6000W Single-phase Energy Storage Inverter ES-HSI-6K series

Features

- Dual MPPT inputs, with a maximum input current of 21A per string
- HMI LCD display for easy operation and control
- Built-in BMS communication port (RS485)
- Built-in WiFi communication, supporting APP mobile monitoring
- Supports both on-grid and off-grid applications
- Generator connection supported
- Parallel operation of up to 9 units supported
- IP66 protection rating, adaptable to various complex environments
- Programmable power supply priority for PV, battery, or grid
- 5-year long-term warranty

Applications

- Commercial Energy Storage System
- Household Energy Storage System
- Off-grid Energy Storage System

Global Trade Item Identifier

- MW Search: http://www.meanwell.com.cn/serviceGTIN.aspx

Description

The ES-HSI-6K series energy storage inverter is a green energy solution that combines high efficiency, intelligence, and reliability. It features dual MPPT inputs with a maximum current of 21A per string, significantly enhancing photovoltaic power efficiency. Equipped with HMI LCD display, it offers intuitive operation and easy control. The device includes built-in WiFi communication and a BMS communication port (RS485), supporting real-time remote monitoring via a mobile app and enabling integration with battery management systems. The system supports parallel operation of up to 9 units and is capable of both on-grid and off-grid applications, adapting to various power consumption scenarios. With an IP66 protection rating, the unit is built to withstand harsh environmental conditions. Users can also configure programmable power supply priorities (PV, battery, or grid) to manage energy allocation, achieving efficient and economical energy management.

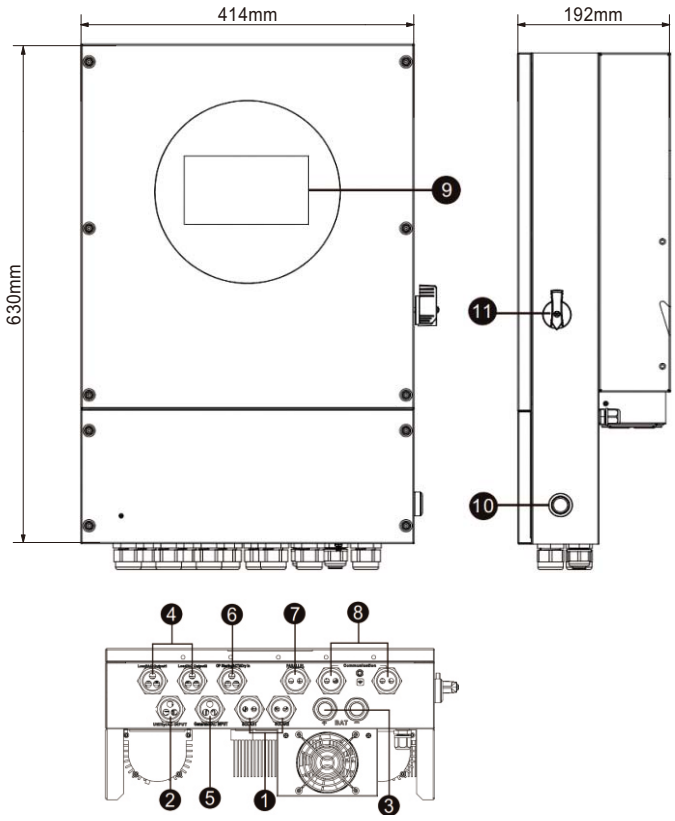
Model Encoding

ES - HSI - 6K

- 6K: Rated Power (6K:6KW)
- HSI: Series Name
- ES: Product Categories (ES: Energy Storage category)

Specification	ES-HSI-6K
PV INPUT (DC)	
Maximum DC Power	12000W
Maximum DC Voltage	500 Vdc
Start-up Voltage / Initial Feeding Voltage	80 VDC / 150 VDC
Number Of MPPT	2
MPPT Voltage Range	120 VDC ~ 450 VDC
Maximum Input Current	21A
AC OUTPUT	
Rated Power	6KW
Nominal Output Voltage	220/230/240Vac
Output Voltage Range	184-264Vac
Output Frequency Range	50Hz/60Hz
Nominal Output Current	26A
Power Factor	>0.99
Power Factor Range	0.9lead~0.9lag
AC INPUT	
Input Power	6KW
Input Voltage Range	90-280Vac
Nominal Frequency	50Hz/60Hz
Maximum AC Input Current	40A
BATTERY	
Battery Type	Lead-acid or Lithium-ion
Nominal DC Voltage	48Vdc
Voltage Range	40~60Vdc
Maximum Discharging Current	135A
Maximum Charging Current	135A
EFFICIENCY	
MPPT Efficiency	>99%
Max. Efficiency	>95%
Battery Inversion Efficiency	>93%
PROTECTION&CERTIFICATE	
Safety/EMC	IEC 62109, IEC 62116, IEC 61727, IEC 61683, EN62920
Grid Connection Standard	EN 50549-1
OTHERS	
Ingress Protection Rating	IP66
Dimension	192*414*630mm
Net Weight(kgs)	29kg
Working Temp.	-10℃~50℃
Humidity	0-95%RH(No condersing)
Communication Port	USB,RS-232,RS-485,WiFi
NOTE	
※ Product Liability Disclaimer : For detailed information ,please refer to https://www.meanwell.com/serviceDisclaimer.aspx	

Product Overview



1) PV connectors
2) AC Grid connectors
3) Battery connectors
4) AC output connectors
5) AC Generator connectors
6) Sharing current ports & external sensor ports
7) Parallel communication ports
8) Dry contact/USB/RS-232/BMS communication ports
9) LCD display
10) Cold start button
11) PV switch

Installation Precautions

Battery Connection

For safety operation and regulation compliance, it's requested to install a separate DC over-current protector or disconnect device between the battery and the inverter. It may not be requested to have a disconnect device in some applications, however, it's still requested to have over-current protection installed. Please refer to the typical amperage in the table below as the required fuse or breaker size.

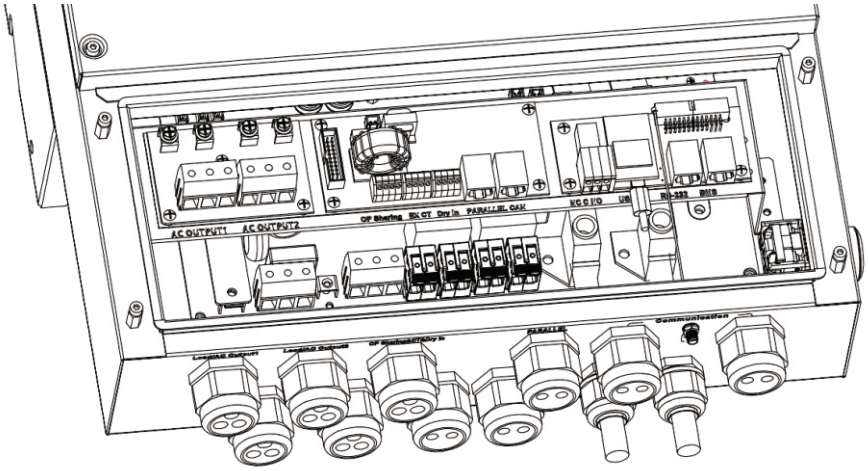
Recommended battery cable:

Typical Amperage	Battery Capacity	Cable Size	Torque
125A	200AH	2AWG	2N•m

Please follow the below steps to implement battery connection:

1.Remove insulation sleeve **18-19mm** for two conductors.

2.Insert battery wires according to polarities indicated on the terminal block and tighten the terminal screws. Make sure polarity at both the battery and the inverter/charger is correctly connected.



AC Input/Output Connection

Before connecting to AC input power source, please install a separate AC breaker between inverter and AC input power source. The recommended spec of AC breaker is 50A. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input.

Suggested cable requirement for AC wires:

Cable Size	Torque
10AWG	1.2N•m

PV Connection

Before connecting to PV modules, please install separately a DC circuit breaker between inverter and PV modules.Please switch off the inverter before you connect PV modules. Otherwise, it will damage the inverter.

It's very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below

Typical Amperage	Cable Size
21A	8AWG

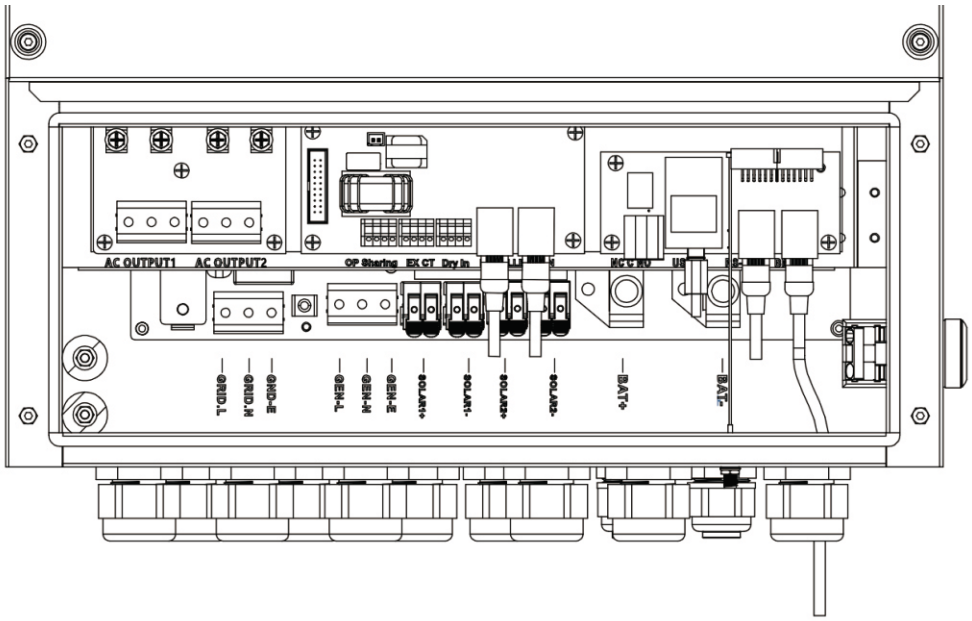
PV Model Selection

When selecting proper PV modules, please be sure to consider below parameters:
1. Open circuit Voltage (Voc) of PV modules not exceeds max. PV array open circuit voltage of inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than min. battery voltage.

Solar Charging Mode	
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	120~450Vdc
MPPT Number	2

BMS Communication

For BMS port, you should use a RJ45 cable as follows:



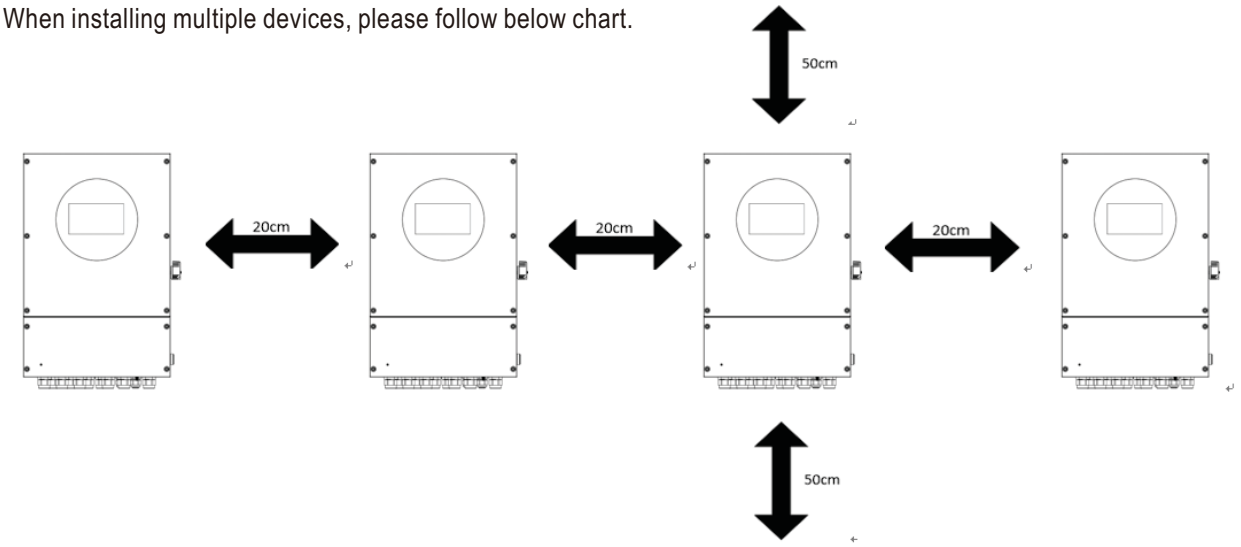
It is recommended to purchase a special communication cable if you are connecting to Lithium-ion battery banks. Please use a RJ45 cable to connect BMS communication port as shown in below:

PIN Assignment	
PIN3	RS485-B
PIN4	RS485-A
PIN5	GND

Parallel function

This inverter can be used in parallel with two different operation modes.
1.Parallel operation in single phase with up to 9 units. The supported maximum output power is 54KW.
2.Maximum 9 units work together to support three-phase equipment. Seven units support one phase maximum.The supported maximum output power is 54KW and one phase can be up to 42KW.

When installing multiple devices, please follow below chart.



NOTE: For proper air circulation to dissipate heat, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit.

Wiring Connection

The cable size of each inverter is shown as below:

Battery cable size for each inverter:

Cable Size	Torque
2AWG	2~3N·m

NOTE: Be sure the length of all battery cables is the same. Otherwise, there will be voltage difference between inverter and battery to cause parallel inverters not working.

AC input and output cable size for each inverter:

Cable Size	Torque
10AWG	1.2~1.6N·m

You need to connect the cables of each inverter together. Take the battery cables for example: You need to use a connector or bus-bar as a joint to connect the battery cables together, and then connect to the battery terminal. The cable size used from joint to battery should be X times cable size in the tables above. “X” indicates the number of inverters connected in parallel. Regarding AC input and output, please also follow the same principle.

Please install the breaker at the battery and AC input side. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of battery or AC input.Make sure all output N wires of each inverter must be connected all the time. Otherwise, it will cause inverter fault in error code.

Recommended breaker specification of battery for each inverter:

single inverter
140A/60Vdc

If you want to use only one breaker at the battery side for the whole system, the rating of the breaker should be X times current of 1 unit. “X” indicates the number of inverters connected in parallel.

Recommended breaker specification :

Inverter parallel numbers	2	3	4	5	6	7	8	9
Breaker specification	80A/230Vac	120A/230Vac	160A/230Vac	200A/230Vac	240A/230Vac	280A/230Vac	320A/230Vac	360A/230Vac

Recommended battery capacity:

Inverter parallel numbers	2	3	4	5	6	7	8	9
Battery Capacity	400AH	600AH	800AH	1000AH	1200AH	1400AH	1600AH	1800AH

NOTE: Be sure that all inverters will share the same battery bank. Otherwise, the inverters will transfer to fault mode.

APP Download and Instructions

Energy-Mate can connect all your devices via WI-FI to track your energy use and production in real time, dynamically display the status data of the device in real time.

1. Software installed

Scan the QR code and install the opened app on your smartphone.

This software could be operated on mobile phones with Android 6.0 and IOS12.0 or above, refer to the user manual for details

Accessories List

※ Standard Accessories

	Items	Number
1	CD Software	1
2	Manual	1
3	RS-232 cable	1
4	Current sharing cable	1
5	Fixing screws	4
6	Mounting plate	1
7	Parallel communication cable	1

※ Optional Parts List

Model	Items	Description
LB-4810		48V Lithium Battery Pack