

High Energy Type

15.1kWh Battery Module



- › Optimized liquid cooling battery solution for marine applications
- › Fully compliant with maritime safety standards and rules
- › Excellent power-to-energy balance
- › Optimal thermal management via liquid cooling feature
- › IP54 compliant enclosure
- › Unparalleled safety design to support hazard-free operations
- › Long cycle and calendar life (Over 8,000 cycles and up to 15 years*)
- › Scalable up to multiple MWh with virtually no limit
- › Highly intelligent BMS** for sophisticated system control and monitoring

*Depending on the load profile, the warranty condition may differ / **BMS: Battery Management System

System Configuration

Item	Specification	Remarks
Configuration	Up to 12 modules in series	Module + KOL BPU-2-IS-A + Fuse Box

Module Specification

Model: KOL-20S-HE-103-151-IM-E

Item	Specification	Remarks	
Electrical			
Module Configuration	2P20S	Cell:130255255G1 (103Ah)	
Installed Energy	15.1 kWh	-	
Usable Energy	13.9kWh	@ 0.5P discharge, BOL	
Nominal Voltage	73.6Vdc	-	
Operating Voltage Range	64 ~ 82.6Vdc	-	
Max. Charge Power	15.1kW	@ 1P, 1 Cycle	
Max. Charge Current	206A	@ 1C, 1 Cycle	
Rated Charge Power	7.5kW	@ 0.5P	
Rated Charge Current	103A	@ 0.5C	
Peak Discharge Power	45.4kW	@ 3P, ≤10 sec, ≥SOC 50%	
Peak Discharge Current	618A	@ 3C, ≤10 sec, ≥SOC 50%	
Max. Discharge Power	30.3kW	@ 2P, 1 Cycle	
Max. Discharge Current	412A	@ 2C, 1 Cycle	
Rated Discharge Power	7.5kW	@ 0.5P	
Rated Discharge Current	103A	@ 0.5C	
Round Trip DC Efficiency	>95%	@ 0.5P, BOL	
Mechanical			
Dimension	335 (W) x 716 (D) x 433 (H) mm	± 2mm, excl. Terminals & Connectors	
Weight	127kg	± 5%	
IP Grade	54	-	
Communication			
Communication Interface	Ethernet/RS-485/CAN2.0B	ModBus TCP/ModBus RTU	
Monitoring	RS-232C	-	
Environment			
Operating Temperature	Charging	0 ~ 10°C	@ <0.2P
		10 ~ 35°C	@ <1P
		35 ~ 45°C	@ <0.5P
Operating Temperature	Discharging	0 ~ 55°C	-
		22 ~ 28°C	Recommended
Storage Humidity	<60 ± 25% RH	Non-condensing	
Storage Temperature	1 Year	-20 ~ 25°C	SOC 50 ± 5%
	6 Months	25 ~ 35°C	
	3 Months	35 ~ 45°C	
	< 1 Week	45 ~ 60°C	
Expected Cycle & Calendar Life**			
Cycle Life @ DoD 90%	≥6,000 cycles	@ 25±3°C, 1C/1C, SOH 70%	
Cycle Life @ DoD 80%	≥8,000 cycles	@ 25±3°C, 1C/1C, SOH 70%	
Calendar Life	Up to 15 years	-	
Certifications			
Certification	UL1642, UL1973, CB, UN38.3	@ Cell Level,	
	UL9540A	@ Cell Level, Available by 4Q 2020	
	DNV-GL	@ Module Level, Available by 4Q 2020	

*P : Power-rate / C : Current-rate

**Depending on the load profile, the warranty condition may differ

BPU Specification

Model: KOL BPU-2-IS-A

Item	Specification	Remarks
General		
Embedded Safety Devices	String BMS, Switch Disconnecter, contactor, etc.	Fuse box is provided separately
Electrical		
Input Supply Power	DC 24V External Power	@ Max. Current 500A
On/ Off Management	Manual Switch	-
String BMS self-consumption	<3.6W	-
Operating Max. Voltage	1,000Vdc	-
Operating Max. Current	500A	-
Mechanical		
Dimension	335 (W) x 716 (D) x 433 (H) mm	± 2mm, Excl. Terminals & Connectors
Weight	50kg	± 5%
IP Grade	54	-
Communication		
Communication Interface	Ethernet/RS-485/CAN2.0B	ModBus TCP/ModBus RTU
Monitoring	RS-232C	-

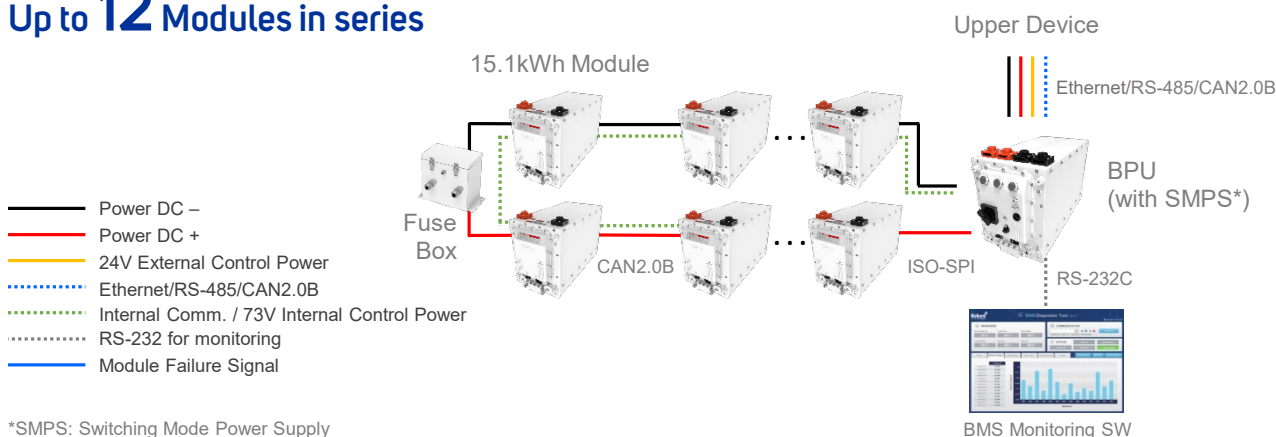
*The BPU does not support parallel connection

Fuse Box Specification

Model: KOL Fuse Box-2

Item	Specification	Remarks
Electrical		
Rated Voltage	1,500Vdc	-
Rated Current	500A	-
Rated Breaking Capacity	100kA	-
Mechanical		
Dimension	304 (W) x 154 (D) x 244 (H) mm	± 2mm
Weight	6kg	± 5%
IP Grade	54	-

Up to 12 Modules in series



*SMPS: Switching Mode Power Supply

*The products above are references. The actual products may look different.

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