INVINITY ENERGY SYSTEMS

ENDURIUM™ ENTERPRISE

ENERGY STORAGE SYSTEM

DATA SHEET



Invinity's Endurium Enterprise™ is an evolution of our proven modular vanadium flow battery technology, optimised for mission-critical service at commercial and industrial sites including factories, data centres, warehouses, and cold storage. At its foundation is a String of two Endurium™ Modules — a UL certified flow battery that stores 1030 kWh of usable energy and can be fully discharged in four hours, or as long as 18 hours depending on facility energy needs. Strings are connected to the grid using industry standard battery inverters, and combine to create up to 20 MW solutions delivering unmatched throughput and flexibility.

MORE THROUGHPUT
Take control of your commercial energy use and avoid up to 100% of peak electricity charges.

MORE FLEXIBILITY
Adapt to the changing demands of your business, with no warranty limits on cycle count.

MORE LIFETIME
Suitable for over 30 years of constant cycling, matching the lifespan of on-site renewable power generation.

MORE SAFETY
Non-flammable battery chemistry dramatically reduces fire risk, operational risks and insurance premiums.

MORE SUSTAINABILITY
Run your business with 100% low-cost, low-carbon electricity, for truly carbon-neutral operations without offsets.

MORE SECURITY
Secure business critical operations with clean, reliable energy delivered from your own, on-site infrastructure.

SCALABLE
1-20+
MW POWER

4-18
HOUR DISCHARGE

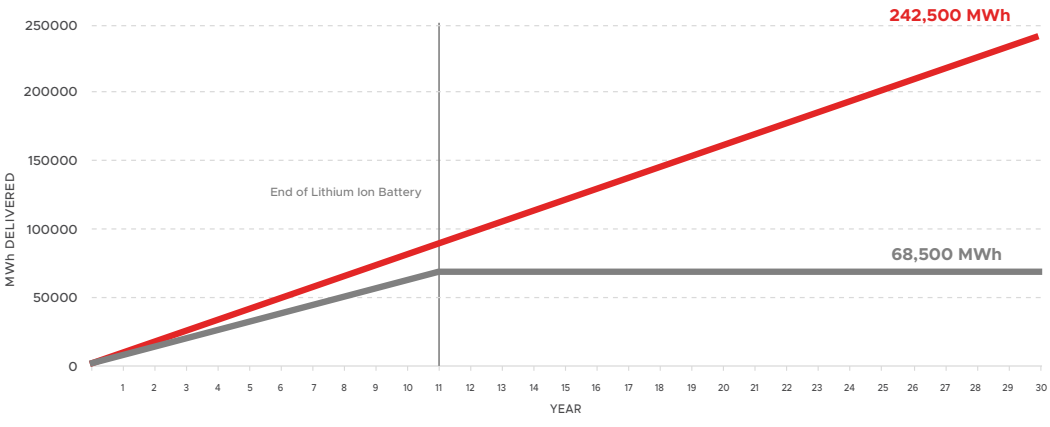
UNLIMITED CYCLES

UNLIMITED THROUGHPUT

NON FLAMMABLE

30+
YEAR LIFESPAN

CUMULATIVE ENERGY DELIVERED OVER TIME



INVINITY ENDURIUM™ LITHIUM

Assumptions: 12 MWh capacity installed, 2 cycles per day, 100% DoD per cycle, 365 days a year. Lithium out of warranty/EOL @ 60% capacity. We charitably assume the lithium system can meet this duty cycle: its actual degradation is likely to occur much faster.

ENDURIUM™ ENTERPRISE

PRODUCT DATA SHEET

ENERGY STORAGE WITHOUT LIMITS™

STRING SPECIFICATION

COMPONENTS

An Endurium Enterprise string consists of 2 Vanadium Flow Battery Modules, a String Control Unit, and Inter-String cabling.

PERFORMANCE[1]	2 Power Blocks	3 Power Blocks
Max DC Power	200 kW	250 kW
Max Usable Energy[2]	1025 kWh	1030 kWh
Discharge Durations at Constant Power	4h @167 kW 6h @136 kW 8h @112 kW 12h @81 kW	4h @200kW 6h @151 kW 8h @119 kW 12h @84 kW
DC RTE DC RTE (inc Aux)	73% 68%	73% 68%
DC Response Time	<15 ms from On; <1 min from Off	
Voltage Range	400-640 VDC with EPC CAB1000/AC-2L.1	
Max DC Current	500A	600A

OPERATING CAPABILITIES	
Duty Cycle	Continuous at Max Power. No rest period
Lifetime Cycles	Unlimited for 30+ years
Depth of Discharge	0-100 %
Cooling System	Forced Air
Communications	Modbus TCP/IP
Annual Energy Degradation	<0.2%

REQUIRED UTILITIES	
Auxiliary Supply	3Φ, 380-480 VAC
Auxiliary Loads (Idle/Average/Max)[3]	2 kW / 4 kW / 10 kW

CERTIFICATIONS AND STANDARDS[4]	
Certifications	CE, UL 1973,UL 9540A, Sub Assembly under UL 9540
Standards	NFPA, IEC 62933-5-2, IEC 62485, IEC 62932-2-2

ENVIRONMENTAL	
Ambient Operating Temperature	-10°C to 45°C / 14°F to 113°F
Relative Humidity	5-95%
Maximum Elevation	2000 m / 6600 ft
Protection Class	IP 54

FOOTPRINT	
String Footprint (inc/service access)	8.7 m x 5.8 m / 28 ft x 19 ft
Area	50.5 m^2 / 542 ft^2
Array Energy Density	235 MWh/ha / 95 MWh/Acre

BATTERY MODULE DIMENSIONS (2 PER STRING)	
Dimensions	6.1 m x 2.4 m x 2.9 m 20 ft x 8 ft x 9.5 ft
Mass	36,000 kg / 79,400 lbs

NOTES: 1 Performance values are for operation with electrolyte at 35°C. DNV IE Study available under NDA. Contact Invinity for more information.
2 Usable DC capacity varies depending on discharge profile.
3 Aux load excludes cooling fans, which are temperature dependant. Average rating is for 6-hour discharge.
4 Expected in 2027.

CONFIGURABLE ARRAY

Strings are configured then connected in parallel to make an Array sized for site power needs. At right is an eight string, 8.2 MWh array, capable of delivering power at 2.0 MW. Minimum Array size is 6.1 MWh.



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