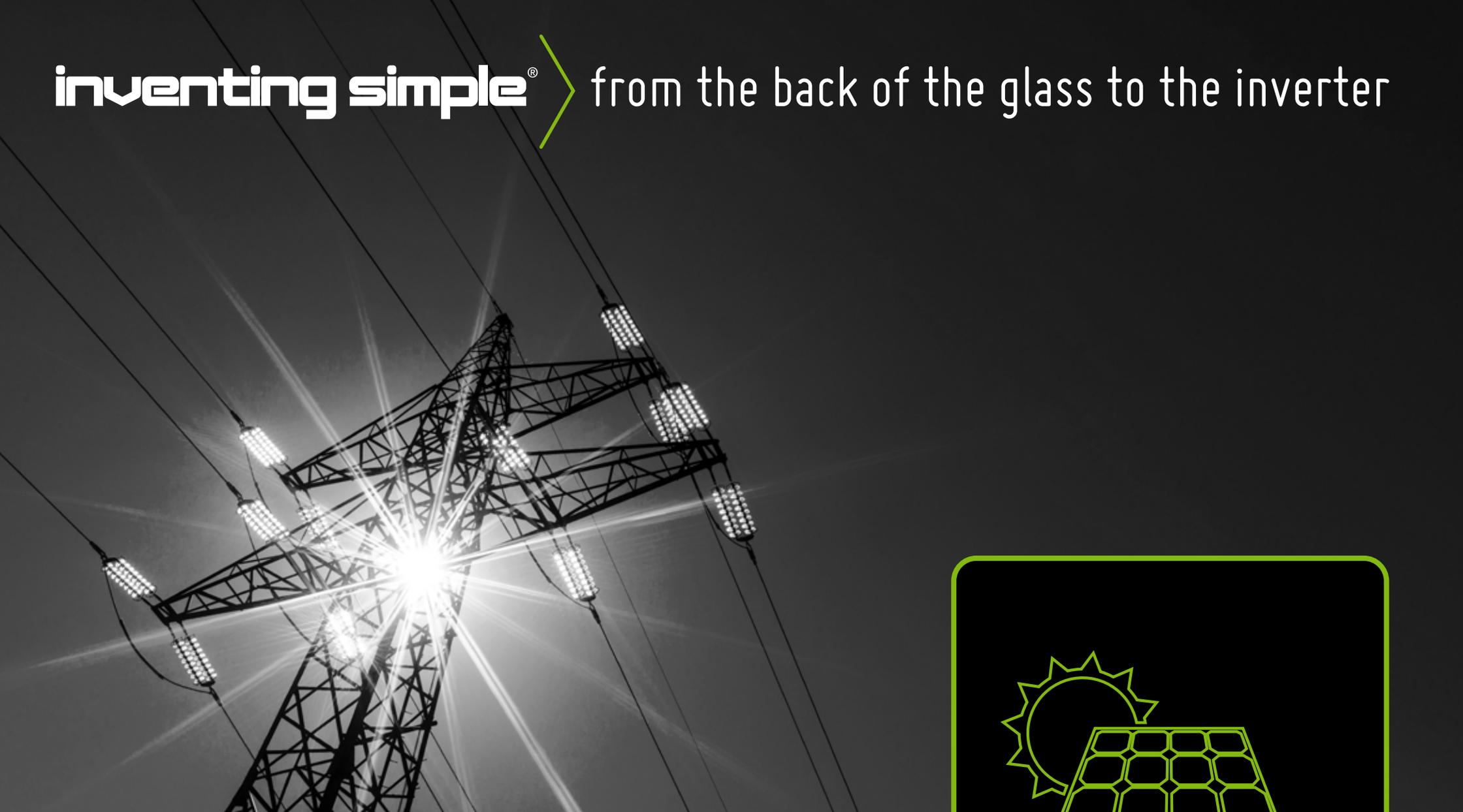
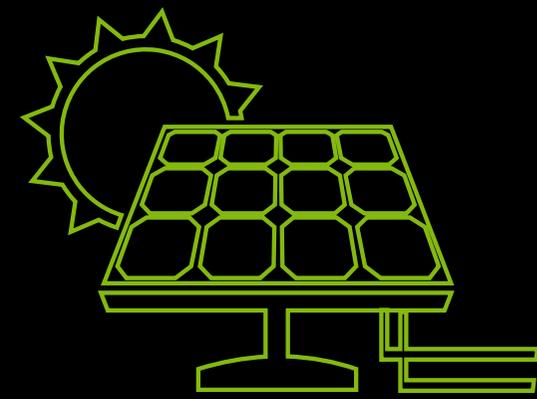


inventing simple[®]

from the back of the glass to the inverter



shoals[®]
technologies group



photovoltaic catalog

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introduction

making solar as simple as black and white.

Life is complicated. Installing your field doesn't have to be.



CERTIFICATIONS

- TUV certified
- UL Certified: UL508A, UL1741, UL3730, UL4248, UL6703, UL9703
- ISO 9001:2008 certified
- ETL Certified: UL1741, CSA C22.2-107.1, UL6703, UL9703

inventing simple®

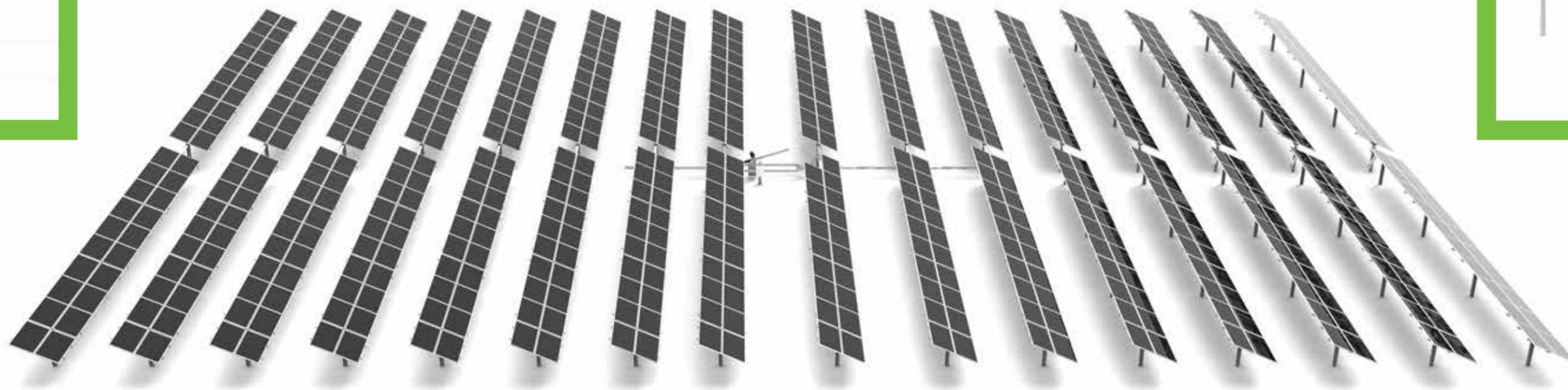
Inventing Simple® isn't just a slogan to us, it's a way of life. Using simple plug-and-play ideology, we revolutionized solar installations in 2003 with our Interconnect System™. Our harnessing system is now the gold standard EPC's use around the world. By using simple ideas, we are making solar energy a more affordable and clean power source for future generations.

Through innovation and diversification our company has grown exponentially since its founding in 1996. We maintain a diverse portfolio of PV balance of systems ("BOS") products, including custom harness solutions, combiner/re-combiner boxes, junction boxes, PV wire, in-line fuses, racking and string level monitoring solutions. Our team expects and maintains the highest standards for excellence. It is this standard, and a pursuit for innovation, that drives Shoals to invent simple.

With solutions second to none in the marketplace, we are privileged to have our products installed in some of the largest solar fields around the world.

 **Balance on Tracker™**

You bring the glass and labor...
we'll provide the rest.



combiner installation >



- tracker
- combiner boxes
- component harnesses
- home-run harnesses
- optional SnapShot® monitoring

combinerless installation >



- tracker
- bla harness
- component harnesses
- optional blm SnapShot® monitoring

the choice is yours

You tell us which installation set-up you prefer... a traditional combiner installation or our simplified bla installation. Either way, we want to be part of your next project!

harnesses >

Shoals' patented Interconnect System™ and home run harnesses reduce the specialized labor required in your installation, making the integration of solar panels a breeze. Whether purchased separately or pre-installed in the combiner box to streamline installation, Shoals home-run harnesses and Interconnect System™ are perfect for any PV project.

Features

- Resistance welded joints
- Patented chemically bonded overmolding process
- Custom manufactured to the installation
- Pre-labeled to decrease installation time and errors
- Certified to UL9703 for 600V & 1000V systems

Benefits

- Reduced potential points of failure
- Reduced maintenance costs
- Line failures reduced over 90%
- Average 20% reduction in labor cost
- Average 50% reduction in material cost



interconnect system™



whip

A method of connecting a terminal to a connector. A typical use would be from a combiner box to a string of panels.

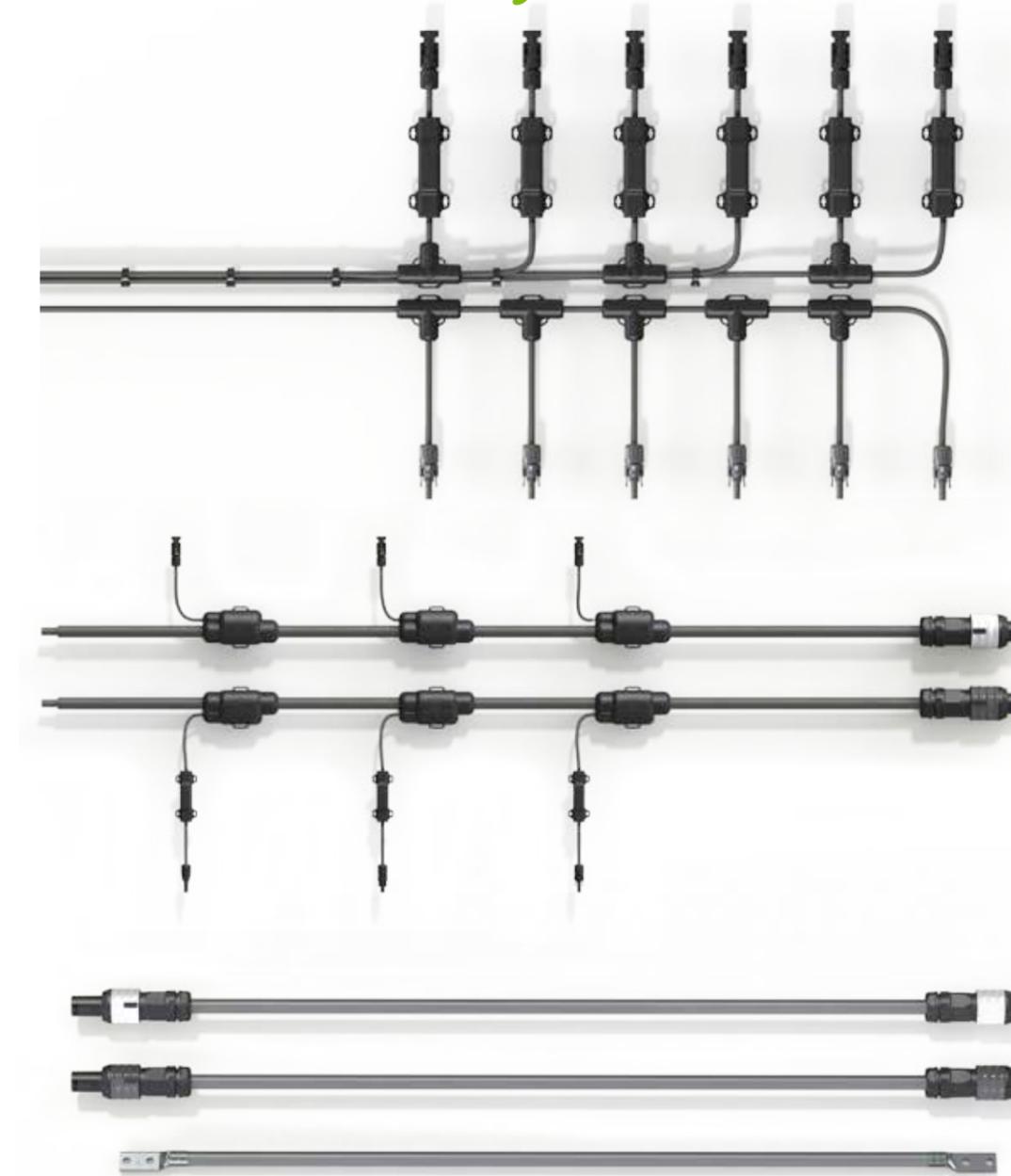
jumper

A method of connecting two components with connectors. A typical use would be connecting strings between two rows or connecting a string to a Shoals combiner box with pre-installed pigtails.

branch connectors

A method of combining multiple wires without the need for in-field splice. This patented device helps increase efficiency on site while reducing the amount of wire and number of combiner boxes needed.

interconnect system™



inline fuse harness

Maximize the current rating of the DC combiner fuse holders and reduce the number of DC combiner boxes on site. By using a Shoals Harness that incorporates Shoals In-Line fuse, installers can pre-combine strings before the combiner box.

bla

The BLA (Big Lead Assembly®) takes the component harness to a whole new level. Making use of the Shoals In-Line fuse and wire welding manufacturing process, we can offer a site that is free of DC string combiners, all of the load is combined in the large conductors that typically run between the string combiner and the inverter. No need to trench for DC feeders or hang string combiner boxes. And when booted with BAC connector, the entire array is plug-and-play, plug in the panel strings, plug into the inverter.

dc feeders

Shoals can supply the larger conductors that run from the string combiner to the inverter or re-combiner, cut to length and outfitted with any style lug required on site. It can also be ordered with the BAC connector so there is never any need to torque check which reduces O&M time and costs.

combiners >

The next evolution of combiner boxes, optimizing both cost and layout without sacrificing quality or performance. The new SlimLine® combiner box series from Shoals provides both a lighter weight and more compact design than ever before.

Features

- UL98B listed DC disconnect
- Finger-safe fuse holders
- Oxygen-free, plated busbars
- Listed to UL1741 & CSA 22.2
- NEMA 4X enclosure
- 5-year warranty standard on all models

Options

- Snapshot® wireless monitoring
- Surge suppression
- Indicating fuse holders



combiner boxes



ultra slimline series

This is our most compact series of DC string combiners, but still allows plenty of elbow room for landing wire in the box and meeting NEC requirements for wire bending space for parallel 500MCM outputs.



slimline series

When larger output wires are required, up to single 900MCM or dual 750MCM, this is the product line for the job.

combiner boxes



dual fused series

When installing a floating ground system, look no further than the Shoals Dual Fused series. And it has all of the options available with our Slimline series with overcurrent protection for both potentials.



snapshot® series

This line of combiner boxes allows an installer to gather information down to the string level from anywhere in the world.

combiner boxes



AFCI series

When required to meet the NEC 2014, our AFCI series is all you need. Fully listed to UL1741 and UL1699B and offers the same convenient configurations as our other combiner series.



1500V series

The next step in efficiency while maintaining simplicity. This product line offers on average a 30% savings in dollars per watt over its 1000VDC predecessor.

combiner boxes

disconnect units & re-combiner boxes

When faced with NEC 690 requirement of disconnecting inputs into the inverter, this product offers a very cost effective means of complying in a very compact package.



landed or modified boxes



The next evolution of combiner boxes, optimizing both cost and layout without sacrificing quality or performance. The new SlimLine combiner box series from Shoals provides both a lighter weight and more compact design than ever before.

Features

- UL98B listed DC disconnect
- Finger-safe fuse holders
- Oxygen-free, plated busbars
- Listed to UL1741 & CSA 22.2
- NEMA 4X enclosure
- 5-year warranty standard on all models

Options

- SNAPShot® wireless monitoring
- Surge suppression
- Indicating fuse holders



Hassle-free installation

Make your life even easier by having us pre-install the harnesses at our manufacturing facility. The harnesses will be bundled on a spool pre-attached to your combiner box, making your installation a breeze.



Glands can be attached for strings and knockouts can be made for conduit entry.

LMB with pre-attached positive & negative pigtails



combiner boxes

LMB with mounting strut attached to the back for easy field installation.



Full length bundled harnesses, component harnesses or pigtails can be pre-installed so that the combiner box is mounted & harnesses are simply unrolled and plugged into the panel strings.



Features

- 600V or 1000V capability
- Up to 30 amps per string
- Powered from DC busbar
- Supports external plug-ins for additional features
- No battery change required
- Proprietary wireless mesh protocol
- Maximum ranges exceeding 3 miles
- FCC certified on all 16 channels
- IEEE 802.15.4 low-power mesh protocol
- AES-128 encryption
- Adjustable polling frequency
- Instant-on, self-detecting & self-healing
- 5-year warranty standard on all models

Measured Variables

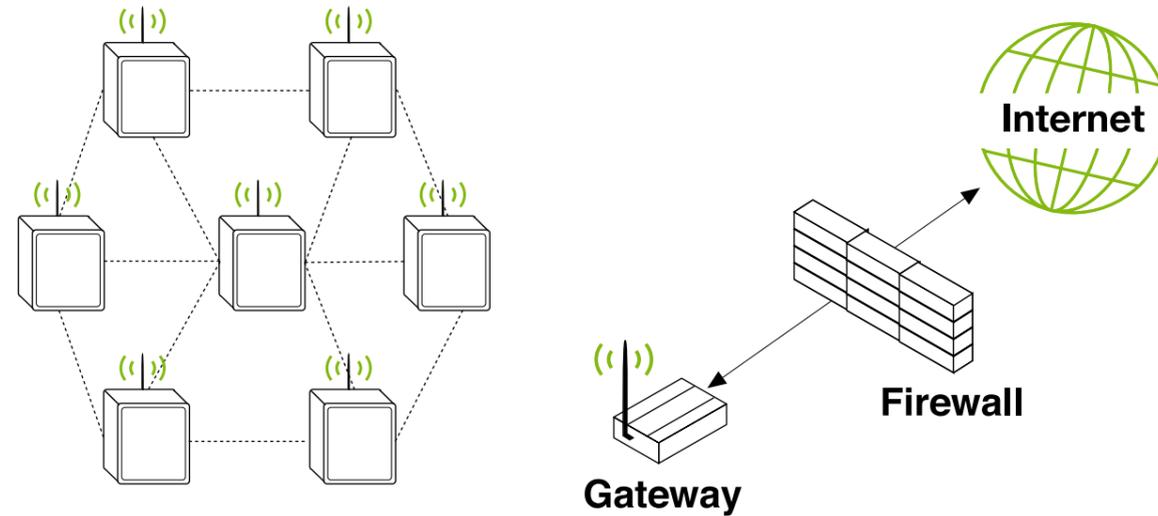
- Temperature (C)
- Current (A)
- Voltage (VDC)

Available Accessories

- Modbus Interface
- External glass temperature sensor
- Custom SCADA adapters

Self-Detecting, Self-Healing Wireless Network

In the Snapshot® wireless network there are no single points of failure, any node can talk directly to any other node that is in range, and any node can talk indirectly to any other node via intermediate nodes. These routes between nodes do not have to be pre-configured by the user, as the networks are self-forming (the network establishes itself). When a new node is powered-up, it is automatically integrated into the network and becomes fully operational in a fraction of a second. Furthermore, Snapshot® wireless networks are self-healing; if a node fails for any reason, other nodes will automatically route signals around the failed node.



Wireless Monitoring...it's a SNAP

Snapshot® Wireless Monitoring installs with ease with no need to run power or communication cables to the combiner boxes. This allows for easier deployment when compared to similar products on the market.

Built upon battlefield proven, military grade technology, Snapshot® Wireless Monitoring is based on a low power, high performance, secure mesh network that can recover from any issues, large or small, encountered in the field.

wireless monitoring >



Snapshot®
shoals & synapse



The Skidget® inverter mount is a pre-wired, rack for the Sunny Tripower string inverter that can be configured to include DC disconnecting combiner &/or AC disconnect. Designed with speed of installation in mind, this little guy can be moved around a rooftop with a set of optional wheels or easily carried by 4 people. It is collapsible to help lower shipping costs and when deployed sits at 15° from horizontal. It has non-slip, non-penetrating feet that can be anchored to meet seismic zone 4 requirements where necessary. It has a small foot print so you can get the most out of your rooftop array.



Features

- Pre-wired Sunny Tripower Inverter, AC & DC disconnect
- Overall dimensions – 60" L x 32.5" W x 30" T
- Collapsible for flat pack shipping
- Meets NEC 2014 requirements when placed within 10ft of PV array
- Available with pre-installed Shoals Tripower Connection Kit

Benefits

- Easily transportable
- Reduced maintenance costs
- No tools required for installation
- Reduced labor costs
- Small foot print



Shoals' Powerhouse® is a modular power skid solution that is compatible with any inverter and any transformer. It is a turn-key power station that is built in a controlled environment, has a short lead time and doesn't require large equipment on site. The Powerhouse is lightweight and has a small foot print which means you spend less on shipping and need smaller equipment to move it around on site. With a customizable auxiliary wall to place any electrical equipment you need from data acquisition units to weather stations to just an AC distribution panel. The Shoals' Powerhouse® will save you money and have your install producing faster than you ever thought was possible.

Features

- 500kW – 4MW
- Single or Double inverter
- Integrated Bus System
- Modular System
- Self-Aligning Skid Structure

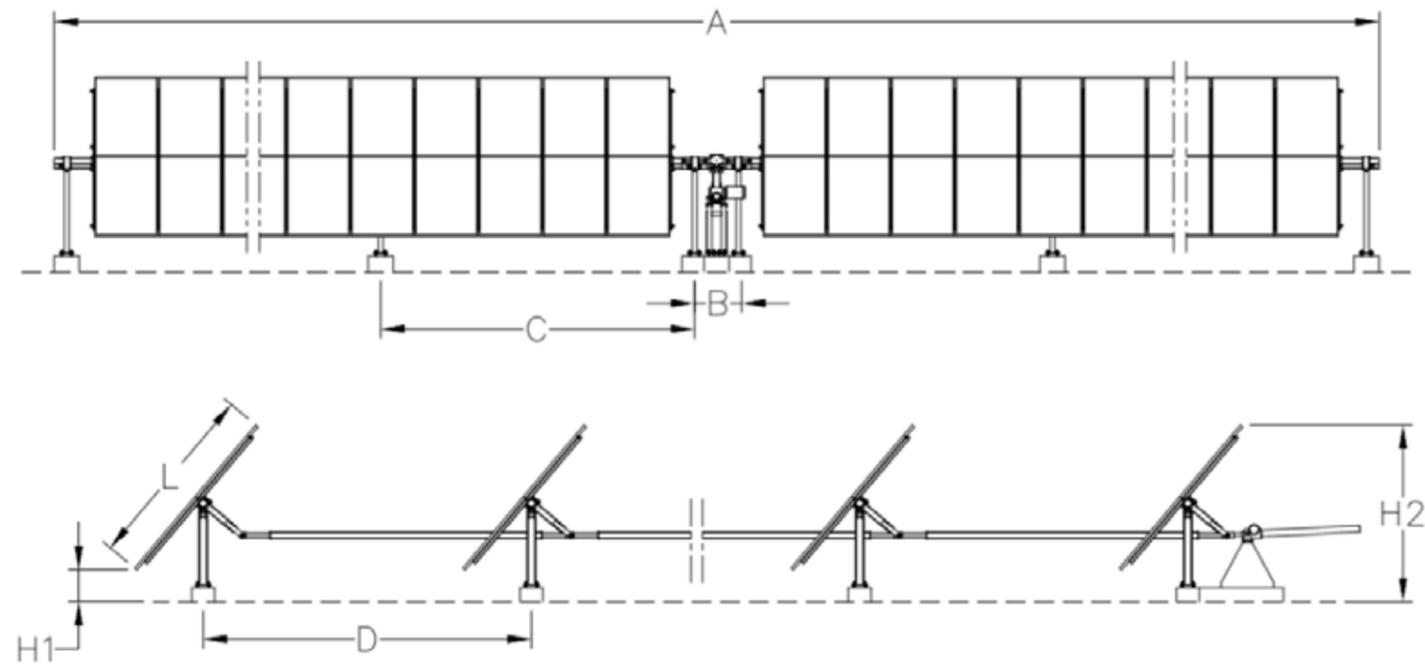
Benefits

- 20% Reduction in steel
- 70% Reduction in weight vs. pre-fab steel skids
- 80% Reduction in weight vs. pre-fab concrete skids
- Reduction in labor cost
- Small foot print



The future of solar is NOW.

Our horizontal single axis tracker is a cost effective product designed for large-scale PV ground mount systems. The system simply uses a set of drives and controllers to achieve automatic tracking for the entire array. The unique linkage structure and maintenance-free rotary bearing provides for excellent system reliability, low failure rate and low maintenance cost. Compared to the traditional fixed tilt ground mount, this tracker enables 20% higher annual power generation, therefore becoming an ideal choice for large scale PV installations.



projects >

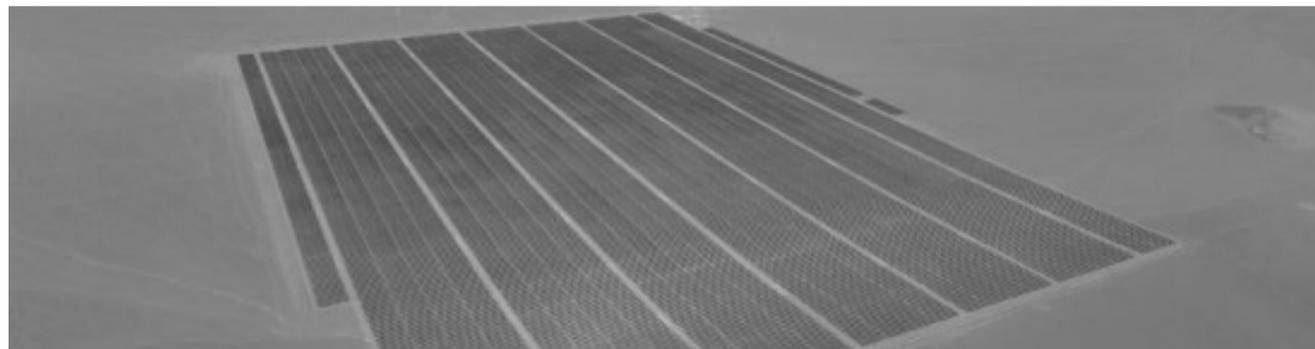
APPLE DATA CENTER > 20MW Maiden, North Carolina USA

PPA: Duke Energy | Owner: Apple
EPC: Sunpower | Commissioned: December, 2013
Site Area: 100 Acres | Modules Used: ~50,000
Shoals Products: Junction Box Lead, Harnesses, Combiners



LUZ DEL NORTE > 141MW COPIAPÓ, CHILE

PPA: Sun Edison | Owner: First Solar
EPC: First Solar | Commissioned: December, 2010
Site Area: 478 Hectares | Modules Used: ~1,700,000
Shoals Products: Junction Box Lead, Harnesses



TOPAZ SOLAR FARM > 550MW SAN LUIS OBISPO COUNTY, CALIFORNIA USA

PPA: Pacific Gas & Electric | Owner: BHE Renewables
EPC: First Solar | Commissioned: 2015
Site Area: 4,700 Acres | Modules Used: ~9,000,000
Shoals Products: Junction Box Lead, Harnesses



projects >

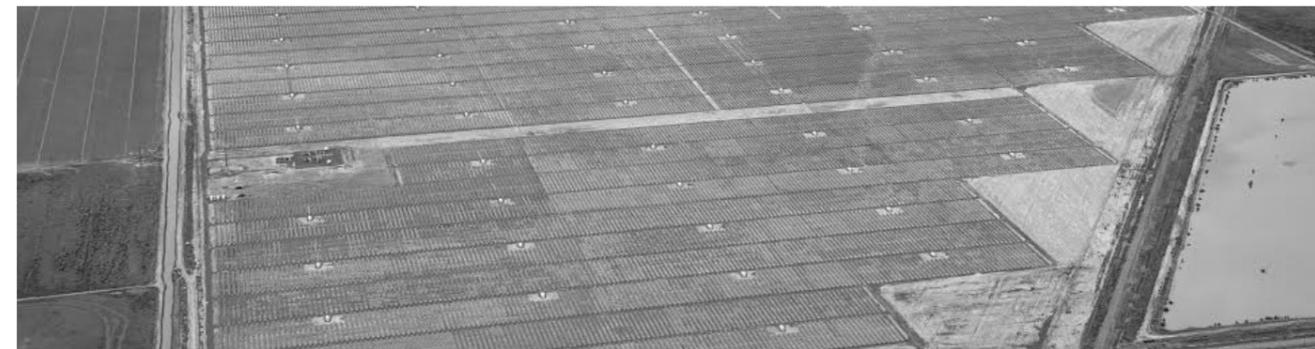
COPPER MOUNTAIN 1-2-3 > 458MW Boulder City, Nevada USA

PPA: Sempra Generation | Owner: Sempra Generation
EPC: First Solar | Commissioned: December, 2010
Site Area: 1,400 Acres | Modules Used: ~7,000,000
Shoals Products: Junction Box Lead, Harnesses



ALPAUGH > 92MW Alpaugh, California USA

PPA: Pacific Gas & Electric | Owner: Con ED Development
EPC: Quanta | Commissioned: January, 2013
Site Area: 650 Acres | Modules Used: ~1,000,000
Shoals Products: Junction Box Lead, Harnesses, Combiners



NYNGAN > 102MW Nyngan, New South Wales AU

PPA: AGL Hydro Partnership | Owner: AGL Energy Limited
EPC: First Solar | Commissioned: June, 2015
Site Area: 618 Acres | Modules Used: ~1,350,000
Shoals Products: Junction Box Lead, Harnesses





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