

THE OMNICUBE L233

HIGH-DENSITY LIQUID-COOLED ENERGY STORAGE FOR C&I APPLICATIONS

Summary and overview

The OmniCube L233 is a liquid-cooled energy storage system for commercial and industrial sites that require stable operation, compact footprint and flexible configuration. The system delivers 232.96 kilowatt-hours of lithium iron phosphate storage and 125 kilowatts of rated output, combining high energy density with controlled thermal performance and scalable AC integration. Operating at 400 volts in three-phase 3P3W or 3P4W configuration, it supports 50 and 60 hertz grids and connects directly to European low-voltage commercial infrastructure.

Within the broader portfolio, the L233 differentiates itself through separate liquid cooling circuits for the battery and the power conversion system, combined with 232.96 kilowatt-hours of storage integrated into a 1.35 square meter footprint. The L233 emphasizes controlled thermal performance, extended lifecycle stability and flexible project integration. It is suited for commercial environments in which photovoltaic generation, diesel backup, transformer distribution and fluctuating loads need to be coordinated within a reliable and expandable storage system.

The system is intended for commercial and industrial operators seeking a compact, thermally stable and scalable storage solution for complex on-site energy environments.

Stable performance in any climate

The design integrates separate liquid cooling circuits for the battery and the power conversion system. This dual-circuit architecture limits battery temperature deviation to $\leq 3^{\circ}\text{C}$ and reduces thermal stress on the power conversion system. The unit operates reliably in ambient temperatures from -30°C to $+55^{\circ}\text{C}$ and at altitudes up to 2000 meters. Controlled temperature management supports a cycle life of $\geq 8,000$ cycles and ensures stable long-term performance across European climate conditions.

The system is designed to deliver clean and stable electricity in commercial environments. With total harmonic distortion of $\leq 3\%$ at full load, it maintains high power quality and meets European grid requirements. A power factor range from -0.99 to $+0.99$ allows controlled interaction with the grid and supports stable operation in transformer-based systems. Defined operating values, including a rated battery voltage of 832 V and charge and discharge currents up to 160 A, ensure reliable and predictable power delivery while protecting connected equipment.

Compact design built for outdoor environments

The OmniCube L233 integrates 232.96 kWh of storage into a cabinet measuring $1000 \times 1350 \times 2350$ mm and weighing approximately 2.7 t.

Controlled thermal performance

Ensures stable performance in demanding commercial and industrial environments.

Precision cooling architecture

Reduces thermal stress and improves long-term reliability.

Grid-compliant power quality

Ensures clean electricity output, stable grid interaction and protection of connected equipment.

With a footprint of 1.35 m² and an IP55 rating, it is suitable for direct outdoor installation without additional housing. The system operates in humidity levels from 0 to 95% and is designed for industrial sites such as factories, logistics centers, retail buildings, hospitals and charging stations. Its compact format allows installation in space-limited technical areas while maintaining high storage density.

Flexible scaling for C&I projects

The L233 functions as a modular 125 kW unit. One to five cabinets can be connected in parallel, enabling scaling up to 625 kW and approximately 1.16 MWh within a unified architecture. For installations with three or more cabinets, an AC combiner cabinet can be added to manage power distribution and system protection.

The platform supports different site configurations, including photovoltaic plus storage plus load, diesel plus storage plus load, and hybrid combinations integrating photovoltaic and diesel generation. Electrical components can be adapted based on generator size, photovoltaic input or load structure. This flexibility allows integration into existing commercial and industrial infrastructure rather than relying on a simple plug-in setup.

Real-time energy control system

The OmniCube L233 includes an integrated Energy Management System (EMS) that controls charging and discharging in real time. It supports peak shaving, load shifting and emergency backup supply and operates in grid-connected, off-grid and microgrid applications. The system coordinates photovoltaic systems, diesel generators, transformers and site loads within a unified control structure. Ethernet connectivity and standard industrial protocols enable integration with higher-level control and cloud platforms, while pre-configured settings and coordinated control support fast commissioning and stable scaling from 125 kW to 625 kW.

International safety and compliance

Safety is based on lithium iron phosphate battery technology, a cabinet design separating battery and electrical sections, and an integrated aerosol fire suppression system. The system complies with relevant international IEC and EN safety and transport standards.

Designed for space-constrained installations

Reduces installation effort and works reliably in industrial environments.

Modular expansion capability

Allows step-by-step scaling and flexible integration into existing commercial and industrial infrastructure.

Real-time Energy optimization and backup

Reduces energy costs and improves operational reliability.

International IEC and EN safety and transport standards

Reduces project risk and simplifies approval in commercial and industrial installations.

THE TOP 10 BENEFITS FOR EPCS AND BUSINESSES

- 1 REDUCED ENGINEERING COMPLEXITY THROUGH STANDARDIZED BLOCK DESIGN
- 2 LOWER INSTALLATION RISK AND SIMPLIFIED SITE PLANNING IN SPACE-CONSTRAINED ENVIRONMENTS
- 3 HIGHER OPERATIONAL SAFETY AND REDUCED THERMAL ESCALATION RISK
- 4 IMPROVED GRID COMPLIANCE AND POWER QUALITY ASSURANCE
- 5 REDUCED LONG-TERM PERFORMANCE DEGRADATION THROUGH TEMPERATURE CONTROL
- 6 FLEXIBLE SYSTEM SCALING FROM TO 625 KW WITHIN ONE TECHNICAL ARCHITECTURE
- 7 SEAMLESS INTEGRATION INTO PHOTOVOLTAIC, DIESEL AND HYBRID COMMERCIAL INFRASTRUCTURE
- 8 LOWER ELECTRICITY COSTS THROUGH REAL-TIME ENERGY MANAGEMENT
- 9 INCREASED SUPPLY SECURITY AND PROTECTION OF CRITICAL LOADS
- 10 ENHANCED PROJECT BANKABILITY THROUGH INTERNATIONAL SAFETY AND CERTIFICATION COMPLIANCE