SERVING SAFETY

Solar testers

To meet the demand in PV-quality checks, Nieaf-Smitt has developed measuring equipment for solar panels / installations.

The portfolio consists of a PV-installationtester, an irradiance tester and power-efficiency meters.

Solar

Test and measurement of solar PV-installations

The production and use of renewable energy is stimulated by the European Union and via government incentives (e.g. through RES directives) and the prices for solar panels are dropping, leading to a growing number of solar panel installations. With this the demand for initial and periodic testing of the solar panels is growing.

Site survey, installation and commissioning of solar installations demands attention to safety, sustainability, reliability and efficiency / output of the solar panel system.

Several guidelines and legislation are applicable:

- IEC 62446:2009 (Minimum requirements for system documentation, commissioning tests and inspection)
- IEC 60364-6 (Low-voltage electrical installation – part 6: verification)
- NEN 1010 / NTA 8013 (The Netherlands)

The IEC 62446 demands several tests & measurements that must be provided to the end-user, when installing a solar panel system:

- Visual inspection: is the installation wired correctly? No damage to cables during installation?
- Insulation resistance measurement (R_{iso})
- Earth continuity measurement (R_{pe})
- PV string short circuit current (I_{sc})
- PV string open circuit Voltage (U_{oc})
- Solar irradiance
- Roof orientation and pitch

To safely install new solar panels (in line with the international standards) and to optimise the periodic testing of solar panel installations Nieaf-Smitt has developed the EazyPV tester. Easy and effective testing of all solar installation parameters in one device. The solar panels do not need to be opened/dismantled for this, the uniform solar panel connectors can be connected directly on the EazyPV.

The new EazyPV includes all functionalities to perform pre-installation site surveys and measure the electrical safety and performance of installed PV systems in line with the international IEC 62446 standard. Enabling contractors to safely, thoroughly and effectively install and maintain solar PV installations.

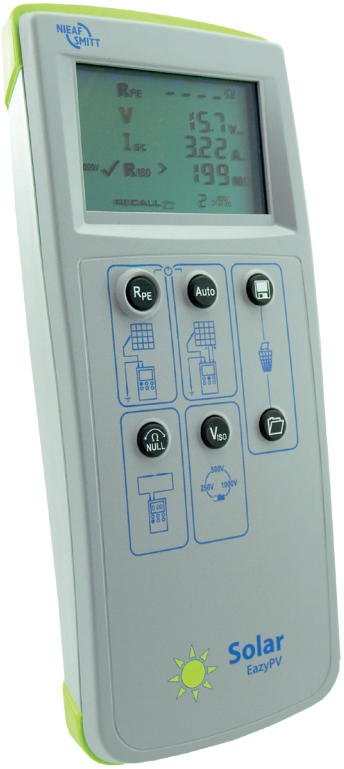
The new high specification IRM100 combines irradiance measurement with a hosts other features to enable solar PV and solar thermal contractors to carry out site surveys quickly and easily. The versatile device uses a precision PV cell sensor for the highly accurate irradiance measurement, displaying results in either W/m^2 or $BTU/h/ft^2$.

The EazyPV and IRM100 testers include all of the necessary functions to measure the electrical safety and performance of PV systems as well as irradiance. Additionally the kit is suitable to conduct site surveys for potential installations; providing the information needed to calculate estimated annual solar irradiation and system yields of PV and solar thermal systems, as described in several local guidelines.

Solar

Eazy PV

Article number 626000757



Including

+ 2x MC4 connectors
+ 2x testlead + crocodile clamp
+ Quickstart handleiding
+ Batteries
+ Conformity declaration
+ Bag
+ Software (PV link)
+ Support CD-rom

Solar PV installationtester

The compact PV-installationtester with digital display is the quickest on the market.

The EazyPV combines all PV electrical test functions required to meet IEC 62446 into one safe, easy-to-use, hand-held device.

The addition of USB and wireless connectivity in combination with the IRM100, make the EazyPV the most versatile PV tester on the market.

Features

- Visual inspection: is the installation wired up correct? No damage to cables during installation?
- Insulation resistance measurement (R_{iso})
- Earth continuity measurement (R_{pe})
- PV string short circuit current (I_{sc})
- PV string open circuit Voltage (U_{oc})
- PV link software to download of measured values (included)

The following parameters can be coupled wireless coupled with the IRM100 and EazyPV:

- Irradiance (W/m²)
- Panel temperature and outside temperature

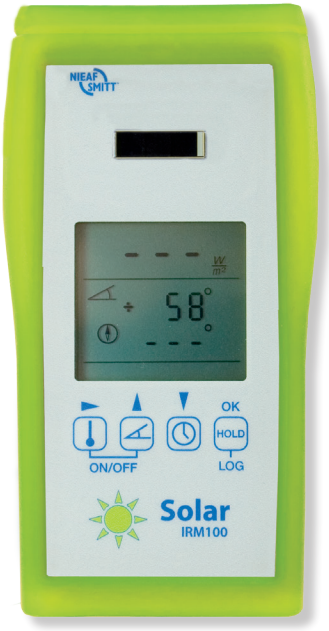
Specifications

Functions	Range
Earth continuity measurement	
Test current in 2 Ω	> 200 mA
Range (EN 61557-4)	0.05 Ω...99 Ω
Insulation resistance measurment	
Test voltage @ 1 mA	250, 500, 1000 VDC
Display	0.05 MΩ...199 MΩ
Open circuit voltage measurement (w/ PV-connections)	
Display	0.0 VDC...1000 VDC
Short circuit current (w/ PV connections)	
Display	0.00...15 A DC
Current (w/ AC/DC current clamp)	
Display	0.1 A...40.0 A
Powermeting	
Display	0.0 5W...40.0 kW
Rpe voltage measurement (4 mm connection)	
Voltage	30 V...440 VDC 30 V...440 VAC 50/60 Hz

Specifications	
Supply	6x AA batteries
Dimensions	26 x 10 x 5.5 cm
Weight	0.8 kg
Warranty	2 years

IRM100

Article number: 626000759



EN 62446

Connecting the EazyPV with the IRM100

The EazyPV and IRM100 includes all of the necessary equipment to measure the electrical safety and performance of PV systems as well as irradiance.

Additionally, the kit is integral to conducting site surveys for potential installations; providing the information needed to calculate estimated annual solar irradiation and system yields of PV and solar thermal systems, as described in several local guidelines.

The measured values can be downloaded with the PV link software (included).

Irradiance meter

To determine the quality and efficiency of solar panels it is important to check the circumstances in which the measurements are done.

Features

- Irradiance
- Temperature
- Compass
- Tilt

Including

+ Temperature probes
+ Quickstart manual
+ Batteries
+ Conformity declaration
+USB-cable
+ Software (PV Link)
+ Support CD-rom
+ Bag

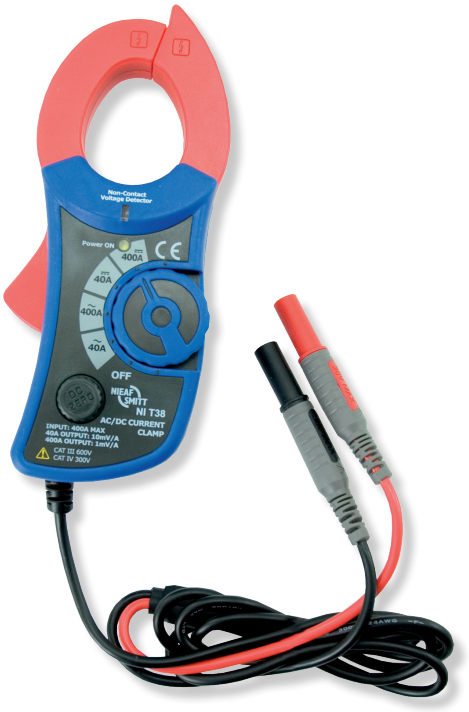
Specifications

Function	Range
Irradiance	
Display	0...1500 W/m²
Measurement	100...1250 W/m²
Resolution	1 W/m²
Temperature	
Display	-30 °C...+125 °C
Measurement	-30 °C...+125 °C
Resolution	1°
Compass	
Display	0°...360°
Measurement	0°...360°
Resolution	1°
Tilt	
Display	0°...90°
Measurement	0°...90°
Resolution	1°
Datalogging	
Datasets	5000
Sample rate	1...60 min
Datalogging	Software included
Connection	USB download to PC

Specifications	
Power	2x AA batteries
Warranty	2 years

NI T38

Article number: 626005049



CAT III 600V

CAT IV 300 V

EN 61010-1

Compact AC/DC current clamp adapter

The compact current clamp adapter NI T38 is an easy to use solution for measuring high currents (AC+DC) in combination with a multimeter.

The clamp adapter is compatible with the EazyPV solar PV-tester.

Features

- 4 mm connectors
- 2 ranges 40 A and 400 A
- Non-contact voltage detection
- Compatible with EazyPV solar PV-tester
- AC & DC

Including

+ Manual
+ Batteries

Specifications

Function	Range	Accuracy
Current	0.1...400 AAC	
Output voltage	1 mV per 1 A	± 2.8 % + 0.5 A
Current	0.01...40 A	
Output voltage	10 mV per 1 A	± 2.5 % + 0.1 A
Frequency	50/60 Hz	

Specifications	
Overvoltage category	CAT III 600 V, CAT IV 300 V
Max. conductor size	30 mm
Max. jaw opening	30 mm
Standard	EN 61010-1, EN 61010-2-32
Dimensions	150 x 58 x 35 mm
Weight	± 205 g (incl. batteries)

Accessories solar testers

Adapter plug
(combination with 626001058)

Article number: 626001059

Adapter socket
(combination with 626001059)

Article number: 626001058

MC4 adapter set to 4 mm plug

Article number: 626001060

Sunclix adapter

Article number: 626001064

'EazyPV installationkit'

The EazyPV installationkit contains:

- EazyPV installationtester
- IRM100 irradiance meter
- PV Link-software
- NI T38 current clamp adapter
- Testadapters

Article number: 626000765