOLTAIC INSTALLATIONS

Model	MPP300	SOLAR300N	I-V400	SOLAR I-V	PVCHECK
Continuity of protective conductors with 200mA					•
Insulation with test voltages of 250, 500, 1000V DC without disconnections					•
Phase sequence		•			
DC voltage/current/power	• (3 inputs)	• (1 input)		• (1 input)	• (1 input)
AC TRMS voltage/current/power	• (3 inputs)	• (3 inputs)			
Power factor (cos φ) on single-/three-phase systems		•			
Energies on single-phase and three-phase systems		•			
Recording of mains parameters with programmable IP		• (1s-60m)		• (5s-60m)	• (5s-60m)
Maximum number of quantities contemporarily selectable		251		9	8
Harmonic analysis of voltages/currents up to the 49th order		•			
Detection of voltage anomalies (dips, peaks) in 10ms		•			
Complete analysis according to EN50160		•			
Inrush current of electric motors		•			
Voltage fast transients (spikes) with a resolution of 5µs (200kHz)		•			
Voltage unbalance (NEG%, ZERO%) and Flicker (Pst, Plt)		•			
Display of vector diagrams and waveforms of voltages/currents		•			
Indication of recording autonomy		•			
Default and customizable recordings		•			
TFT touch-screen colour display		•			
LCD custom backlit display			•	•	•
Power supply by rechargeable battery and by means of external power supplier	•	•			
Use of remote unit	•	•	•	•	•
DC efficiency measurement/recording (modules)	• (3 strings)	• (1 string)		• (1 string)	• (1 string)
AC efficiency measurement/recording (inverter)	• (3 phase)	• (3 phase)		• (1 phase)	
Overall efficiency measurement/recording (modules+inverter)	•	•		•	
Irradiation measurement with reference solar cell		•	•	•	•
Temperature measurement of modules and environment		•	•	•	•
Detection of I-V curve of modules and strings			• (1000V, 10A)	• (1000V, 10A)	
Quick test mode			• (1000V, 10A)	• (1000V, 10A)	• (1000V, 10A)
Internal database of PV modules			•	•	•
Measurement of modules and strings data (Voc, Vmpp, Impp, Isc, Pmax, FF, Dpmax)			•	•	
Auto power off	•	•	•	•	•
Memory capacity	2 Mbyte	1 month @ IP=15min, 251 par	> 200 curves	> 200 curves 8 days @ IP=10min	999 locations
Extension of internal memory with external Compact Flash		•			
USB port for connection of external memory sticks		•			
PC interface with software for Windows		• (USB)	• (optical/USB)	• (optical/USB)	• (optical/USB)
Context-sensitive help on the display		•	•	•	•
Saving of recordings and instant values		•	•	•	•
Dimensions (LxWxH) (mm)	300x265x140	235x165x75	235x165x75	235x165x75	235x165x75
Weight (batteries included)	2,3 Kg	1 Kg	1,2 Kg	1,3 Kg	1,2 Kg
Safety in compliance with IEC/EN61010-1	•	•	•	•	•

HT ITALIA s.r.l.
Via della Boaria 40, 48018 Faenza RA Italy
Tel. +39.0546.621002 Fax +39.0546.621144
E-mail: export@htitalia.it
www.ht-instruments.com