

High Energy Type

# 3.0kWh Battery Module



- › Highly versatile air cooling module suitable for a wide range of applications
- › Excellent power-to-energy balance
- › High reliability and unparalleled safety
- › Long cycle and calendar life (Over 8,000 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-216-14S-HE-60-30-EM-A

Item	Specification	Remarks	
<b>Electrical</b>			
Module Configuration	1P14S	Cell: 120216216G1 (60Ah)	
Installed Energy	3.0kWh	-	
Usable Energy	2.8kWh	@ 0.5P discharge, BOL	
Nominal Voltage	51.5Vdc	-	
Operating Voltage Range	46.9 ~ 57.8Vdc	-	
Max. Charge Power	3.0kW	@ 1P, 1 Cycle	
Max. Charge Current	60A	@ 1C, 1 Cycle	
Rated Charge Power	1.5kW	@ 0.5P	
Rated Charge Current	30A	@ 0.5C	
Peak Discharge Power	6.1kW	@ 2P, ≤10 sec, ≥SOC 50 %	
Peak Discharge Current	120A	@ 2C, ≤10 sec, ≥SOC 50%	
Max. Discharge Power	3.0kW	@ 1P, 1 Cycle	
Max. Discharge Current	60A	@ 1C, 1 Cycle	
Rated Discharge Power	1.5kW	@ 0.5P	
Rated Discharge Current	30A	@ 0.5C	
Round Trip DC Efficiency	>95%	@ 0.5P, BOL	
Control Power	Type A	DC 48V Internal Power	-
	Type B	DC 12/24V External Power	-
	Type C	DC 24V External Power	-
<b>Mechanical</b>			
Dimension	245 (W) x 204 (D) x 285 (H) mm	± 1.5mm	
Weight	Approx. 22.6kg	-	
<b>Communication</b>			
Communication Interface	Type A & B	CAN2.0B	-
	Type C	Ethernet/RS-485	ModBus TCP/ModBus RTU
Monitoring	Type A, B, C	RS-232C	-
<b>Environment</b>			
Operating Temperature	Charging	0 ~ 10°C	@ <0.2P
		10 ~ 35°C	@ <1P
		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	
<b>Expected Cycle &amp; Calendar Life**</b>			
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	-	
<b>Certifications</b>			
Certifications	UL1642	@ Cell Level	

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

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

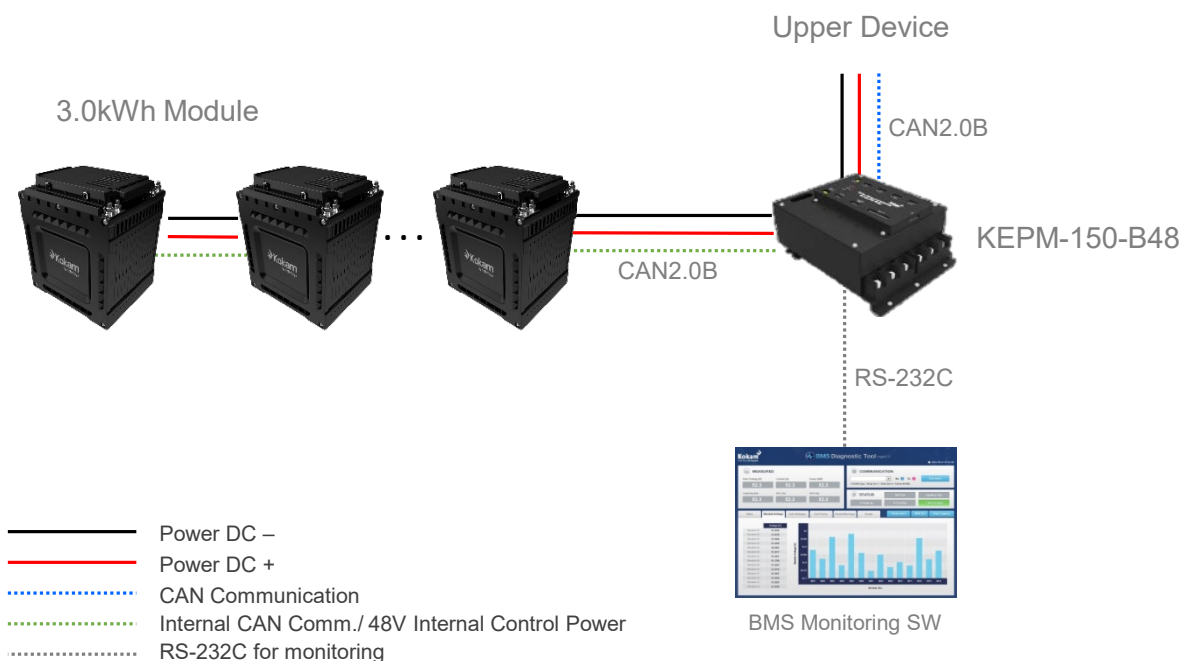
# KEPM-150-B48-ES-A1 Specification

**Model: KEPM-150-B48-ES-A1**

Item	Specification	Remarks
<b>General</b>		
Embedded Safety Devices	String BMS, contactor, fuse, etc.	-
<b>Electrical</b>		
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	-
<b>Mechanical</b>		
Dimension	345 (W) x 235 (D) x 140 (H) mm	-
Weight	Approx. 5kg	-
<b>Communication</b>		
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

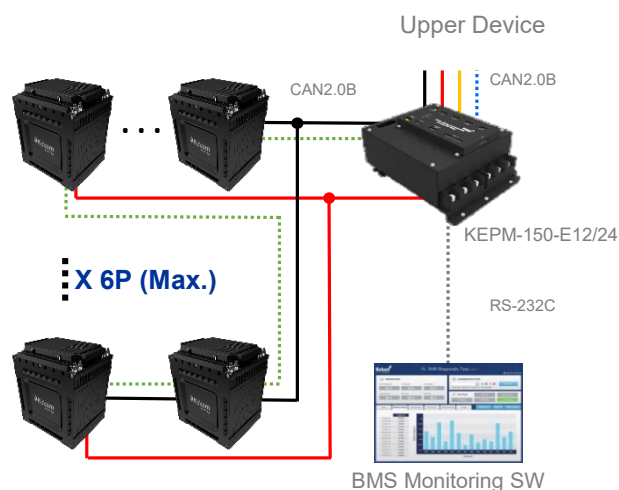
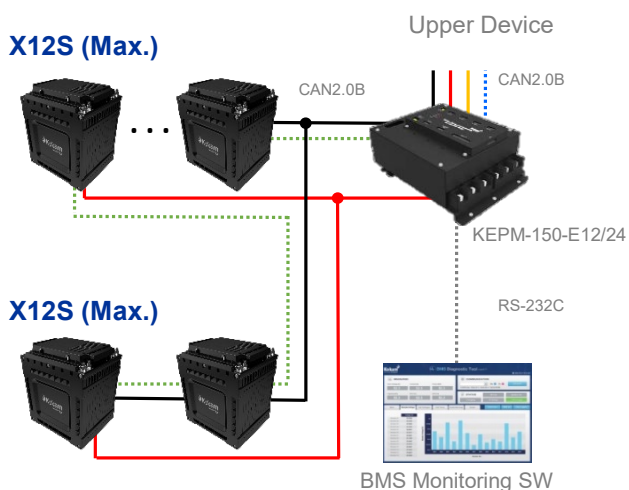
Model: KEPM-150-E12/E24-ES-A1

Item	Specification		Remarks
	KEPM-150-E12-ES-A1	KEPM-150-E24-ES-A1	
<b>General</b>			
Embedded Safety Devices	String BMS, contactor, fuse, etc.		-
<b>Electrical</b>			
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		-
<b>Mechanical</b>			
Dimension	345 (W) x 235 (D) x 140 (H) mm		-
Weight	Approx. 5kg		-
<b>Communication</b>			
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

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

# BPU Specification

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

Item	Specification	Remarks
<b>General</b>		
Embedded Safety Devices	String BMS, switch disconnecter contactor, etc.	Fuse box is provided separately
<b>Electrical</b>		
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	-
<b>Mechanical</b>		
Dimension	320 (W) x 450 (D) x 230 (H) mm	-
Weight	15kg	± 5%
IP Grade	20	-
<b>Communication</b>		
Communication Interface	Ethernet/RS-485	ModBus TCP/ModBus RTU
Monitoring	RS-232C	-

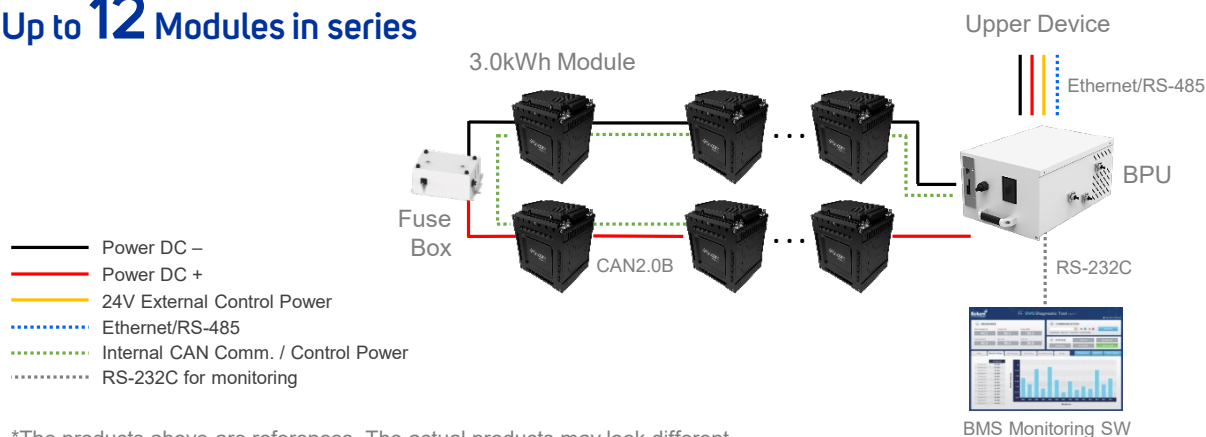
\*The BPU does not support parallel connection

# Fuse Box Specification

**Model: MS-HI-A026**

Item	Specification	Remarks
<b>Electrical</b>		
Rated Voltage	1,500Vdc	-
Rated Current	200A	-
Rated Breaking Capacity	30kA	-
<b>Mechanical</b>		
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



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