Save time, reduce risk, and maximize ROI during:

- Commissioning
- O&M
- Auditing
- Troubleshooting

Industry Leading Features

- Highest measurement throughput even in hot environments
- Best I-V accuracy & resolution
- Best irradiance & temperature accuracy
- Most reliable Go/NoGo testing
- 300 ft wireless range
- Largest user interface and clear visualization of performance issues.

Measure your Return On Irradiance™

Solmetric PV Analyzer 3.0 – Water pumping station project

Irradiance: 875 W/m²
T backside: 47.1°C
Tilt: 20.1°
Array performance is typically measured at the combiner box. The measurement captures the I-V curve and extracts $I_{sc}$, $V_{oc}$, $I_{mp}$, $V_{mp}$, max power, Fill Factor, and Performance Factor – the ratio of measured to expected max power.

### I-V Curve Accuracy
The PVA measures I-V curves to higher accuracy over a broader temperature range than other curve tracers. Sweep dynamics are optimized to accurately measure standard, as well as high efficiency, modules. Trace resolution of up to 500 points provides the detail you need for troubleshooting.

### High Throughput in Extreme Conditions
All I-V curve tracers absorb energy with each I-V measurement. The PVA-1000S's high thermal capacity allows it to commission 1 MW in less than 2 hours without overheating, even in environments exceeding 110°F ambient.

### Time-Saving User Interface
The PVA’s friendly PC interface with touch screen controls means more string tests per hour, more detailed I-V curve displays, and superior data management. Touch the Array Navigator™ tree and the PVA stores your I-V, irradiance, and temperature data and stamps it with the time, date, and location in the PV system.

### Data Analysis and Reporting
Interpreting measurement data can be more challenging than making the measurements. The I-V Data Analysis Tool simplifies the task by automatically compiling statistics and producing reports.

### SolSensor™ Wireless PV Reference Sensor
SolSensor provides the irradiance, temperature, and module tilt data the PVA needs to calculate expected performance for comparison with the measured I-V curve. Sensor and I-V measurements are triggered simultaneously for best correlation under changing conditions. Patent Pending.

### Irradiance Accuracy
Three keys to making accurate PV irradiance measurements are the spectral response of the sensor relative to the PV module, sun angle effects, and time delay relative to the I-V measurement under changing sky conditions.

The spectral response of SolSensor’s photodiode sensor matches silicon PV module technologies. Specialized calibration factors enhance accuracy for silicon, and support non-silicon modules such as CdTe. SolSensor is also compatible with specialized reference cells via an auxiliary input.

The angular response of each sensor is calibrated, and the precision clamping system assures accurate plane of array alignment.

As a result of these features, SolSensor makes accurate irradiance measurements over a broad range of technologies, sky conditions, and sun angles, allowing use of the equipment earlier and later in the day.

### Temperature Accuracy
PV cell temperature is not uniform across an array, and it changes as a function of time. Both factors limit the accuracy of performance measurements because PV output drops significantly as temperature rises. There are two main methods of estimating the cell temperature:

- Measure the module’s backside temperature and add an offset to translate it to cell temperature.
- Calculate cell temperature from the measured Voc as described in IEC 60904-5.

Neither method is perfect. The first works well at low light levels. The second works well at high light levels and averages the spatial variations.

The PVA’s SmartTemp method improves temperature accuracy by blending the two methods and adjusting the mix according to irradiance.

### Wireless Range
SolSensor provides greater than 100m line of sight wireless range, and the three components – your I-V Unit, SolSensor, and PC wireless USB adapter – adaptively relay data to one another to further extend the wireless range.
PV Analyzer Includes:
- I-V Measurement Unit with shoulder strap
- PVA Software for Windows™
- Wireless USB Interface for Windows™ laptop or tablet
- Connector savers, MC-4 to MC-3 adaptors, MC-4 connector tool
- Battery charger (AC adapter)
- Short USB extension cable

SolSensor Includes:
- Sensor unit
- Module Frame Clamp
- Ruggedized K-type thermocouples (2)
- Thermocouple attachment adhesive discs (50)
- SolSensor tool lanyard
- Irradiance sensor cleaning supplies
- Shoulder bag

SolSensor Tripod Mount Kit (optional):
- Leveling unit
- Tilt & rotation unit
- SolSensor mounting plate
- Compass with adjustable declination
- Soft case

General Information

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-efficiency PV modules</td>
<td>Engineered to accurately measure high-efficiency as well as standard PV modules and strings.</td>
</tr>
<tr>
<td>PC user interface</td>
<td>Innovative touch-screen interface with bright, colorful graphics and touch screen controls for operator efficiency, ease-of-use, and in-field analysis. Runs on user’s standard Windows laptop or tablet.</td>
</tr>
<tr>
<td>Wireless interfaces</td>
<td>Long range 802.15.4 mesh network ensures reliable connection. No wires underfoot. Speeds setup and provides flexibility in troubleshooting strings.</td>
</tr>
<tr>
<td>Advanced PV models</td>
<td>Accurately predicts performance at both STC and current conditions. Checks your results immediately.</td>
</tr>
<tr>
<td>MPPT range indicator</td>
<td>On-screen indicator helps you identify poorly sized strings.</td>
</tr>
<tr>
<td>Equipment databases</td>
<td>Models for 12,000+ PV modules. Automatic updates.</td>
</tr>
</tbody>
</table>

PVA-1000S I-V Curve Tracer Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV voltage range</td>
<td>0–1000 V</td>
</tr>
<tr>
<td>Current range</td>
<td>0–20 A</td>
</tr>
<tr>
<td>Voltage accuracy</td>
<td>±0.5% ± 0.25 V</td>
</tr>
<tr>
<td>Current accuracy</td>
<td>±0.5% ± 0.04 A</td>
</tr>
<tr>
<td>Voltage resolution</td>
<td>25 mV</td>
</tr>
<tr>
<td>Current resolution</td>
<td>2 mA</td>
</tr>
<tr>
<td>Measurement duration</td>
<td>4s (typical, from ‘Measure Now’ to returned I-V trace)</td>
</tr>
<tr>
<td>I-V sweep duration</td>
<td>0.05 – 2s. Typically 0.2s for PI/ strings.</td>
</tr>
<tr>
<td>I-V trace points</td>
<td>100 or 500, user selectable</td>
</tr>
<tr>
<td>Operating temp range</td>
<td>-10 to +65°C</td>
</tr>
<tr>
<td>Battery life</td>
<td>12 hr continuous operation, more than 1000 I-V curves.</td>
</tr>
<tr>
<td>Protection features</td>
<td>Over-voltage, -current, -temperature, and reverse polarity</td>
</tr>
<tr>
<td>Safety</td>
<td>CAT III, 1000 V</td>
</tr>
</tbody>
</table>

SolSensor Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irradiance accuracy</td>
<td>±2% typical, 0 to 1,500 W/m²</td>
</tr>
<tr>
<td>Cell temp. accuracy</td>
<td>±2°C typical, SmartTemp method</td>
</tr>
<tr>
<td>Tilt accuracy</td>
<td>±1 degree typical, 0-45 degree</td>
</tr>
<tr>
<td>Measurement interval</td>
<td>Irradiance: 0.1s   Temperature: 1s</td>
</tr>
<tr>
<td>Wireless range</td>
<td>100m with open line of sight</td>
</tr>
<tr>
<td>Operating temp</td>
<td>-10 to +65°C</td>
</tr>
</tbody>
</table>

Solmetric

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