The **I-V600** model is an **I-V Curve** and functional test verification (Voc, Isc) instrument compliant with IEC/EN60891, IECEN60904-1-2 and IEC/EN62446 guidelines. **I-V600** tests the performance and functionality of **Monofacial** and **Bifacial** PV modules/strings.

I-V CURVE TRACER (PERFORMANCE/ACCEPTANCE TEST)

I-V600 verifies the performance of PV strings in compliance with IEC/EN60891 guideline by tracking the I-V curve on installations **up to 1500VDC** and **40ADC**. Through solar irradiation and temperature measurements of the PV modules (in wireless combination with the **SOLAR03** remote unit), I-V600 extrapolates the @STC curves (**S**tandard **T**est **C**ondition: 1000W/m2, 25°C, AM 1.5) comparing them with the ratings provided by the module manufacturer. The large internal database stores up to 1000 different manufacturers and up to 1000 modules associated with each manufacturer directly, easily programmable by touch-screen display.

FUNCTIONAL TEST (IVCK)

I-V600 verifies the functionality of PV strings in accordance with IEC/EN62446 guideline by measuring, with or without solar radiation, the open circuit voltage (Voc) and the short circuit current (Isc) in operating conditions (@OPC) **up to 1500VDC and 40ADC**. By measuring solar radiation and temperature of the PV modules (in wireless combination with the **SOLAR03** remote unit), I-V600 extrapolates the values @ STC (**S**tandard **T**est **C**ondition: 1000W/m2, 25°C, AM 1.5) and compares them with the ratings provided by the module manufacturer.

1. ELECTRICAL SPECIFICATIONS

Accuracy calculated as ±[%reading + (number dgts*resolution)] at 23°C ± 5°C, <80%RH

DMM – Multimeter function – DC Voltage

Range [V]	Resolution [V]	Accuracy
3 ÷ 1500	1	± (1.0%reading + 2dgt)

I-V CURVE TEST

DC Voltage @ OPC

Range [V]	Resolution [V]	Accuracy (*)
15.0 ÷ 1500.0	0.1	±(0.2%Voc)

(*) In compliance with IEC/EN60904-1; The measurement starts if VDC > 15V and module capacitance <30µF

DC Current @ OPC

Range [A]	Resolution [A]	Accuracy (*)
0.20 ÷ 40.00	0.01	±(0.2%isc)

(*) In compliance with IEC/EN60904-1; Iscmin = 0.2A and module capacitance <30µF

DC Power @ OPC (VDC > 30V)

Range [W]	Resolution [W]	Accuracy
50 ÷ 9999	1	±(1.0%reading+6dgt)
10.00k ÷ 59.99k	0.01k	

VDC Voltage ≥ 30V and module capacitance <30µF

DC Voltage @ STC

Range [V]	Resolution [V]	Accuracy
3.0 ÷ 1500.0	0.1	±(4.0%reading+2dgt)

DC Current @ STC

Range [A]	Resolution [A]	Accuracy
0.20 ÷ 40.00	0.01	±(4.0%reading+2dgt)

DC Power @ STC (referred @ 1 module)

Range [W]	Resolution [W]	Accuracy
50 ÷ 9999	1	±(4.0%reading+2dgt)

CAUTION

The instrument performs I-V Curve measurements and IVCK tests **even on PV modules with efficiency >19%**

FUNCTIONAL TEST (IVCK)

DC Voltage @ OPC

Range [V]	Resolution [V]	Accuracy (*)
15.0 ÷ 1500.0	0.1	±(0.2%Voc)

(*) In compliance with IEC/EN60904-1; The measurement starts if VDC > 15V and module capacitance <30µF

DC Current @ OPC

Range [A]	Resolution [A]	Accuracy (*)
0.20 ÷ 40.00	0.01	±(0.2%isc)

(*) In compliance with IEC/EN60904-1; Iscmin = 0.2A and module capacitance <30µF

DC Voltage @ STC

Range [V]	Resolution [V]	Accuracy
3.0 ÷ 1500.0	0.1	±(4.0%reading+2dgts)

DC Current @ STC

Range [A]	Resolution [A]	Accuracy
0.20 ÷ 40.00	0.01	±(4.0%reading+2dgts)

CAUTION

The instrument performs I-V Curve measurements and IVCK tests **even on PV modules with efficiency >19%**

2. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY	
Characteristics:	Color TFT, capacitive touch screen, 7”, 800x480pxl
Type of memory:	Memory card, max 32GB (not expandable)
Module database:	ca. 63,000 saved modules
Storable data:	9999 test IVCK or I-V curve
POWER SUPPLY:	
Internal power supply:	8x1.5V alkaline battery type LR6, AA or 8x1.2V rechargeable battery NiMH type LR6, AA
External power supply:	100-440VAC/15VDC, 50/60Hz CAT IV 300V (**use only HT adapter)**
Consumption:	8W
Low battery indication:	“ ” symbol shown on the display
Charging time:	approx. 4 hours
Battery life (@ 0°C ÷ 40°C):	8 hours in the following conditions: ➢ Battery capacity: 2000mAh ➢ PV string voltage: 800V ➢ Work cycles: 80 measurements/hour ➢ Instrument connected to the modules for 30s/measurement ➢ Instrument disconnected for 15s/measurement
Auto Power OFF:	1 ÷ 10min selectable (disabling)
MEASUREMENT THROUGHPUT	
I-V curve measurements:	6.5MWh/hour (@Voc=1500V,Isc=40A) – approx. 108 tests/hour, no cooling required, regardless ambient temperature
OUTPUT INTERFACE	
PC interface:	USB-C and WiFi
Interface with SOLAR03:	Bluetooth connection (up to 100m in free space)
MECHANICAL CHARACTERISTICS	
Dimensions (L x W x H):	336 x 300 x 132mm (13 x 12 x 5in)
Weight (included batteries):	5.5kg (11lv)
Mechanical protection:	IP40 (open case), IP67 (closed case)
ENVIRONMENTAL CONDITIONS OF USE	
Reference temperature:	23°C ± 5°C (73°F ± 41°F)
Operating temperature:	-10°C ÷ 50°C (14°F ÷ 122°F)
Operating humidity:	<80%RH
Storage temperature:	-20°C ÷ 60°C (-4°F ÷ 140°F)
Storage humidity:	<80%RH
Max. height of use:	2000m (6562ft)
REFERENCE GUIDELINES	
Safety:	IEC/EN61010-1, IEC/EN61010-2-030,
EMC:	IEC/EN61326-1
Safety measurement accessories:	IEC/EN61010-031
I-V Test:	IEC/EN60891, IECEN60904-1-2
IVCK Test:	IEC/EN62446, IECEN60904-1-2
Insulation:	double insulation
Pollution degree:	2
Radio:	ETSI EN300328, ETSIEN301489-1, ETSIEN301489-17
Measurement category:	CAT III 1500VDC, max 1500VDC between inputs

This instrument complies with the requirements of the European Low Voltage Directive 2014/35/EU (LVD), the Directive 2014/30/EU (EMC) and the RED regulation 2014/53/EU
This instrument complies with the requirements of the European Directive 2011/65/EU (RoHS) and the European Directive 2012/19/EU (WEEE)