Power Xpert Storage
Utility-scale energy storage inverters
1500 kW to 2500 kW

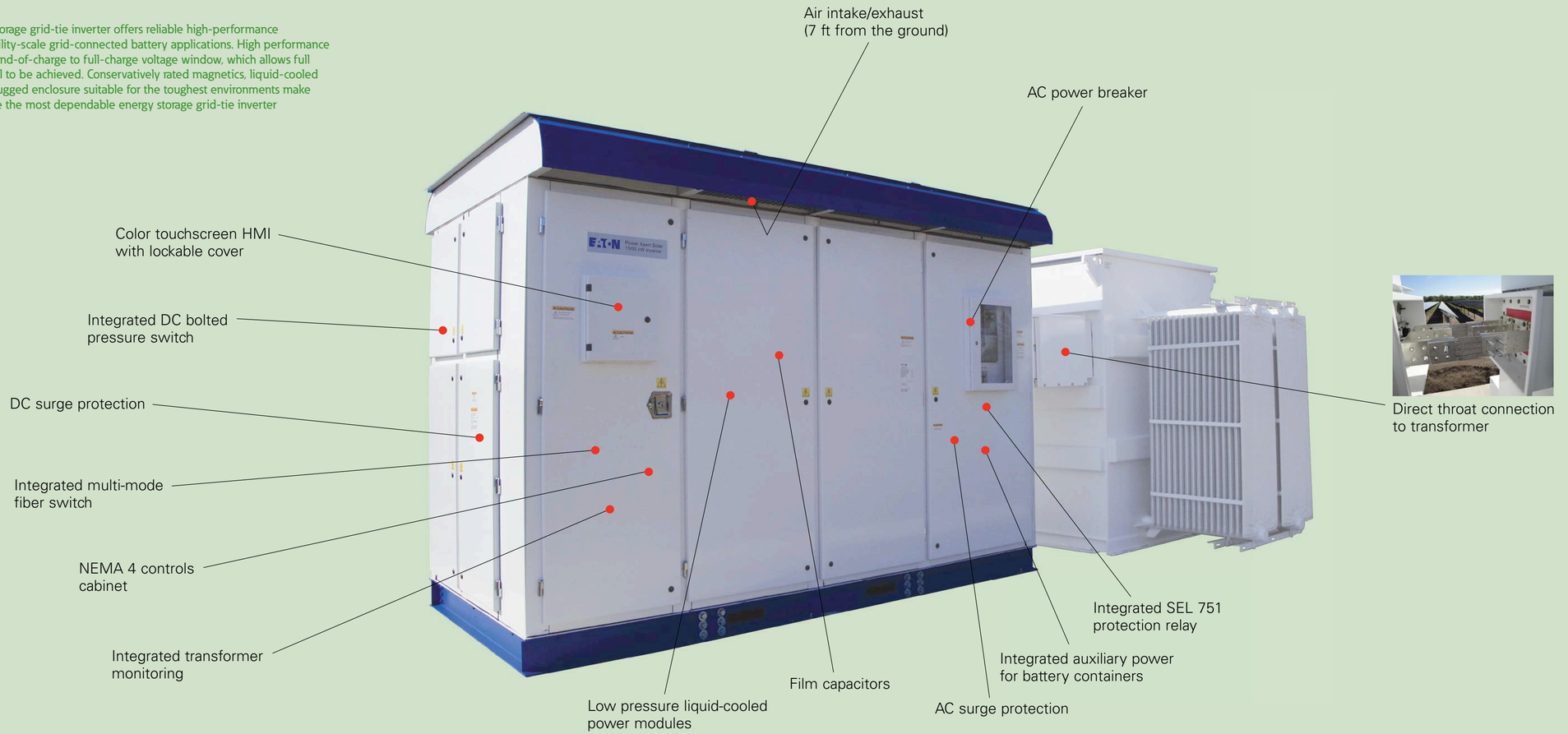
Bidirectional inverters

Linking batteries to the grid

EATON
Powering Business Worldwide

High-performance energy storage for utility-scale grid-tie battery applications

Eaton's Power Xpert® Storage grid-tie inverter offers reliable high-performance power conversion for utility-scale grid-connected battery applications. High performance is realized with a wide end-of-charge to full-charge voltage window, which allows full battery storage potential to be achieved. Conservatively rated magnetics, liquid-cooled power modules and a rugged enclosure suitable for the toughest environments make the Power Xpert Storage the most dependable energy storage grid-tie inverter on the market.



Features

Highly reliable and available

The Power Xpert Storage is a fault-tolerant design, allowing for maximum plant availability. Fault tolerance is achieved by a segmented inverter design with multiple inverter stacks. Each stack can be independently isolated so that the system can run at partial power in the case of a fault.

High efficiency

Transformerless design, proprietary control strategies and filter design result in more than 98% peak power efficiency, which includes all auxiliary losses in the inverter.

Grid support

Grid support from utility-scale distributed generation is a requirement of many energy storage applications. Eaton grid-tie inverters, in conjunction with a system supervisory controller, offer the following energy storage grid support features:

- Low-, zero- and high-voltage ride-through (LVRT, ZVRT and HVRT)
- Frequency ride-through (FRT)
- Islanding detection
- Utility communication
- Full four-quadrant operation

Energy storage maximization

A wide voltage range (750 Vdc to 1250 Vdc) maximizes battery operating range for optimum energy storage.

Configurable interface

A configurable interface enables easy communications and control of the inverter. Communication links to the system supervisory controller give the capability to receive instructions and send data.

Rugged construction

The enclosure is designed to meet a seismic zone 4 rating and is outdoor rated. Liquid cooling provides excellent thermal performance without needing greenhouse gas producing refrigerants.

Ride-through selectivity

Eaton's ride-through capabilities meet the requirements of North American and European standards. These standard compliance settings are field selectable to meet site requirements.

Minimizes installation cost

A large power block inverter reduces the pieces of equipment that need to be installed, field wiring, and transportation and handling costs. Power Xpert Storage also enables "skid-less" inverter stations. Through a close-coupled connection to the step-up transformer, several benefits are realized such as smaller pad sizes, dramatic weight reduction and easier inverter placement.

EATON PowerXpert Storage utility-scale energy storage inverters 1500 kW to 2500 kW

Inverter specifications

Description	Ratings (kW/kVA) 1500	2000	2250	2500
Battery power				
Voltage	750 Vdc to 1250 Vdc	750 Vdc to 1250 Vdc	750 Vdc to 1250 Vdc	800 Vdc to 1250 Vdc
Maximum DC current	2060 A	2740 A	3100 A	3200 A
DC isolating switch	Motorized bolted-pressure switch and DC fuses	Motorized bolted-pressure switch and DC fuses	Motorized bolted-pressure switch and DC fuses	Motorized bolted-pressure switch and DC fuses
Line power				
Output voltage range (L–L)	480 Vac nominal three-phase (±10%)	480 Vac nominal three-phase (±10%)	480 Vac nominal three-phase (±10%)	510 Vac nominal three-phase (±10%)
Output frequency	60 Hz nominal ±0.5 Hz (50 Hz optional)	60 Hz nominal ±0.5 Hz (50 Hz optional)	60 Hz nominal ±0.5 Hz (50 Hz optional)	60 Hz nominal ±0.5 Hz (50 Hz optional)
Line power factor	Full four-quadrant controllable from supervisory controller	Full four-quadrant controllable from supervisory controller	Full four-quadrant controllable from supervisory controller	Full four-quadrant controllable from supervisory controller
Harmonic distortion	Meets IEEE® 519 and IEEE 1547	Meets IEEE 519 and IEEE 1547	Meets IEEE 519 and IEEE 1547	Meets IEEE 519 and IEEE 1547
AC disconnect and protection	Electrically operated breaker	Electrically operated breaker	Electrically operated breaker	Electrically operated breaker
Isolation transformer	Optional (external)	Optional (external)	Optional (external)	Optional (external)
Nominal line current at +45 °C	1800 A	2400 A	2700 A	2830 A
Overload capacity	125% for 30 s / 150% for 10 s	125% for 30 s / 150% for 10 s	125% for 30 s / 150% for 10 s	125% for 30 s / 150% for 10 s
Peak efficiency	98% to 99%	98% to 99%	98% to 99%	98% to 99%
Communications and control interface				
Communications with plant central controller	Modbus® TCP, others configurable on request	Modbus TCP, others configurable on request	Modbus TCP, others configurable on request	Modbus TCP, others configurable on request
HMI interface	Color HMI touchscreen (password protected for write parameters)	Color HMI touchscreen (password protected for write parameters)	Color HMI touchscreen (password protected for write parameters)	Color HMI touchscreen (password protected for write parameters)
Grid support				
Features	Frequency ride-through (FRT); low-voltage ride-through (LVRT); high-voltage ride-through (HVRT); zero-voltage ride-through (ZVRT); field selectable	Frequency ride-through (FRT); low-voltage ride-through (LVRT); high-voltage ride-through (HVRT); zero-voltage ride-through (ZVRT); field selectable	Frequency ride-through (FRT); low-voltage ride-through (LVRT); high-voltage ride-through (HVRT); zero-voltage ride-through (ZVRT); field selectable	Frequency ride-through (FRT); low-voltage ride-through (LVRT); high-voltage ride-through (HVRT); zero-voltage ride-through (ZVRT); field selectable
AC connection standalone				
Output voltage	±10% adjustable	±10% adjustable	±10% adjustable	±10% adjustable
AC voltage regulation	±2%	±2%	±2%	±2%
AC output frequency	Set 60 Hz	Set 60 Hz	Set 60 Hz	Set 60 Hz
Black start capability	Yes	Yes	Yes	Yes
Enclosure				
Protection	Control section NEMA® 4, liquid cooling allows for clean operation of power conversion equipment, NEMA 3R for magnetics and switchgear	Control section NEMA 4, liquid cooling allows for clean operation of power conversion equipment, NEMA 3R for magnetics and switchgear	Control section NEMA 4, liquid cooling allows for clean operation of power conversion equipment, NEMA 3R for magnetics and switchgear	Control section NEMA 4, liquid cooling allows for clean operation of power conversion equipment, NEMA 3R for magnetics and switchgear
Enclosure construction	Powder-coated steel with corrosion-resistant hardware and fittings	Powder-coated steel with corrosion-resistant hardware and fittings	Powder-coated steel with corrosion-resistant hardware and fittings	Powder-coated steel with corrosion-resistant hardware and fittings
Cabinet dimensions (H x W x D)	92.30 x 130.80 x 61.10	92.30 x 130.80 x 61.10	92.30 x 130.80 x 61.10	92.30 x 130.80 x 61.10
Weight (lbs)	11,000	12,700	12,700	12,700
Seismic rating	Zone 4	Zone 4	Zone 4	Zone 4
Cooling system	Independent, self-contained, closed-loop liquid cooling and air forced convection	Independent, self-contained, closed-loop liquid cooling and air forced convection	Independent, self-contained, closed-loop liquid cooling and air forced convection	Independent, self-contained, closed-loop liquid cooling and air forced convection
Environmental				
Operating temperature	–20 °C to +45 °C, cold weather option to –40 °C	–20 °C to +45 °C, cold weather option to –40 °C	–20 °C to +45 °C, cold weather option to –40 °C	–20 °C to +45 °C, cold weather option to –40 °C
Relative humidity	0–100% condensing	0–100% condensing	0–100% condensing	0–100% condensing
Maximum elevation	3300 ft (higher altitudes possible with derating)	3300 ft (higher altitudes possible with derating)	3300 ft (higher altitudes possible with derating)	3300 ft (higher altitudes possible with derating)

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

Printed in USA
Publication No. BR083027EN / Z18324
June 2016

Follow us on social media to get the latest product and support information.

Powering Business Worldwide