HT INSTRUMENTS I-V600 Professional I-V Curve Tracer Instruction Manual

Contents

I-V600 Professional I-V Curve Tracer

I-V600 Rel. 1.07 – 17/01/24
Professional I-V curve tracer up to 1500V, 40ADC Pag 1 of 4

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 (Standard Test Condition: 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 (Standard Test Condition: 1000W/m2, 25°C, AM 1.5) and compares them with the ratings provided by the module manufacturer.

I-V600 EXTENDS THE CHARGE OF THE INTERNAL BATTERIES

To increase the autonomy of the batteries and allow them to be recharged, I-V600 is equipped with a professional internal BMS (Battery Management System) algorithm which automatically recovers energy from the discharge of the module capacities at the end of an I-V test and from the voltage present on the inputs. A valid aid in case you need to carry out many tests in rapid succession.

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WHERE

WE ARE

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)

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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)

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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: 8×1.5V alkaline battery type LR6, AA or 8×1.2V rechargeable battery NiMH type LR6, AA

External power supply: 100-440VAC/15VDC, 50/60Hz

CAT IV 300V (use only HT adapter)

Battery charging algorithm: via inputs P1, C1, P2, C2

Battery charging system (BMS): energy recovered from I-V curve measurements 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)

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 Europe an Directive 2012/19/EU (WEEE)

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Documents / Resources

	HT INSTRUMENTS I-V600 Professional I-V Curve Tracer [pdf] Instruction Manual I-V600, I-V600 Professional I-V Curve Tracer, Professional I-V Curve Tracer, I-V Curve Tracer, C urve Tracer, Tracer

References

- Computer Instruments | Home
- euro-index.nl
- User Manual