



SOLAR POWER
TECHNOLOGIES

Intelligence. Insight. Clarity.™



To Maximize Your Energy Investment, You Need a Trusted Partner.

Large-Scale PV assets require massive investments in capital, infrastructure, labor and equipment. Unfortunately, many installations are not providing the performance and return that they should. When problems occur, operators do not have sufficient insight to know where the problems lie, and traditional methods of discovering the root causes are expensive and time-consuming. The problem is a lack of clarity. The solution is Clarity™ from Solar Power Technologies.

Solar Power Technologies delivers a full-range of intelligent hardware and software solutions that maximize return on investment for commercial and utility-scale PV arrays. Our Clarity™ line of monitors and optimizers provide unprecedented insight into array health, output and can pinpoint problems down to the panel level.

The Clarity optimization and monitoring system is a complete site performance management solution built around an innovative combination of advanced power control technology, wireless communications and web based data management, diagnostic and analytic tools to improve array performance while reducing overall system cost.

**We bring Clarity to Solar
Power Generation.**





Intelligence

Intelligence is built into every part of the Clarity™ system, from the individual panel monitors to our adaptive wireless array. The system learns and adapts as you use it, giving you precisely the insight you need to maintain peak array performance.

Flexibility

The beauty of our system is its flexibility. Our innovative components can be installed in any configuration, from one panel monitor per string to thousands of monitors and optimizers working in harmony.

Scalability

Our engineers have developed an advanced wireless mesh network that can scale from small commercial systems to large utility-scale arrays. You can start with just a few panel monitors and scale to match your needs. Our Intelligent Array™ software can manage a single site or scale to multiple arrays located in different locations around the globe.

The Clarity™ Suite of intelligent hardware and software products maximizes your return on investment by providing diagnostic information and actionable analysis at every level of a large-scale PV array.

For Panels



For Strings



Panel-Level Monitoring

Clarity™ Monitor

The first place to start, to realize a higher return on your investment, is by gaining visibility at the panel level. Attached to each panel in a PV array, the Clarity™ Monitor continually measures real time panel performance, providing insight into large scale solar arrays with an unprecedented level of accuracy and detail. These low-cost devices pinpoint impairments that impact energy production. The information gathered is precise and comprehensive, including voltage, current and power.

Panel-Level Optimization

Clarity™ Optimizer

The Clarity line also includes intelligent DC Optimizers that can improve output of an array by dynamically compensating for panel-level mismatches.

Each Optimizer ensures that every panel in the array stays at its maximum power point, and collectively they manage the DC bus to transfer the maximum power to the inverter.

The Clarity Optimizer also provides full panel monitoring capability and its design enables simple retrofit, bringing dynamic optimization to existing as well as new sites.

String-Level Monitoring

Clarity™ Monitor

A single monitor placed on one panel in a string can also act as a string-level monitor, giving site operators insight into string and array health. This is a cost-effective way to gain valuable intelligence about the output and efficiency of every string, and to give you a statistical sampling of how panels in an array are performing.

The design of the Clarity Monitor enables simple retrofit, bringing string-level monitoring to existing as well as new sites.

...Across Large-Scale PV Arrays



Wireless Mesh

Clarity™ Gateway

Communicating wirelessly with the individual Clarity Monitors, Optimizers and the Site Server is the Clarity Gateway. These dynamic wireless communication routers, direct traffic and data to the Clarity Site Server.

Due to a unique proprietary mesh network, one Clarity Gateway can handle in excess of 5,000 nodes or over 1 MW of solar panels.

As a key site safety feature, the Gateway can provide emergency on-site shutdown to all panels in the system.

Operational Intelligence

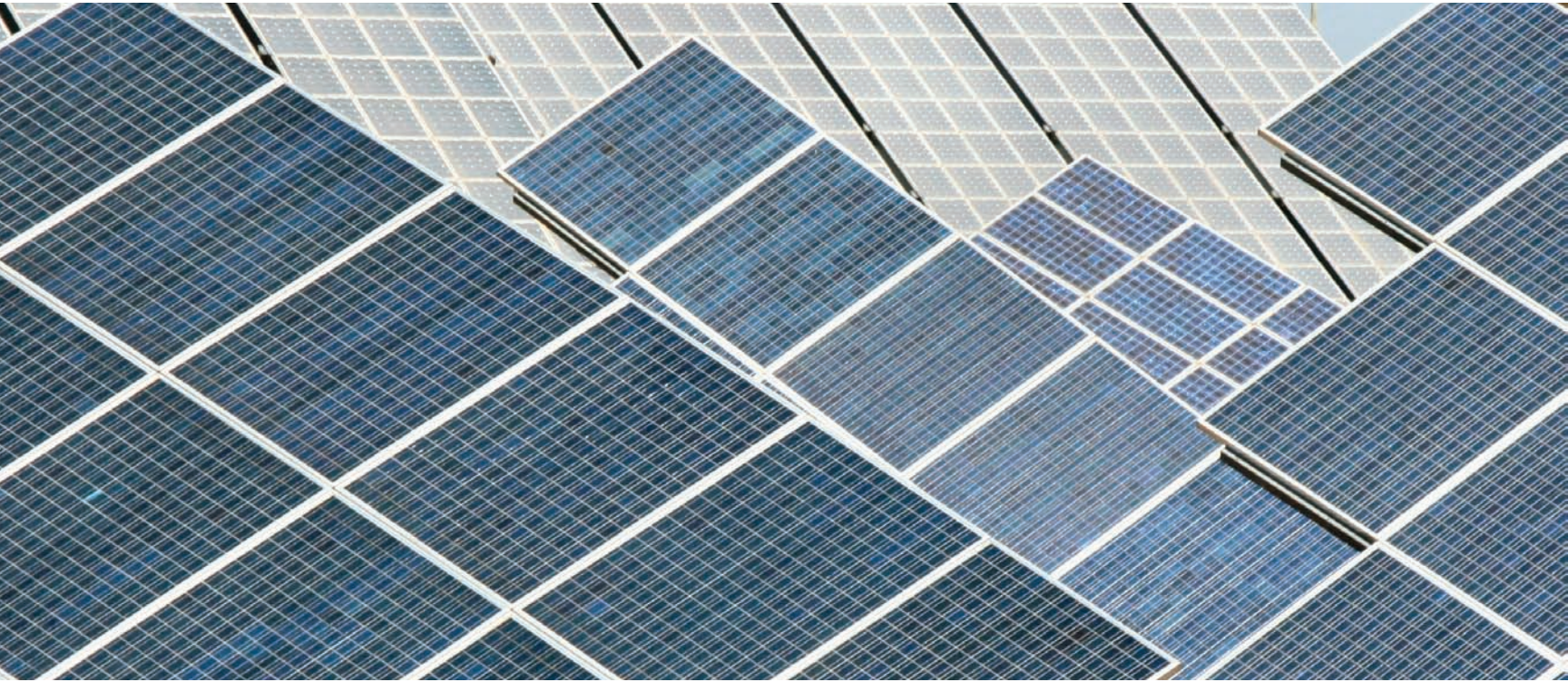
Clarity™ Site Server

Tying everything together at the hardware level in the field is the Clarity Site Server. This powerful central hub consolidates and manages the massive amounts of data coming from the Clarity Monitors and Optimizers. It also provides a complete suite of environmental monitoring, including insolation, plus panel and ambient temperature. This information is sent to our cloud-based server via a broadband connection.

Cloud-Based Management

Intelligent Array™ Software

Core to the Clarity system is the Intelligent Array software suite, a cloud-based environment for managing site performance. In addition to providing customizable site visualization tools, the Intelligent Array also performs real-time analysis and diagnostics on panel and string level data, identifying array impairments and recommending remedial action to maintain peak array performance. These precise recommendations lower maintenance costs and enable optimal system performance while providing owners insight into energy production, array health and quality of site assets.



About Solar Power Technologies

Our company is dedicated to delivering intelligent, innovative hardware and software solutions that maximize the return from commercial and large-scale PV arrays. Our technology will revolutionize the way large-scale solar arrays are designed, built and operated. Combine our ground-breaking Intelligent Array™ diagnostic and analysis software, with the full Clarity™ suite of panel-level hardware, and you have the right combination for maximizing financial returns.

SPTI employs some of the best software and hardware engineering talent in the world, and we are dedicated to bringing market-driven, high-value solutions to the solar industry.

Our mission is to bring Clarity™ to Solar Power Generation.

Contact Us

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