

MI 3108 EurotestPV

Electrical and Photovoltaic Installations Tester



MI 3108 EurotestPV is a combined photovoltaic tester and electrical installations safety tester. It enables complete testing of electrical installations according to EN 61557 standards and in addition performs all necessary tests required on single-phase photovoltaic (PV) installations. This includes all of the tests as required by EN 62446, but also includes I - U characteristic, Calculation of STC values and power measurements on Inverter's DC and AC sides.

The unit is designed for the demanding working conditions (up to 1000 V, with 15 A DC). To greatly improve user safety the MI 3108 EurotestPV comes with the PV Safety Probe which ensures safe disconnection every time.

MEASURING FUNCTIONS

Photovoltaic installations:

Measurements on DC side of PV installation:

- Voltage, current, power;
- Insulation resistance and continuity of PE conductors;
- Uoc (Open Circuit Voltage) and Isc (Short Circuit Current);
- I - U curve of PV modules and strings;
- MPP;
- PV generator efficiency;
- Irradiance;
- Module temperature.

Measurements on AC side of PV installation (power quality):

- Voltage, current, frequency, power, PF, energy, harmonics;
- Efficiency of inverter.

Electrical installations:

- Insulation resistance;
- Continuity of PE conductors;
- Line impedance;
- Loop impedance (sub-functions with high current and without RCD tripping);
- RCD testing (type AC, A and B);
- Earth resistance;
- AC current (load and leakage);
- TRMS voltage, frequency, phase sequence;
- Power, energy, harmonics.

KEY FEATURES

Photovoltaic installations:

- Calculation of STC values;
- Efficiency calculations;
- Graphical representation of module's I - U curve;
- 2 voltage & 2 current channels for simultaneous AC & DC parameters measurements;
- Optional PV Remote Unit for simultaneous measurements of solar irradiation and temperature of PV module;
- Optional 3-Phase power/ efficiency measurements.

Electrical installations:

- Automated RCD testing procedure;
- Support for B type RCD;
- Earth resistance measurement;
- Built-in fuse tables for automatic evaluation of the line / loop impedance results;
- Online monitoring of all 3 voltages;
- Scope function;
- Loop impedance test without tripping the RCD;
- 1-phase power and energy measurements (including harmonics up to 11th).

APPLICATIONS

- Testing, evaluations and troubleshooting of photovoltaic installations.
- Power and energy efficiency measurements (AC and DC).
- Initial and periodic testing of domestic and industrial single and three-phase electrical installations.

GENERAL FEATURES

- Large internal memory: ca 1800 measurements or ca. 500 measurements of I-V curve or Power (Scope) or adequate combination.
- Built-in help screens with connection diagrams for each function.
- Tester has a built-in charging circuit and comes complete with a set of rechargeable NiMH batteries.
- PC SW EuroLink PRO included in the standard set enables downloading of test results and parameters and creation of test reports.
- PC SW EuroLink PRO Plus enables creation of Professional Installation test reports.
- BT communication with PC, Android tablets and smart phones via BT dongle;
- PV Android APP, data management tool (option).

STANDARDS

Functionality:

- IEC/EN 61557 series;
- IEC 62446 (photovoltaics).

Other reference standards for testing:

- BS 7671; EN 61008; EN 61009;
- EN 60364-4-41; AS/NZ 3760

Electromagnetic compatibility:

- EN 61326

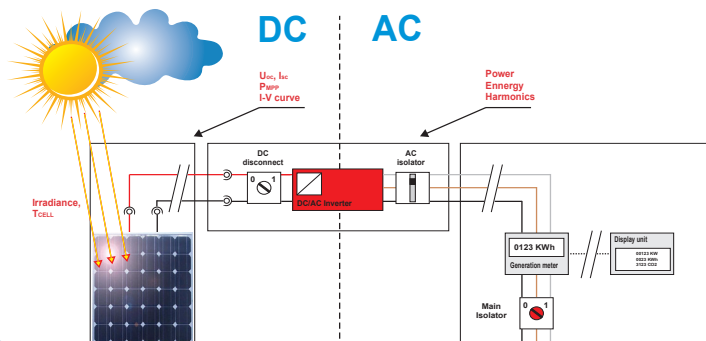
Safety (LVD):

- EN 61010-1; EN 61010-2-030;
- EN 61010-031; EN 61010-2-032

Technical Specification

| PHOTOVOLTAIC INSTALLATION MEASUREMENTS | | |
|--|---|--|
| Function | Measuring range | Basic accuracy |
| Voltage | 0 V DC ... 999 V DC 0 V AC ... 999 V AC I-V m.: 0 V DC ... 999 V DC | $\pm(1.5\% \text{ of reading} + 5 \text{ digits})$ $\pm(1.5\% \text{ of reading} + 3 \text{ digits})$ $\pm(2\% \text{ of reading} + 2 \text{ digits})$ |
| Current | Panel m.: 0.0 mA ... 300 A DC Invert. m.: 0.0 mA ... 300 A AC I-V m.: 0.00 A ... 15 A DC | $\pm(1.5\% \text{ of reading} + 5 \text{ digits})$ $\pm(1.5\% \text{ of reading} + 3 \text{ digits})$ $\pm(2\% \text{ of reading} + 3 \text{ digits})$ |
| Power | Panel m.: 0 ... 200 kW I-V m.: 0 ... 15 kW | $\pm(2.5\% \text{ of reading} + 6 \text{ digits})$ $\pm(3\% \text{ of reading} + 5 \text{ digits})$ |
| Energy | 0.000 Wh - 1999 kWh | |
| U / I curve | 1000 V / 15 A / 15 kW | |
| Harmonics | up to 11 th | |
| Irradiation | 0 ... 2000 W/m ² | $\pm(5\% \text{ of reading} + 5 \text{ digits})$ |
| Temperature | -10 °C ... + 85 °C | $\pm 5 \text{ digits}$ |
| ELECTRICAL INSTALLATION MEASUREMENTS | | |
| Function | Measuring range | Basic accuracy |
| Insulation resistance (EN 61557-2) | U = 50, 100, 250 VDC: R: up to 199.9 M Ω U = 500 VDC, 1 kVDC: R: up to 999 M Ω | $\pm(5\% \text{ of reading} + 3 \text{ digits})$ $\pm(5\% \text{ of reading} + 3 \text{ digits})$ |
| Continuity, 200 mA (EN 61557-4) | 0.00 Ω ... 1999 Ω | $\pm(3\% \text{ of reading} + 3 \text{ digits})$ |
| Continuity, 7 mA | 0.0 Ω ... 1999 Ω | $\pm(5\% \text{ of reading} + 3 \text{ digits})$ |
| Loop impedance (EN 61557-3) | 0.00 Ω ... 9.99 k Ω | $\pm(5\% \text{ of reading} + 5 \text{ digits})$ |
| Line impedance (EN 61557-3) | 0.00 Ω ... 9.99 k Ω | $\pm(5\% \text{ of reading} + 5 \text{ digits})$ |
| Voltage | 0 VAC ... 550 VAC | $\pm(2\% \text{ of reading} + 2 \text{ digits})$ |
| Frequency | 0.00 Hz ... 499.9 Hz | $\pm(0.2\% \text{ of reading} + 1 \text{ digit})$ |
| Phase sequence (EN 61557-7) | 1.2.3 or 3.2.1 | |
| RCD testing (EN 61557-6) | $I_{\Delta N}$: 10 mA, 30 mA, 100 mA, 300 mA, 500 mA, 1 A | |
| - Contact voltage UC | 0.0 V ... 99.9 V | (-0 % / +15 %) of reading |
| - Trip-out time | 0 ms ... max. time | $\pm 1 \text{ ms}$ |
| - Trip-out current | 0.2 x $I_{\Delta N}$... 2.2 x $I_{\Delta N}$ | $\pm 0.1 \times I_{\Delta N}$ |
| Earth resistance (EN 61557-5) | 0.00 Ω ... 9999 Ω | $\pm(5\% \text{ of reading} + 5 \text{ digits})$ |
| General | Main unit | Remote unit |
| Display | 128 x 64 dots matrix display with backlight | |
| Power supply | 6 x 1.2 V NiMH batteries, type AA | |
| Overvoltage category | CAT II / 1000 VDC; CAT III / 600 V; CAT IV / 300 V | |
| Protection class | double insulation | |
| COM port | RS232, USB, BT optional | RS232 |
| Dimensions | 230 x 103 x 115 mm | 140 x 230 x 80 mm |
| Weight | 1.3 kg | 1.0 kg |

PV System parameters



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Ordering information

Standard set

MI 3108 ST



- Instrument MI 3108 EurotestPV
- Soft carrying bag, 2 pcs
- Schuko-plug test cable
- Test lead, 3 x 1.5 m
- Test probe, 4 pcs (red, green, blue, black)
- Crocodile clip, 3 pcs (red, green, blue, black)
- PV Safety Probe
- PV MC3/4 male/female adapters
- AC/DC current clamp
- PV reference cell
- Temperature probe
- Power supply adapter + 6 NiMH batteries, type AA
- USB and RS232 - PS/2 cable
- PC SW EuroLink PRO
- Set of carrying straps
- Short instruction manual
- Instruction manual and handbook on CD
- Calibration certificate

Pro set

MI 3108 PS

- MI 3108 ST
- EurotestPV Remote
- Tip commander
- PC SW EuroLink PRO Plus licence

Optional accessories

| Photo | Order No. | Description |
|-------|-----------|--|
| | A 1378 | EurotestPV Remote |
| | A 1314 | Plug commander |
| | A 1401 | Tip commander |
| | A 1018 | Current clamp (low range, leakage) |
| | A 1391 | AC/DC Current clamp |
| | A 1105 | Barcode scanner |
| | A 1431 | EuroLink Android |
| | A 1436 | Bluetooth dongle |
| | A 1385 | PV fused test lead |
| | S 2026 | Earth 20 m set, 3 wire |
| | S 2027 | Earth 50 m set, 3 wire |
| | A 1292 | Upgrade code EuroLink PRO to EuroLink PRO Plus |

Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery. Subject to technical change without notice.