



Portable **I-V Checker** Photovoltaic Module & Array Tester

**Fast
sweep
time**

**Easy
decision**

**Large
capacity**

These days, the attention to the renewable energy is rapidly increasing more and more, and the role that PV plays in such aspect is quite large. The PV output changes its optimal relationship between Voltage and Current (I-V curve, P-V curve) according to the amount of solar radiation. MP-11 makes possible to instantly measure these specific characteristics, and it is suitable for inspection, periodical maintenance, and failure diagnosis before and after constructing PV sites.



4 Strong Points of MP-11

Minimum effects from solar irradiance and shadow

MP-11 has a fast sweep time (tens to hundreds milliseconds), and it keeps the measurement error caused by the changes of solar irradiance and shadow to the minimum.*

Easy failure diagnosis

MP-11 gets very little external environmental effects, thus it detects failures on the PV panel very easily.*

Measurement data accuracy improvement

"Reverse bias" function is newly implemented with this model. Due to this function, data measurement accuracy for Current-axis side has improved significantly.*

Large capacity 18kW for Mega Solar

Maximum measurement range is 1000V/30A/18kW, and it is suitable for mega solar.

* Please see the back, Section: Reliability of the Measurement Data

Other Key Points

Intuitive operation

Simple measurement is possible by using dedicated keys.

Speedy

It takes 5sec. from pressing the measurement button to displaying the results on a graph. Continuous measurement can be taken with interval of 35sec.

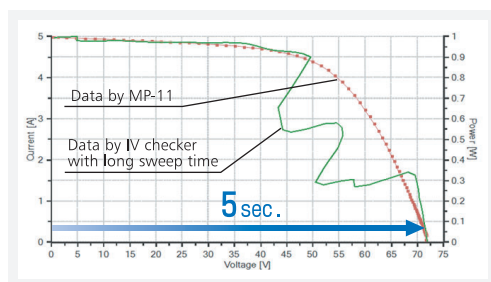
Calibrated pyranometer

A silicon pyranometer which is traceable to the World Radiometric Reference (WRR) is integrated in the Sensor unit for measuring solar irradiance.

All-in-one

All MP-11 accessory parts can be stored inside the main unit.

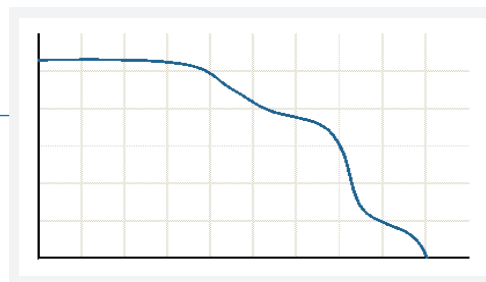
Reliability of the Measurement Data



In case solar irradiance changes during IV measurement.

Fast Sweep Time

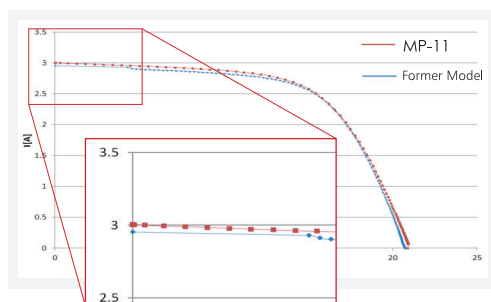
It is quite common that solar irradiance changes a few % to tens of % within several seconds. If actual sweep time is long, it is likely to get the effects of solar irradiance change. The graph on the left shows 5sec. sweep time measurement; you can see that solar irradiance change has large impact on I-V curve for the I-V checker with longer sweep time. MP-11 has very short sweep time (tens to hundreds of ms), and we can state that it is hardly affected by solar irradiance changes.



By solar irradiance or PV panel fault?

Easy Failure Diagnosis

If you got the graph like the left using I-V checker with long sweep time, it is hard to determine whether this is caused by change of solar irradiance or the PV panel failure. However, MP-11 with fast sweep time is possible to diagnose that it is "by PV panel failure (or shadow)" because it is hardly affected by solar irradiance changes.



Reverse Bias

The MP-11 has a new function "Reverse Bias". The blue line on the right graph shows a measurement data by EKO's previous model I-V checker. Comparing with the red line, which represents MP-11, you can see the measurement data is obtained all the way to the I-axis (current) side. It means the accuracy of I-axis side has improved and makes it possible to take highly reliable measurements.

Specifications

Measurement range	Voltage: 10V - 1000V Current: 100mA - 30A Power: 10W - 18kW
Data points	400 points / I-V curve
Data storage	300 I-V curves (Internal Memory)
Measurable PV panel	Silicon monocrystal / polycrystalline, CIS
Input	Main unit: PV module/array/ x 1 (2cables to PV strings) Sensor unit: Pyranometer or reference cell, Thermocouple x 2"
Output	USB x 1 (PC)
Measurement parameters	I-V curve, Pm, Isc, Voc, FF, Ipm, Vpm, Solar irradiance, Temperature, STC conversion, Differential coefficient of I-V curve
Dimensions	Main unit: 230W x 320D x 180H (mm) Sensor unit: 210W x 85D x 55H (mm)
Weight	Main unit 2.5kg, Sensor unit 500g, Battery box 500g, Cables 300g
Power supply	Main unit: Ni-MH rechargeable battery x 8, or AC adopter (DC12V 1.0A) Sensor unit: 006P type battery x 1(60mA), or Power supply from main unit when connecting"
PC OS	Windows Me / 2000 / XP / Vista / 7 (32bit/64bit)
Accessories	PV probe cable(red, black), AC adopter,Battery box, Ni-MH rechargeable battery (AA size), Rechargeable battery charger, Soft case for battery charger, FG cable, Thermocouple, Modular cable, USB cable, Shoulder strap, Certification, CD-ROM