

# High Performance for High-Risk

## Optimizing Uptime: Multi-Battery Charger for Critical Operations

Uninterruptable Power Supply (UPS) systems are at the core of every mission-critical and safety-critical monitoring, control, computation, and communications platform. Keeping your UPS batteries charged and fully optimized in all mission-critical and safety-critical applications requiring rugged backup power is non-negotiable, especially in extreme environments with high-value investments.

AMETEK IntelliPower Multi-Battery Chargers (MBCs) are high-performance cabinet-based systems in 24U or 40U enclosures. Each MBC contains an intelligent External Battery Charger (EBC) supporting up to 12 or 24 channels for the 24U or 40U enclosures, respectively. Each channel can support/charge an External Battery Module (EBM).

Instead of letting their UPS batteries become drained, dead, and discarded, an MBC allows users to keep their batteries fully charged and always available, thereby significantly reducing the total cost of ownership.

AMETEK IntelliPower MBCs can be customized to meet each customer's unique requirements, including the following features:

- ▶ Support for different numbers of EBMs
- ▶ Support for EBMs with different battery chemistries, such as valve-regulated lead acid (VRLA) or lithium iron phosphate (LiFePO<sub>4</sub>)
- ▶ Display presenting battery detection and status

An MBC presents a simultaneous charge to multiple batteries to ensure a continuous power supply to keep equipment operational and minimize disruptions. It helps avoid inefficient charging, limited power availability, and risk of battery damage. The right choice of MBC helps organizations prevent downtime, improve safety, and supply the power required by sensitive equipment in harsh environments where a reliable power source can be scarce or unavailable.

AMETEK IntelliPower MBCs are ideally suited for applications spanning a wide range of industries, including the following:

- ▶ Military applications
- ▶ Construction sites
- ▶ Renewable energy sites
- ▶ Manufacturing plants
- ▶ Warehouses and distribution centers
- ▶ Mining operations
- ▶ Emergency services

In military applications, MBCs ensure dependable backup for mission-critical operations that protect national security. One example is the Triton program, an aircraft system built for the US Navy. The creators of this program demand a high degree of confidence that the batteries powering its UPS systems are available to support warfighter missions when called upon.

The Triton program deploys UPS systems powered by VRLA or LiFePO<sub>4</sub> battery chemistries at multiple depots and storage locations. AMETEK IntelliPower MBCs meet and exceed the requirements of the Triton program by providing the following features:

- ▶ Supplies power for up to 24 batteries simultaneously
- ▶ Continuous battery monitoring and charging
- ▶ No need to shut down for insertion/extraction of batteries
- ▶ Customizable for different types of batteries and chemistries
- ▶ Increases mission certainty and reliability



## MBCs with Intelligent EBCs

The high-rated EBCs powering AMETEK IntelliPower MBCs are employed to charge large quantities of batteries in parallel safely.

Power can be limited and rationed among EBMs. AMETEK IntelliPower EBCs independently monitor and display each EBM's status, recognizing EBMs as they are removed and replaced. Additional EBC features include:

- ▶ Global Input power of 120/230 VAC +15%
- ▶ Flexible scaling of channels
- ▶ DSP (Digital Signal Processing) controlled
- ▶ Charging current flexibility of 1, 2, and 4 amps
- ▶ Charging voltage range from 48V to 144V

## Customizability Options

Depending on the UPS system they will be deployed in, UPS batteries may support voltages ranging from 48V to 144V. When charged, they may support currents of 1A, 2A, or 4A.

The two most common UPS battery chemistries are valve-regulated lead acid (VRLA) and lithium iron phosphate (LiFePO<sub>4</sub>). While lead acid batteries, with their high energy density, have historically been the battery of choice for UPS applications, the newer lithium iron phosphate batteries provide double the life and storage capacity due to their exceptional long-term thermal and chemical stability.

Irrespective of the battery type (current, voltage, chemistry, etc.) and the number of External Battery Modules (EBMs) to be simultaneously supported, AMETEK IntelliPower can customize Multi-Battery Chargers (MBCs) and External Battery Chargers (EBCs) to help customers meet (and often exceed) their exact requirements.

## Features and Benefits

AMETEK IntelliPower has established a reputation as a designer, manufacturer, and supporter of uninterruptable power supply (UPS) solutions. These UPS solutions serve a wide range of mission-critical and safety-critical applications and markets, including defense, oil and gas, transportation, power generation, and industrial. In addition to customers in the USA, these solutions are deployed to an international clientele around the globe.

Every product in IntelliPower's UPS portfolio started life as a custom creation. They are designed to be rugged from the ground up and feature an online double conversion topology in which incoming AC power is first converted to DC and then regenerated back to AC, thereby ensuring uninterrupted power to the load during fluctuations in the AC supply or complete loss of the AC supply.

A UPS system is only as good as the battery inside it. MBCs can ensure backup batteries are maintained fully charged and ready for action. MBCs provide multiple features and benefits, including the following:

- ▶ **Convenience:** An MBC offers a convenient way to replenish batteries "off-line."
- ▶ **Cost Savings:** Investing in an MBC can lead to significant cost savings over time.
- ▶ **Efficiency:** Intelligent MBCs offer monitoring, feedback, and control.
- ▶ **Durability:** Like all AMETEK IntelliPower products, our MBCs are built to last.
- ▶ **Risk Management:** By providing robust backup storage capabilities, MBCs help to eliminate risk in mission-critical and safety-critical applications.
- ▶ **Environmental Impact:** Using an MBC dramatically reduces the risk of premature battery failure, thereby reducing the disposal rate.



**24 Battery Pack Charger**  
(40U Cabinet)



**12 Battery Pack Charger**  
(24U Cabinet)

## Preventing Damage and Degradation

Without proper maintenance, UPS batteries become susceptible to various threats, including premature failure. Battery failures can cause unexpected and costly downtimes and—in some cases—damage to load devices.

When batteries sit unused in storage for extended periods, any charge they hold drains away (the leakage rate is strongly dependent on the battery chemistry). Once a battery's charge falls below a certain point, the battery can start to become damaged and degraded.

AMETEK IntelliPower MBCs prevent premature failure by providing a solution that delivers seamless preventative maintenance. This reduces costly downtime and averts permanent capacity loss.

All AMETEK IntelliPower products are manufactured in the USA, so shorter lead times from design to shipping can be offered. IntelliPower is also recognized throughout the industry for a high level of personalized service unequalled by our competition. With AMETEK IntelliPower, your critical systems will be powered for success.

	Chemistry	Energy Density	Cycle Life	Shelf Life	Self-Discharge Rate	Efficiency	Energy Density	Total Cost of Ownership	Depth of Discharge (DoD)	Environmental Impact
LFP Battery	Lithium Iron Phosphate	High	High (2000-5000 cycles)	High	Low	High	High	Better	High (90%)	Environmentally friendly
VRLA Battery	Lead-Acid	Low	Low (300-700 cycles)	Low	High	Low	Low	Good	Low (~50-80%)	Contains lead, less green



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All products are designed, manufactured, and supported in the USA

ISO 9001:2015 Certified Facility | Military Standards