



Picture shown may not reflect actual configuration.

## Cat® BDP250 Energy Storage Inverter

The Cat® BDP250 (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 BDP250 is compatible with a range of storage solutions, including traditional battery systems, lithium-ion batteries, and ultra-capacitors and can be packaged with the ESS. The patented Cat non-linear droop control system allows ultra-fast response for smooth reliable power off grid.

## Features

### Microgrid

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

- 2 per unit (P.U.) fault current
- Grid firming and forming mode

### Tractor-grade Reliability

Uses same proven power electronics technology and controller platform as the revolutionary D7E electric drive track-type tractor.

### Seamless Mode Transfer

Seamless transfer between grid forming, firming and following mode†.

### Flexibility

Designed for a wide range of applications and compatible with virtually any power source.

### Lower Fuel Consumption

Integration with generator sets minimizes fuel consumption and emissions.

### Patented Non-Linear Droop Control

- Ultra-fast response with reduced dead bands.
- Nonlinear droop maximizes ESS early contribution while maintaining off grid stability.
- Overall lower freq. deviation and improved power quality.

### Grid Support

- Frequency Ride-through (FRT)
- Low Voltage Ride-through (LVRT)
- High Voltage Ride-through (HVRT)
- Zero Voltage Ride-through (ZVRT)
- Grid following

### Parallel Ready

Plug-and-play paralleling with other power sources.

### Energy Storage Management

Built-in intelligent 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).

### STATCOM

Configurable as a static VAR compensator up to system full capacity.

### Touch Screen

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

† Subject to grid and local load conditions.

## Technical Specifications

Configuration	
DC Input Voltage	300 VDC to 650 VDC
Max. DC Input Current	900A
DC Isolating Switch	Contactors and Manual Isolation Switch with Lockout Feature
Rated Output Power	312.5 kVA (312.5 kW @ 1.0 PF)
Overload Capacity	150% for 10 sec 125% for 10 mins
Fault Current Capability	2 per unit (P.U.)
*Output Voltage Range (L-L)	380 - 690V
Output Frequency Range	50 or 60 Hz
Output Power Factor	Full Four-quadrant Controllable from Supervisory Controller
Total Harmonic Distortion	< 3%
AC Disconnect and Protection	Electrically Operated Breaker with ***LSIG Trip Unit
**Peak Efficiency	> 96.5%
**CEC Weighted Efficiency	96.15%
Communication and Control Interface	Modbus TCP, others configurable on request and via MMC ††DNP3
HMI Interface	Color HMI Touchscreen (password controlled for write access)
Features	Frequency Ride-through ( $\pm 5$ Hz) Low Voltage Ride-through (20% voltage dip and up to 200 kVar) High Voltage Ride-through (10%) Zero Voltage (fault) Ride-through
Seamless Transfer Between Charging and Discharging	Yes
Transition from Grid follow to Grid form	within 5 ms
Output Voltage	$\pm 10\%$ Adjustable
AC Voltage Regulation	$\pm 1\%$
Black Start Capability	Yes (built-in UPS module for control power)
Ambient Temperature	-40°C to + 40°C
Protection	NEMA 1/NEMA 3R
Vibration	3G
Humidity	0-95%
Cooling	Closed-Loop Liquid Cooling

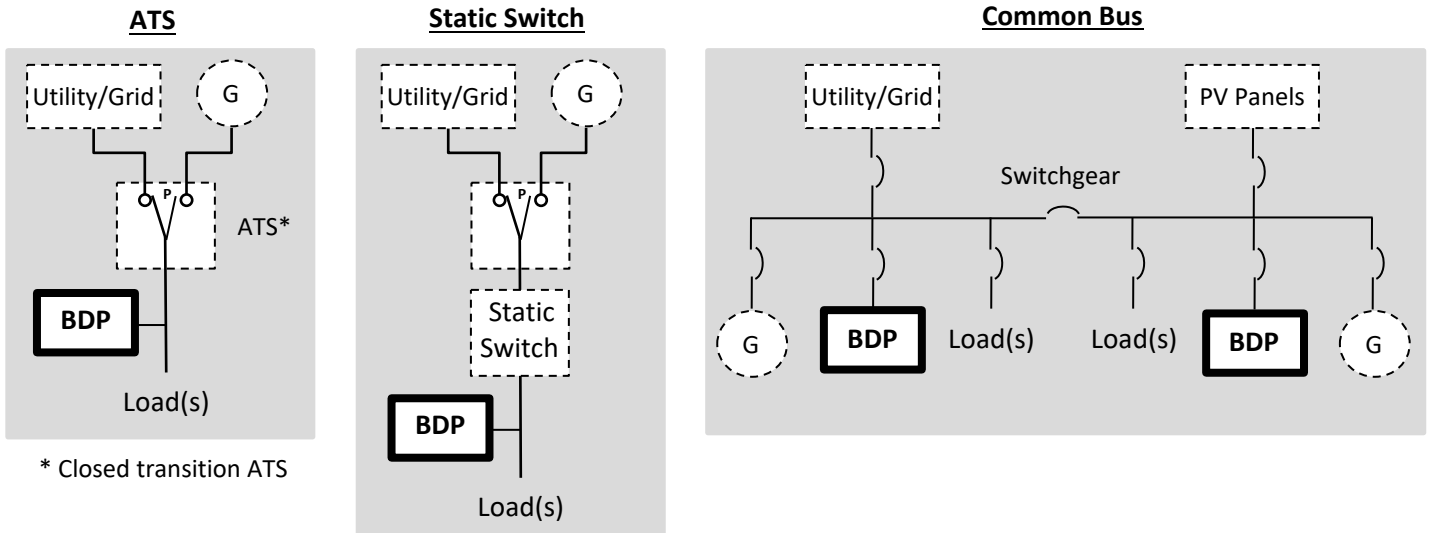
\* Voltage is dependent on selection of Isolation Transformer

\*\* Excluding isolation transformer

\*\*\* Ground function with 3 Pole breaker disabled - solidly grounded neutral

†† Distributed Network Protocol

**Potential Applications of BDP**



Dimensions			
A	B	C	Weight
mm (in)	mm (in)	mm (in)	Kg (lbs)
1429 (56.25)	671 (26.5)	1782 (70.2)	1149 (2534)



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