



## AE 500NX-1kV

(Formerly known as Solaron 500-1kV)

### 1000 V Utility-controllable inverter solution for large-scale projects

Advanced Energy's AE 500NX-1kV is specifically designed to meet the requirements of utility-scale solar power plants with the lowest levelized cost of energy (LCOE) investors demand and expect. Energy harvest is maximized with a peak efficiency of 98.2%. Fleet availability in excess of 99% ensures financial goals for the project are achieved.

Its robust, outdoor-ready design eliminates the need for inverter enclosures in harsh environments. Installation is simplified with an integrated DC master combiner and fusing area that saves time and materials. And by eliminating the need for a step-up transformer with our patented design, more and more utility sites are adopting our standard of making parallel connections to a single, medium-voltage transformer. No specialty transformer and fewer medium-voltage transformers are required when you select AE inverters.

Our Service and Reliability departments are heavily involved in the product development process, ensuring that service is simple and ongoing operations and maintenance (O&M) costs are minimized. The robust design is used in a variety of environments from the high desert mountains to the Pacific tropics. The AE 500NX-1kV runs reliably day in and day out with NEMA 3R construction. Its completely sealed electronics cabinet is designed to NEMA 4 standards and is continuously cooled by a self-contained, liquid-to-air system.

The integrated data monitoring solution, included at no additional charge, enables SCADA connectivity, collects and stores a wide range of inverter real-time data, and can be connected to many third-party data services. The AE 500NX-1kV inverters respond to a full complement of utility interactive controls (UIC) and with an available option, follow a broad range of frequency and voltage ride-through profiles.



The AE 500NX-1kV is backed with complete 5-year warranty coverage, ensuring there are no surprises during the warranty period. The AE warranty options provide peace of mind and are backed by the best service and support team in the business.

#### Lower Operational LCOE

- Increased energy harvest with 98.2% peak efficiency
- Increased availability with >99% monitored fleet availability
- Legendary service and response

#### Reduce BoS Component of LCOE

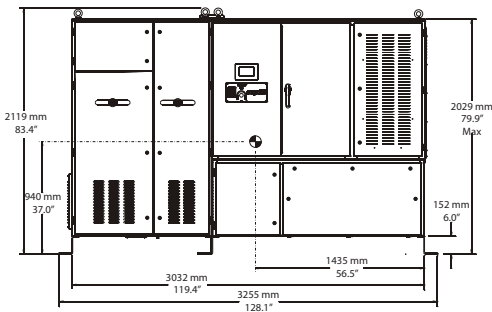
- Lightest weight per kW reduces shipping costs to the site
- Smallest footprint per kW reduces site preparation costs
- Integrated DC master combiner and fusing area
- Parallel connections to a single, medium-voltage transformer

#### Minimize Ongoing O&M Component of LCOE

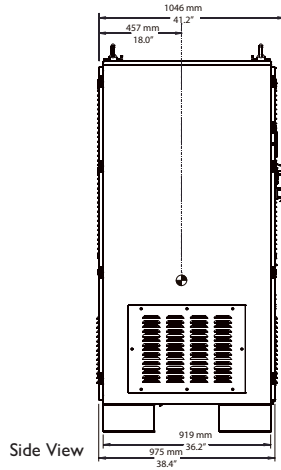
- Robust, outdoor-ready construction
- High, field-proven fleet availability of >99% for monitored units
- Simplify site maintenance with SiteGuard® (available option)

#### Take Control and Support the Grid

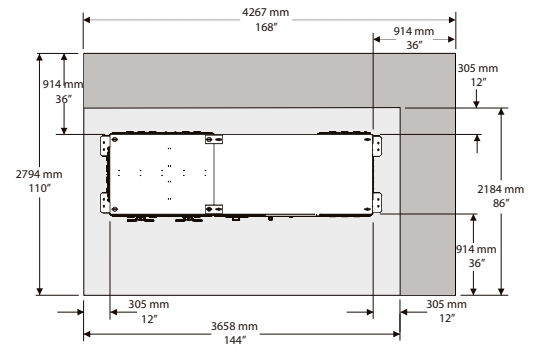
- Integrated data monitoring solution transmits inverter data for secure collection
- Integrated data monitoring solution receives and acts upon a host of utility level commands
- Follows utility-supplied VRT and FRT profiles (available option)



Front View: shown with optional AC/DC disconnect cabinet



Side View



Top View: shown with clearance

## AE 500NX-1kV Summary Specifications\*

Physical	
Weight	3600 lb (1633 kg) unit weight, 4400 lb (2000 kg) shipping weight
Construction	Outdoor-ready cabinet design with electrostatically applied paint
Environmental Rating	NEMA 3R with sealed electronics cabinet
DC Input Power Connectors	10 busbars per polarity; M8 hardware
AC Output Power Connectors	Busbars; 2 hole per output phase, NEMA 1.75" spacing
User Interface	Front panel LCD, keypad, shutdown button, and web interface
Electrical	
DC Inputs	
Array Configuration	Single array
Maximum Operating Input Current	850 ADC Imp maximum, self limiting in operation
MPPT Voltage Window	600 to 1000 Voc
Open-Circuit Wake-Up Voltage	700 VDC default
AC Outputs	
Continuous Output Power	500 kW at 420 VAC
Operating Voltage Range	420 VAC $\pm$ 10%
Electrical Service Compatibility	3 phase, 3 wire, grounded Wye connection
Maximum Continuous Current	700 Arms (configurable)
Short Circuit Fault Current	687 Arms, 160 ms at 420 VAC, 1.0 PU
Nominal Frequency	60 Hz
Total Harmonic Distortion	< 3% at full power, 420 VAC
Efficiency	
Peak Efficiency	98.2% (includes brown power such as all standby, controls, and housekeeping losses)
Weighted Efficiency	97.5% (CEC method)
Standby Losses	< 100 W
Inverter Controls and Monitoring	
Inverter Controls	
Inverter On/Off	Remotely controllable
Turn-On Ramp Rate	100 kW/sec maximum; adjustable at 0.1% increments
Reconnection Delay	5 to 7200 sec, adjustable
Anti-Islanding	Compliant with UL 1741-2010
Active Power Range	500 kW to 1 kW; remotely adjustable set point at 1 kW increments
Power Factor & Reactive Power	> .99 at rated power; $\pm$ 0.90 PF range, $\pm$ 164 kVAR maximum
Voltage Ride-Through Limits	Optional with anti-islanding detection disabled, Adjustable to regional requirements
High-Voltage Ride-Through (HVRT)	110% $\leq$ VAC < 120%: 0.16 to 1.0 sec
Low-Voltage Ride-Through (LVRT)	50% $\leq$ VAC < 90%: 0.16 to 3.5 sec
Zero-Voltage Ride-Through (ZVRT)	0% $\leq$ VAC < 50%: 0.16 to 2.0 sec
Frequency Ride-Through Limits	Configurable to regional requirements
Inverter Monitoring	
Communication Interfaces and Protocols	RS-232, RS-422, and RS-485, Ethernet, PCMCIA expansion slot Modbus/TCP and Modbus/RTU
Inverter Monitoring Options	Integrated inverter data monitoring solution, compatible with third-party services
Data Storage	10 years at 1 minute intervals with SD card
Environmental	
Operating Ambient Temp. Range	-4 °F to 122 °F (-20 °C to 50 °C)
Standby / Storage Temp. Range	-22 °F to 158 °F (-30 °C to 70 °C)
Cooling	Self-contained, closed-loop, liquid to air
Relative Humidity	0% to 95% non-condensing
Elevation	6562' (2000 m) maximum
Regulatory	
Agency Approvals / Regulatory Compliance	UL 1741-2010**

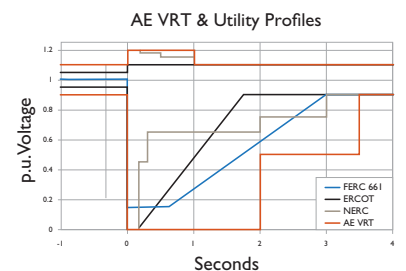
Subject to change without notice. Refer to user manual for detailed specification.

## Utility Interactive Controls

- Power Factor
- Controlled ramp rate
- Remote enable/disable
- Power curtailment

## Options

- 2, 3 or 4-unit PowerStation
- AC disconnect switch
- Field wiring enclosure, simple AC/DC connection solution
- Low voltage ride-through
- Low frequency ride-through
- 8 and 10 channel subarray monitoring
- 20-year extended warranty
- Preventative maintenance programs (refer to SafeGuard®, SafeGuard Plus<sup>SM</sup> and SiteGuard® data sheets for more information)



\*Note: Not all performance window specifications can be achieved simultaneously. Performance varies per site. Consult your AE sales or service representatives for specific PV system design questions at [sales.support@aei.com](mailto:sales.support@aei.com).

\*\*Note: Listed to UL 1741-2010, though not all inverter (utility interactive) controls are included in the listing.



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