

# CATL DC Block + Sinexl Hybrid Inverters

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## Product Overview

The CATL DC Block paired with Sinexl Hybrid Inverters delivers a high-efficiency, CEC-approved energy storage solution engineered for commercial, industrial and utility-scale microgrids. The system combines CATL's latest lithium-iron-phosphate (LFP) DC battery blocks with Sinexl's field-proven hybrid inverter platform to maximise round-trip efficiency, extend asset life and provide seamless backup power during grid outages.

Designed for integration with on-site solar PV, EV fast-charging loads and AI data centre containers, the system supports both AC- and DC-coupled architectures with intelligent power orchestration via the eBox-251 microgrid controller.

## Key Specifications

<b>Battery Chemistry</b>	Lithium Iron Phosphate (LFP) — CATL latest generation DC block
<b>Usable Energy</b>	Up to 3.44 MWh per containerised block
<b>Inverter Platform</b>	Sinexl Hybrid Inverter (CEC-approved)
<b>Inverter Power Rating</b>	100 kW – 250 kW per unit, parallelable to 5 MW+
<b>Round-Trip Efficiency</b>	> 92 % (battery-to-AC-to-battery)
<b>Nominal Voltage</b>	DC 1,200 V (block) / AC 400–800 V (inverter output)
<b>Operating Temperature</b>	-20 °C to +55 °C (derating > 45 °C)
<b>IP Rating</b>	IP55 battery enclosure / IP65 inverter cabinet
<b>Fire Safety</b>	NFPA 855 / UL 9540-A compliant with active suppression
<b>Warranty</b>	10 years / 6,000 cycles at 80 % SOH

<b>Communication</b>	Modbus TCP/RTU, CAN, RS-485, API-ready
<b>Mounting</b>	skid-mounted block, wall-mount inverter

## Key Features

- CEC-approved Sinexl hybrid inverters — eligible for US federal and state incentive programs
- Liquid-cooled CATL LFP cells with < 2 °C cell-to-cell temperature variance
- Multi-layer BMS with cell-level voltage, temperature and impedance monitoring
- Black-start capable — restores microgrid without grid presence within 200 ms
- Grid-forming and grid-following modes with dynamic frequency-watt and volt-var response
- AI-driven predictive maintenance via eBox-251 — forecasts SOH degradation 30–60 days ahead
- Plug-and-play skidded battery blocks reduce on-site commissioning time by 60 %
- Compatible with NEM 3.0 export optimisation, time-of-use arbitrage and demand-charge management

## System Architecture

The CATL DC Block connects directly to the DC bus of the Sinexl Hybrid Inverter. During PV generation, the inverter routes DC power to both the battery (charging) and the AC load bus (direct self-consumption). When PV is insufficient or during a grid outage, the battery discharges through the inverter's bidirectional power stage to serve AC loads or export to the grid. The eBox-251 controller orchestrates setpoints in real time based on price signals, weather forecasts and EV charging schedules.

## Electrical Ratings

Parameter	Value	Notes
Max continuous charge	1 C (3,440 kW per block)	Configurable to 0.5 C for life extension
Max continuous discharge	1 C (3,440 kW per block)	2 C burst for 60 s during black start
AC voltage range	380 – 480 V LL ( $\pm 10\%$ )	Auto-sensing
AC frequency	50 / 60 Hz ( $\pm 5$ Hz)	Auto-sensing, islanding capable
THD (voltage)	< 3 %	At rated linear load
Power factor	0.8 leading – 0.8 lagging	Four-quadrant operation
Inverter efficiency (max)	98.6 %	European efficiency > 98 %
Standby consumption	< 25 W	Night mode with wake-on-solar

## Physical & Environmental

Parameter	CATL DC Block	Sinexl Inverter
Dimensions (W x D x H)	2,400 x 2,600 x 2,900 mm	1,200 x 600 x 2,000 mm
Weight	~ 28,000 kg (wet)	~ 850 kg
Enclosure	Steel + intumescent coating	Galvanised steel, powder-coated
Cooling	Liquid-cooled loop	Forced air + heat-pipe optional
Installation	Outdoor skidded pad	Wall or pad mount

## Certifications & Standards

UL 1973 (battery), UL 1741-SA (inverter — CEC approved), IEC 62619, IEC 62040, UN 38.3 (transport), NFPA 855, IEEE 1547-2018, California Rule 21 / Hawaii Rule 14H compliant. CE marking available for EU deployments.

