AD1011 Solar System Analyzer

CE CAT II 1000V, CAT III 300V

Features:

- **I-V curve test** for solar system.
- Max. solar system power (Pmax) search by Auto-scan: **1000V, 12A** (**12000W** capability).
- The analyzer and the Remote Solar Detector is connected by **Bluetooth wireless** communication (Bluetooth 2.1 + EDR Class 1).
- The Remote Solar Detector is **moisture-proof**.
- **Intelligent test logic** with no personnel attendance required in the field. Solar system analyzer waits and tests the system until appropriate sunlight irradiance is detected.
- Max. voltage (**Vpm**) at Pmax; Max. current (**Ipm**) at Pmax.
- Voltage at open circuit (**Voc**); Current at short circuit (**Isc**).
- **Efficiency** (%) calculation of solar system.
- **Temperature** measurement of solar panels.
- **Irradiance** measurement of sun light.
- **Series resistance** (Rs) calculation of solar panels.
- **I-V curve with cursor** to display each data point.
- With **data logging/open** function, the I-V curves of solar system can be analyzed/recorded for a period of time (e.g. 60 min.).
- **Conversion of I-V curve** under OPC to data under standard test condition (STC) based upon **IEC standard**
- Provide Operating Condition (**OPC**) and Standard Test Condition (**STC**) test reports for verification of solar panel performance (**OK**, or **NO OK**).
- Users can set up the **parameters** of solar panels; users can set up the **series numbers** of solar panels. Parameters of many solar panels can be measured in **one measurement**.
- **Irradiances & temperatures** of solar panels can be continuously measured, monitored and recorded.
- Built-in **calendar clock**.
- **Rechargeable lithium battery**, low battery warning; AC **power adaptor**.
- Optical **USB cable** for PC.
- With **OPTIONAL** power clamps (**SOLAR 15** DC Current Probe and **SOLAR 21** AC Power Clamp), continuously **measure/monitor/record** the **DC power** output of solar system and the **AC power** output of inverter (1 phase or balanced 3 phases); calculate the efficiency of **DC to AC power conversion** and the efficiency of the **max. output power**.

Electrical Specifications:

(23℃±5℃, Irradiance ≥ 800 W/m^2, 4-wire measurement, Max. power limit is 12000W)

DC Voltage Measurement:

Range	Resolution	Accuracy
1 ~ 1000 V	0.01V / 0.1V / 1V	±1% ± (1% of Voc ± 0.1V)

Voc: open circuit voltage of solar cell or module.

DC Current Measurement:

Range	Resolution	Accuracy
0.1 ~ 12 A	1mA / 10mA	±1% ± (1% of Isc ± 9mA)

Isc: short circuit current of solar cell or module.

DC Current Simulation

Range	Resolution	Accuracy
0.1 ~ 12 A	1mA / 10mA	±1% ± 9mA

Irradiance Measurement

Range	Resolution	Accuracy
0 ~ 2000 W/m^2	1 W/m^2	± 3 % ± 20 dgts

Temperature Measurement

Range	Resolution	Accuracy
-22 ~ 85 ℃	0.1 ℃	± 1 % ± 1 ℃

General Specifications:

Battery Type:	Rechargeable Lithium Battery (3400mAh)
Battery Life:	400 times of linear scan (1000V ~ 1V, 0.1A ~ 12A), 8 hours for standby mode
Memory Size:	512K Bytes (3980 Mod files or 320 REC files or 3980 PWR files or 3980 IRR files)
AC Power Adaptor:	AC 100 ~ 240V input DC 15V / 1~3A output
Dimension:	257(L) x 155(W) x 57(H) mm
Weight:	1525g / 53.7 oz (Batteries included)
Operation Environment:	5℃ ~ 50℃, 85% RH
Temperature Coefficient:	0.1% of full scale / ℃ (＜18℃ or ＞28℃)
Storage Environment:	-20℃ ~ 60℃, 75% RH
Accessories:	**Remote Solar Detector** (battery type: rechargeable lithium battery, 1000mAh) with **Thermometer**

	USB power cord User manual AC power adaptor Optical USB cable Software CD Software manual Rechargeable lithium battery (3400mAh) Carrying bag Thermal conductive gel Testing clips (1 black & 1 red) 4-wire to 2-wire connecting cable 4-wire testing cable
Option:	**Solar 15**: DC current probe **Solar 21**: AC power clamp **Testing clips** (1 black & 1 red)

Option: SOLAR 15 DC Current Probe

Electrical Specifications: (23℃±5℃)

DC Current Measurement:

Range	Resolution	Accuracy
DC 12A	1mA / 10mA	±2.0%±30mA

General Specifications:

Conductor Size:	23mm max. (approx.)
Battery Type:	Two 1.5V SUM-3 AA
Range Selection:	Manual
Power Consumption:	10mA (approx.)
Low Battery Indication:	Red LED
Dimension:	183 (L) x 61.3 (W) x 35.6 (H) mm 7.2" (L) x 2.5" (W) x 1.4" (H)
Weight:	190g (Batteries included)
Operation Environment:	-10℃ ~ 50℃, ＜85% RH
Altitude:	Up to 2000M
Storage Environment:	-20℃ ~ 60℃, ＜75% RH
Accessories:	User manual Carrying bag 1.5V AA battery x 2

Option: SOLAR 21 AC Power Clamp

Electrical Specifications: (23℃±5℃)

AC Watt

Range **(0 ~ 30A)**	Resolution	Accuracy of Readings
0.050 – 9.999 W	0.001W	±2% ± 0.025W
10.00 – 99.99 W	0.01W	±2% ± 0.25W
100.0 – 999.9 W	0.1W	±2% ± 2.5W
1.000 – 9.999 KW	0.001 KW	±2% ± 0.025KW
10.00 – 99.99 KW	0.01 KW	±2% ± 0.25KW
100.0 – 999.9 KW	0.1 KW	±2% ± 2.5KW
1000 – 9999 KW	1 KW	±2% ± 25KW

Range **(30 ~ 50A)**	Resolution	Accuracy
0.050 – 9.999 W	0.001W	±2% of VA ± 5dgts
10.00 – 99.99 W	0.01W	
100.0 – 999.9 W	0.1W	
1.000 – 9.999 KW	0.001 KW	
10.00 – 99.99 KW	0.01 KW	
100.0 – 999.9 KW	0.1 KW	
1000 – 9999 KW	1 KW	

Range of CT Ratio: 1 to 250

H.P. (Horse Power): 1 H.P. = 746 W

AC Apparent Power (VA, from 0.000VA to 9999 KVA)

VA = V r.m.s. x A r.m.s

AC Reactive Power (VAR, from 0.000 VAR to 9999 KVAR)

$VAR = \sqrt{(VA^2 - W^2)}$

AC Active Energy (mWH, WH, or KWH, from 0 mWH to 999,999 KWH)

WH = W * Time (in hours)

Power Factor

Range	Resolution	Accuracy
0.000 – 1.000	0.001	±0.04

General Specifications:

Conductor Size:	30mm max. (approx.)
Battery Type:	Two 1.5V SUM-3 AA
Display:	4+2+2 digits LCD
Range Selection:	Auto
Overload Indication:	OL
Power Consumption:	10mA (approx.)
Low Battery Indication:	B
Display Update Time:	2 times / sec.
No. of Samples per period:	512 (V or A) 256 (W)
Temperature Coefficient (＜18℃ or ＞28℃):	0.15 x (Specified Accuracy) / ℃
Dimension:	210 (L) x 62 (W) x 35.6 (H) mm 8.3" (L) x 2.5" (W) x 1.4" (H)
Weight:	200g (Batteries included)
Operation Environment:	-10℃ ~ 50℃, ＜85% RH
Altitude:	Up to 2000M
Storage Environment:	-20℃ ~ 60℃, ＜75% RH
Accessories:	Test leads User Manual Carrying bag 1.5V AA battery x 2
Option:	Alligator clips