# HT Instruments PV-ISOTEST Insulation Tester PV Instruction Manual



Building the future since 1983.

**PV-ISOTEST Insulation Tester PV Instruction Manual**

Contents



## PV-ISOTEST Insulation Tester PV


Instrument for the verification, maintenance and safety of photovoltaic systems up to 1500VDC
**15OO and no more 1OOO.**

Photovoltaic technology is changing.
The design and production of installations increasingly takes into consideration the increase in rated voltage, which allows for the realization of strings up to 30% longer, for a higher generated power and, at the same time, uses a smaller number of components, which allows for the reduction of energy loss (BoS) up to 30%, while improving profitability.
In this way, an increasing number of photovoltaic installations are realized with a rated voltage close to 1500VDC, with a view to obtaining the maximization of all the relevant benefits, while falling, at the regulatory level, in the classification of Low Voltage systems.
Consequently, the probability of a stress on each part of the photovoltaic system generates the need of having suitable and highly performing tools for an accurate and appropriate verification of these new parameters.
This is why HT Italia has created and developed PV ISOTEST, the first and only instrument suitable to carry out, on a photovoltaic system up to 1500VDC, the most important safety checks required by standard IEC/EN62446-1, and to guarantee the quality performance a professional nowadays considers as highly indispensable.

PV-ISOTEST, the future is coming, and HT brings it.


## INSULATION IN DUAL MODE

### VERIFIES

Verification with an immediate result (OK | NO) of the insulation resistance of the active conductors of a module, string or entire photovoltaic field, according to the requirements of standard IEC/EN62446, with no need for an external switch to short-circuit the positive and negative terminals.


### IDENTIFIES

Automatic identification, with one single test, of the conformity of the total insulation of a whole photovoltaic field, with respect to expectations. PV-ISOTEST is the only verification instrument capable of simultaneously indicating the insulation resistance values of both the positive and negative poles, thus giving the operator the possibility to direct his search to the real location of the fault.


## INSULATION IN TIMER MODE

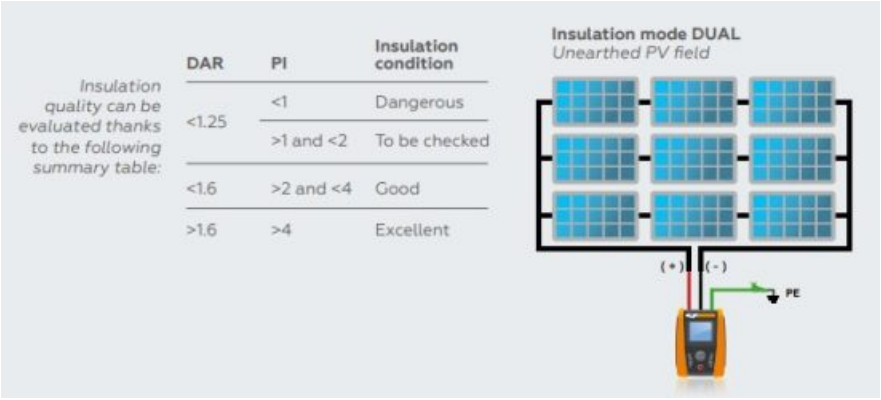
### VERIFIES

Verification with immediate result (OK | NO) of the insulation resistance of a cable with calculation of the Dielectric

Absorption Ratio (DAR = R1min / R30s) and of the Polarization Index (PI = R10min/R1min), which indicate the state of deterioration of the insulation.

**IDENTIFIES**

Evaluation of the values of parameters DAR and PI, specifically useful in case the insulation of particularly long or old cables is to be tested.




**GFL (Ground Fault Locator) function**

**LOCALIZES**

PV-ISOTEST provides the precise position of a possible single fault of low insulation found on a string of the PV system due, for example, to water or humidity infiltrations.


## RPE FUNCTION

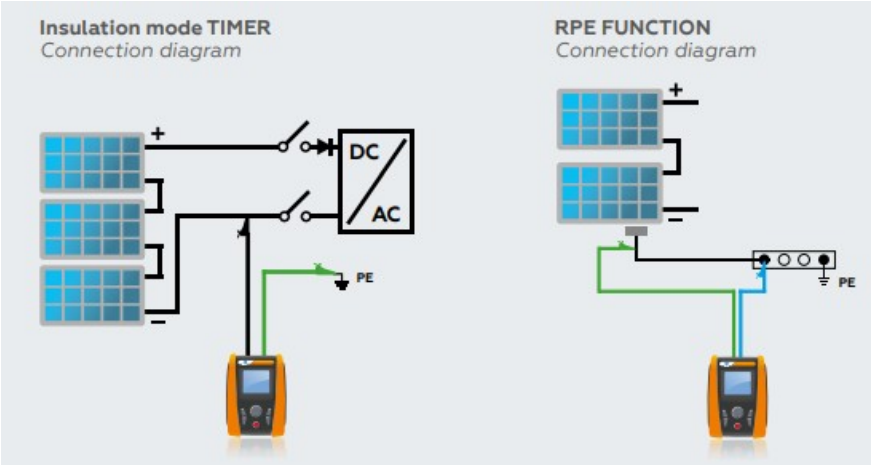
**VERIFIES**

Verification with an immediate result (OK | NO) of the continuity of the protective conductors and of the relevant connections with test current >200mA

**DMM FUNCTION**

**DISPLAYS**

Immediate display of the DC and RMS voltages (also including possible AC components) between the poles and the earth.




**Provided accessories**

- KITGSC4 Set of 4 banana cables 4mm + 4 alligator clips
- KITPCMC4 Set of 2 MC4 banana adapters
- VA507 Hard carrying case
- SP-5100 Carrying straps
- TOPVIEW2006 PC Windows software+ optical/USB connection cable (order code: C2006)
- YAMUM0077HT0 User manual on CD-ROM
- AMUM0076HT0 Quick reference guide
- ISO calibration report

**Optional accessories**

- 606-IECN
  Connector with magnetic terminal, black
- 1066-IECN
  Connector for extension cables with 4mm banana connector, black
- 1066-IECR
  Connector for extension cables with 4mm banana connector, red

**Technical sheet**

**› DC VOLTAGE**

| Range (V) | Resolution (V) | Accuracy |
|---|---|---|
| 3 ÷ 1500 | 1 | ± (1.0%reading + 2digits) |

**› AC TRMS VOLTAGE**

| Range (V) | Resolution (V) | Accuracy |
|---|---|---|
| 3 ÷ 1000 | 1 | ± (1.0%reading + 3digits) |

**› INSULATION RESISTANCE (MΩ) – DUAL MODE**

| Test voltage DC [V] | Range [MΩ] | Resolution [MΩ] | Accuracy |
|---|---|---|---|
| 250, 500, 1000, 1500 | 0.1 ÷ 0.99 | 0.01 | ±(5%reading + 5digits) |
| | 1.0 ÷ 19.9 | 0.1 | |
| | 20 ÷ 100 | 1 | |

**› INSULATION RESISTANCE (MΩ) – TIMER MODE**

| Test voltage DC [V] | Range [MΩ] | Resolution [MΩ] | Accuracy |
|---|---|---|---|
| 250, 500, 1000, 1500 | 0.1 ÷ 9.99 | 0.01 | ±(5.0%reading+ 5digits) |
| | 10.0 ÷ 99.9 | 0.1 | |

› **CONTINUITY OF PROTECTIVE CONDUCTORS (RPE)**

| Range (Ω) | Resolution (Ω) | Accuracy |
|---|---|---|
| 0.00 ÷ 9.99 | 0.01 | ±(2%reading + 2digits) |
| 10.0 ÷ 99.9 | 0.1 | |
| 100 ÷ 1999 | 1 | |

| | |
|---|---|
| Test current: | >200mA DC up to 5Ω (cables included) |
| Resolution: | 1mA |
| Accuracy: | ±(5.0%reading + 5digits) |
| Open-circuit voltage: | 4 < Vo < 10V |

› **GFL (GROUND FAULT LOCATOR) FUNCTION**

| Test voltage DC [V] | Range [MΩ] | Resolution [MΩ] | Accuracy | Accuracy ofposition |
|---|---|---|---|---|
| 250, 500, 1000, 1500 | 0.1 ÷ 0.99 | 0.01 | ±(5.0%rdg + 5dgt) | ± 1module |
| | 1.0 ÷ 19.9 | 0.1 | | |
| | 20 ÷ 100 | 1 | | |

The GFL function provides correct results with the following conditions:

- Test carried out with Vtest ≥Vnom on a single string disconnected from the inverter, from possible overvoltage protections and earth connections
- Test carried out upstream of possible blocking diodes
- Single fault of low insulation located at any position in the string
- Insulation resistance of the single fault <0.1MΩ

Environmental conditions similar to those in which the fault occurred
**POWER SUPPLY**

| | |
|---|---|
| Battery type: | 6×1.5V alkaline batteries type AA LR06 or 6×1.2V rechargeable batte ries type AA LR06 |
| Battery duration: | approx. 500 tests (for each function) |
| Auto Power OFF: | after 5 minutes' idling |

**OUTPUT INTERFACE**
PC interface: optical/USB
**REFERENCE STANDARDS:**

| | |
|---|---|
| Instrument safety: | IEC/EN61010-1, IEC/EN61010-2-030 IEC/EN6 1 0 1 0-2 -0 3 3EC/EN 6 1 0 1 0-2 -0 3 4 |
| EMC: | IEC/EN61326-1 |
| Accessory safety: | IEC/EN61010-031 |
| IEGeneral: | IEC/EN62446 |
| MΩ measurement: | IEC/EN61557-2 |
| RPE measurement: | IEC/EN61557-4 |
| Insulation: | double insulation |
| Pollution level: | 2 |
| Measurement category | CAT III 1500VDC, CAT III 1000VAC MAX 1500VDC / 1000VAC betwe en inputs |

WATCH TUTORIAL VIDEOS

https://l.ead.me/bbpoRV

PRODUCT DETAILS CONSULT THE

https://l.ead.me/bbsBHG

Building the future since 1983.

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## Documents / Resources

| | |
|---|---|
|  | HT Instruments PV-ISOTEST Insulation Tester PV [pdf] Instruction Manual<br>PV-ISOTEST Insulation Tester PV, PV-ISOTEST, Insulation Tester PV, Tester PV |

## References

- User Manual