



PVCHECKS-PRO

ADVANCED INSTRUMENT FOR ELECTRICAL SAFETY TESTING
AND TROUBLESHOOTING IN PV SYSTEMS UP TO 1500V/40A





CODE **HVOOPVPR**

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ADVANCED INSTRUMENT FOR ELECTRICAL SAFETY TESTING AND TROUBLESHOOTING IN PV SYSTEMS UP TO 1500V/40A



- A single, simple “GO” to run **Commissioning Tests**
- Tests on monofacial and **bifacial** modules (also high efficiency) up to **1500V / 40A**
- All electrical safety tests, continuity, polarity, Voc, Isc, insulation, **on active systems**
- **Ground fault locator (GFL function)** to identify insulation problems between modules
- **Autostart mode*** to test all strings of a field switchboard in sequence.

** This characteristic is only available for certain models*

GFL
FUNCTION

1500V
40A

DUAL
MODE
Test

MONOFACIAL
AND
BIFACIAL
MODULES

OK
CERTIFICATE OF
CALIBRATION



PRODUCT
DATA SHEET



TECHNICAL DATA SHEET

TECHNICAL SPECIFICATIONS

Measurement of open-circuit voltage Voc on PV modules and strings	1500V
Measurement of short-circuit current Isc on PV modules and strings	40A
Polarity check	●
Use of SOLAR03 remote unit with Bluetooth connection	●
Front irradiation measurement	● with SOLAR03 remote unit and HT305 cell (optional accessories)
Measurement of cell and ambient temperature	● with SOLAR03 remote unit and PT305 probe (optional accessories)
PV string/field insulation measurement with test voltages 250, 500, 1000, 1500VDC	●
P.I. polarisation index measurement	●
Dielectric absorption ratio D.A.R measurement	●
GFL function to locate the position of the low-insulation module within a string	●
Protective conductor continuity testing with test current 200mA	●
Measurement category	CAT III 1000V AC, CAT III 1500VDC Max 1000VAC, 1500VDC between inputs
Backlit LCD display	●
Internal memory	Max 999 tests
Integrated Wi-Fi and compatibility with HTANALYSIS app (*)	●
Optical/USB serial port for connection with PC	●
Management of customisable internal PV module database	● (Max 64 modules)
Auto power off	●
Online help on display	●

GENERAL SPECIFICATIONS

Dimensions (L x W x H)	235 x165 x 75mm
Weight (batteries included)	1.2 kg
Operating temperature	from -10°C to 50°C
Operating humidity	<80% RH
Protection rating	IP40
Power supply	6x1.5V type AA alkaline batteries or 6x1.2V type AA rechargeable NiMH batteries

(*) This characteristic is only available for certain models

ACCESSORIES

STANDARD ACCESSORIES

KIT3PRO15	Set of 2 cables banana + 2 integrated alligator clips Blue/Green
KITPCMC415	Set of 2 cables MC4/banana + 2 adapters MC4/alligator clips, 3m, Red/Black
SP-5100	Set of straps for shoulder instrument use
C2006	Optics/USB connection cable
YABAT0003000	Rechargeable battery type AA NiMH, 1.2V (6 pc)
YABAT0004001	External battery charger
VA507	Rigid carrying case
Quick start guide	
Calibration report	
Complete user manual and management software available online	

OPTIONAL ACCESSORIES

PT305	Temperature probe PT1000
HT305	Photovoltaic cell to measure solar radiation (with fixing bracket)
M304	Mechanical inclinometer to detect the correct solar incidence angle
SOLAR03	Remote unit with 1 temperature input and 3 irradiation inputs (for HT305) complete with magnetic belt
KITPVPROEXT20	2 extension cables banana pin - banana jack 20m (red and black)
SP-2002	Strap with magnetic attachment for SOLAR03
KIT2TIPS15	Set of 2 Black/Red leads with MC4 termination

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1. ELECTRICAL SPECIFICATIONS

Accuracy is calculated as \pm [% readings + (no. of digits*resolution)] at $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, relative humidity <80%RH

SAFETY TEST

DMM – DC Voltage

Range [V]	Resolution [V]	Accuracy
3 ÷ 1500	1	$\pm (1.0\% \text{rdg} + 2 \text{dgt})$

DMM – AC TRMS Voltage

Range [V]	Resolution [V]	Accuracy
3 ÷ 1000	1	$\pm (1.0\% \text{rdg} + 3 \text{dgt})$

Frequency range: 42.5Hz ÷ 69Hz ; Voltage zeroed for measured values <3V

Insulation Resistance (M Ω) – DUAL Mode

Test voltage DC [V]	Range [M Ω]	Resolution [M Ω]	Accuracy (*)
250, 500, 1000, 1500	0.1 ÷ 0.99	0.01	$\pm (5\% \text{rdg} + 5 \text{dgt})$
	1.0 ÷ 19.9	0.1	
	20 ÷ 100	1	

(*) Accuracy indicatec for $VPN \geq 240V$, $R_{\text{fault}} \geq 10\Omega$. Accuracy of R_p and $R(+)$ not declared if $R(+)$ $\geq 0.2M\Omega$ and $R(-)$ $< 0.2M\Omega$

Accuracy of R_p and $R(-)$ not declared if $R(+)$ $< 0.2M\Omega$ and $R(-)$ $\geq 0.2M\Omega$

Open voltage	<1.25 x nominal test voltage
Short circuit current	<15mA (peak) for each test voltage
Nominal measured current	>1mA on $R = 1k\Omega \times V_{\text{nom}}$ (with VPN, VPE, VNE= 0)
Managed capacity per poles:	1 μ F (instruments with HW 00); 2 μ F (instruments with HW 01)

Insulation Resistance (M Ω) –TMR Mode

Test voltage DC [V]	Range [M Ω]	Resolution [M Ω]	Accuracy
250, 500, 1000, 1500	0.01 ÷ 9.99	0.01	$\pm (5.0\% \text{rdg} + 5 \text{dgt})$
	10.0 ÷ 99.9	0.1	

Open voltage	<1.25 x nominal test voltage
Short circuit current	<15mA (peak) for each test voltage
Nominal measured current	>1mA on $R = 1k\Omega \times V_{\text{nom}}$ (with VPN, VPE, VNE= 0)
Setting timer:	3s ÷ 999s

Continuity of protection conductors (RPE)

Range [Ω]	Resolution [Ω]	Accuracy
0.00 ÷ 9.99	0.01	$\pm (2\% \text{rdg} + 2 \text{dgt})$
10.0 ÷ 99.9	0.1	
100 ÷ 1999	1	

Test current:	>200mA DC up to 5 Ω (included cables), Resolution 1mA, Accuracy $\pm (5.0\% \text{rdg} + 5 \text{dgt})$
Open voltage	$4 < V_0 < 10V$

GFL (Ground Fault Locator) function

Test voltage DC [V]	Range [M Ω]	Resolution [M Ω]	Accuracy (*)	Position accuracy
250, 500, 1000, 1500	0.1 ÷ 0.99	0.01	$\pm (5\% \text{rdg} + 5 \text{dgt})$	$\pm 1 \text{module (NMOD} \leq 35)$ $\pm 3 \text{module (NMOD} > 35)$
	1.0 ÷ 19.9	0.1		
	20 ÷ 100	1		

(*) Accuracy indicatec for $VPN \geq 240V$, $R_{\text{fault}} \geq 10\Omega$. Accuracy of R_p and $R(+)$ not declared if $R(+)$ $\geq 0.2M\Omega$ and $R(-)$ $< 0.2M\Omega$

Accuracy of R_p and $R(-)$ not declared if $R(+)$ $< 0.2M\Omega$ and $R(-)$ $\geq 0.2M\Omega$

Open voltage	<1.25 x nominal test voltage
Short circuit current	<15mA (peak) for each test voltage
Nominal measured current	>1mA on $R = 1k\Omega \times V_{\text{nom}}$ (with VPN, VPE, VNE= 0)
Set limit threshold on measure	0.05M Ω , 0.1M Ω , 0.23M Ω (instruments with HW 00) 0.05M Ω , 0.1M Ω , 0.23M Ω , 0.25M Ω , 0.50M Ω , 1.00M Ω (instruments with HW 01)
Number of set modules:	4 ÷ 60

The GFL function allows obtaining correct results with the following conditions:

- > Test carried out with $V_{\text{test}} \geq V_{\text{nom}}$ on a single string disconnected from the inverter, from possible arresters and from earth connections
- > Test performed upstream of any blocking diodes
- > Single fault of low insulation located at any position in the string
- > Insulation resistance of the single fault $< 0.23M\Omega$ (instruments with HW 00); $< 1.00M\Omega$ (instruments with HW 01)
- > Environmental conditions similar to those in which the fault was reported



FUNCTIONALITY TEST (IVCK)

DC Voltage @ OPC

Range [V]	Resolution [V]	Accuracy
3.0 ÷ 1500.0	0.1	±(1.0%rdg+2dgt)

Minimum VPN voltage to start the test: 15V

IDC Current @ OPC

Range [A]	Resolution [A]	Accuracy
0.10 ÷ 40.00	0.01	±(1.0%rdg+2dgt)

DC Voltage @ STC

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

IDC Current @ STC

Range [A]	Resolution [A]	Accuracy
0.10 ÷ 40.00	0.01	±(4.0%rdg+2dgt)



2. GENERAL SPECIFICATIONS

DISPLAY AND MEMORY

Features:	240x240pxl custom LCD with backlight
Memory:	max 999 test
Internal database for PV modules:	max 64 saving modules

POWER SUPPLY

Internal power supply:	6x1.5V alkaline batteries type LR6, AA or 6x1.2V rechargeable NiMH batteries type LR6, AA (External adapter needed for NiMH batteries recharging)
Battery life (@Temp = 20°C):	RPE: >500 Test (RPE \geq 0.1 Ω) GFL, M Ω : >500 test (Riso \geq 1k Ω xVTest) IVCK: >500 test (no SOLAR03)
Auto Power OFF:	after 5 minutes of idleness

OUTPUT INTERFACE

PC communication port:	optical/USB and WiFi
Interface with SOLAR03:	Bluetooth BLE communication (up to 100m/328ft in free space)

MECHANICAL FEATURES

Dimensions (L x W x H):	235 x 165 x 75mm
Weight (batteries included):	1.2kg
Mechanical protection:	IP40

ENVIRONMENTAL CONDITIONS

Reference temperature:	23°C \pm 5°C
Working temperature:	-10°C \div 50°C
Working humidity:	<80%RH (without condensation)
Storage temperature:	-10°C \div 60°C
Storage humidity:	<80%RH (without condensation)
Max height of use:	2000m

REFERENCE GUIDELINES

Safety:	IEC/EN61010-1, IEC/EN61010-2-030 IEC/EN61010-2-033, IEC/EN61010-2-034
EMC:	IEC/EN61326-1, IEC/EN61326-2-2
Safety of measurement accessories:	IEC/EN61010-031
IVCK measurements:	IEC/EN62446-1, IEC/EN60891, IEC/EN60904-1-2-5
M Ω measurement:	IEC/EN61557-2
RPE measurement:	IEC/EN61557-4
Insulation:	double insulation
Pollution degree:	2
Radio:	ETSI EN300328, ETSIEN301489-1, ETSIEN301489-17
Measurement category:	CAT III 1000VAC, CAT III 1500VDC to ground Max 1000VAC, 1500VDC between inputs

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

