ADVANCED ENERGY®

PVPowered™ solaron® siteguard®

Solaron® 500 1kV Utility Inverter

500 kW architecture with high efficiency, lower BoS costs, grid-integration controls, and optional voltage ride through for utility-scale, grid-tied PV at 1000V

Advanced Energy's Solaron® 500 1kV inverter helps you achieve the lowest levelized cost of energy (LCOE) with higher energy harvests, lower balance-of-system (BoS) costs, and lower operations and maintenance (O&M) costs. This refined, robust PV inverter optimizes 1000V panels and equipment, and delivers clean power for utility-scale PV installations. In addition to innovative, high-power, high-efficiency technology, each unit comes outdoor-ready, minimizes your BoS costs, and includes Integrated Data System (IDS™) monitoring and grid integration controls for the most stable power generation. The optional SafeGuard® program offers proactive O&M service that goes far beyond the standard warranty.

Benefits

Achieve the lowest levelized cost of energy (LCOE)

Increase energy harvests

Reduce balance-of-system (BoS) costs

Monitor and control with flexible, integrated communications

Lower operations and maintenance (O&M) costs

Features

500 kW, high-power, transformerless design

1000 VDC compatible

Grid integration controls and optional voltage ride through (HVRT, LVRT, ZVRT)

Integrated IDS™ data monitoring and communications

Integrated DC Master Combiner and Fusing Area

Optional Integrated AC Disconnect Switch

Parallel connections into single, medium-voltage transformer

97.5% weighted efficiency (CEC method)

Three decades of experience in solar PV industry

24/7/365 global service and support

Increase Energy Harvests and Reduce BoS Costs

Designed for utility-scale, in-fence PV installations, the high-power Solaron® 500 1kV inverter reduces BoS costs even further. Our field-proven, transformerless PV architecture efficiently and reliably converts raw, 1000V solar power to high-quality AC grid electricity in a balanced, single-string configuration. In addition to 97.5% weighted efficiency (CEC method), you receive even better balance-of-system (BoS) optimization, backed by AE SafeGuard® and SiteGuard® services.

Solaron inverters have the largest core engines in their class—yet the industry's smallest footprint and lightest weight per kW. Compatible with 1000 VDC strings and many thin-film panels, the Solaron 500 1kV inverter allows you to cut your budget by reducing the number of panel strings, combiner boxes, and associated wiring for your installation. Plus, the inverter can accommodate super-string configurations up to 1100V (operating < 1000V) for in-fence applications, subject to local codes and equipment. Fewer, longer strings also reduce DC line losses for years of higher kWh returns.

Control and Monitor Your System

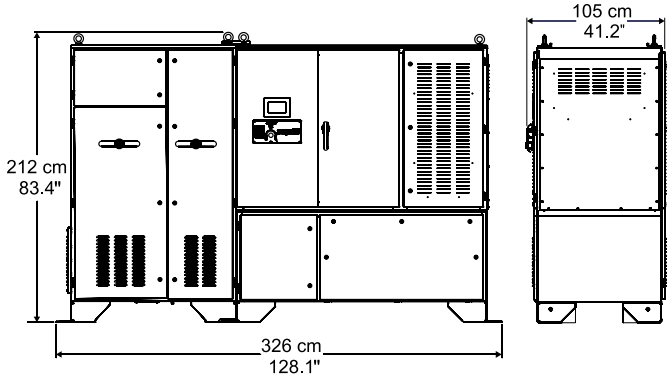
To assist utilities with grid stability, the Solaron 500 1kV comes with a suite of grid integration controls including active power and reactive power (VAR and power factor) set point control, remote on/off capability, and optional flexible voltage ride through (HVRT, LVRT, ZVRT).

The on-board Integrated Data System (IDS™) software—included at no additional charge—enables Internet connectivity, collects and stores a wide range of real-time data, and provides access to detailed unit configuration information. IDS software also provides connectivity to many third-party data services like SunEdison SEEDS™, Draker Labs Sentalis, and DECK Monitoring.

Lower O&M Costs

Solaron inverters are robust and reliable for ongoing, low-maintenance operation. If needed, AE's worldwide service organization is available 24/7/365 for support. We also offer extended warranties (up to 20 years) and SafeGuard service programs to help you maximize uptime and power generation. Our highly trained specialists can perform system tests, remote diagnostics, and annual on-site inspections.

Solaron® 500 1kV Dimensional Drawing



Solaron® 500 1kV Summary Specifications

Physical	
Dimensions	83.4" (H) x 128.1" (W) x 41.2"(D) 212 cm (H) x 325 cm (W) x 105 cm (D) Dimensions include cabinet handles, tie-down feet, and AC/DC Switchgear Cabinet
Weight	3600 lb (1633 kg) unit weight 4400 lb (2000 kg) shipping weight
Enclosure	Outdoor-ready, sturdy steel cabinet
Environmental Rating	NEMA 3R with NEMA 4 (electronics)
Connectors and Cables	
DC Input Power Connectors	Busbars w/10 lug positions per pole; M8 studs
AC Output Power Connectors	Busbars w/4 lug positions per phase; M12 bolts
User Interface	Front panel LCD, keypad including security lock-outs, and off button
Electrical	
AC Output Power	
Max Power	500 kW at 420 VAC
Voltage Range	± 420VAC ± 10%, 3 Φ, 60 Hz, grounded wye connection
Frequency	60 Hz
Line Power Factor	> 0.99 typical
AC Current Distortion/THD	<3% @ 500kW, 420 VAC
AC Line Current	687 Arms Typical 700 Arms Continuous output current rating (configurable)
Fault Current Contribution	687 Arms, 160ms at 420 VAC
Peak Efficiency	98% (Preliminary - Includes all standby, controls, and housekeeping losses)
Weighted Efficiency	97.5% (CEC method)
DC Input Power	
Array Configuration	1000V strings centered at AC neutral through grounded wye Optional 1100V max super strings with < 1000V operation
Voltage	600 to 1000 VDC (± 300 to ± 500VDC)
MPP DC Current	850 ADC max
MPPT Window	600 to 1000 VDC (± 300 to ± 500VDC); full power to 850 VDC
Open-Circuit Wake-Up Voltage	700 VDC default (± 350VDC); configurable
Standby Tare Losses	< 100 W
Utility Power Capabilities	
Active Power Range	500 kW to 0 kW; remotely adjustable set point at 1 kW increments
Reactive Power Range	0.90 leading to 0.90 lagging 509 kVA at 50°C
Ramp Rate (on)	100kW/s maximum; adjustable at 0.1% increments
Delayed Reconnection	5 to 7200 seconds; adjustable
Inverter On/Off	Remotely controllable
Over-Voltage Response	110% ≤ VAC < 120%: 0.16 to 5.0 sec adjustable
Anti-Islanding	Designed to UL 1741-2010
Voltage Ride-Through	Optional; Anti-islanding detection disabled
High-Voltage Ride-Through (HVRT)	Adjustable to regional requirements.
Low-Voltage Ride-Through (LVRT)	110% ≤ VAC < 120%: 0.16 to 1.0 sec adjustable
Zero-Voltage Ride-Through (ZVRT)	50% ≤ VAC < 90%: 0.16 to 3.5 sec adjustable 0% ≤ VAC < 50%: 0.16 to 2.0 sec adjustable
Frequency Tolerance	Adjustable to regional requirements f ≥ 60.5 Hz: adjustable; instantaneous (< 10 cycles) f ≤ 59.3 Hz: adjustable; trip delay 0.16 to 540 sec f ≤ 57.0 Hz: adjustable; instantaneous (< 10 cycles)
Factory-Installed Communication Interfaces	RS-232, RS-422, and RS-485, Ethernet, PCMCIA expansion slot, Modbus/TCP and Modbus/RTU
Data Storage	10 years / 2 GB SD card (upgradeable)
Data Monitoring	SEEDS data monitoring (optional); IDStm compatible with various 3rd party services
Environmental	
Ambient Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-22°F to 158°F (-30°C to 70°C)
Relative Operating Humidity	0% to 95% non-condensing
Atmospheric Pressure	800 to 1060 mbar (80 to 106 kPa)
Elevation	6000' (1829 m) max
Cooling Medium	Combination air and liquid cooling (self-contained system)
Regulatory	
Directives and Standards	Designed in accordance with UL 1741-2010 except where grid integration controls supersede

Specifications are subject to change without notice.

ADVANCED ENERGY®

Advanced Energy Industries, Inc. • 20720 Brinson Blvd. PO Box 7348 • Bend, OR 97708 U.S.A.
T: 877.312.3832 • sales.support@aei.com • *www.advanced-energy.com/solarenergy*
Please see www.advanced-energy.com for worldwide contact information.

ENG-Solaron500-1000V-250-11 0M 10/11

PV Powered and Solaron products built in the U.S. are fully compliant with the Buy American Act and qualify for projects funded by the federal stimulus package.