

## Pre-Assembled. Factory-Tested. Site-Ready.

The Zetara ZBox100-HS is a 102.4 kWh, 512V DC high-voltage battery energy storage system designed for commercial and industrial peak shaving, demand management and backup. It integrates a 50 kW hybrid inverter with 4-MPPT solar input, HVAC cooling, fire suppression and a dual-bus BMS — all factory pre-wired and acceptance-tested before shipment. Every unit arrives commissioned to your tariff schedule. Not assembled on site.

**102.4 kWh**

Usable Capacity

**50 kW**

Rated Power

**98.80%**

Max Efficiency

**512V DC**

Bus Voltage

**4 MPPT**

Solar Channels

**FAT**

Factory Tested

### BATTERY SYSTEM

Cell Chemistry	<b>LFP — Lithium Iron Phosphate</b>
Module Voltage	<b>51.2 V</b>
Module Capacity	<b>5.12 kWh</b>
Module Count	<b>20</b>
System Capacity	<b>102.4 kWh</b>
DC Bus Voltage	<b>512 V</b>
Voltage Range	<b>448 – 576 V</b>
DoD	<b>80%</b>
Cycle Life	<b>6,000+ @ 80% DoD</b>
BMS	<b>Dual — cell-level balancing</b>
Protection	<b>IP55</b>
Dimensions (mm)	<b>1560 × 900 × 2060</b>
Weight	<b>1,220 kg</b>
Operating Temp	<b>-20°C to +50°C</b>

### INVERTER & GRID INTERFACE

Rated AC Power	<b>50 kW</b>
Grid Voltage	<b>AC 380 – 400 V</b>
Grid Frequency	<b>50 / 60 Hz</b>
Max Output Current	<b>83 A</b>
THDi	<b>&lt; 3%</b>
Max PV Input	<b>75 kW</b>
MPPT Channels	<b>4</b>
MPPT Voltage	<b>200 – 850 V</b>
Max Efficiency	<b>98.80%</b>
Protection	<b>IP65</b>
Communication	<b>CAN / RS485 / ETH</b>
Display	<b>Smart monitoring — visualised</b>
Cooling	<b>HVAC integrated</b>
Fire Suppression	<b>Integrated</b>

#### CERTIFICATIONS:

Battery: IEC 62619 • CE • EMC • UN38.3 • UN3480 Inverter: EN 61000 • IEC 62109 • IEC 62477

#### TYPICAL APPLICATIONS

Peak Shaving

Demand Management

Grid Backup

Solar + BESS Hybrid

Factory &amp; Warehouse

Hospital &amp; Critical Load

## SYSTEM ARCHITECTURE

Battery Stack	Hybrid Inverter	Thermal & Safety	Controls & Comms
<ul style="list-style-type: none"> <li>20 x 5.12 kWh LFP modules</li> <li>512V DC bus architecture</li> <li>Dual BMS, cell-level monitoring</li> <li>IP55 enclosure</li> </ul>	<ul style="list-style-type: none"> <li>50 kW rated AC output</li> <li>AC 380–400V grid interface</li> <li>4-MPPT channels up to 75 kW PV</li> <li>98.80% max efficiency</li> </ul>	<ul style="list-style-type: none"> <li>HVAC integrated cooling</li> <li>Fire suppression system</li> <li>Auto-fault isolation</li> <li>Operates -20°C to +50°C</li> </ul>	<ul style="list-style-type: none"> <li>CAN / RS485 / Ethernet</li> <li>Visualised smart monitoring</li> <li>EMS pre-configured at factory</li> <li>Tariff schedule loaded pre-ship</li> </ul>

## POWER FLOW



## PROJECT ENGINEERING PROCESS



## WHY ZBOX100-HS

- Factory acceptance tested** — arrives commissioned, not just assembled. EMS loaded to your tariff before dispatch.
- Integrated hybrid inverter** — 4-MPPT channels handle up to 75 kW of solar input alongside the 102.4 kWh battery bank.
- HVAC cooling standard** — maintains rated performance across Pakistan's full ambient temperature range.
- Fire suppression included** — no external fire protection infrastructure required. Fully self-contained.
- IP55 battery / IP65 inverter** — suited to industrial environments. Not a data centre product pushed into a factory.
- Direct CR warranty** — every claim handled by Charania Renewables. No overseas manufacturer referral.