

ENERGY MAGAZINE FOR PULSED POWER AND STABLE BACKUP POWER



MODULAR, MULTI-OUTPUT ENERGY MAGAZINE

The Energy Magazine is a power and energy storage system designed to master many of the challenges associated with the increasing demand for available shipboard electrical power. The types of technology being incorporated into a range of ship systems today is not only driving up the need for more power but also for higher power quality, more efficient use of power and intermittent power for the high-bursts of energy required by pulse power weapons and sensor systems.

The key to managing all this power is the Energy Magazine which employs state-of-the-art lithium iron phosphate batteries for energy storage and advanced controls for energy management. The system is capable of supplying energy to either the ship's electrical distribution system or directly to the pulse weapon/sensor accommodating spiked power demands that the ship's generators cannot provide. During times of lower demand the Energy Magazine is "recharged" from the ship's electrical system. The technology also provides ship back-up power in the event the generator(s) go offline.

The modular design of the system allows for flexible configurations to fit different applications and available footprint. Each of the building blocks are sized to fit though common ship hatches for simple installation.

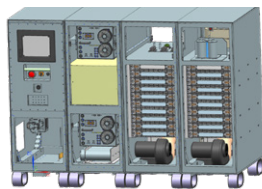
Leonardo DRS has demonstrated Energy Magazine technology and multi-application hardware for the pulsed power and stable back up power required to help sustain multiple mission systems. This technology is suitable for DDG 51 back fit and other ship class applications.

SELECTED FEATURES

- Modular architecture and adaptable software
- Latest technology lithium iron phosphate batteries
- "Hatch-able" modules for ease of installation
- Design compliant to multiple MIL-STDs (see back for details)

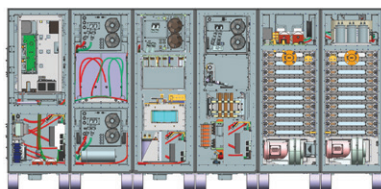
ENERGY MAGAZINE

DESIGN EVOLUTION



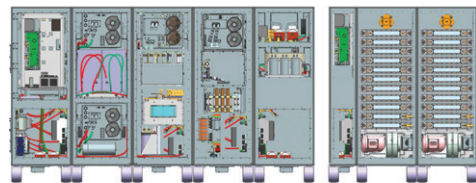
EM-Laser
Lithium Iron Phosphate Batteries

- 1000 VDC internal output in dual stacks
- 71 kW-hr (256MJ)



EM-MKII
Lithium Iron Phosphate Batteries

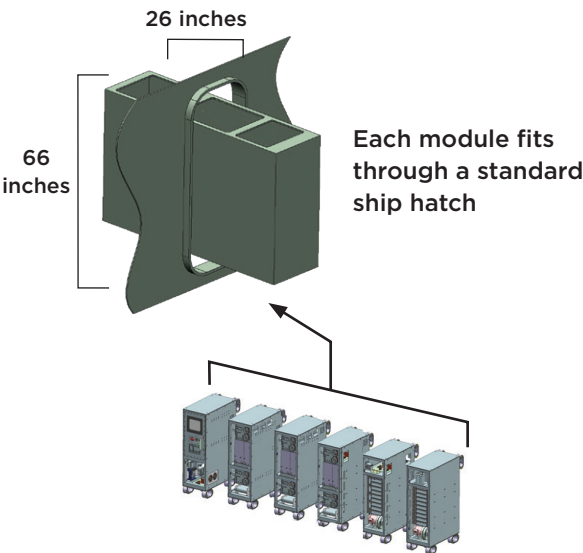
- 1000 VDC internal output in dual stacks
- 71 kW-hr (256MJ)



EM-Stable Backup Power
Lithium Iron Phosphate Batteries

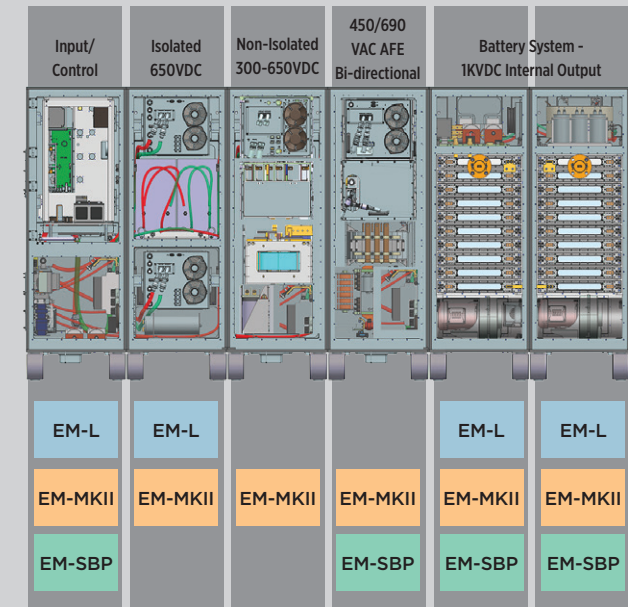
- Separate storage media section
- 1000 VDC in each stack: cascadeable
- 71 kW-hr (256MJ)

DIMENSIONS



CONFIGURATIONS

	Power / Duration	Duty Cycle	Recharge Time	Output Voltage	Discharge Cycles	Galvanic Isolation	Cabinet Size	Cabinet Weight (lbs.)
EM-Laser	660kW / 4 Minutes	Notional 50% 	< 16 min	650VDC Galvanic Isolation	>1000	AC-DC; DC-AC	48" D x 66" H x 100" W	-9,200
EM-MKII	900kW / Continuous	Stochastic 	Continuous	650VDC Non-isolated	N/A	AC-DC; DC-AC	48" D x 66" H x 150" W	-14,500
EM-Stable Backup Power	750kW / 3 Min.	100% Continuous	< 16 min.	450/690 VAC, 60 Hz	> 250	AC-DC; DC-AC	48" D x 66" H x 100" W	-9,200



MILITARY SPECIFICATIONS

- MIL-STD-1399, Section 300B, Input Power Quality
- MIL-STD-167-1, Type I, Vibration
- MIL-STD-741-1 Airborne Noise
- MIL-STD-741-2 Structure-borne Noise, Type III
- MIL-STD-461F, EMI
- DDS-072-1/-5, Grade A Shock
- DOD-STD-1399-70-1 Magnetic DC Field
- NEMA IEC 60529, IP54 Enclosure
- NAVSEA S9310-AQ-SAF-010/ SG270-BV-SAF-010
- DOD Directive 8500.01/02 Information Assurance

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8-2019