

# PV-ISOTEST

Rel. 1.01 – 19/11/21

## Safety tester for Insulation up to 1500VDC in PV plants

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## 2. ELECTRICAL SPECIFICATIONS

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

### DC Voltage

Range (V)	Resolution (V)	Accuracy
3 ÷ 1500	1	$\pm$ (1.0%rdg + 2dgt)

### AC TRMS Voltage

Range (V)	Resolution (V)	Accuracy
3 ÷ 1000	1	$\pm$ (1.0%rdg + 3dgt)

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

### Insulation Resistance (M $\Omega$ ) – DUAL Mode

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

(\*) Accuracy indicated for VPN  $\geq$ 240V, R<sub>fault</sub> $\geq$ 10M $\Omega$ . Accuracy of Rp and R(+) not declared if R(+)  $\geq$  0.2M $\Omega$  and R(-) <0.2M $\Omega$

Accuracy of Rp 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 $\Omega$  x V<sub>nom</sub> (with VPN, VPE, VNE= 0)

### Insulation Resistance (M $\Omega$ ) –TIMER Mode

Test voltage DC [V]	Range [M $\Omega$ ]	Resolution [M $\Omega$ ]	Accuracy
250, 500, 1000, 1500	0.01 ÷ 9.99	0.01	$\pm$ (5.0%rdg+ 5dgt)
	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 $\Omega$  x V<sub>nom</sub> (with VPN, VPE, VNE= 0)  
 Setting timer: 3s ÷ 999s

### Continuity of protection conductors (RPE)

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

Test current: >200mA DC up to 5 $\Omega$  (included cables), Resolution 1mA, Accuracy  $\pm$ (5.0%rdg + 5dgt)  
 Open voltage 4 < V<sub>0</sub> < 10V

### GFL (Ground Fault Locator) function

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

(\*) Accuracy indicated for VPN  $\geq$ 240V, R<sub>fault</sub> $\geq$ 10M $\Omega$ . Accuracy of Rp and R(+) not declared if R(+)  $\geq$  0.2M $\Omega$  and R(-) <0.2M $\Omega$

Accuracy of Rp 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 $\Omega$  x V<sub>nom</sub> (with VPN, VPE, VNE= 0)  
 Set limit threshold on measure 0.05M $\Omega$ , 0.1M $\Omega$ , 0.23M $\Omega$  ; Number of set modules: 4 ÷ 35

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

- > Test carried out with V<sub>test</sub>  $\geq$ V<sub>nom</sub> 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 $\Omega$
- > Environmental conditions similar to those in which the fault was reported

## 2. GENERAL SPECIFICATIONS

### DISPLAY AND MEMORY:

Features: graphic COG 128x128pxl with backlight  
Memory: max 999 test

### POWER SUPPLY:

Battery type: 6x1.5V alkaline batteries type AA LR06 or  
6x1.2V rechargeable NiMH batteries type AA LR06  
Battery life: > 500 tests (for each functions)  
Auto Power OFF: after 5 minutes of idleness

### OUTPUT INTERFACE

PC communication port: optical/USB

### MECHANICAL SPECIFICATIONS

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 ± 5°C  
Working temperature: 0°C ÷ 40°C  
Working humidity: <80%RH  
Storage temperature: -10°C ÷ 60°C  
Storage humidity: <80%RH  
Max height of use: 2000m

### REFERENCE GUIDELINES:

Instrument's safety: IEC/EN61010-1, IEC/EN61010-2-030  
IEC/EN61010-2-033, IEC/EN61010-2-034  
EMC: IEC/EN61326-1  
Safety of measurement accessories: IEC/EN61010-031  
General: IEC/EN62446  
Measurement MΩ IEC/EN 61557-2  
Measurement RPE: IEC/EN 61557-4  
Insulation: double insulation  
Pollution degree: 2  
Overvoltage category: CAT III 1500V DC, CAT III 1000V AC  
Max 1500V DC, 1000VAC between inputs

**This instrument complies with the requirements of the European Low Voltage Directives 2014/35/EU (LVD) and EMC 2014/30/EU**

**This instrument satisfies the requirements of 2011/65/EU (RoHS) directive and 2012/19/EU (WEEE) directive**