

EPower4000-12

12 hours Vanadium Flow Battery Module

Next generation power infrastructure for safe, reliable and affordable green electricity supply

Performance

- 100% Depth of Discharge
- 80% DC Round-trip Efficiency
- ≥95% Capacity Retention Through Lifetime ⁴⁾

Reliability

- 25-year Lifespan
- 20,000+ Full Cycles at 100% DoD
- 0% Risk of Thermal Runaway ⁵⁾

Affordability

- 30%–80% lower LCOS vs. Li-ion ⁶⁾
- 100% Reusable Electrolyte ⁷⁾
- Zero Hazardous Waste Disposal Costs ⁸⁾



Specifications

Rated Power	333kW
DC Efficiency	≥80% ¹⁾
Rated Capacity	4000kWh
DC Voltage	312-499.2V
Max DC Current	1069A
Ambient Operating Temperature	Standard -35°C to 45°C / -31°F to 113°F Extended -45°C to 60°C / -49°F to 140°F ²⁾
Internal Operating Temperature	35°C to 40°C / 95°F to 104°F
Maximum Operating Elevation	2000m / 6600ft
Calendar Life	>25 years
Cycle Life	20,000+ full charge/discharge cycles
Communications	Modbus-TCP
Protection Class	IP65 or equivalent
Auxiliary Power Supply	380V/AC, 50Hz, 3-phase Auxiliary Load: 0.2 kW in standby; 16–40 kW during operation
Certifications	CE, UL 1973
Standards	IEC 62932-2-1, IEC 62932-2-2, IEC-62933-5-2
Recyclable Vanadium per Module	17400kg ³⁾

Notes:

1. DC efficiency is measured under rated operating conditions and is subject to system dimensions and weight, test conditions, and operating environment
2. Additional charges may apply outside the standard ambient operating temperature range
3. Recyclable vanadium content is calculated according to applicable national standards and may be adjusted as standards evolve
4. Capacity retention assumes prompt restoration whenever capacity declines to 95%, following RKP's standard operating procedures
5. "0% risk of thermal runaway" applies to the battery only
6. The LCOS comparison with lithium-ion batteries is based on publicly available data, assuming a 25-year service life. Results vary by storage duration and operating mode
7. "100% reusable electrolyte" applies under normal operating and maintenance conditions. Reuse is subject to electrolyte assessment, RKP requirements, project procedures, local regulations
8. "Zero hazardous waste disposal costs" applies to electrolyte under normal reuse conditions. Other waste remains subject to local regulations and project requirements

Dimensions & Weight

Item		Weight	Dimensions (Length x Width x Height)/Volume(m ³)
Container	Power Container*1	10.0t	6.058×2.438×2.591m
	Capacity Container*3 (without electrolyte)	11.5t /container	12.192×2.550×3.306m
	Capacity Container*3 (with electrolyte)	96.5t / container	
System	Dry System Weight	44.5t	12.192×8.650×5.925m
	System Weight with Electrolyte	299.5t	
Electrolyte	Electrolyte	244.80t	180m ³