



Energy Storage System Commercial 90kW

Energy storage—optimized.

Exro Technologies' 90kW Energy Storage System (ESS) is an optimized ESS powered by Exro's revolutionary Battery Control System™ (BCS) technology. Exro's patented, cell multiplexing technology utilizes cell-level control capabilities to optimize the batteries across their entire lifecycle. Exro's unique innovation integrates the world's most intelligent inverter to repurpose retired battery cells and extend them into second life for an extra 5–10 years in an ESS application. Experience uninterrupted power delivery: this optimized ESS reduces costs and increases energy density with cell-level control.

Advantages

- **Maximized cell lifetime:** Optimized charging and discharging of individual battery cells for maximum lifetime.
- **Next-generation control:** Cell balancing across the entire system enables the control of charged and discharged energy to every individual cell based on its State-of-Charge (SOC) and State-of-Health (SOH) while matching power demand and power quality.
- **Proprietary Battery Control System™ (BCS):** Patented BCS technology to optimize ESS performance.
- **Advanced grid-tie inverter technology:** Significant reduction in switching and power loss.
- **Dynamic micro-protection mechanisms:** Cell-level protection functions for current, temperature, and voltage faults without disruptions to system operations.
- **Reduced loss and complexity:** Direct energy exchange between grid and battery cells without the need for intermediary power conversions.
- **No need for testing repurposed battery cells:** BCS technology estimates SOC and SOH of battery cells starting in the commissioning process.
- **No downtime:** Cell-level fault isolation prevents disruptions in power delivery.
- **Modular plug-in design:** Shortened installation and maintenance time using modular plug-in design.
- **Emissions-free repurpose process:** Substantial reduction in emissions and the need for raw earth materials by almost doubling the lifetime of retired EV batteries.
- **Decreased cost:** Significant costs savings by reviving and utilizing second life batteries.

Applications



Peak Shaving: Reduce demand charges at peak



Load Shifting: Buy energy at low prices and discharge at high prices



Emergency Backup: Provide power in a grid outage



Frequency Regulation: Manage power surplus/shortage to stabilize supply and demand



Micro Grid: Independent from the grid source of energy



Power Quality Improvement: Enhance power factor and power quality while lowering the total cost

System specifications

Input voltage	380V – 505 VAC 3 phase
Nominal frequency	50/60 Hz: configurable
Li-ion chemistry	Lithium Iron Phosphate (LFP)
Nominal power rating	90 kW
Nominal storage capacity (100% SOC)	192 kWh
Battery cell	280Ah
Number of cells	216 (72/phase)
Continuous charge/discharge duration (new battery)	2+ hours
Continuous charge/discharge duration (second life battery)	2+ hours
Round trip efficiency	90%
Power factor	-0.99 to +0.99 (adjustable to grid service)
System dimensions (including HVAC)	1010mm (W) x 1066mm (D) x 3389mm (H)
System weight	2000 kg
Operating temperature	-20 to 50 °C
Communication Protocol	Ethernet TCP/IP – MODBUS TCP – other

Regulatory

Ingress protection	IP66/NEMA 4
Compliance	UL 9540, UL 1741 SA, UL 1973, IEEE 1547