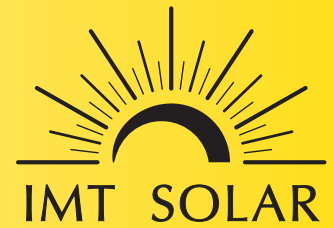


I-V Curve Analyzer

for Photovoltaic Testing and Research



Application

The PV-KLA I-V Photovoltaic (PV) Curve Analyzer is the ideal quality measuring tool for PV modules in testing facilities, research and development labs, and of course for industry. Because of its flexibility it can be used in controlled indoor environments as well as for outdoor tests in natural sunlight. The unit is controlled via most standard PCs through a com port connection, allowing for easy use and immediate storage of the important data produced. Our system comes with the appropriate software, cables and one of the best solar irradiance sensors available in the market today. The unit can also be ordered in a battery powered version for use in remote or rooftop locations.

Function

Through the use of a capacitive load, we can measure the I-V curve of PV modules with great accuracy. We can also test a wide range of different PV outputs (different size panels) without the need to exchange hardware. I-V testing therefore is an easy, single step process that is accomplished by our integrated software. The operation mode of the PV-KLA provides parallel sampling of four test channels (voltage, current, irradiance and temperature) yielding real world – real time accurate measurements. The maximum sampling rate for one voltage-current-irradiance-temperature value is 66 kHz.

The PV-KLA also contains adequate memory for all I-V curve and meteorologic data for each measurement cycle, thus allowing high accuracy and high sampling rates in combination with irradiance and temperature measurement. The software continuously displays temperature and irradiance with updated values presented each second. The unit is also available with optional specific adaptors, thus allowing the PV-KLA to support custom ranges – large and small. In fact, the optional cell adaptor gives one the opportunity to measure the I-V curve of single PV cell with lab accuracy.

Our I-V analyzer is a wonderful tool when testing in natural sunlight but it is also the ideal partner for the Steady State Solar Simulators as well as Mini-Sun Simulators (used for cell testing) both produced by IMT Solar.



PV-KLA I-V Curve Tracer

The unit's operating software "PVK" provides an object orientated platform (available in both English and German) and all relevant parameters for the I-V curve are displayed in one easy to assess window – including the actual curve, in large, easy to read graphics based detail.

Range adjustments, individual panel notations, I-V Curve sampling and instant STC data conversions are all easily controlled by using the mouse or the keyboard. Long-duration measurements with user defined time periods are possible as are the calculation of temperature coefficients for parameters like open-circuit voltage, short-circuit current or power at the Maximum-Power-Point (MPP).

A multiplexer for testing up to 8 PV modules or generators on one test stand is also available. Be sure to see the entire list of custom options available on the PV-KLA specifications page.

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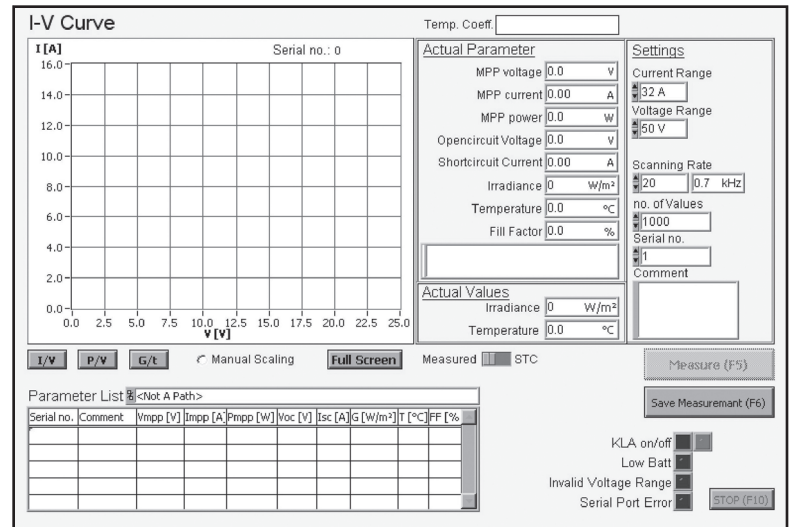
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PV-KLA Specifications

General Information

- Basic accuracy: $\pm 0.2\%$ full-scale value (Meteorological sensors depend on sensor type used)
- Standard Voltage ranges: 25, 50, 100, 200 and 400 V (1 V option for cell adaptor)
- Standard Current ranges: 4, 8, 16 and 32 A (1, 2, and 4 A option for cell adaptor)
- All current and voltage ranges can be combined with each other
- Irradiance range: 0 to 1300 W/m²
- Temperature range: 0 to 100 °C
- Maximal sampling rate for one current-voltage data pair: 66 KS per second
- Sampling of all channels using 4 parallel sample and hold devices
- Measuring time for I-V curve: 10 to 500 ms (6 I-V curves per minute possible)
- Maximal measuring quadruples for I-V curve: 8192
- User interface: controlled directly via PC and Software PVK
- Power supply: 6 V DC wall adapter or 5 NiCd batteries
- PC port: RS232 (to 19.2 kBaud), USB adapter available
- Dimensions: 30 cm X 20 cm X 6 cm



System Components, Standard Version

PV-KLA with the Following Accessories:

- Serial com port (RS232), including cable
- Charging unit for charging batteries or AC mains only DC supply
- Silicon irradiance sensor Si-01TC with active temperature compensation with 2m sensor cable (UV and heat resistant)
- Pt100 sensor for measurement of module temperature with 2m cable
- Control software PVK for Windows
- Manual

Options

- Meteorological adaptor for 7 additional meteorological sensors such as Pt100 sensors, pyranometer, silicon irradiance sensors, wind sensor, etc.
- Cell adaptor for I-V curve tracing of PV cells
- Module multiplexer for I-V curve tracing of up to 8 PV modules or generators without the need to change cabling
- Personal software, output masks for data sheets on request
- Different current and voltage channel ranges available on request

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