

High Power Type

150kWh Battery Rack



- › Optimized battery solution for marine application
- › Fully compliant with maritime safety standards and rule
- › Optimal thermal management via liquid cooling
- › High power performance (Up to 900kW)
- › 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-HP-150

Item	Specification	Remarks	
Electrical			
Rack Configuration	12 modules in series	Cell:125255255G1H (85Ah)	
Installed Energy	150kWh	-	
Usable Energy	138kWh	@ 1P discharge, BOL	
Nominal Voltage	883Vdc	-	
Operating Voltage Range	768 ~ 991Vdc	-	
Max. Charge Power	300kW	@ 2P, 1 Cycle	
Max. Charge Current	340A	@ 2C, 1 Cycle	
Rated Charge Power	150kW	@ 1P	
Rated Charge Current	170A	@ 1C	
Peak Discharge Power	900kW	@ 6P ≤10 sec, ≥SOC 50%	
Peak Discharge Current	1,020A	@ 6C ≤10 sec, ≥SOC 50%	
Max. Discharge Power	435kW	@ 2.9P	
Max. Discharge Current	493A	@ 2.9C	
Rated Discharge Power	150kW	@ 1P	
Rated Discharge Current	170A	@ 1C	
Round Trip DC Efficiency	>95%	@ 1P, 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	1,820kg	±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	@ <2P
		35 ~ 45°C	@ <1P
	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, UN38.3	@ Cell level	
	UL1973	@ Cell level, available by 3Q 2020	
	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	300kWh	883Vdc	768 ~ 991Vdc	300kW	300kW	600kW	870kW	986A	Y	1
3 Racks	450kWh	883Vdc	768 ~ 991Vdc	450kW	450kW	900kW	1305kW	1479A	Y	1
4 Racks	600kWh	883Vdc	768 ~ 991Vdc	600kW	600kW	1200kW	1740kW	1972A	Y	1
5 Racks	750kWh	883Vdc	768 ~ 991Vdc	750kW	750kW	1500kW	2175kW	2465A	Y	1
6 Racks	900kWh	883Vdc	768 ~ 991Vdc	900kW	900kW	1800kW	2610kW	2958A	Y	1
7 Racks	1051kWh	883Vdc	768 ~ 991Vdc	1051kW	1051kW	2102kW	3047kW	3451A	Y	1
8 Racks	1201kWh	883Vdc	768 ~ 991Vdc	1201kW	1201kW	2402kW	3482kW	3944A	Y	1
9 Racks	1351kWh	883Vdc	768 ~ 991Vdc	1351kW	1351kW	2702kW	3917kW	4437A	Y	2
10 Racks	1501kWh	883Vdc	768 ~ 991Vdc	1501kW	1501kW	3002kW	4352kW	4930A	Y	2
11 Racks	1651kWh	883Vdc	768 ~ 991Vdc	1651kW	1651kW	3302kW	4787kW	5423A	Y	2
12 Racks	1801kWh	883Vdc	768 ~ 991Vdc	1801kW	1801kW	3602kW	5222kW	5916A	Y	2
13 Racks	1951kWh	883Vdc	768 ~ 991Vdc	1951kW	1951kW	3902kW	5657kW	6409A	Y	2
14 Racks	2102kWh	883Vdc	768 ~ 991Vdc	2102kW	2102kW	4204kW	6095kW	6902A	Y	2
15 Racks	2252kWh	883Vdc	768 ~ 991Vdc	2252kW	2252kW	4504kW	6530kW	7395A	Y	2
16 Racks	2402kWh	883Vdc	768 ~ 991Vdc	2402kW	2402kW	4804kW	6965kW	7888A	Y	2
17 Racks	2552kWh	883Vdc	768 ~ 991Vdc	2552kW	2552kW	5104kW	7400kW	8381A	Y	3
18 Racks	2702kWh	883Vdc	768 ~ 991Vdc	2702kW	2702kW	5404kW	7835kW	8874A	Y	3
19 Racks	2852kWh	883Vdc	768 ~ 991Vdc	2852kW	2852kW	5704kW	8270kW	9367A	Y	3
20 Racks	3002kWh	883Vdc	768 ~ 991Vdc	3002kW	3002kW	6004kW	8705kW	9860A	Y	3
21 Racks	3153kWh	883Vdc	768 ~ 991Vdc	3153kW	3153kW	6306kW	9143kW	10353A	Y	3
22 Racks	3303kWh	883Vdc	768 ~ 991Vdc	3303kW	3303kW	6606kW	9578kW	10846A	Y	3
23 Racks	3453kWh	883Vdc	768 ~ 991Vdc	3453kW	3453kW	6906kW	10013kW	11339A	Y	3
24 Racks	3603kWh	883Vdc	768 ~ 991Vdc	3603kW	3603kW	7206kW	10448kW	11832A	Y	3
25 Racks	3753kWh	883Vdc	768 ~ 991Vdc	3753kW	3753kW	7506kW	10883kW	12325A	Y	4
26 Racks	3903kWh	883Vdc	768 ~ 991Vdc	3903kW	3903kW	7806kW	11318kW	12818A	Y	4
27 Racks	4053kWh	883Vdc	768 ~ 991Vdc	4053kW	4053kW	8106kW	11753kW	13311A	Y	4
28 Racks	4204kWh	883Vdc	768 ~ 991Vdc	4204kW	4204kW	8408kW	12191kW	13804A	Y	4
29 Racks	4354kWh	883Vdc	768 ~ 991Vdc	4354kW	4354kW	8708kW	12626kW	14297A	Y	4
30 Racks	4504kWh	883Vdc	768 ~ 991Vdc	4504kW	4504kW	9008kW	13061kW	14790A	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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