Solmetric
PV Analyzer™

PVA-1000S
1000V I-V Curve Tracer

SolSensor™
Wireless PV Reference Sensor

Measure your
Return On Irradiance™

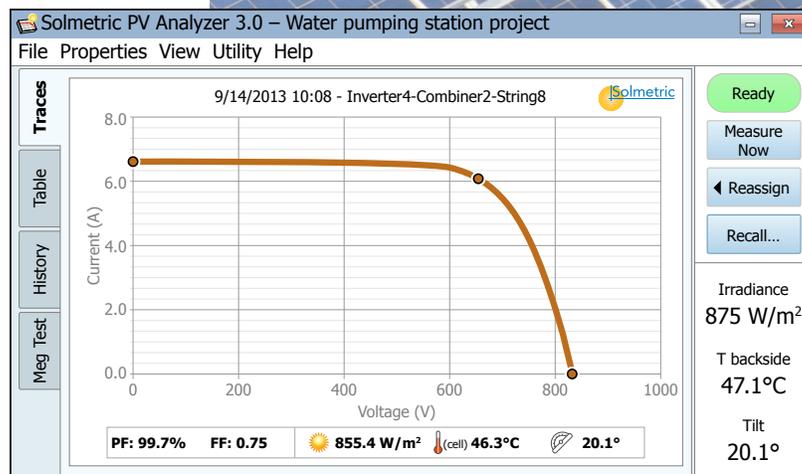**Save time, reduce risk, and maximize ROI during:**

- Commissioning
- O&M
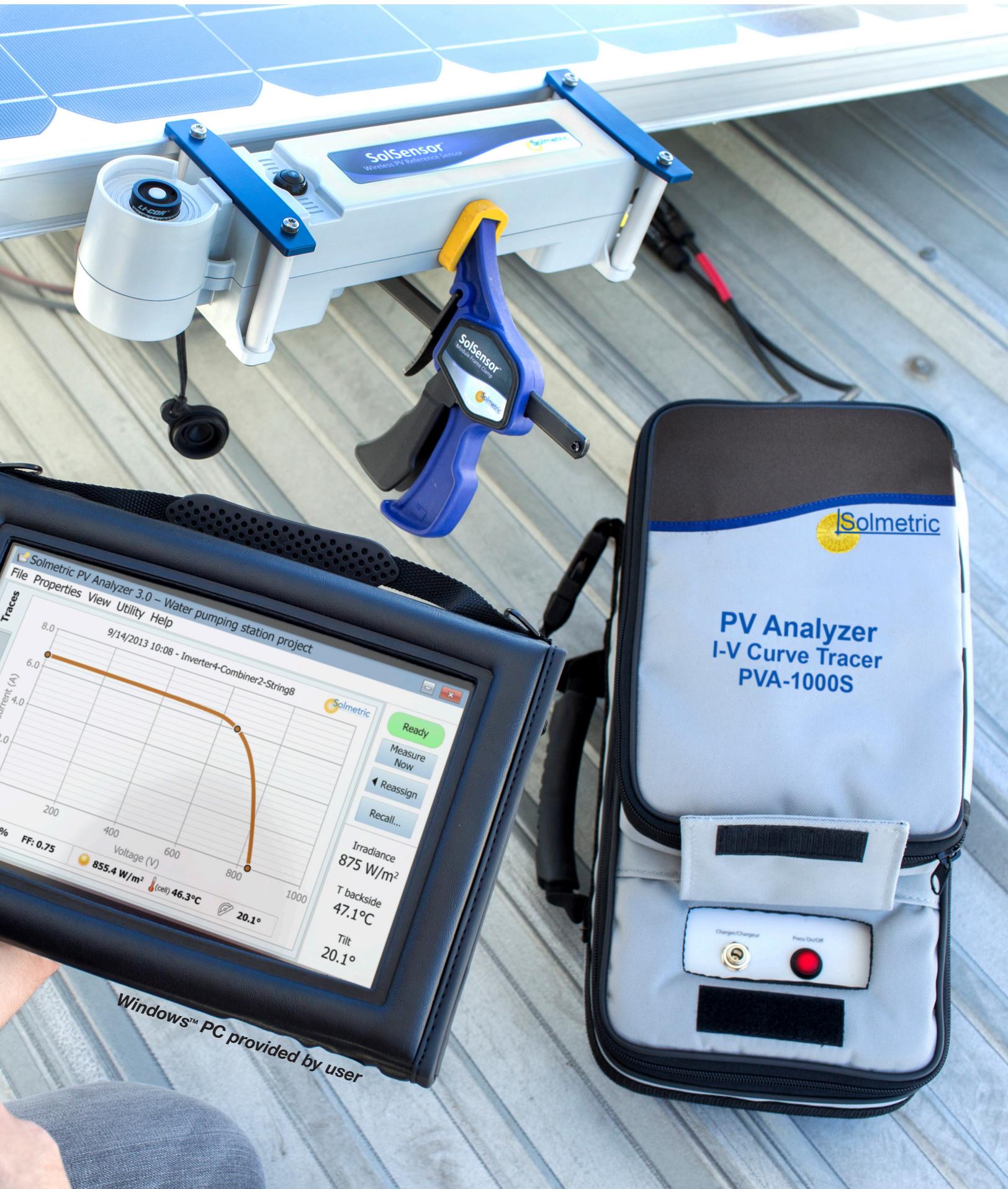- Auditing
- Troubleshooting

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.

New!
30 Amp
Option Now
Available

Solmetric PV Analyzer 3.0 – Water pumping station project

File   Properties   View   Utility   Help

Traces | Table | History | Meg Test

9/14/2013 10:08 - Inverter4-Combiner2-String8

Current (A) vs Voltage (V)

Ready
Measure Now
◀ Reassign
Recall...

Irradiance
875 W/m²

T backside
47.1°C

Tilt
20.1°

PF: 99.7%   FF: 0.75   ☀ 855.4 W/m²   🌡(cell) 46.3°C   20.1°

Solmetric
Expert Tools.
Better Solar.
www.solmetric.com

Windows™ PC provided by user
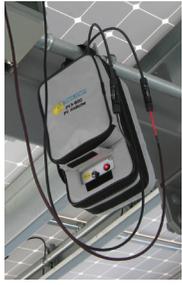
I-V Curve Measurement

The I-V curve measurement provides Isc, Voc, Imp, Vmp, Pmax, Fill Factor, and Performance Factor– the ratio of measured to expected maximum power. The measurement is typically performed at a combiner box, using the fuses to select the string under test.
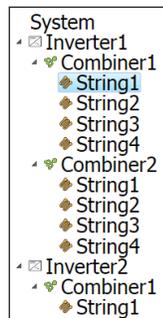
I-V Curve Accuracy and Detail

The design of the PVA is optimized to accurately measure both standard and high efficiency modules, and the number of I-V curve points can be set to 500 for demanding applications.

High Throughput in Hot Conditions

All I-V curve tracers absorb energy with each measurement. The PVA's high thermal capacity allows it to commission 1 MW in less than 2 hours without overheating, even in environments exceeding 43 C ambient.

Time-Saving User Interface

With a tablet PC as your user interface you can perform more tests per hour and display the data in multiple easy to read formats. Save your measurements by simply touching the array tree. The PC interface also allows future addition of data analysis tools for the O&M application.

```
System
⊿ ☑ Inverter1
  ⊿ ❧ Combiner1
     ◈ String1
     ◈ String2
     ◈ String3
     ◈ String4
  ⊿ ❧ Combiner2
     ◈ String1
     ◈ String2
     ◈ String3
     ◈ String4
⊿ ☑ Inverter2
  ⊿ ❧ Combiner1
     ◈ String1
```

Data Analysis and Reporting

The I-V Data Analysis Tool, provided with the PVA, automates the process of preparing detailed, professional reports of your measurement results. The tool generates a table of the key performance parameter values for each string, group I-V graphs for each combiner box, and histograms showing how the data for each parameter is distributed.
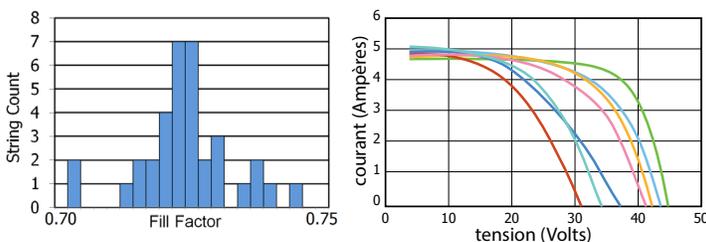
SolSensor™
Wireless PV Reference Sensor

SolSensor provides irradiance, temperature, and module tilt data to the PV model. The model uses this information to predict the I-V curve shape at operating conditions, and to translate the measured curve to STC. SolSensor clamps to the module frame, automatically orienting the irradiance sensor in the plane of the array.

Irradiance Accuracy

The spectral response of SolSensor's silicon photodiode sensor is corrected for the PV technology under test. Special factors are provided for multi- and mono-crystalline cells as well as CdTe and other thin film technologies. The sensor is temperature compensated and the angular response of each unit is calibrated for rotation and elevation.

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

SolSensor provides two external thermocouple inputs for measuring module backside or ambient temperatures. Cell temperature can also be calculated directly from the measured I-V curve using methods described in IEC 60904-5.

The PVA's SmartTemp feature blends these two methods for best advantage. Temperature is calculated from the measured I-V curve at high irradiance, taken from the thermocouple at low irradiance, and derived from a blend of the two at intermediate irradiance values.

Wireless Range

SolSensor's range to your PC is 100m, allowing you to test more of your array with each redeployment of the sensors. When the distance from your PC to SolSensor increases beyond the direct wireless range, the PVA's mesh-type wireless network transparently switches to use the curve tracer as a high power relay station.

General Information

Characteristic	Description
High-efficiency PV modules	Engineered to accurately measure high-efficiency as well as standard PV modules and strings.
PC user interface	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.
Wireless interfaces	Long range 802.15.4 mesh network ensures reliable connection. No wires underfoot. Speeds setup and provides flexibility in troubleshooting strings.
Advanced PV models	Accurately predicts performance at both STC and current conditions. Checks your results immediately.
MPPT range indicator	On-screen indicator helps you identify poorly sized strings.
Equipment databases	Models for 12,000+ PV modules. Automatic updates.

PVA-1000S I-V Curve Tracer Specifications

Parameter	Value
PV voltage range	0–1000 V
Current range	0-20 A (30A option also available)
Voltage accuracy 0 to 55°C	±0.5% ± 0.25 V
Current accuracy 0 to 55°C	±0.5% ± 0.04 A
Voltage resolution	25 mV
Current resolution	2 mA
Measurement duration	4s (typical, from 'Measure Now' to returned I-V trace)
I-V sweep duration	0.05 - 2s. Typically 0.2s for PI/ strings.
I-V trace points	100 or 500, user selectable
Operating temp range	-10 to +65°C
Battery life	12 hr continuous operation, more than 1000 I-V curves.
Protection features	Over-voltage, -current, -temperature, and reverse polarity
Safety	CAT III, 1000 V

SolSensor Specifications

Parameter	Value
Irradiance accuracy	±2% typical, 0 to 1,500 W/m^2
Cell temp. accuracy	±2°C typical, **Smart**Temp method
Tilt accuracy	±1 degree typical, 0-45 degree
Measurement interval	Irradiance: 0.1s Temperature: 1s
Wireless range	100m with open line of sight
Operating temp	-10 to +65°C