AFB

Australian Flow Batteries

Vanadium Redox Flow Battery
RFB40X SERIES: 40kWh - 160kWh

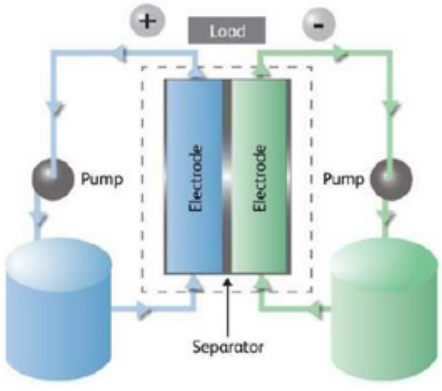
FEATURES

Australian Flow Batteries Vanadium Redox Flow Battery (VRFB) is an energy storage system for use in small-scale stationary applications such as telecom, micro-grids and other critical commercial and industrial applications.

- Long life (>20yrs) with unlimited charge-discharge cycles
- Outdoor system with integrated power electronics and controls solution
- Lowest total cost of ownership
- Multiple units configuration in Series/Parallel
- Safe and Environmentally friendly
- Seamless renewables and grid integration
- Durable operations in rugged, remote outdoor environments up to 50°C ambient

TECHNOLOGY

AFB's RFB is based on vanadium redox chemistry and falls into the general class of redox flow batteries. This class of battery employs an electrolyte where energy is stored and a cell stack where energy conversion occurs. Energy is stored chemically in different ionic forms of vanadium in a dilute acid electrolyte. The electrolyte is pumped from separate plastic storage tanks into flow cells across a membrane where one form of electrolyte is electrochemically oxidized, and the other is electrochemically reduced. This creates a current that is collected by electrodes and made available to an external circuit. The reaction is reversible allowing the battery to be charged and discharged.



$$VO_2^+ + 2H^+ + e^- \rightleftarrows VO^{2+} + H_2O$$

$$V^{2+} \rightleftarrows V^{3+} + e^-$$

$$V^{2+} + VO_2^+ + 2H^+ \rightleftarrows VO^{2+} + V^{3+} + H_2O$$

Contact Us

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www.afb.energy

Vanadium Redox Flow Battery

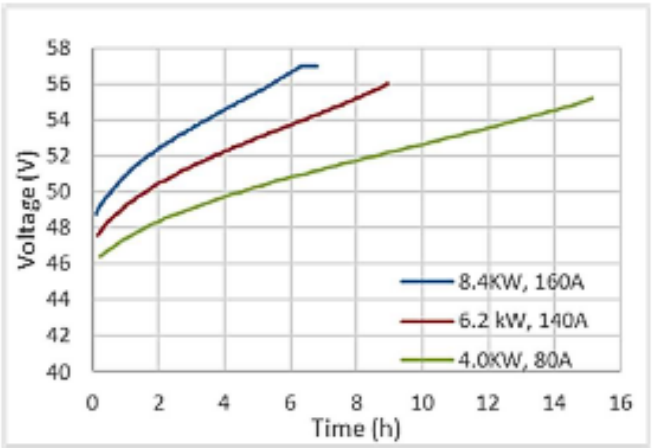
Technical Specifications - RFB40X SERIES: 40kWh - 160kWh

Component	Details				
Model	P1	P2	P3	P4	S4
No of RFB40 Units - N	1	2	3	4	4
Voltage Nominal	48V	48V	48V	48V	192 V
Voltage BOD to TOC	38V – 57V	38V – 57V	38V – 57V	38V – 57V	152V – 228V
Output Energy Capacity	40 kWh	80 kWh	120 kWh	160 kWh	160 kWh
Output Power – Continuous	6 kW	12 kW	18 kW	24 kW	24 kW
Output Power – Maximum	10 kW	20 kW	30 kW	40 kW	40 kW
Charge Power	8.5 kW	17 kW	25.5 kW	34 kW	34 kW
Charging Mode CC/CV	160A/57V	320A/57V	480A/57V	640A/57V	160A/228V
DOD	100%				
Cycle Life	Unlimited				
DC-DC Efficiency	70% - 75%				
Ambient Temperature	-5°C – 50°C				
Remote Monitoring	GPRS – RS232				
Remote Setting	SMS				
Programmable Relay	2				
Auto Restart	Auto-Start Feature for both AC/DC coupled system				
Integration with PV/Grid	Provision for both AC/DC coupled system				
Enclosure	Outdoor, IP54				
Footprint	3.2 m^2 x N				
Dimensions (W x D x H)	2.3 m x 1.4m x 1.9m				
Total Weight	3400 Kg x N				

RFB40 Charge and Discharge Characteristics

- P Series – Power and Current will be multiplied by N. Voltage as shown in figure
- S Series – Power and voltage will be multiplied by N. Current at shown in figure

Charge after 100% Discharge



Discharge after 100% Charge