SOLAR300 carries out all the recommended tests to check the performances of single and three phase photovoltaic installations.

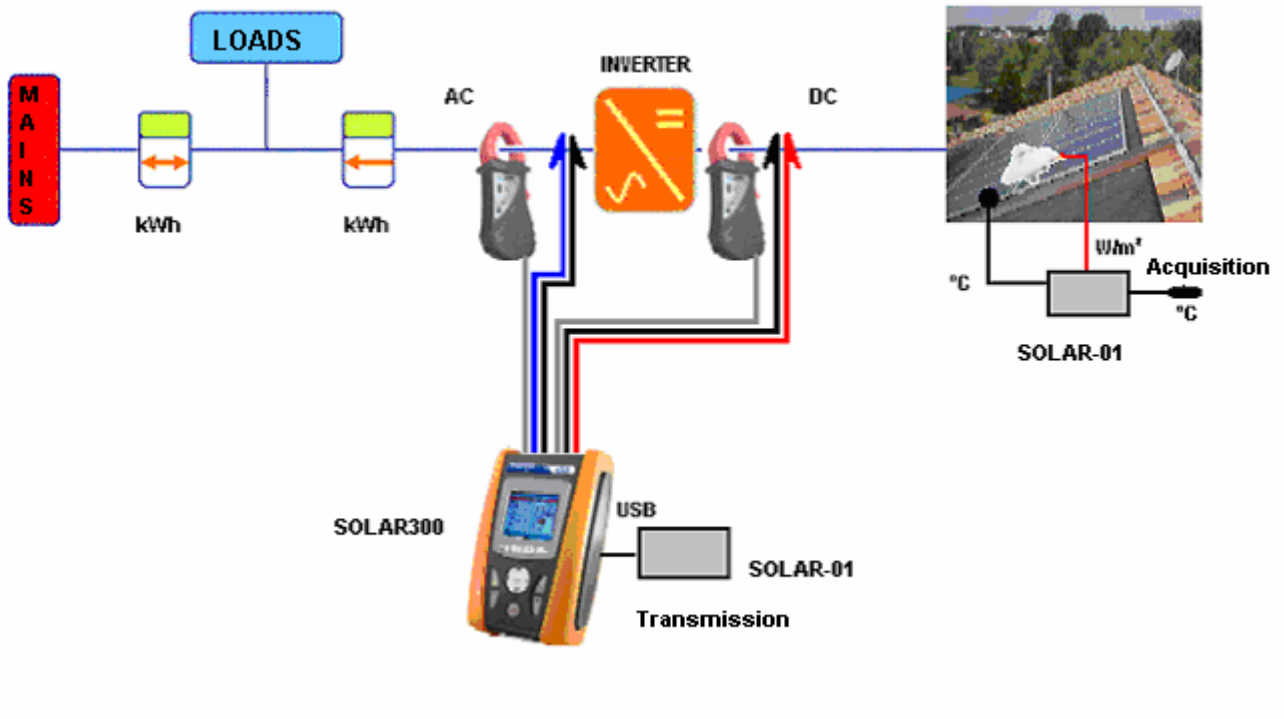
SOLAR300 measures:

- output DC power of the cells
- output AC power of the inverter
- solar radiation [W/m^2]
- temperature of the cells

Measurement of AC and DC power requires the user to connect the instrument's inputs upstream (DC) and downstream the inverter. The pairs' values: (VDC, IDC) – (VAC, IAC) in single-phase installations or (VDC, IDC) – (V1AC, I1AC) – (V2AC, I2AC) – (V3AC, I3AC) in three-phase installations, are acquired simultaneously.
Usually the inverter and the photovoltaic cells could be far each other. To skip the use of long cables, which are very uncomfortable, SOLAR300 uses a remote measuring device, SOLAR-01, that acquires the following parameters:

- solar radiation [W/m^2]
- temperature of the cells [°C]
- environmental temperature [°C]

At the end of the recording, the values acquired by SOLAR-01 are transferred to the SOLAR300 through an USB connection.



SOLAR300 records all the measured values. Thanks to its built-in memory and its compact flash (CF) driver a considerable volume of data can be stored for further analysis. SOLAR300 displays **on its own screen**:

- general information concerning the recording (configuration type, comments, etc..)
- a graph of all the recorded quantities
- the testing overall outcome

The innovative touch screen system of SOLAR300 makes the data analysis extremely easy.
In addition, the management software Topview allows the user to create professional reports displaying the company trade mark, the user's data, the recording comments, etc.

GENERAL FEATURES

- Colour TFT back-lighted graphical display (320x 240, 65k colours)
- Operating system: Windows CE
- Internal memory 15MB
- Touch screen
- USB output
- Rechargeable batteries
- Help on LINE
- USB MEMORY STICK and COMPACT FLASH drivers

FUNCTIONS:

- DC voltage
- AC voltage (single- and three-phase)
- DC current
- AC current (single- and three-phase)
- DC power
- AC active power (single- and three-phase)
- Power factor (Cosφ) (single- and three-phase)
- Solar radiation
- Temperature of the cells
- Environmental temperature
- Voltage and current harmonics (up to the 50^{th} order)
- Voltage anomalies (dips and swells, min. resolution ½ cycle of the fundamental)
- Continuous recording of all the above mentioned electrical parameters

STANDARD ACCESSORIES:

- Remote unit for temperature and solar radiation measurements, model SOLAR-01
- Set of 5 cables and alligator clips for voltage measurement
- Set of 3 AC clamp meters, 100A full scale, max diameter 30mm, model HT4005
- DC clamp meter, 10A/100A full scale, max diameter 30mm, model HT4004
- Pyranometer, model LP PYRA 03 (provided with calibration certificate)
- Probe to measure the temperature of the cells, model PT300
- Touch screen pen
- AC power supply, model A0055
- USB cable to connect SOLAR300 to SOLAR-01 or download the data to the PC, model C2007
- Carrying case for instrument and accessories
- TOPVIEW management software

OPTIONAL ACCESSORIES:

- HT98U: DC clamp, 1000A full scale, max diameter of the clamped cable 50mm
- HT97U: AC clamp, 10A/100A/1000A full scale, max diameter of the clamped cable 50mm
- HP30C2: AC clamp, 200A/2000A full scale, max diameter of the clamped cable 70mm, 100x46mm bars
- HTFlex33: AC clamp, 300A/3000A full scale, max diameter of the clamped cable 178mm

TECHNICAL SPECIFICATIONS *(Technical specifications may be subject to modification without prior advice)*:
Accuracy is indicated as ± (% reading + number of digits) at 23°C ± 5°C, <80%RH

DC VOLTAGE

Range	Uncertainty	Resolution	Input impedance
0.0 ÷ 1000.0V	±(0.5% rdg +2digits)	0.1V	10MΩ

Voltage values < 2.0V are zeroed

AC TRMS VOLTAGE PHASE-NEUTRAL–SINGLE- / THREE-PHASE SYSTEMS

Range	Uncertainty	Resolution	Input impedance
0.0 ÷ 600.0V	±(0.5% rdg +2 digits)	0.1V	10MΩ

Max Crest factor = 2, Voltage values < 2.0V are zeroed

AC TRMS VOLTAGE PHASE-PHASE – THREE-PHASE SYSTEMS

Range	Uncertainty	Resolution	Input impedance
0.0 ÷ 1000.0V	±(0.5% rdg +2 digits)	0.1V	10MΩ

Max crest factor = 2, Voltage values < 2.0V are zeroed

DC CURRENT (THROUGH TRANSDUCER)

Range	Uncertainty	Resolution	Input impedance	Overvoltage protection
0.0÷1000.0mV	±(0.5% rdg+0.06%FS)	0.1mV	510kΩ	5V

Measurement effected through clamp with output = 1VDC when the clamp is subject to rated current, Current values < 0.1% of the FS are zeroed

AC CURRENT (THROUGH TRANSDUCER)

Range	Uncertainty	Resolution	Input impedance	Overvoltage protection
0.0÷1000.0mV	±(0.5% rdg+0.06%FS)	0.1mV	510kΩ	5V

Measurement effected through clamp with output = 1VAC when the clamp is subject to rated current, Max. crest factor = 3, Current values < 0.1% of the FS are zeroed

DC POWER– (VMIS >60V)

Parameter [W]	Clamp full scale FS	Range [W]	Uncertainty	Resolution [W]
POWER	10A	0.000 – 9.999k 10.00 – 99.99k	±(2.0% rdg +6 digits)	0.001k 0.01k
	100A	0.00 – 99.99k 100.0 – 999.9k		0.01k 0.1k

Vmis = voltage at which power is measured, FS = current full scale

AC POWER – SINGLE- / THREE-PHASE SYSTEMS (@ COSφ>0.9 E VMIS >60V)

Parameter [W, VAr, VA]	Clamp full scale	Ranges [W, VAr, VA]	Uncertainty	Resolution [W, VAr, VA]
Active power Reactive power Apparent power	100A	0.00 – 99.99k 100.0 – 999.9k	±(2.0% rdg +6 digits)	0.01k 0.1k

Vmis = voltage at which power is measured

POWER FACTOR (COSφ) – SINGLE- / THREE-PHASE SYSTEMS

Range	Uncertainty (°)	Resolution (°)
0.20÷0.50	1.0	0.01
0.50÷0.80	0.7	
0.80÷1.00	0.6	

VOLTAGE / CURRENT HARMONICS

Range	Accuracy (*)	Resolution
DC ÷ 25ª	±(5.0%rdg+5dgt)	0.1V / 0.1A
26ª ÷ 33ª		
34ª ÷ 49ª		

(*) To be added to the correspondent RMS paramter

AC VOLTAGE PHASE-NEUTRAL ANOMALIES – SINGLE PHASE SYSTEMS

Range	Voltage accuracy	Time accuracy (50Hz)	Voltage resolution	Time resolution (50Hz)
0.0 ÷ 600.0V	±(1.0%rdg+2dgt)	±10ms	0.2V	10ms

Max crest factor = 2, Voltage values < 2.0V are zeroed, The meter can be connected to external VT with 1 ÷ 3000 ratio, Selectable threshold from ±1% to ±30%

AC VOLTAGE PHASE-PHASE ANOMALIES – THREE PHASE SYSTEMS

Range	Voltage accuracy	Time accuracy (50Hz)	Voltage resolution	Time resolution (50Hz)
0.0 ÷ 1000.0V	±(1.0%rdg+2dgt)	±10ms	0.2V	10ms

Max crest factor = 2, Voltage values < 2.0V are zeroed, Selectable threshold from ±1% to ±30%

SOLAR RADIATION (THROUGH TRANSDUCER) – MANUAL RANGE SELECTION

Range	Uncertainty	Resolution	Overvoltage protection
2.0÷20.0mV	±(0.5%rdg+0.1mV)	0.01mV	1V
10.0÷120.0mV	±(0.5%rdg+1mV)	0.1mV	1V

TEMPERATURE (THROUGH TRANSDUCER PT1000 - 3.85Ω/°C)

Range	Uncertainty	Resolution	Overvoltage protection
960 ÷ 1040Ω	±(2%rdg+1Ω)	1Ω	1V

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