



# SolarEdge System Overview





SolarEdge provides next generation solar power harvesting and monitoring solutions that effectively remove all known system constraints across the photovoltaic energy space. Our Smart DC ASIC technology and active electronics enable increased production of clean, grid-ready energy at a lower cost.

Traditional photovoltaic installations suffer from a broad range of limitations that prevent them from reaching their full potential. Module mismatch and partial shading prevent systems from achieving their optimum. System design is made complex due to numerous constraints, such as the inability to leverage full roof real estate, to combine strings of different lengths, or to easily address differing roof facets. Traditional systems lack monitoring and analysis capabilities, as well as critical safety features. The systems can pose risks to workers installing or maintaining the system, as well as to firefighters dealing with fires in the vicinity of a PV installation.

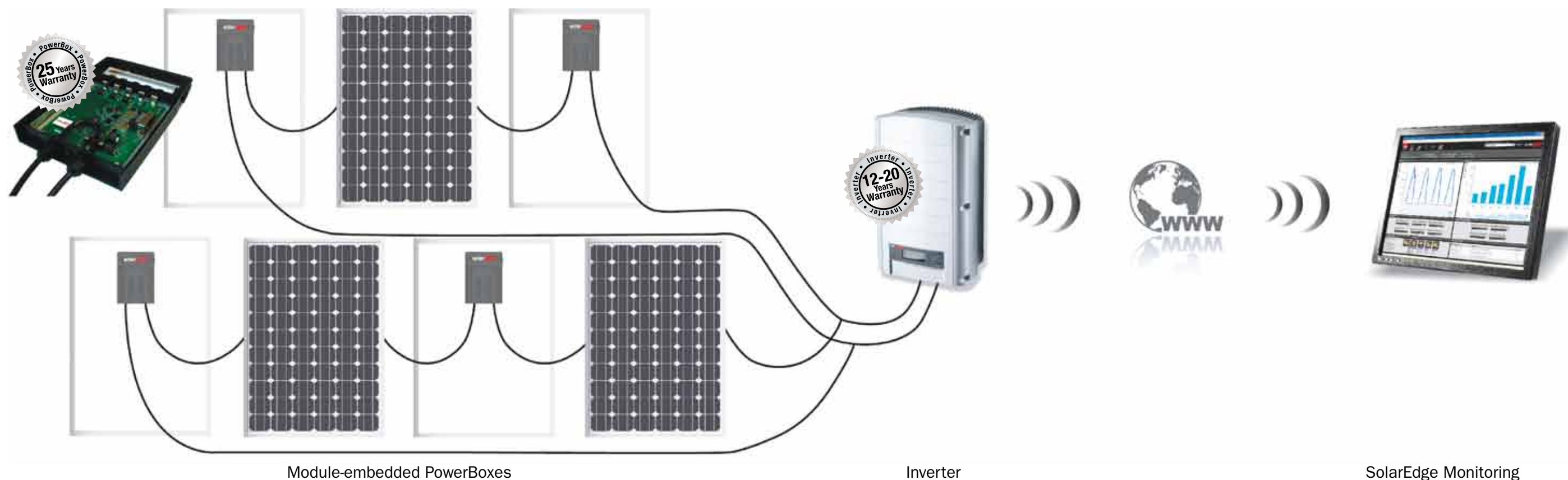
SolarEdge Technologies presents a unique, patent-pending distributed power harvesting system, combining more efficient power harvesting, a highly reliable inverter, and comprehensive module level monitoring.

The SolarEdge technology marries traditional photovoltaic workflows and installation methods with a groundbreaking holistic system approach. It is a quiet revolution that is disruptive because of its profound benefits in changing the manner in which energy is harvested, deployed, managed and delivered and at the same time complementary because it fits into the current photovoltaic workflow.

We believe the PV delivery chain is ultimately only as strong as its weakest link. By adopting a “system first” philosophy that identifies and eliminates the Achilles heel at each step of the process, we enable a constraint-free delivery of sun harvested energy.

#### THE SOLAREEDGE SYSTEM IS COMPRISED OF THREE KEY ELEMENTS:

- **SolarEdge PowerBox™:** The SolarEdge PowerBox is a DC-DC power optimizer that is integrated into each module, replacing the traditional junction box. The PowerBox optimizes energy output and enables performance monitoring for each module. Further, the PowerBoxes automatically maintain a fixed string voltage, giving installers greater flexibility to design optimal PV systems, and providing higher fault tolerance.
- **SolarEdge Inverter:** The SolarEdge Inverter is a highly reliable PV inverter. Because MPPT and voltage management are handled separately for each module, the inverter is only responsible for DC to AC inversion. Consequently, it is a less complicated, more reliable device. The fixed string voltage ensures operation at the highest efficiency (>97%) at all times, independent of string length and temperature. The inverter is small, lightweight and easy to install.
- **SolarEdge Monitoring Portal:** A web-based application provides module-level, string-level and system-wide monitoring. The software automatically provides alerts to a wide range of issues affecting energy generation and to safety events, visually pinpointed on a site layout map. Module performance is communicated over existing power lines, so no extra wiring is needed. SolarEdge monitoring can be deployed in conjunction with the PowerBox, or separately to monitor existing solar installations.



**Good design always requires a holistic viewpoint. Take a step back, consider all the details from above, and you get a better perspective on how to deal with problems up close. That's precisely how SolarEdge developed its system-centric approach which maximizes Solar PV performance.**

### SOLAREGE SYSTEM BENEFITS

#### Maximum Power Harvesting (up to 25% More Power)

- No partial shading sensitivity
- No module mismatch losses
- No under/over voltage losses
- Improved MPP tracking performance

#### Simple, Plug and Play, Error-Free System Design & Installation

- Removes traditional design constraints with SolarEdge flexible architecture
- Simplifies installation by connecting strings of different lengths to a single inverter
- Allows for multi-facet installation with a single inverter
- Scalable installation for future needs

#### Next Generation Maintenance with Module-level Monitoring & Troubleshooting

- Real time monitoring revolutionizes installation feedback and troubleshooting
- In-module monitoring system continuously tracks module power and status
- Communication over the existing power lines, without additional wires
- Data analysis software automatically detects and locates faults and presents them on a physical layout map
- Module Immobilization (module embedded PowerBox feature)

#### Unprecedented Installer & Firefighter Safety

- Electrocutation risk eliminated due to low module voltage during installation
- Maximizes safety by enabling module shutdown during service
- Protects firefighters by automatic module shutdown

#### Extraordinary Reliability

- Designed for extreme outdoor conditions - IP65 / NEMA 3R
- Module-level reliability
- 25 year warranty for PowerBox, 12 year warranty for inverter

#### Cost Savings on Wiring, Diodes, Fuses and Other Hardware

- Longer strings allowing for less cabling and hardware

### MODULE MANUFACTURERS

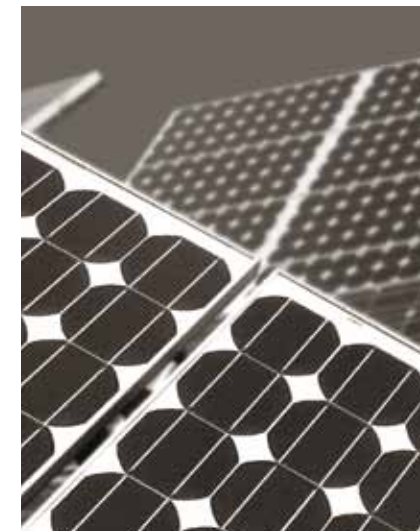
- Create a superior PV module - key differentiator
- Added value to increase market penetration and revenues
- Module production line improvement enables higher currents from existing modules
- Remove manufacturing limitations - temperature variance, module mismatch and manufacturing variations no longer affect power harvesting
- Simplifies module inventory considerations by avoiding unnecessary stockpiling of specific models. Enables the design and delivery of a system per customer with speed and efficiency
- Easier vertical integration to the BoS market segment

### INTEGRATORS, INSTALLERS AND MAINTENANCE PROVIDERS

- Ideal for residential, commercial and large field installers
- Lower installation costs with faster design, less wiring, diodes, fuses and better maintenance
- Simple installation – use the same installation methods as exist today with all the SolarEdge added benefits
- Immediate installation feedback for faster site commissioning
- Scalable installation – adding modules to existing installations is simple and straightforward
- Create maintenance reports and log maintenance progress
- Full safety solution – electrocution and fire risks are eliminated with automatic module voltage shutdown during installation and maintenance

### SYSTEM OWNERS

- Up to 25% more energy due to reduced power losses, for faster ROI
- Optimal roof area utilization
- Effective remote monitoring – easier maintenance that costs less
- Enhanced system troubleshooting
- Better fire safety – reduce insurance premiums





6

7

**SolarEdge**  
PowerBoxes

**SolarEdge**  
Single Phase Inverters

**SolarEdge**  
Single Phase Inverters  
North America

**SolarEdge**  
Three Phase Inverters

**SolarEdge**  
Three Phase Inverters  
North America

Coming Q2/2011

**SolarEdge**  
Monitoring

**SolarEdge**  
Communication Accessories

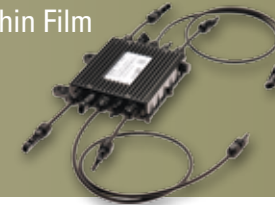
**SolarEdge**  
Installer Tools

SolarEdge Product Family

250W/ 350W  
Module  
Add-on



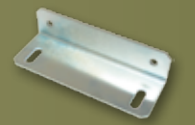
350W Thin Film  
Add-On



250W/350W Module  
Embedded



Co-planar Mounting  
Bracket



3.3kW



4kW



5kW



6kW



3.3kW



3.8kW



5kW



6kW



8kW



10kW



12.5kW



8kW



10kW



12.5kW



15kW



Module  
Monitoring



Monitoring  
Combiner Box



iPhone  
Application



Communication interface for  
non-SolarEdge  
inverters



GSM modems



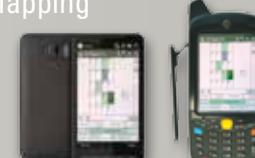
Inverter Wireless  
connection  
(ZigBee network)



Site Design  
Tool



Site Mapping  
Tool



Configuration  
Tool





## About SolarEdge

SolarEdge provides next generation power conversion electronics that effectively remove all known system constraints across the photovoltaic energy space. Our Smart DC technology enables increased production of clean, grid-ready energy and faster return on investment.

The SolarEdge technology marries traditional photovoltaic workflows and installation methods with a groundbreaking holistic system approach. It is a quiet revolution that is disruptive because of its profound benefits in changing the manner in which energy is harvested, deployed, managed and delivered and at the same time complementary because it fits into the current photovoltaic workflow.

At SolarEdge we believe the PV delivery chain is ultimately only as strong as its weakest link. By adopting a "system first" philosophy that identifies and eliminates the Achilles heel in each step in the process, we enable a constraint-free delivery of sun harvested energy.

**USA** 900 Golden Gate Terrace, Suite E, Grass Valley CA 95945, USA

**Germany** Königstr. 5, 01097 Dresden, Germany

**Japan** B-9 Ariake Frontier Building, 3-7-26 Ariake, Koto-Ku, Tokyo 135-0063, Japan

**Israel** 6 HaHarash St. P.O.Box 7349, Neve Neeman, Hod Hasharon 45240, Israel

[www.solaredge.com](http://www.solaredge.com)

© Copyright SolarEdge. 2009. All rights reserved. SolarEdge, the SolarEdge logo, PowerBox and architects of energy are trademarks or registered trademarks of SolarEdge, Ltd. All other trademarks mentioned herein are believed to be trademarks of their respective owners.  
Date: 01/2011. Subject to change without notice.

*architects of energy™*