Solmetric
PV Analyzer™

PVA Analyzer
I-V Curve Tracer

SolSensor™
Wireless PV Reference Sensor

Measure your
Return On Irradiance™
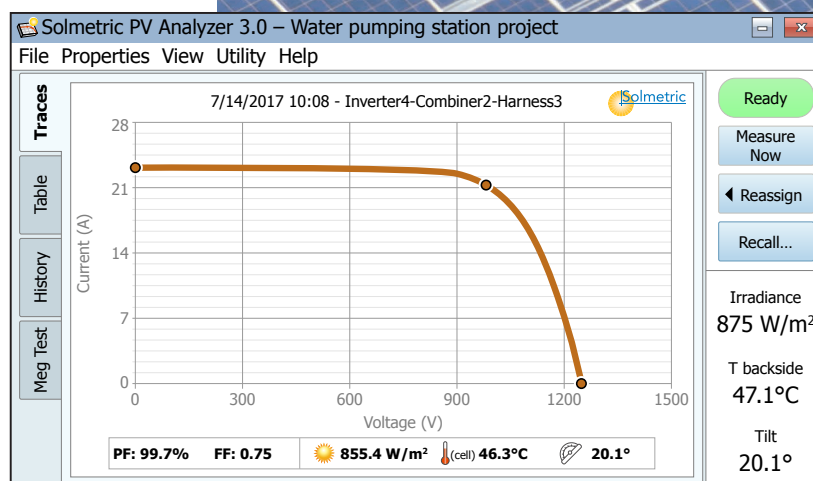
Save time, reduce risk, and maximize ROI during:

- 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
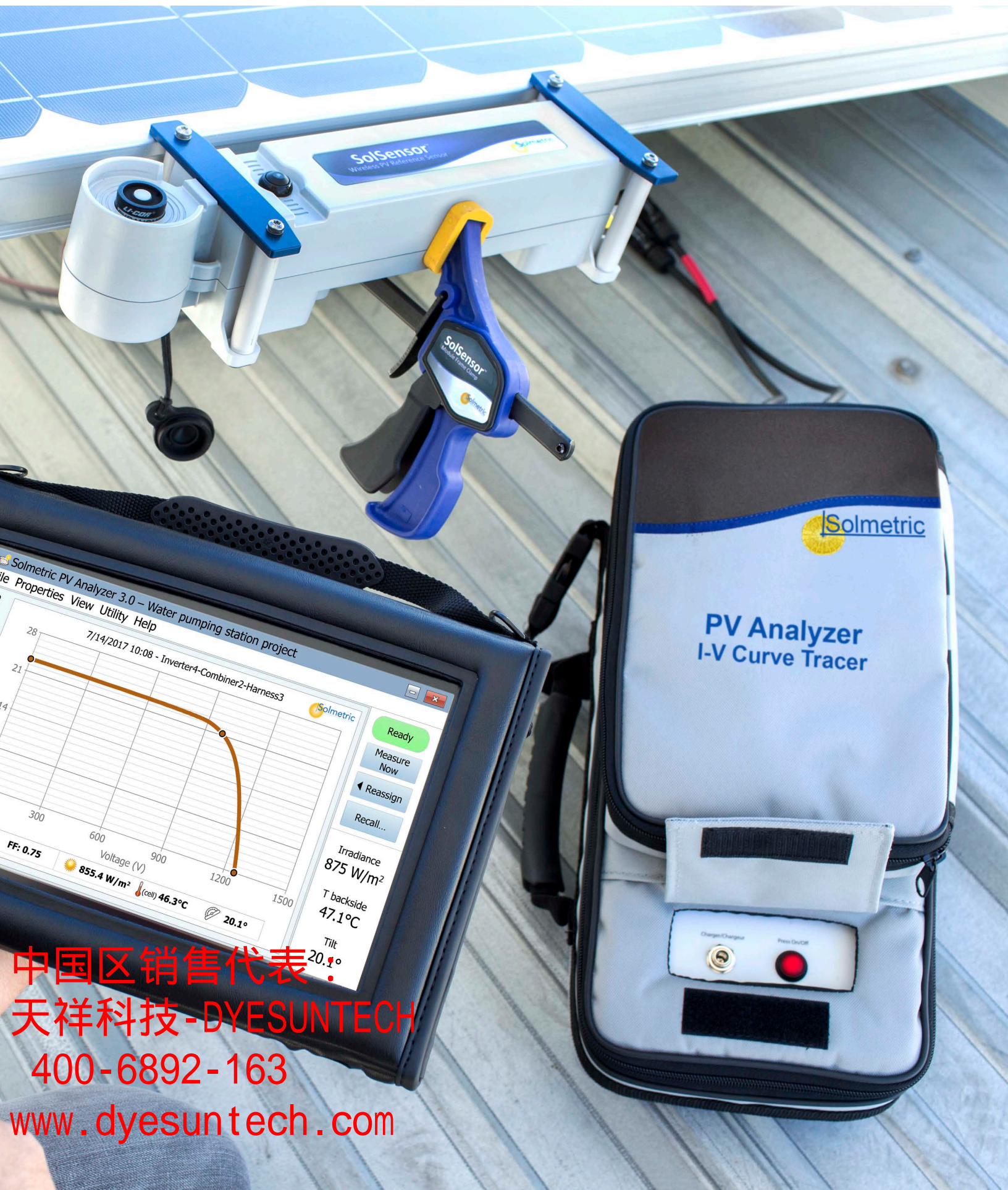- Largest user interface and clear visualization of performance issues.

New!
1500V
30A

Solmetric PV Analyzer 3.0 – Water pumping station project

File   Properties   View   Utility   Help

Traces | Table | History | Meg Test

7/14/2017 10:08 - Inverter4-Combiner2-Harness3   Solmetric

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°

DYESUNTECH
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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.

Setup
1. Deploy SolSensor
2. Open DC disconnect
3. Lift string fuses
4. Clip test leads to buss bars

Measurement
5. Insert a fuse
6. Measure I-V curve
7. Save result
8. Repeat for next string…

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 110°F ambient.

Time-Saving Interface

With a tablet PC as your user interface, perform more tests per hour and display the data in multiple, easy to read formats. Save your measurements by touching your customized array tree at the level you are measuring. The software automatically calculates the expected I-V curve and displays the Performance Factor.
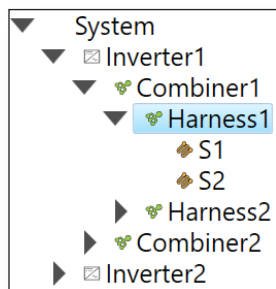
Data Analysis and Reporting

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.
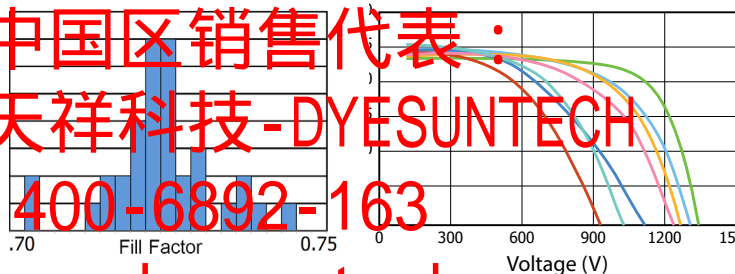
SolSensor
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SolSensor provides irradiance, temperature, and module tilt data to the PV model. The model uses this information to predict the I-V curve shape at operating conditions, and to translate the measured curve to STC. SolSensor clamps to the 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 I-V curve measurements earlier and later in the day.

Temperature Accuracy

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

The PVA's **Smart**Temp 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 Interfaces

The PVA communicates with your PC by WiFi link. The SolSensor has a line of sight range of 100 meters.

That means no wires underfoot, quick setup, and the ability to move around while troubleshooting strings. Measue multiple combiner boxes with a single SolSensor setup.

General Information

Characteristic	Description
High-efficiency PV modules	Engineered to accurately measure high-efficiency as well as standard PV modules and strings.
User interface	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	WiFi interface between your PC and the I-V Measurement unit. 900MHz wireless between I-V unit and SolSensor.
Advanced PV models	Accurately predicts performance at both STC and current conditions. Checks your results immediately.
Battery Status	Charging indicator and battery fuel gauge.
Equipment databases	Models for 50,000+ PV modules. Automatic updates.
High Throughput	Measure 1MW in less than 2hrs at 110°F ambient.

I-V Specifications

Parameter	PVA-1000	PVA-1500
PV voltage range	0–1000 V	0-1500 V
Current range	0-20 A, 0-30 A	0-30 A
Voltage accuracy (0 to 55°C ambient)	±0.5% ± 0.25 V	
Current accuracy (0 to 55°C ambient)	±0.5% ± 0.04 A	
Resolution	25 mV, 2 mA	
Current resolution	2 mA	
Measurement cycle time	4-5s typical, measurement-to-measurement	
I-V sweep duration	0.05 - 2s. Typically 0.2s for PV strings.	
I-V trace points	100 or 500, user selectable	
Operating temperature (ambient)	-10 to +45°C	
Battery life	8 hrs continuous operation, 1000 I-V curves	
Protection features	Over-voltage, -current, -temperature, and reverse polarity	
Safety	CAT III, 1500 V	

SolSensor Specifications

Parameter	Value
Irradiance accuracy	±2% typical (0 to 1,500 W/m², silicon cells)
Cell temp. accuracy	±2°C typical, **Smart**Temp method
Tilt accuracy	±2° typical (0-45°)
Measurement interval	Irradiance: 0.1s Temperature: 1s
Wireless range	100m (open line of sight)
Operating temp	-10 to +65°C