

High Energy Type

181kWh Battery Rack



- › Optimized battery solution for marine application
- › Fully compliant with maritime safety standards and rule
- › Optimal thermal management via liquid cooling
- › Excellent power-to-energy balance
- › IP54 rated protection at module level
- › Long cycle and calendar life (Over 8,000 cycles and up to 15 years*)
- › Unparalleled safety design to support hazard-free operation
- › Scalable up to multiple MWh with virtually no limit

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

Battery Rack Specification

Model: KOLR-3C4R-240S-HE-181

Item	Specification	Remarks	
Electrical			
Rack Configuration	12 modules in series	Cell: 130255255G1 (103Ah)	
Installed Energy	181kWh	-	
Usable Energy	167kWh	@ 0.5P discharge, BOL	
Nominal Voltage	883Vdc	-	
Operating Voltage Range	768 ~ 991Vdc	-	
Max. Charge Power	181kW	@ 1P, 1 Cycle	
Max. Charge Current	206A	@ 1C, 1 Cycle	
Rated Charge Power	90kW	@ 0.5P	
Rated Charge Current	103A	@ 0.5C	
Peak Discharge Power	545kW	@ 3P, ≤10 sec, ≥SOC 50%	
Peak Discharge Current	618A	@ 3C, ≤10 sec, ≥SOC 50%	
Max. Discharge Power	363kW	@ 2P, 1 Cycle	
Max. Discharge Current	412A	@ 2C, 1 Cycle	
Rated Discharge Power	90kW	@ 0.5P	
Rated Discharge Current	103A	@ 0.5C	
Round Trip DC Efficiency	>95%	@ 0.5P, BOL	
Control Power	AC 100~260V 50/60Hz	-	
Mechanical			
Dimension	1,260 (W) x 743 (D) x 2,311 (H) mm	±2mm, excl. gas duct, BPU, fuse box	
Weight	1,850kg	±5%	
IP Grade	54	@ Module level	
Communication			
Communication Interface	Ethernet/RS-485/CAN2.0B	ModBus TCP/ ModBus RTU	
Monitoring	RS-232C	-	
Environment			
Operating Temperature	Charge	0 ~ 10°C	@ <0.2P
		10 ~ 35°C	@ <1P
		35 ~ 45°C	@ <0.5P
	Discharge	0 ~ 55°C	-
Operating Temperature		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			
Certifications	UL1642, CB, UL1973, 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

Offered Solution

System Config.*	Installed Energy	Nominal Voltage	Operating Voltage	Rated Charge Power	Rated Discharge Power	Max Charge Power	Max Discharge Power	Max Discharge Current	BCP** Required	No. of Banks***
2 Racks	363kWh	883Vdc	768 ~ 991Vdc	181kW	181kW	363kW	726kW	824A	Y	1
3 Racks	545kWh	883Vdc	768 ~ 991Vdc	272kW	272kW	545kW	1090kW	1236A	Y	1
4 Racks	727kWh	883Vdc	768 ~ 991Vdc	363kW	363kW	727kW	1454kW	1648A	Y	1
5 Racks	909kWh	883Vdc	768 ~ 991Vdc	454kW	454kW	909kW	1818kW	2060A	Y	1
6 Racks	1091kWh	883Vdc	768 ~ 991Vdc	545kW	545kW	1091kW	2182kW	2472A	Y	1
7 Racks	1273kWh	883Vdc	768 ~ 991Vdc	636kW	636kW	1273kW	2546kW	2884A	Y	1
8 Racks	1455kWh	883Vdc	768 ~ 991Vdc	727kW	727kW	1455kW	2910kW	3296A	Y	1
9 Racks	1637kWh	883Vdc	768 ~ 991Vdc	818kW	818kW	1637kW	3274kW	3708A	Y	1
10 Racks	1819kWh	883Vdc	768 ~ 991Vdc	909kW	909kW	1819kW	3638kW	4120A	Y	2
11 Racks	2001kWh	883Vdc	768 ~ 991Vdc	1000kW	1000kW	2001kW	4002kW	4532A	Y	2
12 Racks	2183kWh	883Vdc	768 ~ 991Vdc	1091kW	1091kW	2183kW	4366kW	4944A	Y	2
13 Racks	2365kWh	883Vdc	768 ~ 991Vdc	1182kW	1182kW	2365kW	4730kW	5356A	Y	2
14 Racks	2547kWh	883Vdc	768 ~ 991Vdc	1273kW	1273kW	2547kW	5094kW	5768A	Y	2
15 Racks	2729kWh	883Vdc	768 ~ 991Vdc	1364kW	1364kW	2729kW	5458kW	6180A	Y	2
16 Racks	2911kWh	883Vdc	768 ~ 991Vdc	1455kW	1455kW	2911kW	5822kW	6592A	Y	2
17 Racks	3092kWh	883Vdc	768 ~ 991Vdc	1546kW	1546kW	3092kW	6184kW	7004A	Y	2
18 Racks	3274kWh	883Vdc	768 ~ 991Vdc	1637kW	1637kW	3274kW	6548kW	7416A	Y	2
19 Racks	3456kWh	883Vdc	768 ~ 991Vdc	1728kW	1728kW	3456kW	6912kW	7828A	Y	2
20 Racks	3638kWh	883Vdc	768 ~ 991Vdc	1819kW	1819kW	3638kW	7276kW	8240A	Y	3
21 Racks	3820kWh	883Vdc	768 ~ 991Vdc	1910kW	1910kW	3820kW	7640kW	8652A	Y	3
22 Racks	4002kWh	883Vdc	768 ~ 991Vdc	2001kW	2001kW	4002kW	8004kW	9064A	Y	3
23 Racks	4184kWh	883Vdc	768 ~ 991Vdc	2092kW	2092kW	4184kW	8368kW	9476A	Y	3
24 Racks	4366kWh	883Vdc	768 ~ 991Vdc	2183kW	2183kW	4366kW	8732kW	9888A	Y	3
25 Racks	4548kWh	883Vdc	768 ~ 991Vdc	2274kW	2274kW	4548kW	9096kW	10300A	Y	3
26 Racks	4730kWh	883Vdc	768 ~ 991Vdc	2365kW	2365kW	4730kW	9460kW	10712A	Y	3
27 Racks	4912kWh	883Vdc	768 ~ 991Vdc	2456kW	2456kW	4912kW	9824kW	11124A	Y	3
28 Racks	5094kWh	883Vdc	768 ~ 991Vdc	2547kW	2547kW	5094kW	10188kW	11536A	Y	3
29 Racks	5276kWh	883Vdc	768 ~ 991Vdc	2638kW	2638kW	5276kW	10552kW	11948A	Y	3
30 Racks	5458kWh	883Vdc	768 ~ 991Vdc	2729kW	2729kW	5458kW	10916kW	12360A	Y	4

*Depending on customer requirements, more than 30 racks can be connected in parallel.

**BCP: Battery Connection Panel (Incl. switch disconnecter, system BMS)

***Depending on operational requirements, the number of Banks may vary. One BCP is required per Bank.

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