

XPAND Module (XMOD) – For Transit / Marine / Grid



The XALT Energy® Advantage

- High specific energy and volumetric energy density
- Intended for high energy, long-range applications
- Excellent safety and abuse tolerance
- Efficient direct liquid cooling maintains ideal cell temperatures
- Easy to install, configure, and upgrade
- Fully compatible with XALT's Battery Management Systems

Introducing the XMOD Energy Storage System

The XPAND Module (XMOD) is XALT Energy's ultra-high-density lithium-ion battery building block for highly-integrated Energy Storage Systems based on XALT Energy's world-class lithium-ion cells. XMOD was developed for use in high-voltage, high-capacity multi-module arrays housed in large enclosures to achieve an overall reduction in system mass, volume, and cost. XMOD is designed for use in heavy duty transportation vehicles, like commercial trucks and buses, and stationary applications.

Saving System Cost, Weight and Space

XMOD modules have the same core construction as the exceptionally durable XPAND battery packs, but without the enclosure and bulkhead. The XMOD design is optimized for large systems where the integrator installs the modules in a suitable protective superstructure. Eliminating individual pack enclosures saves system weight and allows these industry-leading 175 Wh/kg modules to be packaged very close to each other, resulting in higher energy storage capacity in the available space. Furthermore, with the module arrays enclosed in protective superstructures, high voltage connections can be made directly to the XMOD terminals, thereby eliminating the need for costly HV connector pairs.

Advanced Thermal Management

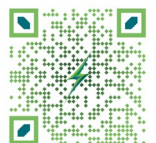
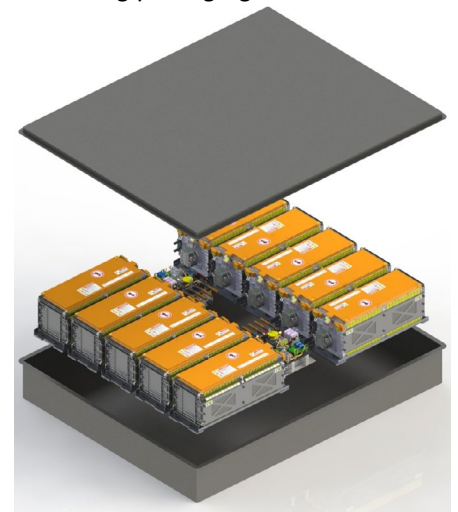
XMOD uses the same advanced, active liquid cooling system as XALT Energy's XPAND packs, maintaining ideal cell temperatures throughout the module and responding quickly to increases in power demand or ambient temperatures. Efficient direct liquid cooling prolongs cell life under the most demanding cycle profiles, while reducing packaging volume.

Upgradeable, Ultra-Long Lifecycle Roadmap

The XMOD module is designed to accommodate cells in XALT's 225mm family without the need for retooling, anticipating a wide variety of application voltage, power, and energy. This means as XALT's cell technologies advance or modules become available for re-purposing, each XMOD can be replaced while all external interfaces remain the same.

Maximizing Energy Without Sacrificing Volume, Weight or Safety

The XMOD111E module uses XALT's 63Ah Ultra High Energy cells in a 2p24s architecture to provide 11.1kWh total energy. Designed for use with moderate charge and discharge rates (C/3 and 1C, respectively), XMOD111E is ideal for high energy applications requiring long usage periods between on-plug charging. Each module contains Voltage-Temperature-Balancing boards (VTBs) that measure voltages of all 24 cell pairs and internal pack temperatures, and perform cell balancing to maximize energy throughput. XMOD111E is designed for use with XALT's Battery Disconnect Unit (BDU) and Master Control Unit (MCU). As with all modules in the XMOD and XMP families, XMOD111E is designed for use in large battery arrays to provide hundreds of kWh in demanding mobile and stationary environments.



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Advantages

Modular and Flexible Design

- Simplified high voltage, low voltage and cooling interfaces to each application
- All connections at front panel; rear access not needed
- Designed for use in very large strings and pack combinations (up to 1250V per string and up to 24 strings in parallel)

System Support Options

Accessories

- Battery Disconnect Unit (BDU)
- Master Control Unit (MCU)
- Low Voltage Harness (LVH) Kit
- Telematics Unit

Lifecycle Support

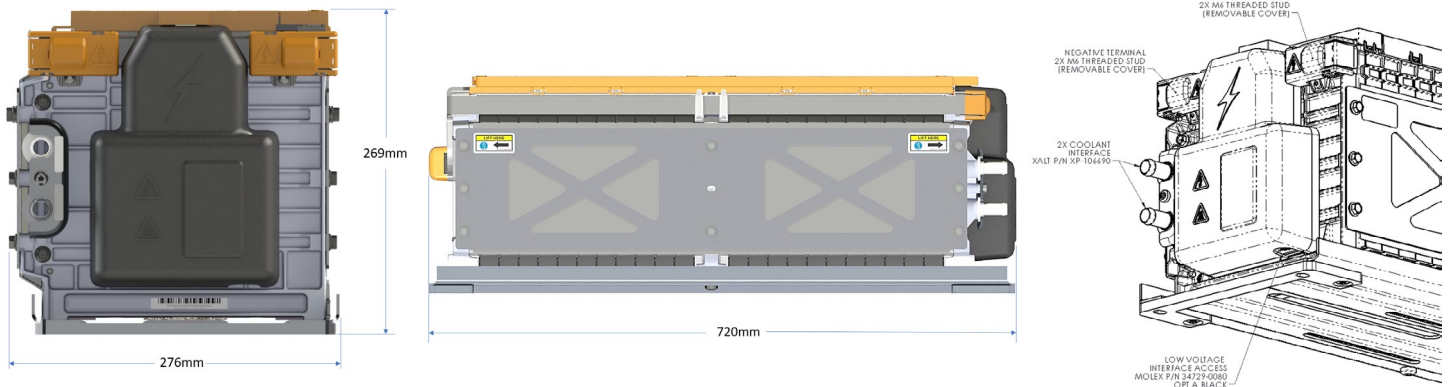
- XPAND Service Tool
- Remote Data Monitoring & Prognostics
- End-of-Life Re-purposing, Recycling
- Integration Support
- On-site Training Classes

Performance¹

XALT Li-ion NMC/G Cell	63Ah UHE	Cell Configuration	2p 24s
Capacity (Rated @ C/10)	126Ah	Discharge Energy (C/10)	11,100Wh
Voltage (Nominal)	88.3V	Energy Density	≥208Wh/L
Weight	64kg	Specific Energy	≥175Wh/kg
Dimensions (including base) (L) 720mm(W) 276mm(H) 269mm			

Environmental, Safety, and Abuse Tolerance

Test	Conditions	Reference
Vibration	Random, 3 axis, 21 hr/axis	ISO 12405
Mechanical Shock	21.4G, 11ms; 13.5g, 100ms	UNT, R100
Thermal Shock	75°C to -40°C within 30 minutes	ISO 12405
Composite Heat & Humidity	RH93%, 25° - 65°C 28 day	ISO 16750
Housing Load	Knee, Foot	GMW 16390
UNDOT	UN T-1, 2, 3, 4, 5	UNDOT 38.3
Drop Test	1.2m onto cement on corner	IEC 62281
External Short Circuit, Fused	5mΩ, 100mΩ	J2929, UN 38.3



¹Product specifications are preliminary; XALT Energy reserves the right to modify the product technical specifications.