



XMP 111E HIGH ENERGY

Freudenberg Battery Power Systems (FBPS) is a premium total system solution manufacturer of packs, battery management systems and controls, racks, and telematics. FBPS is capable of handling any energy storage need, anywhere in the world, from our highly automated advanced production facility in Midland, Michigan.

The XPAND Modular Pack (XMP) is FBPS’s Energy Storage System based on XALT Energy’s lithium-ion cells. XMP is designed for use in medium to heavy duty commercial trucks, buses, marine equipment, and specialty applications, such as construction and mining equipment.

XMP 111E is ideal for applications with moderate discharge/charge rates for high energy applications requiring long usage periods between plug-in charges. Each sub-pack contains Voltage Temperature Balancing (VTB) boards that report voltage for all cell pairs and internal pack temperatures, and perform cell balancing. XMP 111E is designed for use with FBPS’s Battery Disconnect Unit (BDU) and Master Control Unit (MCU) through the Input/Output port.

Upgradeable, Ultra-Long Life Cycle Roadmap

- XMP core accommodates cells in XALT’s 225mm family without the need for retooling, anticipating a wide variety of application voltage, power, and energy
- As cell technologies advance or packs become available for re-purposing, the XMP core can be replaced while all external interfaces remain the same

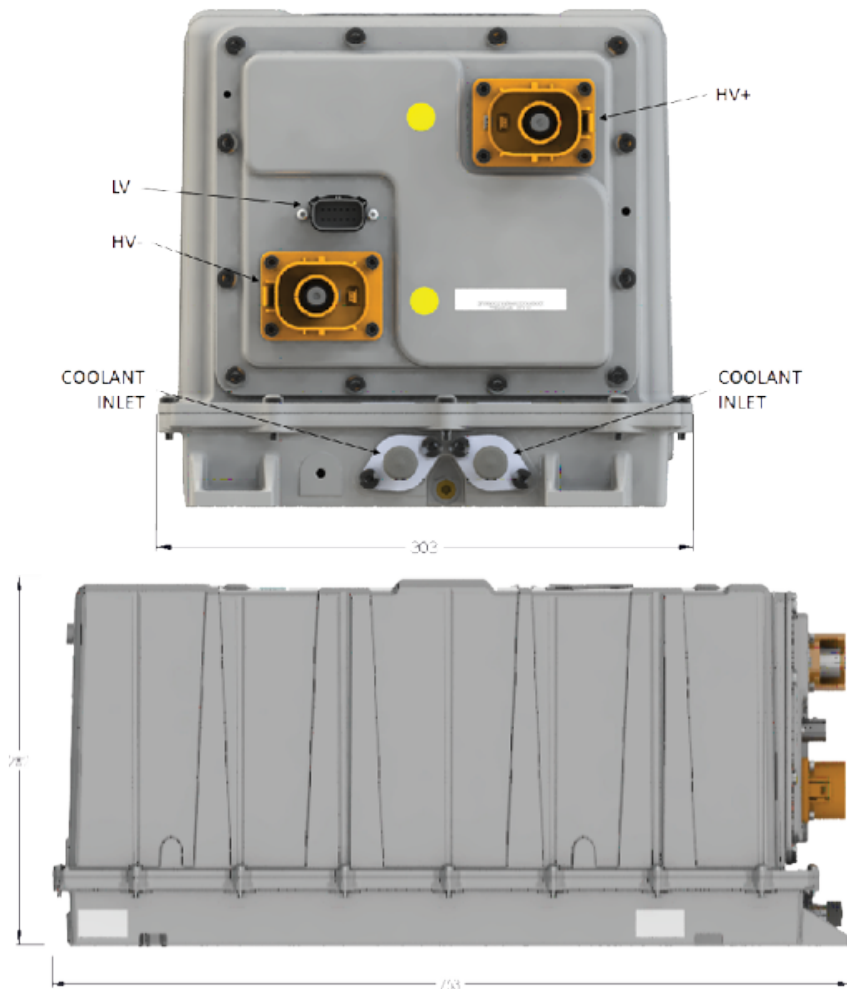
Advanced Thermal Management

- XMP’s advanced active liquid cooling system maintains ideal cell temperatures throughout the pack, and responds quickly to increases in power demand and changes in ambient (environmental) temperatures
- EBase pack (non-marine) is IP67 rated for sealing performance, and efficient direct liquid cooling prolongs cell life under the most demanding cycle profiles and severe environments



THE FBPS ADVANTAGE

- Exceptional cycle life with proven XALT NMC SHE cells
- High specific energy and volumetric energy density
- Rugged design for challenging environments
- Outstanding safety and abuse tolerance
- Efficient direct liquid cooling maintains ideal cell temperatures
- IP67 compliant (with connectors mated)
- Easy to install, configure, and upgrade
- ISO 9001:2015 certified production environment



FEATURES AND BENEFITS

Modular and Flexible Design

- Easy to customize high voltage, low voltage, and cooling interfaces to each application
- All connections at front panel; rear access not needed for installation

System Support

- Battery Disconnect Unit (BDU)
- Master Control Unit (MCU)
- Low Voltage Harness (LVH) Kit
- High Voltage Cable (HVC) Sets
- FBPS Battery Viewer Telematics
- FBPS Rack System

Life Cycle Support

- XPAND Service Tool
- Remote Data Monitoring & Prognostics
- Pack Replacement Maintaining Interface Connections
- End-of-Life Re-purposing, Recycling
- Integration Support
- On-site Training Classes

Certifications

- UN/DOT 38.3
- ECE R100
- ISO, SAE

Additional Benefits

- In-house cell modeling and development creates sophisticated software and controls for accurate Power, SOC, and SOH predictions
- Custom warranty programs available



The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

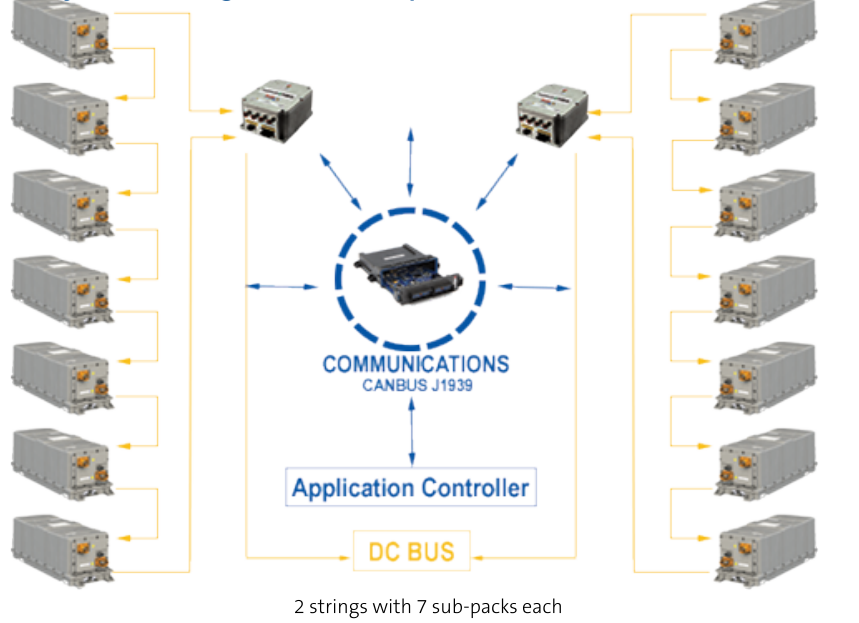
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Performance	
Capacity (Rated @ C/10)	126Ah
Discharge Energy (Rated @ C/10)	11,100Wh
Nominal Voltage	88.3VDC
Specific Power*	≥350W/kg
Specific Energy	≥146Wh/kg
Energy Density	≥ 172Wh/l
Discharge Peak*	2.3C / 300A
Charge Peak*	1.1C / 150A
Discharge Continuous**	2.3C / 300A
Charge Continuous**	1C / 126A
Weight	76kg
Dimensions (all versions incl base) (L) 753mm (W) 303mm (H) 282mm	

Cycle Life	Typical
100% DOD Cycles @ 0.3C charge-discharge	>3,000 cycles***
80% DOD Cycles @ 0.3C charge-discharge	>4,000 cycles***

***Cycle life to 80% of rated capacity at 25°C room temperature with 10 min. step rest

ESS System Configuration Example



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