

High Power NANO Type

4.7kWh Battery Module



- › Highly versatile air cooling module suitable for a wide range of applications
- › Industry-leading high power performance (Up to 8 C-rate)
- › Exceedingly high performing hybrid type NANO cells applied
- › High reliability and unparalleled safety
- › Long cycle and calendar life (Over 10,000 cycles and up to 15 years*)
- › Efficient thermal management via air vent holes
- › Easy to transport, install, and maintain
- › Modular design combined with high scalability
- › 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
Type A	Up to 6 modules in parallel	Module + KEPM-150-B48-ES-A1
Type B	Up to 24 modules in series & parallel	Module + KEPM-150-E12/24-ES-A1
Type C	Up to 12 modules in series	Module + BPU + Fuse Box

Module Specification

Model: KBM-216P-14S-NN-46-47-EM-A

Item	Specification	Remarks	
Electrical			
Module Configuration	2P14S	Cell: 120216216HR2 (46Ah)	
Installed Energy	4.7kWh	-	
Usable Energy	4.3kWh	@ 1P discharge, BOL	
Nominal Voltage	51.8Vdc	-	
Operating Voltage Range	46.2 ~ 57.8Vdc	-	
Max. Charge Power	9.5kW	@ 2P, 1 Cycle	
Max. Charge Current	184A	@ 2C, 1 Cycle	
Rated Charge Power	4.7kW	@ 1P	
Rated Charge Current	92A	@ 1C	
Peak Discharge Power	38.1kW	@ 8P, ≤10 sec, ≥SOC 50 %	
Peak Discharge Current	736A	@ 8C, ≤10 sec, ≥SOC 50%	
Max. Discharge Power	19.0kW	@ 4P, 1 Cycle	
Max. Discharge Current	368A	@ 4C, 1 Cycle	
Rated Discharge Power	4.7kW	@ 1P	
Rated Discharge Current	92A	@ 1C	
Round Trip DC Efficiency	>95%	@ 1P, BOL	
Control Power	Type A	DC 48V Internal Power	-
	Type B	DC 12/24V External Power	-
	Type C	DC 24V External Power	-
Mechanical			
Dimension	245 (W) x 396 (D) x 279 (H) mm	± 1.5mm	
Weight	Approx. 39.5kg	-	
Communication			
Communication Interface	Type A & B	CAN2.0B	-
	Type C	Ethernet/RS-485	ModBus TCP/ModBus RTU
Monitoring	Type A, B, C	RS-232C	-
Environment			
Operating Temperature	Charging	0 ~ 10°C	@ <0.2P
		10 ~ 35°C	@ <2P
		35 ~ 45°C	@ <1P
	Discharging	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%	≥10,000 cycles	@ 25±3°C, 1C/1C, SOH 70%	
Cycle Life @ DoD 80%	≥12,000 cycles	@ 25±3°C, 1C/1C, SOH 70%	
Calendar Life	Up to 15 years	-	
Certification			
Certification	UL1642, UN38.3	@ Cell Level	

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

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

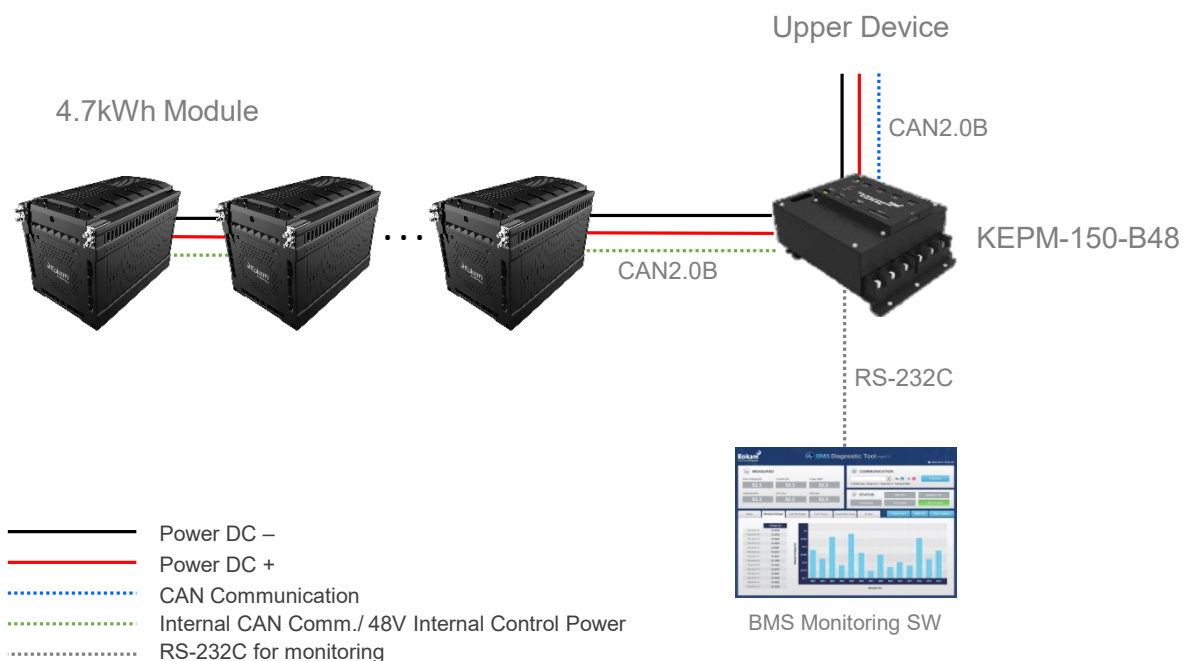
KEPM-150-B48-ES-A1 Specification

Model: KEPM-150-B48-ES-A1

Item	Specification	Remarks
General		
Embedded Safety Devices	String BMS, contactor, fuse, etc.	-
Electrical		
Input Supply Power	DC 48V Internal Power	-
On/ Off Management	Wake Up On/Off (Dry Contact)	-
String BMS self-consumption	<5W	-
Operating Max. Voltage	57.8Vdc	-
Operating Max. Current	250A	-
Mechanical		
Dimension	345 (W) x 235 (D) x 140 (H) mm	-
Weight	Approx. 5kg	-
Communication		
Communication Interface	CAN2.0B	-
Monitoring	RS-232C	-

*The KEPM-150-B48-ES-A1 does not support serial connection

Up to 6 Modules in parallel



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

KEPM-150-E12/E24-ES-A1 Specification

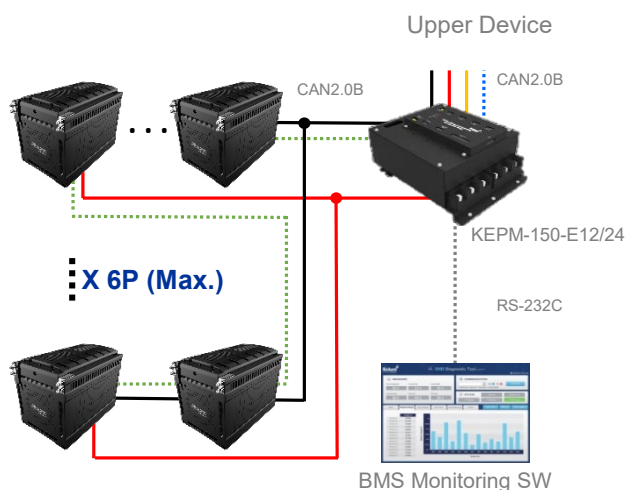
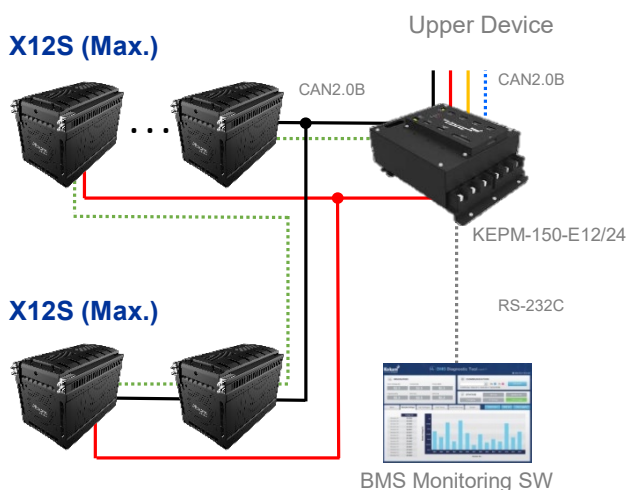
Model: KEPM-150-E12/E24-ES-A1

Item	Specification		Remarks
	KEPM-150-E12-ES-A1	KEPM-150-E24-ES-A1	
General			
Embedded Safety Devices	String BMS, contactor, fuse, etc.		-
Electrical			
Input Supply Power	DC 12V External Power @ Max. Current 10A	DC 24V External Power @ Max. Current 5A	-
On/ Off Management	Wake Up On/Off (Dry Contact)		-
String BMS self-consumption	<5W		-
Operating Max. Voltage	700Vdc		-
Operating Max. Current	250A		-
Mechanical			
Dimension	345 (W) x 235 (D) x 140 (H) mm		-
Weight	Approx. 5kg		-
Communication			
Communication Interface	CAN2.0B		-
Monitoring	RS-232C		-

*KEPM-150-E12/24-ES-A1 supports serial and parallel connection

Up to 12S2P (Maximum 24 modules)

Up to 4S6P (Maximum 24 modules)



- Power DC -
- Power DC +
- 12/24V External Control Power
- ... CAN Communication
- ... Internal CAN Comm./ Control Power
- ... RS-232C for monitoring

BPU Specification

Model: KBPU-1kV-160-E24-ES-A2

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 5A
On/ Off Management	Manual Switch	-
String BMS self-consumption	<2.5W	-
Switch Disconnect	T1D	-
Operating Max. Voltage	1,000Vdc	-
Operating Max. Current	160A	-
Mechanical		
Dimension	320 (W) x 450 (D) x 230 (H) mm	-
Weight	15kg	± 5%
IP Grade	20	-
Communication		
Communication Interface	Ethernet/RS-485	ModBus TCP/ModBus RTU
Monitoring	RS-232C	-

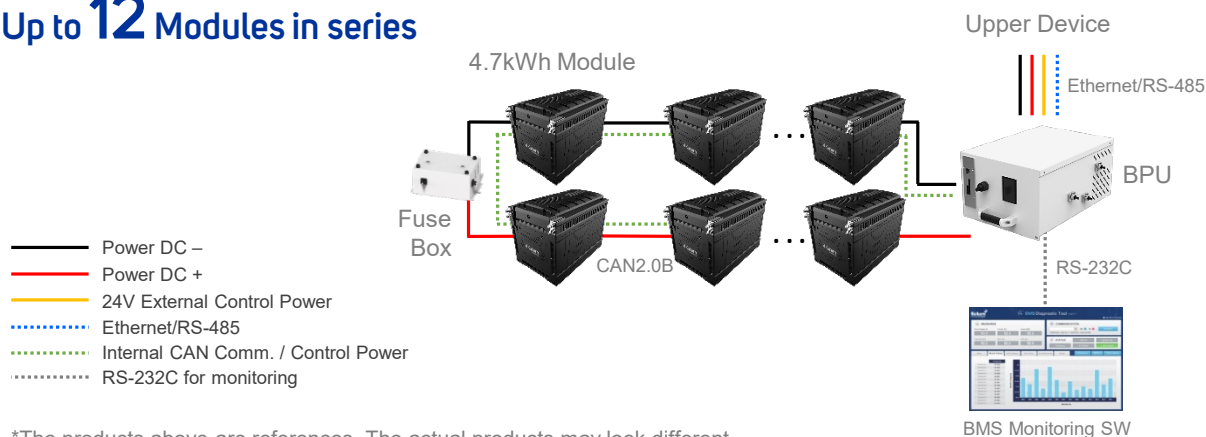
*The BPU does not support parallel connection

Fuse Box Specification

Model: MS-HI-A026

Item	Specification	Remarks
Electrical		
Rated Voltage	1,500Vdc	-
Rated Current	200A	-
Rated Breaking Capacity	30kA	-
Mechanical		
Dimension	300 (W) x 180 (D) x 136 (H) mm	± 2mm, case size
Weight	4kg	± 5%
IP Grade	20	-

Up to 12 Modules in series



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

DISCLAIMERS OF WARRANTIES:

All materials and services on this document are provided "as is" without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose, or the warranty of non-infringement. This document could include technical or other mistakes, inaccuracies or typographical errors. Kokam assumes no responsibility for errors or omissions in the information, documents, software, materials and/or services which are referenced by or linked to this document. Kokam does not grant any express or implied right to any person or business entity under any patents, copyrights, trademarks, or trade secret information with respect to the materials and services. No portion of the information or documents may be reproduced in any form or by any means without the prior written consent of kokam. In no event shall kokam be liable to any person or business entity for any special, punitive, incidental, indirect or consequential damages based on any use of this document.