



KOYOE

Lithium-Ion Phosphate Energy Storage System Product Manual

Information Version: 1.0

This manual introduces from Koyoe Energy. Please read this manual before you install the Energy Storage System and follow the instruction carefully during the installation process. Any confusion, please contact Koyoe immediately for advice and clarification.

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1. Applicable

Symbol Description

	Caution Failing to observe a warning indicated in this manual may result in injury.
	Danger of high voltage and electric shock!
	Danger of hot surface!
	Components of the product can be recycled.
	This side up! The package must always be transported, handled and stored in such a way that the arrows always point upwards.
	No more than six (6) identical packages being stacked on each other.
	Product should not be disposed as household waste.
	The package/product should be handled carefully and never be tipped over or slung.
	Refer to the operating instructions.
	Keep dry! The package/product must be protected from excessive humidity and must be stored under cover.
	Inverter will be touchable or operable after minimum 10 minutes of being turned off or totally disconnected, in case of any electrical shock or injury.



Before Connecting

- 1) After unpacking, please check product and packing list first, if product is damaged or lack of parts, please contact with the local retailer;
- 2) Before installation, make sure the battery is in the turned-off mode;
- 3) Battery system must be well grounded and the resistance must be less than 100mΩ;
- 4) Please ensured the electrical parameters of battery system are compatible to related equipment;
- 5) Keep the battery of the system away from water and fire.

In Using

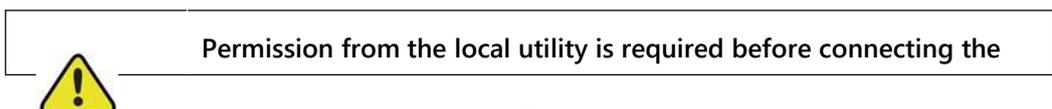
- 1) If the battery system needs to be moved or repaired, the power must be cut off and the battery is completely shutdown;
- 2) Non-isolated inverters : the PV modules should have an IEC61730 Class A rating.
- 3) It is prohibited to disassemble the all-in-one ESS ;
- 4) In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;
- 5) The N on the off grid side is not connected to the N on the grid side in the inverter. Please according to the requirements of local power grid.
- 6) Please do not open, repair or disassemble the all-in-one ESS except staffs from Koyoe or authorized by Koyoe. We do not undertake any consequences or related responsibility which because of violation of safety operation or violating of design, production and equipment safety standards.



Li-ion



Important Safety Information



inverter to the grid and employing qualified personnel.

Before installation :

Check the installation position to avoid direct exposure of the product to sunlight.

Check the inverter and package for damage. If in doubt, please contact the supplier before installing the inverter.

Before connecting PV panels to the inverter, please check the voltage of the inverter and ensure it is within the specifications of TRM inverter.

Observe all documentation that accompanies the inverter

The inverter is more 18kg, No handles and grips. Please be carefully to carrying and lifting

Installation :

All electrical installation must be carried out in accordance with national standard wiring rules and local specifications. Only the personnel who has been trained, authorized and familiar with local electrical regulations can install inverter. To ensure safety, follow the steps described in this manual. Please note that the inverter has two live terminals, PV input and grid.

The earth line must be connected before connecting the DC input and AC output. The product identification must be clearly visible after installation.



Disconnect the inverter :

Always disconnect the AC circuit first, then the PV circuit, and finally the ground wire. Please note that even if the inverter has been disconnected form the grid/main power supply and solar module, its voltage may still be very high and still dangerous at this time. After disconnecting from the grid and PV panels, please wait at least 20 minutes.



Operation/Maintenance :

Maintenance and installation of equipment should be carried out by qualified personnel with adequate skills and training who use safe working practices.

Before connecting the inverter to the grid, make sure that the mounting cover is refitted. Do not open it while the inverter is working. Risk of electric shock.

When the PV array is exposed to sun, it will supply DC voltage to this device.

There are no repairable parts inside the inverter, if there is any problem you must contact a professional for maintenance.

Performance safety parameters :

Unauthorized modification of performance safety parameters may cause injury or accident to personal or the inverter. In addition, this will result in the invalidation of all inverter operation certification

If non original spare parts are used, there will be no guarantee of CE compliance in terms of electrical safety, EMC and equipment safety.

General Safety Regulations



Personnel working on electrical equipment shall be responsible for personnel and property safety!

Cut off

Before starting any work, disconnect all cables that supply power to the workplace. Note that no voltage does not mean that the cable is disconnected.

Prevent reconnection

Prevent the system from being reconnected by labeling or closing / blocking the work area. If it is accidentally reconnected, it may cause serious accidents.

Check that there is no voltage in the system

With the voltage tester, make sure there is no voltage in the system. Check all terminals to ensure that there is no voltage on each conductor of the system.

Cover neighboring live components and prevent others from approaching

Cover all live system components that may cause injury during operation. Make sure the danger area is clearly marked.

2.Introduction

KOYOE KYS5K-10kWh/20kWh is an all-in-one solar and storage solution which integrates the inverter, battery charger, UPS and battery enclosure into a pre-wired modular system for easier and faster installation. This masterpiece perfectly integrates with a 5KW hybrid inverter with a 10KWh/20kWh Lithium batteries inside.

2.1 features

- The whole system is non-toxic, non-polluting and environmentally friendly;
- Cathode material is made from LiFePO₄ with safety performance and long cycle life;
- Battery management system (BMS) has protection functions including over-discharge, over-charge, over-current and high/low temperature;
- The system can automatically manage charge and discharge state and balance current and voltage of each cell;
- The KYS5K-10kWh/20kWh is pre-wired and factory tested to enable quick installation.
- The system can automatically switch to back-up mode in less than 0.01s (UPS level).
- Working temperature range is from 0°C to 50°C, with excellent discharge performance and cycle life;
- Design for home appliances,easy to install and handle;

2.2 The parameter

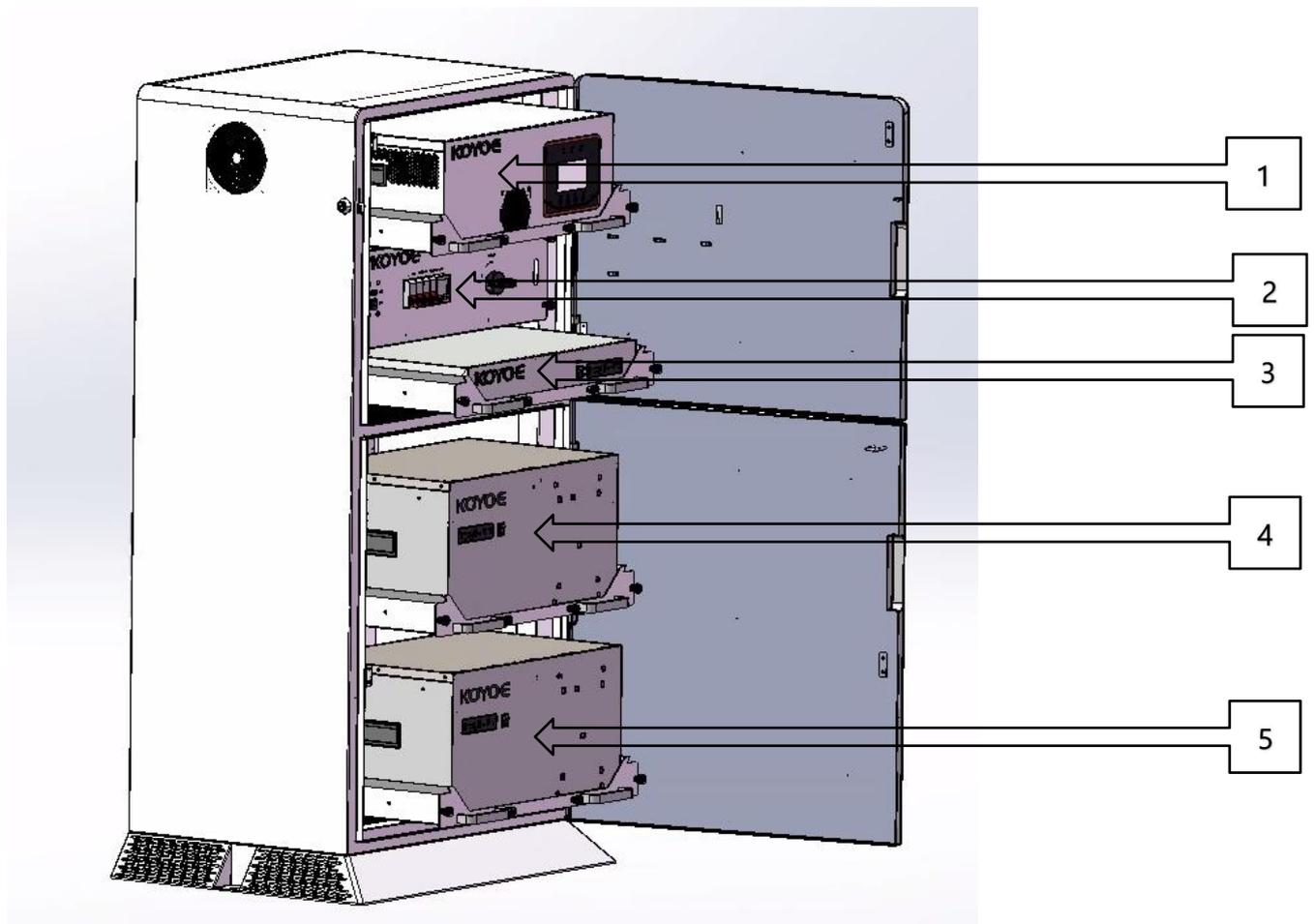
	Model	KYS5kw-10kwh-I	KYS5kw-10kwh-O	KYS5kw-20kwh-I	KYS5kw-20kwh-O
Efficiency	MPPT Efficiency	99.90%			
	MAX Efficiency	97.80%			
	Battery Efficiency	98.10%			
Battery Pack	Model	KY-48V105AH			
	Series	2		4	
	Cell Technology	Li-ion(LFP)			
	Battery Capacity	105Ah			
	Storage Capacity	10KWh		20KWh	
	Usable Capacity	9.2KWh		17.9KWh	
	Voltage Range	75-106.5Vdc		150-213Vdc	
	Cycle Life	3500, 90%DOD@25°C			
Battery Port	Input Voltage Range	85-450V			
	Standard Voltage	96V		192V	
	Max Current	25A			
	Communication	RS485/CAN			
	Reverse Connect Protection	Y			
PV Port	Max Input Voltage	550Vdc			
	MPPT Voltage Range	120-500Vdc			
	Max Input Power	7000W			
	Standard Voltage	380V			
	Number of MPPT	2			
	Max Input Power for each MPPT	3300W			
	Max Input Current and Short Current for each MPPT	12A/15A			
	DC Switch	Optional			
	DC Connect Type	Quick fit			
Output AC	Grid type	Single			
	Max AC Power	5000VA			
	Standard AC Power	5000W			
	Standard Grid Voltage	230V			
	Grid Voltage Range	180-280V			
	Standard Grid Frequency	50Hz/60Hz			
	Standard Grid Current	21.7A			
	Power Factor	0.8leading-0.8lagging			
	THD	< 3%			
	AC Connection type	Quick fit			
UPS Port	Standard Power	5000VA			

	Standard AC Voltage	230V			
	Standard Output AC Current	21.7A			
	Peak Power and duration	6000W/10S			
	AC frequency range	45Hz-55Hz/55Hz-65Hz			
	Switch time	< 10ms			
	Connection type	Quick fit			
General	Protection Class	IP21	IP54	IP21	IP54
	Cooling	Wind			
	Communication	WIFI/GPRS/Ethernet/Meter/DRM(optional)			
	Display	LCD/APP/Web			
	Ambient temperature	-20~60°C			
	Relative humidity	4-95%(non-condensing)			
	Altitude	3000m			
	Acoustic noise emission level	< 35db@1m			
	Over voltage category	III (AC) II (DC)			
	Start voltage	85V			
	Warranty	5/10 years			
Standard	Safety	IEC62109-1/-2			
	EMC	EN61000-6-1,EN61000-6-2,EN61000-6-3,IEC61000-2-2:2018			
	GRID	AS4777.2,NRS097-2-1:2017,GBT34120-2017			

3 Installation guide

The KYS5K-10kWh/20kWh is pre-wired and factory tested to enable quick installation. It only takes 5 minutes to connect the system to your customer's home internet. The modular system is expandable with battery storage to suit the customer's needs.

3.1 Structure and composition

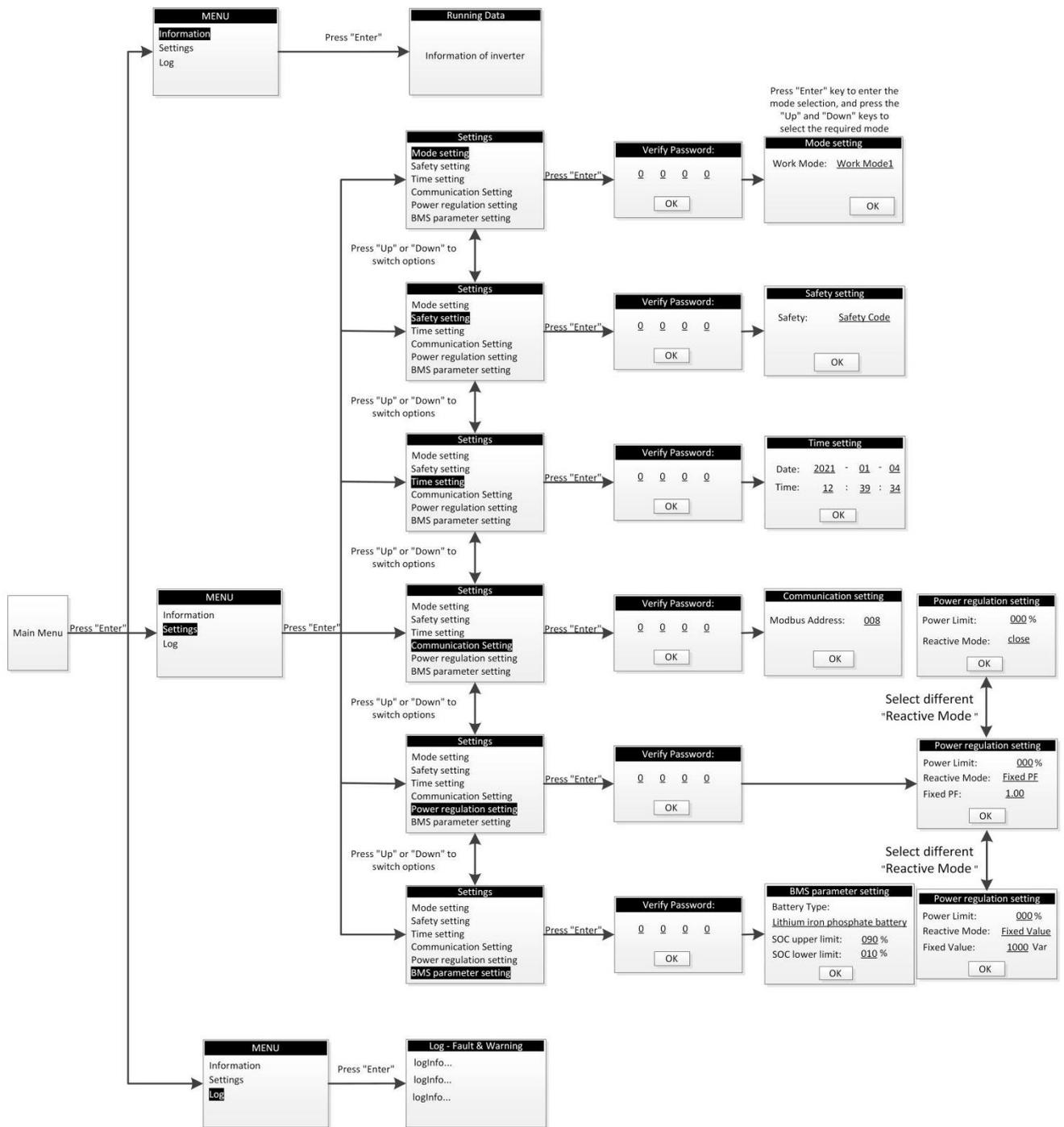


1	KOYOE Inverter:KY-1Hybrid-5k0-H-A
2	switch panel
3	KOYOE BCU:KY-BCU050K
4	KOYOE battery pack:KY-48V105AH
5	KOYOE battery pack:KY-48V105AH

3.2 Installation steps

Pull open the tray,put the parts in the order of 5,4,3,2,1.Pay attention to the bottom fixing hole,push in the tray after confirming that it is placed correctly;After putting all the components in, tighten the tray screws,then turn on the switch to test whether the product can operate normally,after confirming that everything is normal, install the product input and output cables.

4 LCD screen operation



5 Warranty

5.1 Product Warranty

The Product is integrated with Battery Control Modules (BCU) and Battery Modules, which designed for only series connection according to the Product Manual. This warranty of the battery modules' performance commences the period of five (5) years from the date of Product was manufactured.

This warranty does not include any accessories and tool kit items provided along with the Product.

This warranty only covers the repair or replace of a defective Product. Pylontech will repair or replace the Product if the Product is defective and returned during the Warranty Period. The repaired or replaced product will continue the original remaining warranty period. In either case it shall not justify as a renewal of the warranty period.

5.2 Warranty Conditions

The warranties in respect of the Product only apply if the Product:

1. is purchased from Koyoe or an Authorised Reseller in the Territory.
2. has the official Koyoe serial number;
3. is installed in the Territory;
4. is installed, operated and maintained in accordance with the Product Manual; and
5. be used on a daily cycle basis, under 90% depth of discharge, Photovoltaic (PV) energy storage.

5.3 Exclusions of Warranty

To the extent permitted by law, Koyoe excludes all liability for the Product to the extent that any damage or defect has been caused or contributed to by the following:

1. Inverter/PCS (power converting system)/EMS failure;
2. The Product being installed with inverters/PCS/EMS which have not been certified by Koyoe;
3. Battery has not been installed or operated properly according to the Product Manual;
4. You treat the Product improperly, negligently or in any other inappropriate way, including using the Product outside the recommended environment, temperature and humidity condition in accordance with the Product Manual;
5. transportation, including but not limited by dropping, trampling, deforming, impacting, or spearing with a sharp item;
6. storage, installation, commissioning, modification or repair of the Product that has been performed by a person other than Koyoe or a Koyoe's certified installer;
7. abuse, misuse, negligence, accidents or force majeure events, including but not limited to lightning, flood, fire, extreme cold weather, or other events outside the reasonable control of Koyoe;
8. any attempt to extend or reduce the life of the product without written confirmation from Koyoe, whether by physical means, programming or others;
9. water, conductive dust or corrosive gas;
10. the Product has been connected with different type battery modules;

11. failure to install, operate or maintain the product in accordance with the Product Manual;
12. normal wear and tear or deterioration, or superficial defects, dents or marks that impact the performance of the Product; and
13. theft or vandalism of the Product or any of its components.



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