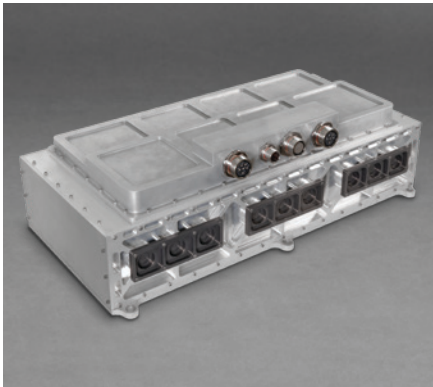


RECONFIGURABLE INTEGRATED BATTERY FOR LAUNCH VEHICLE APPLICATIONS



Moog has a modular single string and redundant commercial energy storage system that is ideal for launch vehicle applications requiring thrust vector or control surface actuation solutions. The system is designed to limit the potential for thermal runaway events while supporting a flexible design that can be easily modified to support a number of applications. The system can be bundled with a charger to support multiple reuse missions.

KEY FEATURES

- Modular battery allows for single string or redundant configurations
- Solution can be provided with Moog's modular actuation and control offerings for a complete control system.
- Health and status monitoring for string: independent cell level voltages, state of charge, temperature, system level current, faults, and states
- Soft start capability integrated
- Adjustable over current protection and offline hardware breaker
- Integrated regenerative charging and dissipation capabilities
- Proven thermal runaway mitigation and robust cell level thermal management



RECONFIGURABLE INTEGRATED BATTERY FOR LAUNCH VEHICLE APPLICATIONS

PERFORMANCE SPECIFICATIONS



| Features | Low Power | Medium Power | High Power |
|--|--|--|--|
| Battery Type | High Performance Rechargeable, Lithium – Ion | High Performance Rechargeable, Lithium – Ion | High Performance Rechargeable, Lithium – Ion |
| Capacity | 440 W-h | 870 W-h | 1300 W-h |
| Mass | 22 lbs | 39 lbs | 55 lbs |
| Non Heated Operating Temp | 0 to 50 °C | 0 to 50 °C | 0 to 50 °C |
| Heated Operating Temp | -40 to 50°C | -40 to 50°C | -40 to 50°C |
| Integrated Heaters | Optional | Optional | Optional |
| Component Grade | Class III (enhanced plastic/automotive or up screened plastic parts) | Class III (enhanced plastic/automotive or up screened plastic parts) | Class III (enhanced plastic/automotive or up screened plastic parts) |
| Battery Management System and Charging Controllers | Yes, Integrated | Yes, Integrated | Yes, Integrated |
| Safety Features | Temperature, current, voltage, short chassis | Temperature, current, voltage, short chassis | Temperature, current, voltage, short chassis |
| Configuration | 48S1P, electrically independent string | 48S2P, electrically independent string | 48S3P, electrically independent string |
| Operating Voltage | 125V to 202V | 148V to 202V | 148V to 202V |
| Continuous Discharge Current | 33A | 66A | 100A |
| Max Discharge Current (<20ms) | 50A | 100A | 150A |
| Avionics Input | 22-34V, 6W | 22-34V, 12W | 22-34V, 17W |
| High Voltage Output Interlock | Yes | Yes | Yes |
| Communication Scheme | RS422 | RS422 | RS422 |
| Regenerative Charging | Yes | Yes | Yes |



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