

INTEGRATED POWER DELIVERY FOR EVERY MISSION.

**TACTICAL ENERGY
STORAGE UNIT**



ALWAYS ON



ADVANCED TECHNOLOGY TO KEEP YOUR MILITARY OPERATION ALWAYS ON.

The Tactical Energy Storage Unit uses Cummins latest technologies to further enhance the performance of the Advanced Medium Mobile Power Sources (AMMPS) generators. Energy storage capability keeps your mission Always On with superb and seamless transition and the ability to switch to silent mode during critical military operations. The integrated power system offers fuel efficiency, increased microgrid reliability and a reduction in the maintenance schedule of its partner generators.

MOBILE ENERGY. INTEGRATED POWER.

Energy Storage: Cummins batteries used on the Tactical Energy Storage Unit are designed for mobile outdoor applications with an IP66-rated enclosure.

Power Conversion: A 3-phase 60kW Cummins bidirectional inverter with AC filters enables the system to convert the energy stored in the batteries, producing higher power quality.

Integrated Power System: The Tactical Energy Storage Unit is designed to connect with the Battery Management System (BMS), the inverter control system and the Advanced Digital Control System (ADCS) and operate seamlessly as an integrated unit to pick up the load when the demand cannot be met by the AMMPS generator.



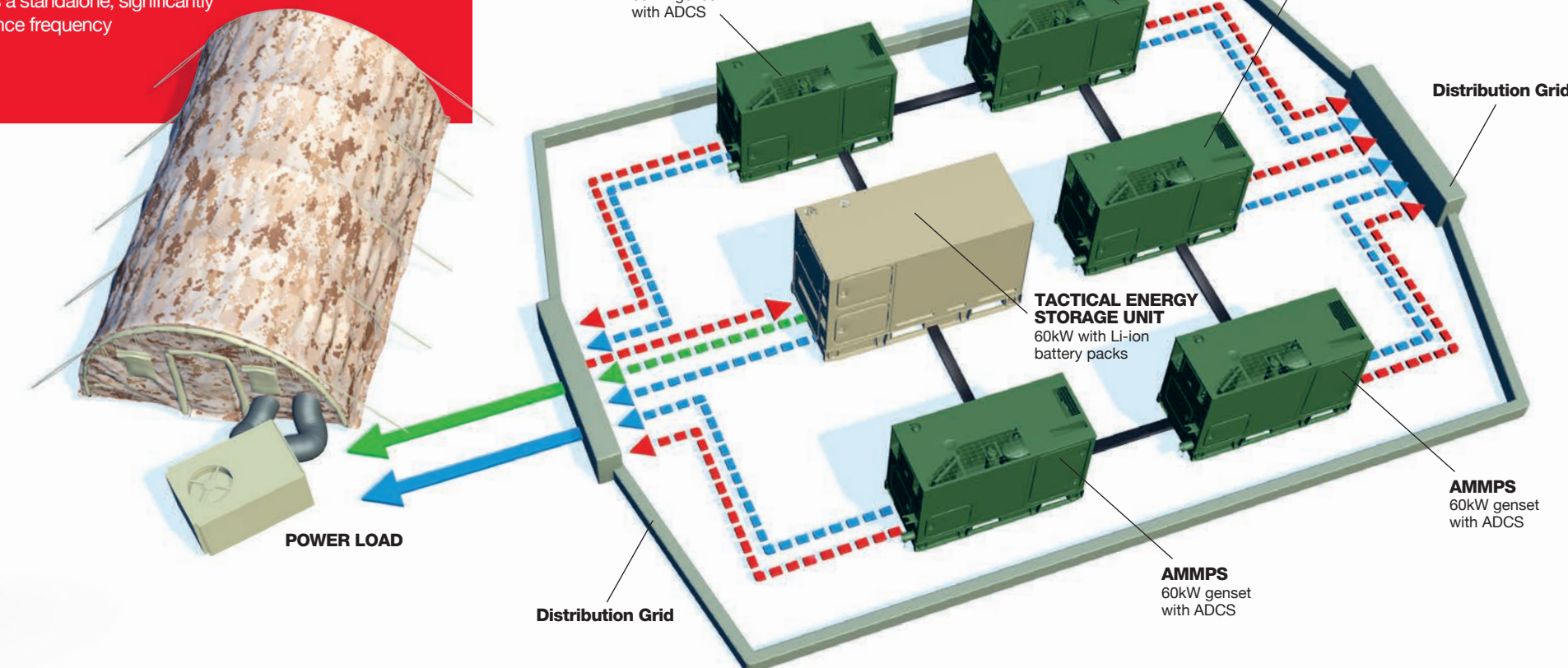
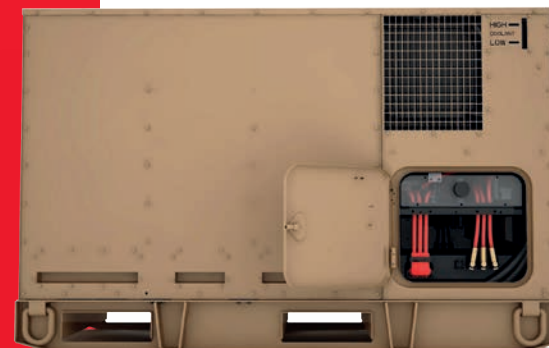
SILENT STANDALONE POWER. IN-FIELD FUEL EFFICIENCY. INCREASED MICROGRID UPTIME.

Improved Transient Performance: When load demand rapidly increases, the Tactical Energy Storage Unit provides power until the generator comes online for a seamless transition. It reduces the frequency of voltage disturbances during rapid changes of load demand, providing better quality for sensitive loads.

Silent Operation: The Tactical Energy Storage Unit can operate as the main source of power to an existing AMMPS microgrid as a standalone unit. It gives the ability to run in silent watch mode for a short period with the user setting the start and end time. It can then be brought back to base for charging once the operation is completed.

Fuel Savings: In a microgrid system, the Tactical Energy Storage Unit takes the excess load up to a certain value and prevents the next generator from starting. This results in fuel savings and reduces the generators' run hours, increasing the microgrid's reliability and uptime.

Battery Cycling: Engines are typically very fuel inefficient at low loads. The Tactical Energy Storage Unit supports the load and saves the generator set from operating inefficiently. When battery performance slows, the generator can be used to charge the battery and support the load. Once the battery is fully charged, the generator can turn off and the Tactical Energy Storage Unit can pick up the light load as a standalone, significantly reducing the maintenance frequency of the generators.



FLEXIBLE APPLICATION PARALLELED OR STANDALONE.

The Tactical Energy Storage Unit can be paralleled with up to five AMMPS generators with ADCS or be used as a standalone power source.

AMMPS Microgrid with Storage

The Tactical Energy Storage Unit acts as an additional power node on the microgrid offering all the benefits of a hybrid system - leading to improved system performance, reliability and robustness.

Hybrid System with AMMPS Generator and Tactical Energy Storage Unit

The Tactical Energy Storage Unit acts as a standalone to provide power for silent operation offering:

- Support during peak loads and transients
- Improved system quality
- Mobile and flexible power
- Reduced overall exhaust signature

DUAL MODE OPERATION

Auto-load share: Supports the load either by forming the grid when operating as standalone or supporting the grid when paralleled.

Auto-charging: The Tactical Energy Storage Unit can charge itself through a Masterless Load Demand (MLD) enabled AMMPS generator. When connected in a microgrid with an MLD-enabled AMMPS generator, the MLD network self-regulates the state of charge of the Tactical Energy Storage Unit and ensures that the load is always supported. The Tactical Energy Storage Unit can seamlessly transition between modes using the MLD feature on the CAN network almost instantaneously without even a momentary power loss to the load.

Charging Mode: AMMPS generator supporting the load and charging the Tactical Energy Storage Unit.

Paralleling Mode: AMMPS generator and the Tactical Energy Storage Unit supporting the load. Seamless transitions without external input using MLD feature on CAN network.

Stand Alone Mode: Tactical Energy Storage Unit only supporting the load.

The Tactical Energy Storage Unit is connected to the AMMPS gensets via power cables and through the ADCS of each genset.

SAFE, DEPENDABLE, INTELLIGENT BY DESIGN.

The Tactical Energy Storage Unit has several safety features designed to guarantee a safe and smooth operation.

- The inverter's embedded software and ADCS are programmed to shut the unit down immediately in the case of emergency
- Inverter connectors have a high-voltage interlock loop (HVIL) included, providing an extra layer of safety during servicing
- A master service disconnect (MSD) with lockout provision enables a service technician to completely disconnect the batteries before working on the control side

DISTINGUISHED RECORD OF MILITARY POWER SUPPLY

Cummins has a proud history of service to the military spanning nearly 80 years. Our diesel engines have powered several generations of military vehicles, including the British Marconi AS90 self-propelled howitzer, U.S. Bradley Fighting Vehicle and many MRAP variants.

In every mission from the European Theatre of Operations in WWII to current-day peace-keeping operations, Cummins-powered equipment serves with distinction, earning the highest commendations for durability, dependability and performance.

Today, our AMMPS units, the latest highly capable field generators, are in service with the U.S. Army, Marine Corps, Navy and Air Force on bases around the world. More than 25,000 AMMPS units have been delivered to date, with more in procurement through 2023.



KEEP YOUR MISSION ALWAYS ON, WHEREVER YOU'RE DEPLOYED.



SERVICE AND SUPPORT THAT'S ALWAYS ON

Cummins uses its full logistics capability to support rapid deployment to multiple locations. Our power equipment serves defense purposes throughout the world, earning the highest commendations for durability, dependability and performance.

- Over 7,600 dealer locations around the globe
- Distributor-supported commissioning and maintenance services
- Critical parts inventory at distributor locations
- Detailed engineering documentation available for your products.



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