

EnSmartBuild HVB System

Modular & Scalable

AC or DC-Coupled Systems

Performance Guarantee

EnSmartBuild - High Voltage Battery (HVB) System

Why Entrust Microgrid?

EnSmartBuild HVB, from Entrust Microgrid, is a smart, innovative microgrid power system for commercial use, with all the benefits of renewable energy and energy storage at maximum power efficiency, cutting energy bills, saving money and providing truly scalable low carbon energy solutions.

EnSmartBuild HVB supports built environment uses such as local government, education and healthcare, private sector businesses, warehousing and distribution, factories, supermarkets, waste management & recycling facilities, EV charging hubs and more.

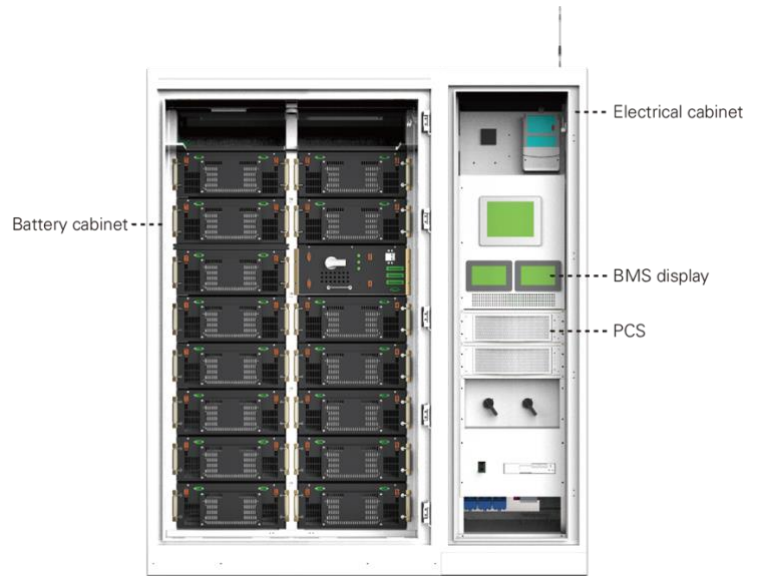
EnSmartBuild HVB system boosts return on investment – typically within just 7 years!

Our Solution:

EnSmartBuild HVB uses smart technology to supply solar PV power at the highest possible power efficiency, for both direct use at source, and indirectly through storage in either lead-carbon or lithium-ion batteries, of between 100kWh and 1MWh, for use later on.

This enables power supply to match demand, providing access to a clean, reliable source of renewable electricity, lowers energy costs and business carbon emission, creating new revenue by delivering ancillary services including:

- Firming of renewable energy
- Peak shaving
- frequency response,
- Black start
- Backup
- Islanding



30kW/90.5kWh Outdoor Cabinet (1950 x 900 x 2250 mm)

- ✓ High charge/discharge efficiency
- ✓ Advanced thermal management system
- ✓ Small footprint, flexible installation, easy maintenance
- ✓ Modular design, quick delivery, expansion to MW-level system
- ✓ LiFePO4 battery compatible with reliability and energy density
- ✓ Integrated Energy Management for C&I Park

Outdoor energy storage cabinet, with standard configuration of 30kW/90 kWh, is composed of battery cabinet and electrical cabinet.

It can apply to demand regulation and peak shifting and C&I Energy storage, etc. Split design concept allows flexible installation and maintenance, modular design concept is easy to integrate and extend. The battery cabinet matches various mainstream PCS.

System Benefits

EnSmartBuild HVB has numerous benefits for cost conscious commercial customers looking to cut their energy bills.

- ✓ 24/7 power supply for your business, even when mains power is cut off
- ✓ Smart energy management to reduce reliance on mains grid and maximise your benefits
- ✓ Significantly reduced grid connection costs
- ✓ Maximises self-consumption of lower cost solar PV energy
- ✓ Charge batteries from off-peak electricity and solar PV electricity
- ✓ Smart control & monitoring through your PC or smart phone with remote access
- ✓ Modular system with choice of different batteries (Pb-C or Li-Ion) and outputs
- ✓ Supports DC loads including commercial / public EV charging
- ✓ Competitive pricing and product warranties
- ✓ Return on investment within 7 years!

Market drivers

Why invest in an EnSmartBuild HVB system?

- To address energy security, affordability and sustainability.
- Increasing cost of mains electricity (grid)
- Energy security (security of supply)
- To enable up to 100% self-consumption of solar PV power at low grid connection capacity
- Use of low carbon, renewable energy generation (sustainable solution)

System Description

As illustrated in the EnSmartBuild HVB System schematic, the EnSmartPCS is the heart of the Battery Energy System Storage (BESS) operation. The EnSmartPCS charge and discharge the high voltage batteries (EnSmartESS) as required. EnSmartESS can be also charged from mains power (grid) through the EnSmartPCS, taking advantage of cheap rate off-peak electricity at night.

- ✓ EnSmartBuild HVB also supports high voltage DC loads, such as hot water and space heating, heat pump for air conditioning or refrigeration, EV charging etc.
- ✓ The EnSmartPCS can also export excess power to the mains grid when surplus solar PV power is available after meeting the power demand for charging the batteries and supplying the loads (UPS, DC and normal loads).
- ✓ The EnSmartCTR – microgrid controller and EMS with cloud management system be accessed remotely through PC or mobile phone (smart phone app).
- ✓ If mains power is cut off, solar PV power (if available) supplemented with power from the batteries can sustain commercial loads for a few hours or longer depending on the lifestyle of the user.

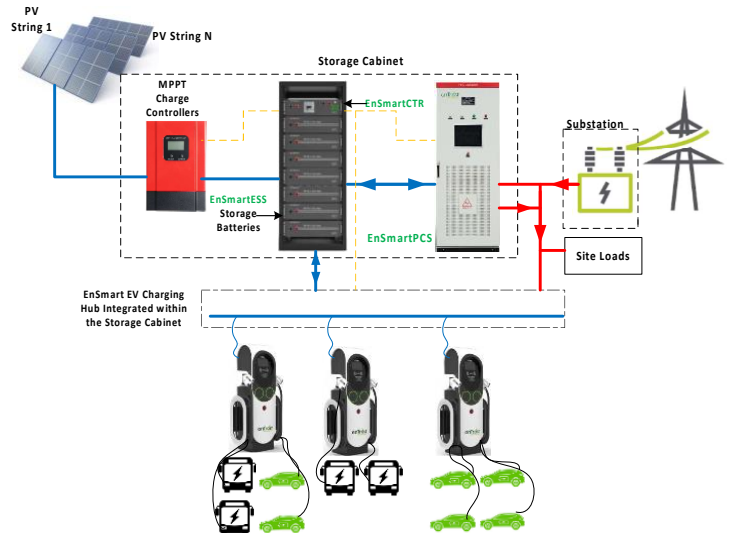


30kW/139kWh Indoor Cabinet (1770 x 630 x 2000 mm)

- ✓ Remote monitoring
- ✓ Flexible configuration
- ✓ Modular design, rapid installation and easy to operate and maintain

The cabinet is all integrated, equipped with temperature sensors and system monitoring module, small space occupation, flexible configuration, ideal for various commercial and industrial applications.

The total capacity can be easily expanded by connecting extra cabinets by side.



EnSmartBuild HVB System Schematic



EnSmartBuild HVB ISO Containers (Customizable Leveraging the Modular Design)

The EnSmartBuild HVB System in transferable container is an independent energy storage unit, including lithium-ion battery system, power conversion system, SCADA and ancillary system.

- ✓ Multilevel protection strategy
- ✓ Rapid installation and deployment
- ✓ Integrated battery platform with safety and reliability
- ✓ Modular design, flexible configuration, suitable for multiple scenarios

The prefabricated enclosures are tested to reduce project risk, shorten timelines and cut installation costs. All system within the enclosure is configured to minimize operation and maintenance (O&M) expenses over the life of the installation.

Standard Configuration	30kW/139 kWh	30kW/90.5 kWh	62.5kW/200 kWh	125kW/375 kWh	187.5kW/600 kWh	250kW/750 kWh
Nameplate Power	30kW	30kW	62.5kW	125kW	187.5kW	250kW
Nameplate Energy	139kWh	90.5kWh	207.36kWh	414.72kWh	622kWh	829.44kWh
Note	IP20	IP54	<i>System with higher C-Rate and higher capacity (MW-level) are available</i>			
Battery Type	lithium iron phosphate battery (LifePO4)					
	Rated Voltage: 512V	Battery Voltage: 582.4~748.8 V		Battery Voltage: 604.8 ~ 788.4V		
	≥4000, Charge/Discharge at 1C 90% DoD, 80% EOL @25%					
	Optimum Working Temperature: 10°C~35°C, Highest Working Temperature: 0°C~45°C					
	Short-term storage: -20~45°C(≤3months, SOC: 30%~60%), Long-term storage : -20~35°C (≤12months, SOC: 30%~60%)					
	Storage Humidity: 10%RH~					
AC Voltage/Frequency	380/400* VAC (+/-10% Configurable), 50/60Hz (±2.5Hz)					
THDi	≤3%					
THDu	≤2% (Linear Load)					
AC PF	Listed: 0.8 ~ 1 Leading or Lagging (Controllable), Actual: 0.1 ~ 1 Leading or Lagging (Controllable)					
Overload Capability	105% ~ 115% (10min); 115% ~ 125% (1min); 125% ~ 150% (200ms)					
AC Connection	3-Phase + PE					
Operating Ambient Temp.	-20°C~50°C (De-rating over 50°C)					
Inverter Enclosure	IP20					
Protection	OTP, AC OVP/UVF, OFP/UFP, EPO, AC Phase Reverse, FAN/Relay Failure, OLP, GFDI, Anti-islanding					
Peak Efficiency	98.20%					
Warranty	Standard: 5 years; Extended Warranty: 6 to 10 years (available)					
Communications	Protocol: RS485, CAN, Ethernet					
Certifications	Battery: UL1973, UL1642, UN38.3, GBT 36276-2018, IEC62619, GB/T31485-2015, GB4208-2008					
	Power Conversion System: CE LVD IEC62477, CE EMC IEC 61000, G99					
EMS	EnSmartCTR Microgrid controller and EMS with cloud management system					
Optional	EnSmartEV (hybrid DC and AC charging hub)					

Entrust... Technology you can trust!

To find out more about the EnSmartBuild HVB system, please contact us.

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