

# Capstone HES Mega BESS

The Capstone Hybrid Mega is a self-contained energy storage system used for commercial and industrial (C&I) applications and utility services, providing 1MW to 4.5MW.



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## Power Converter Module

IGBT-based power converter w/ ultra-fast switching capability (20ms response)

4.5 MW continuous power output

High efficiency conversion system

Universal grid compatibility: Grid codes (BDEW2008, TC2007, TR8 FGW)

THC = 1.33% (measured at 3MW converter)

Lowest electromagnetic interference because of symmetrically grounded DC link

High reliability: proven design with more than 15 GW installed converter capacity

Active harmonic compensation

Optimised PWM gives high converter efficiency (98%)

DC connection for lower number of components

Smart charging strategy for long battery life

## Control System

High speed data processing and communication

Touch screen HMI

Optional utility grade energy metering

Control of DC/DC converter or DC/AC converter w/variable voltage and frequency

Ethernet-based communication protocols: Profinet, Profibus, Modbus TCP, OPC

Visualisation, alarm handling, SCADA

## Applications

- Organic grid development
- Microgrids
- Wind farm/solar farm support services and storage
- Utility grid integration and support services:
  - Peak shaving
  - UPS
  - Energy storage
  - Backup power
  - Synthetic inertial response
  - Arbitrage
  - Fault ride through
  - Fast frequency response
  - Voltage stabilisation and support

**Smarter Energy  
for a Cleaner Future**

## Enclosure

Width x Depth x Height | 2438 x 12192 x 3896 mm

Integrated Novec 1230 Fire Suppression system. Fully compliant w/ EN 15004

Operating temperature -20°C to +50°C | 20,650 kg (45,500 lbs)

False floor for efficient cable management

Low power LED internal and external lighting

All external interfaces at gland box on outside

Internal walls: Insulated fire rated panels

## Battery Modudule

Light weight and compact - Lithium Ion

Battery Management System included

Low maintenance, sealed for life construction

Multiple battery packs can be connected in parallel to increase capacity

4 times longer cycle life than lead acid

Very high charge and discharge capability

'Hot Swap' capability

## Battery Management System

Self-diagnostics

Charge and discharge enable supervision and control

State of charge, health, current, temperature, cell resistance monitoring

Multiple strings of cells in parallel and series for battery redundancy (Optional)

## Air Management<sup>(1)</sup>

20 kW sensible cooling capacity

Wall mounted cooling units

Efficient airflow management through equipment compartment

