

Picture shown may not reflect actual configuration.

Cat® BDP1000 Energy Storage Inverter

The Cat® BDP1000 (bi-directional power) energy storage inverter provides reliable control of the Energy Storage System (ESS). Integrated controls provide complete management of the charge and discharge of the ESS. The BDP1000 is a high-performance inverter designed with the flexibility to be used in both grid connected and off grid applications. Well suited for use in parallel with generators, photovoltaic, wind turbines and hydroelectric power sources.

Features

Functionality

Injects or absorbs real power and reactive power at the AC bus. Can be paired with varying sizes and types of energy storage devices.

Multiple Modes with Seamless Transfer

Seamless transfer between grid forming, grid firming and grid following mode (subject to grid and local load conditions).

Microgrid Transient Stability

Stabilizes a microgrid against transient events caused by step loads and fluctuating renewable power sources.

Patented Non-Linear Droop Control

- Ultra-fast response with reduced dead bands.
- Overall lower frequency deviation and improved power quality in off grid operation.

Energy Storage Management

Built-in controls for charging, discharging, equalization, and state-of-charge estimation for energy storage elements. Operational in Autonomous or Remote-Control modes (works in conjunction with supervisory controller).

Applicable Standards and Certifications

- UL Listed to the following standards (certification and mark pending)
 - UL 1741 SB
 - IEEE1547-2018
 - IEEE1547.1-2020
 - UL1998
 - CSA C22.2 No. 107.1/16
 - cUL_{US} mark
- Compliance (pending):
 - IEC62477-1
 - IEC62909

Islanding Detection

Automatic islanding detection to meet anti- islanding UL1741/IEEE1547 and synchronization back to grid to guarantee continuous power to the load.

Touch Screen

User friendly touch-screen display offers real-time system information, configurable data logging, remote access, and more.

Parallel Ready

Plug-and-play paralleling with other power sources.

Technical Specifications*

Configuration	
DC Input Voltage	800 VDC to 1000 VDC
Max. DC Input Current	1250A
DC Isolating Switch	Contactors and Manual Disconnect with Lockout Feature
Rated Output Power	1000 kVA
Rated Output Power 0.9 PF	900 kW [Reactive Power 440 kVAR] @ 850-950 DCV
Rated Output Power 0.8 PF	800 kW [Reactive Power 596 kVAR] @ 850-950 DCV
Rated Output Power 0.7 PF	700 kW [Reactive Power 710 kVAR] @ 885-950 DCV
Overload Capacity	150% for 10 sec (preliminary) 125% for 4 mins (preliminary)
Fault Current Capability	2 per unit (P.U.)
*Output Voltage Range (L-L) from transformer	380 - 600V
Output Frequency Range	50 or 60 Hz
Output Power Factor	Controllable from Supervisory Controller
Total Harmonic Distortion	<3%
AC Disconnect and Protection	Electrically Operated Breaker with ***LSI Trip Unit
**Peak Efficiency	98%
**CEC Weighted Efficiency	97% (preliminary)
Communication and Control Interface	Modbus TCP, SunSpec, others configurable on request and via MMC ++DNP3
HMI Interface	10 Inch Color HMI Touchscreen
Seamless Transition between Charging and Discharging	-1000 kW to 1000 kW (~0.6 sec)
Mode Switch from Grid follow to Grid form Total source transition time	within 30 ms (via modbus command) within 5 ms (via analog input)
Output Voltage	+5% / -10% Adjustable
AC Voltage Regulation	± 1%
Black Start Capability	Yes (built-in UPS module for control power)
Ambient Temperature	-40°C to + 50°C with Overload Operational (with BDP in conditioned space -20°C to + 30°C)
Protection	NEMA 1
Vibration	3.5G Peak with 1000 Cycles
Humidity	0-95%
Cooling	Closed-Loop Liquid Cooling

* Ensure compatibility of all microgrid equipment by referring to A&I guides (or equivalent) for generator sets, BDP inverters, PV inverters, switchgear, and controls. Contact your local Cat dealer for assistance selecting compatible equipment.

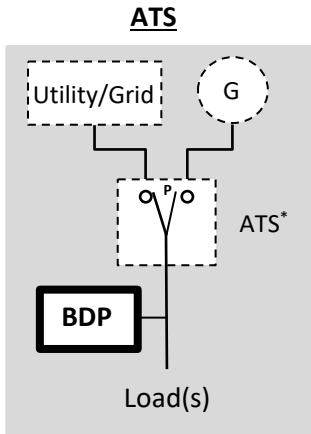
* Voltage is dependent on selection of Isolation Transformer

** Excluding isolation transformer

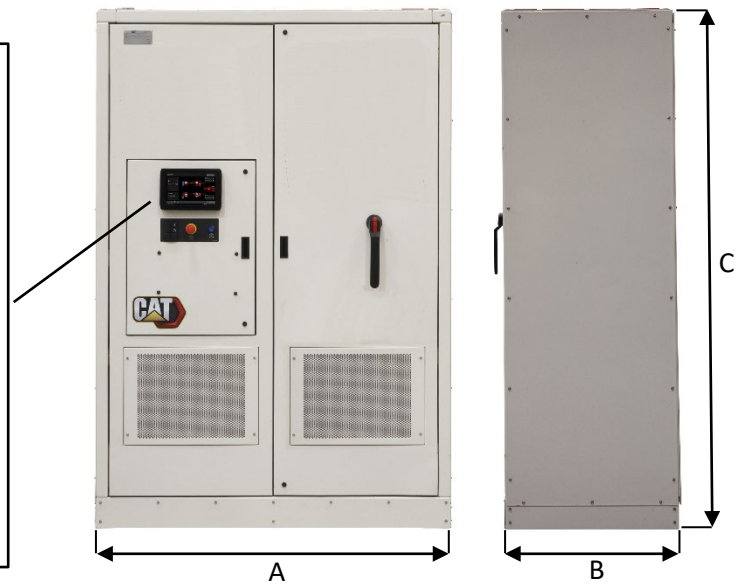
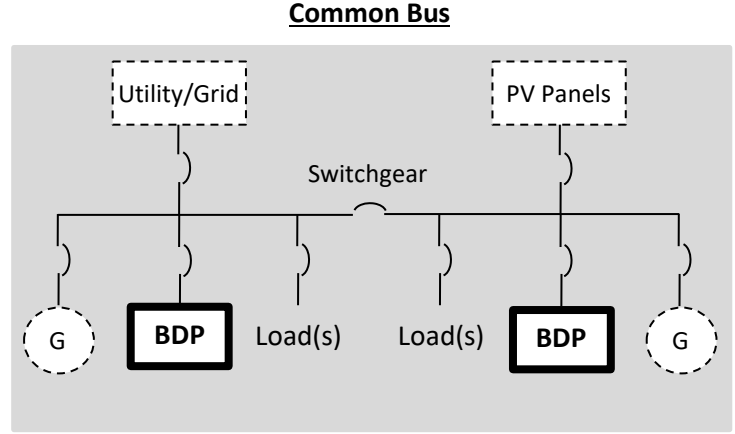
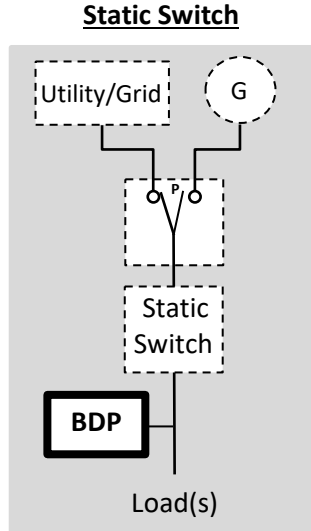
*** LSI (long-time, short-time and instantaneous)

†† Distributed Network Protocol

Potential Applications of BDP



* Closed transition ATS



High-Resolution LCD	
Colors	16.7 million
Backlight	LED
Resolution 10"	1280 x 800

Dimensions			
A	B	C	Weight dry
mm (in)	mm (in)	mm (in)	kg (lbs)
1509 (59.4)	709 (27.9)	2190 (86.2)	1495 (3296)

Materials and specifications are subject to change without notice.
 CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Corporate Yellow", the "Power Edge" and
 Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and
 may not be used without permission.

www.cat.com/electricpower

©2021 Caterpillar
 All rights reserved.