



# enerG Focus Feature INVERTERS

## SMA AMERICA

SMA America is preparing to release its first ever micro inverter this fall. The Sunny Boy 240-US is said to be ideal for residential hybrid Sunny Boy string/micro installations and systems with complex shading.

The micro inverter offers simple installation and reliable performance with high efficiency, as well as a simplified design and flexibility to enhance long-term reliability, according to SMA. The Sunny Boy 240-US will come with the Sunny Multigate-US, an integral component of the micro inverter system. The Multigate will serve as a multi-purpose connection point that provides clear communication and user-friendly electrical interface to the main service panel. The Sunny Boy 240-US will include SMA's trademark reliability, performance, and customer support.

[www.sma-america.com](http://www.sma-america.com)



accepts DC power from a pair of many popular 60-cell photovoltaic modules and converts it to grid compliant AC power (208VAC or 240VAC, 60Hz or 230VAC, 50Hz). Combined with the auto-grid synchronization (which drives a power factor > 0.99), use of the DGM-S460 micro-inverter results in energy harvest gains of five to 25 percent versus conventional centralized systems, says the company.

Each unit incorporates robust PLC communications that send a collection of power, diagnostic, and unique ID data to a remote gateway device. The gateway frequently transmits the harvested data to a remote server via an Ethernet connection. Users can easily monitor each unit's performance and health 24/7 through the WattTrack web interface.

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

## ADVANCED SOLAR PHOTONICS

Advanced Solar Photonics' (ASP) grid-tied PV inverters offer an efficiency and voltage operating range that maximizes energy yield and return on investment, according to the company.

Installation time and costs are reduced through an integrating combiner box, AC/DC disconnects, and wire raceway. The design simplifies service on the unit through a two-piece modular configuration that allows the wiring box to remain connected and mounted if the power module needs to be replaced.

Ratings are 3800W, 4000W, 5000W, 6000W, and 7000W.

Features include:

- 97 percent CEC efficiency
- Broad voltage operating range (105-500 Vdc), performs in low light



and high temperature

- Transformerless design
- Integrated PV system AC/DC disconnect switch
- Four branch circuit-rated negative and positive fused inputs
- Integrated NEC-compliant wire raceway
- Field selectable voltage output: 208/240/277 Vac
- LCD display with nighttime monitoring capabilities
- NEMA 3R enclosure
- ETL listed (compliant with UL1741 standards) and CEC listed (in process)

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

## DIRECT GRID

Direct Grid's ARRA-compliant DGM-S460 GEMINI Series utility grade grid tie micro-inverters employ what

the company says is a unique planar transformer design that offers the highest power density, low operating temperature, and unsurpassed reliability. With an industry leading 530W power, each micro-inverter



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## SOLECTRIA RENEWABLES

Solectria Renewables has introduced the newest addition to their utility-scale solar inverter product lines. The SGI 500XT (600 V) offers some of the highest efficiency and reliability in the industry, the company says. The SGI 500XT is Solectria Renewables' first transformerless, 600V inverter. Features of this inverter include 98 percent efficiency, built-in redundancy, subcombiner options, user interactive LCD, and various options for utilities. [www.solren.com](http://www.solren.com)



## DANFOSS

The Danfoss Group will showcase its new central inverter at Solar Power International (SPI) in September in Orlando, Florida.

The company's SLX Series utility scale inverters are designed for Sun Belt regions with a product range from 1 MW to 1.5 MW. The SLX is liquid cooled and redefines high performance. Designed with the toughest criteria on all critical components and paired with an extremely robust and reliable inverter designed to last for 25 years, the SLX was made to deliver true maximum output power on a continuous basis, the company says. With this design concept, the SLX Series achieves peak efficiencies of up to 98 percent and works at ambient temperatures of up to +50° C.

All of the components are optimally cooled for maximum performance. A highly efficient liquid cooling system is employed for the semiconductors and inductors, which use the company's patented Shower-Power switching technology. This integrated technology is equipped with speed-controlled fans and pumps to avoid

internal pollution and lengthen maintenance intervals—even in dusty regions.

Utility scale PV power plants will benefit from using an SLX Series central inverter that has been designed and built with reliability, installation, and maintenance in mind—all of which reduce the total cost of ownership. Danfoss inverters are said to be easy to use, flexible to integrate, and simple to install. The SLX central inverter takes the pain out of installation by delivering a pad mounted solution, which results in a quicker start-up time.

[www.solar-inverters.danfoss.com](http://www.solar-inverters.danfoss.com)

## MOTECH

Motech PVMate grid-tied PV inverters offer high efficiency, high reliability, light weight, and lower installation cost, says the company. With PVMate inverters, grid-tied installations become a simple task, and that translates into lower installation cost.

The PVMate 3000U ~ 7500U series has 96 percent CEC efficiency, the highest CEC efficiency in its class of inverters with built-in transformer.

The wide MPP tracking voltage ranges (from 200 V to 550 V for PVMate 3000U ~ 5300U series and 230 V to 500 V for PVMate 6500U and 7500U series) make Motech PVMate inverters more flexible in module selection and sizing of PV system. With 131 degrees F (PVMate 4000U) and 122 degrees F (PVMate 7500U) of maximum full power operating ambient temperature, Motech inverters also perform better at high temperature without de-rating. The integrated DC/AC disconnect switch eliminates the need for external DC/AC disconnects. Furthermore, RS232 and RS485 communication features are built in to the Motech inverter, and no added-on card is required. [www.motechsolar.com](http://www.motechsolar.com)



## OUTBACK POWER

The Grid/Hybrid Radian series inverter/chargers incorporate OutBack Power's FLEXgrid technology for full operational flexibility. Dual AC Inputs automatically switch between an active grid and generator input without the need for an external, costly transfer switch. An offset function enables users to manage their energy consumption by switching between PV, grid, and battery energy sources. In areas where the grid is inconsistent or unreliable, the Radian seamlessly switches between grid-tied and off-grid operation.

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A unique dual-power module design ensures high efficiency in both low and full power operation, as well as redundancy in mission-critical applications. Modular system architecture and simplified parallel design support system scaling of up to 10 inverters. The 120/240V 60Hz split-phase Radian is an 8,000 watt power solution designed for North American wiring practices. The new 230V/50Hz 7,000W international model supports three-phase systems and

makes the Radian series a true world-class solution, says the company.

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

## FRONIUS

Designed for easy installation and service, the Fronius family of grid-connected inverters includes the IG, the IG Plus, and the CL central inverter.

The IG represents a flexible generation of lightweight inverters with a voltage range of 150-500 V that include integrated DC/AC disconnects. With field programmable AC output voltage (applies to 3.0-11.4 kW), a built-in six-circuit string combiner, and a removable power stage, the IG Plus represents an evolution of the Fronius IG.

The Fronius CL boasts a modular system design of up to 15 identical power modules using Fronius MIX technology (also incorporated in the IG and IG Plus). Maximum yield and outstanding reliability make the Fronius CL the ideal central inverter for PV systems up to the megawatt range, the company says.

[www.fronius.com/cps/rde/xchg/fronius\\_usa](http://www.fronius.com/cps/rde/xchg/fronius_usa)



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## EATON POWER

Eaton's Power Xpert Solar 1500 kW inverter is designed for utility-scale, megawatt applications and engineered to reduce installation costs, boost reliability, and improve plant uptime, the company says.



With a true megawatt platform, the Power Xpert Solar 1500 kW inverter is outdoor-rated, 98 percent efficient, and features a wide Maximum Power Point Tracking (MPPT) voltage range. The Power Xpert

Solar's innovative design enables a skidless inverter station, reducing equipment and installation costs. A fault-tolerant design helps to minimize downtime and maximize plant availability, while true reactive power (VAR) support at rated power means no power de-rating up to  $\pm 0.91$  power factor range.

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

## SCHNEIDER ELECTRIC

As a global specialist in energy management, Schneider Electric provides photovoltaic solutions for any size installation, from residential rooftops to utility-scale farms, and customers benefit from having a single supplier for all their components.

Schneider Electric's Conext TX Grid-tie Solar Inverter provides great value in a compact high-frequency design, the company says. It may be installed in a single PV array or in a multiple inverter configuration. The Conext XW Solar Inverter is battery-based and ideal for remote locations where off-grid power is required or needed as backup. It features true sine-wave power and best-in-class surge capacity.



The Schneider Electric PV box includes electrical distribution, automation, security, monitoring, and control in a single package. Schneider Electric also offers complete substation design and construction services. The company's nationwide Electrical Distribution Services group includes more than 150 engineers and 300 field service technicians, as well as project management teams to assist with complex projects.

[www.schneider-electric.com](http://www.schneider-electric.com)

## LTI REENERGY

Energy with efficiency characterizes LTI REEnergy's 610/1220 PVmaster II Inverter Station, the company says. Designed with a plug-and-play concept for large-scale

PV plants, the PVmaster II station features an integrated monitoring system and comes with a five-year warranty, extendable up to 20 years. Even with an ultra-compact design, a maximum efficiency of more than 97 percent can be guaranteed (including MV transformer losses and all internal consumption).



LTi is one of the only vendors in the U.S.

market to provide its customers with a compact, fully self-contained system, including the MV transformer with integrated oil containment, according to the company. The liquid cooled inverters do not exchange any outside air and are said to be clean, dry, and cool. Advanced grid functionality, LVRT, power reduction, and reactive power control are supported. <http://reenergy.lt-i.com>

**REFUSOL**

REFUsol Inc. is a top-rated manufacturer of commercial and utility-grade PV solar inverters.



The REFUsol 012K, 016K, 020K, and 024K UL-certified, commercial-scale string inverters are three-phase transformerless—and highly efficient at 98.2 percent. The light, compact design comes with an integrated combiner box to help lower BOS costs and a quick mounting bracket for ease of installation. These feature a precise MPP tracker, enabling the inverters to adjust the settings accordingly to achieve the highest efficiency, even with different temperatures and varying sun exposure. REFUsol products, with a reputation of having among

the highest efficiency ratings in the industry, also include the REFUlog monitoring and REFUsol Modbus Solution for flexibility in monitoring solutions. [www.refusol.com](http://www.refusol.com)

**SOLARBRIDGE TECHNOLOGIES**

SolarBridge Technologies has launched their next-generation AC Module solution, the Pantheon II microinverter and enhanced SolarBridge Management System. The Pantheon II is a higher power, higher efficiency, and smaller footprint microinverter that is smart-grid capable and designed to optimize the power output of today's higher power panels, the company says. It builds on the success of the original Pantheon microinverter, improving all performance metrics and adding new capabilities including 208V/240V autosensing and compatibility with 60- and 72-cell modules up to 280-watt—making the product suitable for commercial and residential PV applications. It is CSA certified to UL1741.

SolarBridge microinverters are installed directly on the back of modules to create AC modules, a completely integrated solution that ships to the field “roof-ready” with no DC cables or separate ground wires to install.

Complementing the Pantheon II microinverter is the SolarBridge Management System, which consists of the Power Manager and Power Portal, updated with additional system management functions to enable multiple integration points for partners to access and control their PV systems (including cloud-to-cloud, local hosting, API access, and Android, as well as iOS mobile applications).



multiple integration points for partners to access and control their PV systems (including cloud-to-cloud, local hosting, API access, and Android, as well as iOS mobile applications).

SolarBridge partners can also choose to private label the Power Manager and Power Portal, a comprehensive hardware and software solution that captures, processes, and presents module-level performance data, alerts, and other critical PV system data to site owners, managers, and module manufacturers. [www.solarbridgetech.com](http://www.solarbridgetech.com)

**CHINT POWER SYSTEMS**

Leveraging its success in Europe and Asia, Chint Power Systems (CPS) is launching its 20kW inverter in the U.S.—the same product family that earned a prestigious “A” rating in Photon Laboratory testing.

CPS is among the leaders in advancing commercial power architectures, from central inverters to 3-phase string inverters—an architecture that enables developers to optimize PV site designs around smaller inverter building blocks, increase yield through multi-MPPT tracking, and achieve lower lifecycle service costs. Among its features:

- Dual independent MPPTs, 96.5 percent CEC efficiency, increasing energy yield
- Integrated AC/DC disconnect, reduces installed cost

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CPS also provides 4kW, 5kW, 6kW, 7kW, and 100kW inverters for North America, with utility scale solutions coming soon.  
[www.chintpower.com/na](http://www.chintpower.com/na)



## GE

Marking what the company says is a new technology milestone in the global effort to increase renewable energy production by driving down overall system costs, GE has deployed the first 1,500-VDC (volts, DC current) open circuit (OC) central inverter for utility scale solar power plants. The inverter will help reduce overall system costs, which is vital to making solar power a more economical alternative to fossil fuel technologies. GE Energy's Power Conversion business developed, built, and delivered its 1,500-VDC ProSolar central inverter technology to solar power plant system integrator BELECTRIC.

BELECTRIC installed GE's advanced central inverter at its new solar power plant in southern Germany, utilizing PADCON's 1500 VDC System Technology.

The 1,500-VDC OC central inverter for BELECTRIC is designed as an outdoor version and is said to offer a number of key benefits. Most notably, it allows operation at high DC voltages on panel level with lower DC currents while increasing the rated power for inverters. This can result in significantly lower costs for the technical DC infrastructure as well as the overall balance of system costs. Since the power of the inverter system is limited mainly by the current, the power can be substantially increased by increasing the operating voltage, and this means additional cost savings.

Due to higher operating DC voltage and higher output with the same size as conventional ProSolar 1,000-VDC OC inverter units, the 1,500-VDC OC solution offers higher power density with the same small footprint,

which means an optimized and flexible site layout, the company says. The liquid-cooled and improved power electronic topology ensures high efficiency, especially in partial load operations.

GE Energy's inverter technology has a long track record of extremely high reliability resulting from the company's experience in the development of frequency converters for the wind energy, oil, and gas, as well as metals, sectors and other industrial applications. By offering its solar inverter technology as part of its broad portfolio of products and solutions, GE Energy is supporting ongoing energy policy changes in Germany, which plans to increase the share of renewable energies to 35 percent of total power demand by the year 2020.  
[www.ge-energy.com](http://www.ge-energy.com)

## GROWATT

Growatt North America provides a line of high-efficiency transformerless solar PV inverters for residential and small commercial systems in the U.S., Canada, and Latin America. The company is the U.S. branch of a global manufacturer with systems ranging up to 100kW and distribution throughout the world. Growatt will soon commence U.S. manufacturing, in a new factory in Mississippi opening later this year.

Growatt's products feature dual-input MPPT trackers for design flexibility in the under-6kW category. The company's advanced circuit design and proprietary algorithms achieve a 97 percent efficiency rating from the CEC, ranking Growatt inverters in the industry's top five percent, says the company.



Growatt is not only expanding its production capacity, it is also entering the commercial market with a new line of larger, highly-efficient commercial-grade 3-phase inverters.

Growatt's 20kW inverters will begin shipping in September, and additional inverter sizes will

be rolled out each month through the end of this year.  
[www.growattusa.com](http://www.growattusa.com)

## KACO

KACO new energy has announced the latest addition to the blueplanet line of transformerless solar inverters.

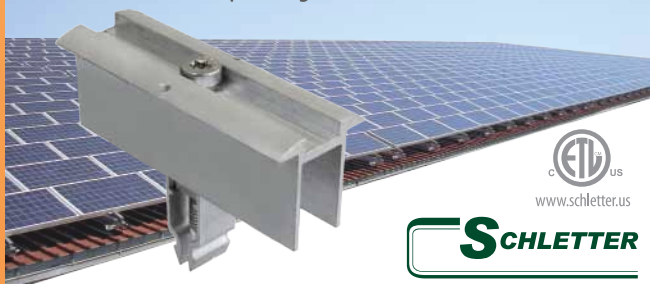
The XP10U-H4 has a 97 percent CEC efficiency value and a two channel MPP output. It is said to be ideal for commercial projects.

KACO is a global leader in solar power electronics, with over 60 years of industrial experience. The first transformerless inverters were invented by KACO in 1999 with immediate benefits for solar electric system performance and economics, the company says.  
[www.kaco-newenergy.com](http://www.kaco-newenergy.com)



## Solar Mounting Systems

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