



# User Manual

LiFePO4 Battery System



LUX-Y-48100HCG01 / LUX-Y-48100HMG01  
LUX-Y-48100HG01M4 / LUX-Y-48100HG01M5  
LUX-Y-48100HG01M6 / LUX-Y-48100HG01M7  
LUX-Y-48100HG01M8 / LUX-Y-48100HG01M9  
LUX-Y-48100HG01M10 / LUX-Y-48100HG01M11 / LUX-Y-48100HG01M12

# Contents

<b>1. INTRODUCTION</b> .....	1
<b>2. SYMBOLS</b> .....	1
<b>3. SAFETY</b> .....	2
3.1 Safety Rules.....	2
3.2 Safety Information.....	2
3.3 Installation.....	2
<b>4. RESPONSE TO EMERGENCY SITUATIONS</b> .....	3
4.1 Fire Situation.....	3
<b>5. TRANSPORTATION</b> .....	4
5.1 Regulations for the transport of battery modules.....	4
5.2 Permissible and Impermissible Storage Positions of a Packaged.....	5
<b>6. STORAGE</b> .....	5
<b>7. PRODUCT INFORMATION</b> .....	6
7.1 Battery Module Specifications.....	6
7.2 Labels.....	8
7.3 Definition of SN code.....	8
<b>8. ELECTRICAL CONNECTIONS</b> .....	9
8.1 Battery System Features.....	9
8.2 Battery system introduction.....	9
8.3 Electrical Interface Description of Control cabinet.....	10
8.4 Battery box introduction.....	10
8.5 Base introduction.....	11
<b>9. INSTALLATION</b> .....	11
9.1 Tools.....	11
9.2 Items in the package.....	12
9.3 Product size information.....	15
9.4 Floor installation with base.....	17
9.5 Install Environment.....	18
9.6 Installation Procedure.....	18
9.7 Wiring Procedure.....	20
9.8 Terminal Connection.....	21
9.9 System Wiring Schematic.....	21
9.10 Parallel DIP Switch.....	22
9.11 Switch On/Off.....	23

<b>10. LCD DISPLAY ICONS</b> .....	24
10.1 Main Interface.....	24
10.2 Cluster Setting Instructions.....	26
10.3 Fault Code Table.....	27
<b>11. CONFIGURE NETWORK</b> .....	28
11.1 Download APP.....	28
11.2 Connect to Built-in WIFI wireless network.....	28
11.3 Configure the network.....	29
11.4. Create the plant.....	29
<b>12. WARRANTY</b> .....	32
<b>13. TROUBLESHOOTING AND MAINTENANCE</b> .....	32
13.1 Maintenance.....	32
13.2 Troubleshooting.....	32

















# 1. INTRODUCTION

The document describes the installation, commissioning, maintenance and troubleshooting of the following high voltage battery listed below.

The battery chemistry of these products is Lithium Iron Phosphate. This manual is designed for qualified personnel only. The tasks described in this document should be performed by authorized and qualified technicians only.

After Installation the Installer must explain the user manual to the end user.

# 2. SYMBOLS

	Danger! Serious physical injury or even death may occur if not follow the relative requirements.		Install the product out of reach of children
	Caution, risk of electric shock.		Do not place nor install near flammable or explosive materials
	In case of electrolyte leakage, keep leaked electrolyte away from eyes or skin.		Disconnect the equipment before carrying out maintenance or repair
	Do not connect the Pack's positive(+) and negative(-)terminal reversely.		Instruction manual: Read the instruction manual before starting installation and operation.
	Observe precautions for handling electrostatic discharge sensitive devices.		CE mark: The battery system complies with CE certification
	Caution, risk of electric shock, energy storage timed discharge	<b>NOTE</b>	Note: The procedures taken for ensuring proper operation.
	Recyclable.		Earth terminal: The battery system needs to be reliably grounded to the inverter
	Do not use the Pack beyond specified conditions		EU WEEE mark: Product should not be disposed as household waste.
	Take care! This Pack is heavy enough to cause serious injury.		

## SPECIFICATIONS FOR LUX-Y-48100HG01MN<sup>[1]</sup>

The battery system is mainly used insolar power system for family houselt also has a switch to control the battery easilyand timely protect our Household application

\*[1]N=4,5, 6, 7, 8,9, 10, 11 or 12, N is the quantity of battery pack.

# 3. SAFETY

## 3.1 Safety rules

To avoid property damage and personal injury, the following rules shall be flowled when working on the hazardous live parts of the battery energy storage system:

- 1.It is available for use.
2. Ensure that it will not restart.
- 3.Make sure there is no voltage.
4. Grounding protection and short circuit protection.
- 5.Cover or shield adjacent live parts.
- 6.Disconnect the charging source prior to connecting or disconnecting battery terminals;
7. Do not wear any metal objects including watches and rings;
- 8.Do not lay tools or metal parts on top of batteries; and in addition, when the battery maintenance cannot be performed by an ordinary person, the following applies :
9. Use tools with insulated handles;
10. Wear rubber gloves and boots;
- 11.Determine if battery is either intentionally or inadvertently grounded. Contact with any part of a grounded battery can result in electric shock and burns by high short-circuit current. The risk of such hazards can be reduced if grounds are removed during installation and maintenance by a skilled person.

## 3.2 Safety information

Part damage or short circuit may cause electric shock and death. A short circuit can be caused by connecting battery terminals, resulting in current flow, This type of short circuit shall be avoided under any circumstances, For this reason, follow these instructions:

- Use insulated tools and gloves.
- Do not place any tools or metal parts on the battery module or high-voltage control box.
- When operating the battery, be sure to remove watches, rings, and other metal objects.
- Do not install or operate this system in explosive or high-humidity areas.
- When working on the energy storage system, first turn off the charging controller, then the battery, and ensure that they are not turned on again.

**Improper** use of the battery energy storage system can lead to death. The use of the battery energy storage system beyond its intended use is not allowed, because it may cause great danger.

**Improper** handling of the battery energy storage system can cause life-threatening risks, serious injury or even death.



**Warning!** improper use can cause damage to the battery cell.

- Do not expose the battery module to rain or soak it in liquid.
- Do not expose the battery module to a corrosive environment (such as ammonia and salt).
- The battery energy storage system shall be debugged no later than six months after delivery.
- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- A battery can present a risk of electric shock and burns by high short-circuit current.
- Failed batteries can reach temperatures that exceed the burn thresholds for touchable surfaces

### 3.3 Installation

This product belongs to the restricted area use, only professional personnel can touch.

- After unpacking, please check the product for damages and missing parts.
- Make sure that the inverter and battery is completely turned off before commencing installation.
- Do not interchange the positive and negative terminals of the battery.
- Ensure that there is no short circuit of the terminals or with any external device.
- Do not exceed the battery voltage rating of the inverter.
- Do not connect the battery to any incompatible inverter.
- Do not connect different battery types together.
- Please ensure that all the batteries are grounded properly.
- Do not open the battery to repair or disassemble.
- In case of fire, use only dry powder fire extinguisher.
- Install the battery away from children or pets.
- Do not use battery in high static environment where the protection device might be damaged.
- Do not install with other batteries or cells.

## 4. RESPONSE TO EMERGENCY SITUATIONS

The batteries comprise of multiple batteries connected in series. It is designed to prevent hazards or failures. However, FelicityESS cannot guarantee their absolute safety. Under exposure to the internal materials of the battery the following recommendations should be carried out by the user.

- If there has been inhalation, please leave the contaminated area immediately and seek medical attention.
- If there has been contact with eyes, rinse the eyes with running water for 15 minutes and seek medical attention immediately.
- If there has been contact with the skin, wash the contacted area with soap thoroughly and seek medical attention immediately.
- If there has been ingestion, induce vomiting and seek medical attention.

### 4.1 Fire Situation

Use a FM-200 or Carbon Dioxide (CO<sub>2</sub>) fire extinguishers to extinguish the fire if there is a fire in the area where the battery pack is installed. Wear a gas mask and avoid inhaling toxic gases and harmful substances produced by the fire.

## 5. TRANSPORTATION

### 5.1 Regulations for the transport of battery modules

It is necessary to comply with the relevant regulations and provisions on roads for shipping lithium-ion products in the corresponding countries.



- Smoking is prohibited in the vehicle during transportation or in the vicinity during loading and unloading



- The dangerous goods transport vehicles shall meet relevant regulations concerning road transportation and shall be equipped with two tested CO<sub>2</sub> fire extinguishers.



- It is forbidden for the freight forwarder to open the outer package of the battery module. Use only approved lifting equipment to move the battery cabinet system. Use only the hanging lug on the top of the battery cabinet as the connection point. When lifting, the angle of the sling must be at least 60°.



- The battery energy storage system can be damaged, if not properly transported. The battery module can only be transported vertically. Note that these parts may be top-heavy. Failure to follow this instruction may result in damage to the part.



- If possible, do not remove the transport packaging before arrival at the installation site. Before removing the transport protector, check if the transport packaging is damaged, and check the impact indicator on the outer packaging of the battery converter. If the impact indicator is triggered, the possibility of transport damage cannot be ruled out.



- Improper transport of battery modules may cause injury. The single battery module weighs 45kg. It could cause injury if it falls or slips. Use only suitable transport and lifting equipment to ensure safe transport.



- Wear safety shoes to avoid the danger of injury. When transporting the battery rack and battery module, their parts may be crushed due to their heavy weight. Therefore, all persons involved in transportation must wear safety shoes with toe caps. Please observe the safety regulations for transportation at the end customer's site, especially during loading and unloading.



- During transportation and installation of unpacked battery storage cabinets, the risk of injury increases, especially on sharp metal panels. Therefore, all personnel involved in transportation and installation must wear protective gloves.



- Improper vehicle transportation can cause injury. Improper transportation or improper transportation locks may cause the load to slip or overturn, resulting in injury. The cabinet shall be placed vertically to prevent it from sliding in the vehicle, and a fixing belt shall be used.

## 5.2 Permissible and Impermissible Storage Positions of a Packaged

The battery module can only be transported in an upright position.



## 6. STORAGE

- Do not expose battery to open flame.
- Do not place the product under direct sunlight.
- Do not place the product near flammable materials. It may lead to fire or explosion in case of accident.
- Store in a cool and dry place with ample ventilation.
- Store the product on a flat surface.
- Store the product out of reach of children and animals.
- Do not damage the unit by dropping, deforming, impacting, cutting or penetrating with a sharp object. It may cause leakage of electrolyte or fire.
- Do not touch any liquid spilled from the product. There is a risk of electric shock or damage to skin.
- Always handle the battery wearing the insulated gloves.
- Do not step on the product or place any foreign objects on it. This can result in damage
- Do not charge or discharge damaged battery.
- To ensure the battery service life, the storage temperature shall be kept between 0°C~35°C
- The battery shall be cycled at least once every 6 months.
- To minimize self-discharge in a long storage period, disconnect the battery connection of the high-voltage control box of the DC connecting cable. This will interrupt the use of the 12V power supply installed in the high-voltage control box and prevent the battery from self-discharging.

## 7.PRODUCT INFORMATION

1. LUX-Y-48100HMG01 is a battery module, it needs to be used with LUX-Y-48100HCG01 controller;
2. LUX-Y-48100HCG01 is the controller of the whole system, so each system must have four LUX-Y-48100HMG01;
3. Our system consists of at least 1 LUX-Y-48100HCG01 + 4 LUX-Y-48100HMG01 and up to 12 LUX-Y-48100HMG01.

### 7.1 Battery Module Specifications

Series	LUX-Y-48100HG01MN <sup>[1]</sup>								
Model	LUX-Y-48100 HCG01M4	LUX-Y-48100 HCG01M5	LUX-Y-48100 HCG01M6	LUX-Y-48100 HCG01M7	LUX-Y-48100 HCG01M8	LUX-Y-48100 HCG01M9	LUX-Y-48100 HCG01M10	LUX-Y-48100 HCG01M11	LUX-Y-48100 HCG01M12
Number of Battery Modules	4	5	6	7	8	9	10	11	12
System Nominal Energy	20.48kWh	25.6kWh	30.72kWh	35.84kWh	40.96kWh	46.08kWh	51.2kWh	56.32kWh	61.44kWh
System Usable Energy	19.45kWh	24.32kWh	29.18kWh	34.04kWh	38.91kWh	43.77kWh	48.64kWh	53.50kWh	58.36kWh
System Nominal Voltage	204.8V	256V	307.2V	358.4V	409.6V	460.8V	512V	563.2V	614.4V
System Operating Voltage	185.6-230.4V	232-288V	278.4-345.6V	324.8-403.2V	371.2-460.8V	417.6-518.4V	464-576V	510.4-633.6V	556.8-691.2V
Rated Charge/Discharge Power	10.24kW	12.80kW	15.36kW	17.92kW	20.48kW	23.04kW	25.6kW	28.16kW	30.72kW
Maximum Charge/Discharge Power	10.24kW	12.80kW	15.36kW	17.92kW	20.48kW	23.04kW	25.6kW	28.16kW	30.72kW
System Weight	231kg	273.5kg	316kg	358.5kg	401kg	459.5kg	502kg	544.5kg	587kg
System Dimension	560*590*1580mm					560*590*2152mm			
Battery Type	LiFePO4								
Nominal Energy	5.12kWh								
Nominal Voltage	51.2V								
Nominal Capacity	100Ah								
Recommend Charge/Discharge current	50A								
Max. continuous charge/Discharge current <sup>[2]</sup>	50A								
Depth of discharge(DOD)	95%								
Short-time withstand current (Icw)	935A@4ms								
Peak withstand current (Ipk)	1590A								
Max. DC short-circuit current	3.74kA(9ms)								
Display type	LED+LCD(Touch)								
IP Rating of Enclosure	IP20								
Working Temperature Range	Charge: 0°C~+50°C								
	Discharge: -20°C~+50°C								
Storage Temperature Range	0°C~+35°C								
Humidity	5%~95%								
Altitude	≤2000m								

Cycle Life <sup>[3]</sup>	≥ 6000 Cycles	
Installation	Rack-Mounting	
Protection	Built-in smart BMS, Breaker, Fuse	
Communication Port	RS485 / CAN	
Warranty Period <sup>[4]</sup>	10 Year	
Control Module LUX-Y-48100HCG01	Product Dimension	482.6x565x150mm
	Package Dimension	562x687x269mm
	Product Weight Approximate	15kg
	Package Weight Approximate	22.5kg
Battery Module LUX-Y-48100HMG01	Product Dimension	482.6x565x133mm
	Package Dimension	562x687x250mm
	Product Weight Approximate	42.5kg
	Package Weight Approximate	46.3kg
	Battery Designation	IFpP54/150/120[1P16S]M/-20+50/95
Rack LUX-Y-48100HR13G01	Product Dimension	560×590×2152mm (13th floor)
	Package Dimension <sup>[5]</sup>	165×640×2142mm
	Product Weight Approximate	62kg
	Package Weight Approximate	69.5kg
Rack LUX-Y-48100HR9G01	Product Dimension	560×590×1580mm (9th floor)
	Package Dimension <sup>[5]</sup>	168×642×1570mm
	Product Weight Approximate	46kg
	Package Weight Approximate	52kg(Approx)

[1] N=4,5,6,7,8,9,10,11 or 12,N is the quantity of battery module.

[2] Max. continuous charge/discharge current is affected by temperature and SOC.

[3] Test conditions: 0.2C Charging/Discharging @25°C, 80% DOD.

[4] Conditions apply, refer to FelicityESS Warranty policy.

[5] Knock-down packaging. Rack components individually packed. Dimensions: shipping/storage only.

**Charging method:**

Recommend standard charging method of battery: When the battery and inverter establish communication, the constant current of 50A is charged until the battery voltage reaches 54.4V \*N, and then the current decreases to 10A until the voltage reaches 56.8V \*N, then stop charging. Recommend standard discharging method of battery: When the battery and inverter establish communication, the constant current of 50A is discharged until the battery voltage reaches 48V \*N, and then the current decreases to 10A until the voltage reaches 46.4V \*N, then stop discharging.

**Note:** The recommended standard charging and discharging methods also represent the maximum charging and discharging methods of this system. A two-hour rest period is required between each charge and discharge cycle when operating the system using the recommended methods.

**7.2 Labels**

The label on the left is for the battery system, and the label on the right is for the battery pack. The system label is attached to the right side of the high-voltage control box. The battery pack labels are attached to the right side of each battery pack.



**After the initial system installation, tick the corresponding system model on the label based on the number of battery packs installed. For example, for 12 battery packs, tick LUX-Y-48100HG01M12.**

Lithium Iron Phosphate Battery System									
Model	LUX-Y-48100HG001	LUX-Y-48100HG01	LUX-Y-48100HG02	LUX-Y-48100HG03	LUX-Y-48100HG04	LUX-Y-48100HG05	LUX-Y-48100HG06	LUX-Y-48100HG07	LUX-Y-48100HG08
Battery Code	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95	IFpP54/150/120[1P16S]M/-20+50/95
Nominal Voltage	204.2V	209V	207.2V	208.4V	409.2V	409.2V	409.2V	409.2V	409.2V
Nominal Operating Voltage Range	195.0~200.4V	203.2~209V	201.6~205.6V	202.8~207.2V	371.3~400.8V	454.5~579V	454.5~579V	454.5~579V	454.5~579V
Nominal Energy	20.48kWh	20.8kWh	30.72kWh	30.84kWh	60.96kWh	60.96kWh	60.96kWh	60.96kWh	60.96kWh
Battery Type	LiFePO <sub>4</sub>								
Nominal Capacity	100Ah								
IP Class	IP20								
Protective Class	I								
Charging/Discharging Temperature Range	0~50/20~50°C								
Max. Continuous Charge/Discharge Current	50A								
High Voltage Battery Cluster Controller									
Model	LUX-Y-48100HCG01								
Nominal Voltage	185.6~691.2V								
Communication	RS485/CAN								

Lithium Iron Phosphate Battery	
Model	LUX-Y-48100HMG01
Nominal Voltage	51.2V
Nominal Capacity	100Ah
Nominal Energy	5.12kWh
Maximum Continuous Charge/Discharge Current	50A
Operating Voltage Range	46.4~57.6V
IP Class	IP20
Protective Class	I
Charging Temperature Range	0~50°C
Discharging Temperature Range	-20~50°C
IFpP54/150/120[1P16S]M/-20+50/95	

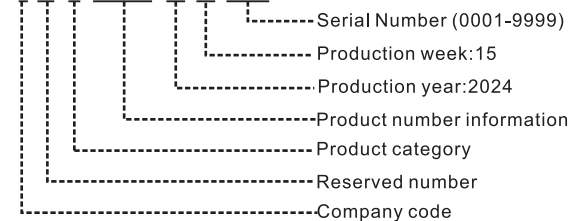
**7.3 Definition of SN code**

**1.High-Voltage Battery Control Unit SN Description**

For example

LUX-Y-48100HCG01 SN:100011003424159999

1 00 0 110034 24 15 9999



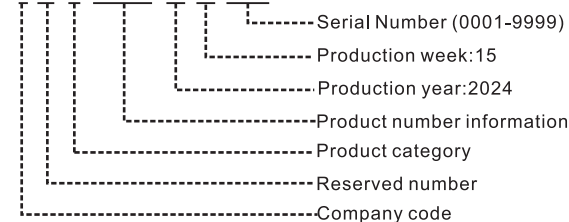
Note: The SN code of the high-voltage control unit is also the SN code of the battery system.

**Battery module SN Description**

For example

LUX-Y-48100HMG01 SN:100011003324159999

1 00 0 110033 24 15 9999



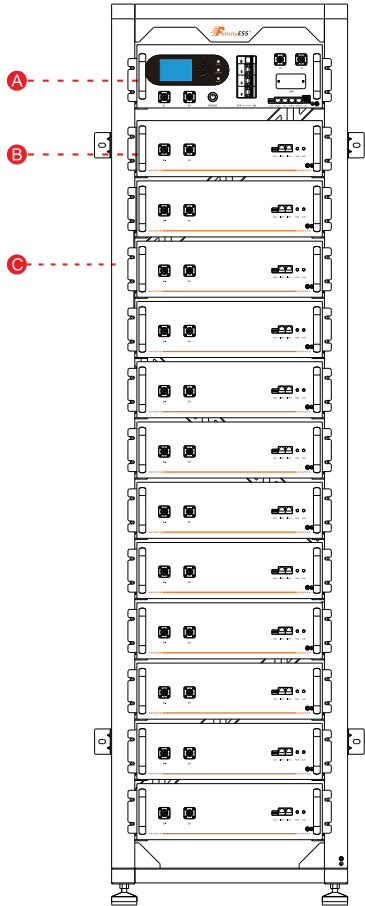
## 8. ELECTRICAL CONNECTIONS

### 8.1 Battery System Features

The batteries have been fitted with multiple protection systems to ensure the safe operation of the system. Some of the protection system includes:

- Inverter interface protection: Over voltage, Over current, External Short Circuit, Reverse Polarity Ground Fault, Over Temp, In rush current.
- Battery Protection: Internal Short Circuit, Over voltage, over current, over temp, Under voltage The battery system contains the following Interface to allow it to connect and operate efficiently.
- LiFePO<sub>4</sub>: Higher safe performance and longer cycle life.
- Flexible Installation: Rack-Mounting.
- Wide Compatibility: Compatible with leading inverter brands.
- Long Warranty: 10 Years.

### 8.2 Battery system introduction

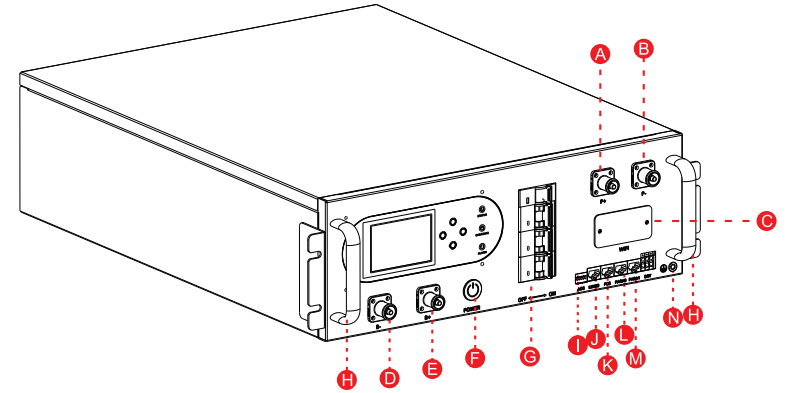


Code	Name	Product Model
A	Control cabinet	LUX-Y-48100HCG01
B	Battery box	LUX-Y-48100HMG01
C	Rack	*LUX-Y-48100HR13G01 *LUX-Y-48100HR9G01

\* LUX-Y-48100HR13G01:  
Built in 1 control module and UP to 12 battery modules

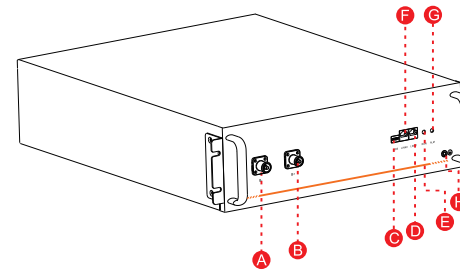
\* LUX-Y-48100HR9G01:  
Built in 1 control module and UP to 8 battery modules

### 8.3 Electrical Interface Description of Control cabinet



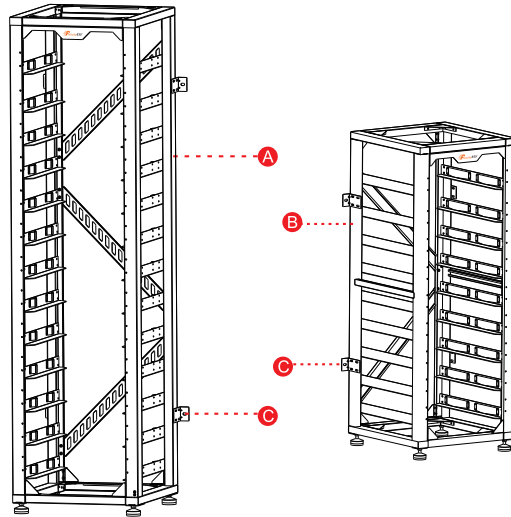
Code	Name	Code	Name
A	PCS +	H	Handle
B	PCS -	I	ADS
C	WiFi Communication	J	LINK0
D	BAT-	K	PCS Communication
E	BAT+	L	Parallel Interface 0
F	Power Switch	M	Parallel Interface 1
G	Breaker	N	Earth wire

### 8.4 Battery box introduction



Code	Name
A	BAT-
B	BAT+
C	ADS
D	LINK1
E	Status LED
F	LINK0
G	Alarm LED
H	Earth wire

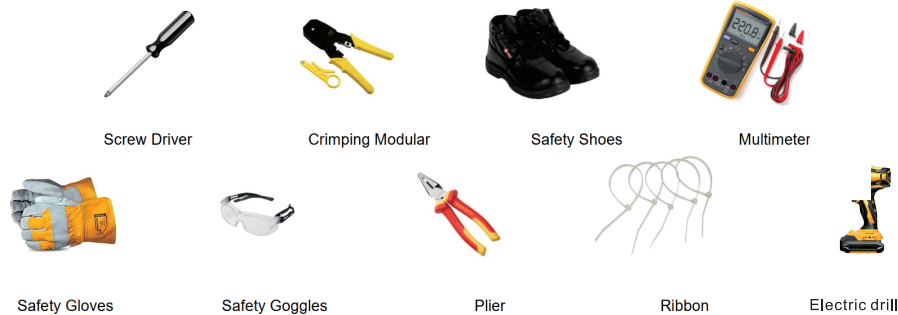
### 8.5 Base introduction



Code	Name
A	Rack(R13)
B	Rack(R9)
C	Fixed trestle

## 9. INSTALLATION

### 9.1 Tools



Screw Driver

Crimping Modular

Safety Shoes

Multimeter

Safety Gloves

Safety Goggles

Plier

Ribbon







Electric drill


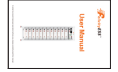




### 9.2 Items in the package


Packaging information


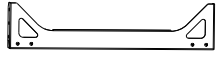










- The battery system consists of a battery, a control box, and a rack.
- Before unpacking the battery system, check whether the packaging is damaged and check the battery system model. If anything goes wrong, Do not open the packing case, and contact the after-sales service center as soon as possible.
- After unpacking the battery system, check the completeness of the product delivery against the packaging information. If there is any anomaly, please contact the after-sales service center as soon as possible.

LUX-Y-48100HCG01			
NO.	DESCRIPTION	QUANTITY	PICTURE
1	High Voltage Battery Cluster Controller 185.6-691.2V/50A	1	
2	User manual for LUX-Y-48100HG01MN	1	
3	Warranty card	1	
4	Power Cable 1: 5 meters, 4AWG, 21.15mm <sup>2</sup> , allows for charging and discharging up to 110A, used to connect to external PCS+ (red). Connector: ES08-P25S-02-L-RD*2, specification: L:65mm, W:20mm, one end is connected to the main control PCS+ of the battery pack, and the other end is connected to the inverter BAT+	1	
5	Power Cable 2: 5 meters, 4AWG, 21.15mm <sup>2</sup> , allows for charging and discharging up to 110A, used to connect to external PCS- (black). Connector: ES08-P25S-02-L-BK*2, specification: L:65mm, W:20mm, one end is connected to the main control PCS of the battery pack, and the other end is connected to the inverter BAT-	1	
6	Power Cable 3: 2 meters, 4AWG, 21.15mm <sup>2</sup> , used for serial connection from master control to slave control (black).	1	
7	Power Cable 4: 35 millimeter, 4AWG, 21.15mm <sup>2</sup> , The allowable charging and discharging current is 110A, used for serial connection from master control to slave control (red).	1	
8	Communication line 1: The communication between the battery pack and the PCS. L: 3000mm, CAT.5E UTP 7*012BC*8C, terminal: One end is plastic-encapsulated RJ45 crystal head (8P8C), used to connect the main control PCS port of the battery pack, the other end leads out the core wire (4: CAN.H, 5: CAN.L, 7:485.A, 8:485.B), and the end is stripped of 10mm and tin-plated	1	

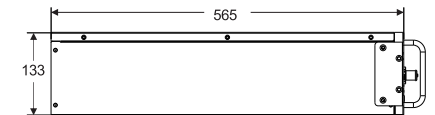
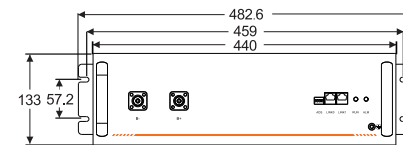
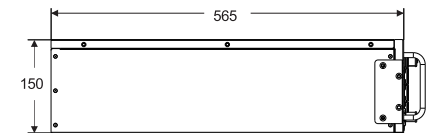
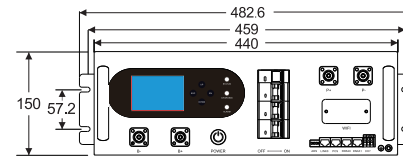
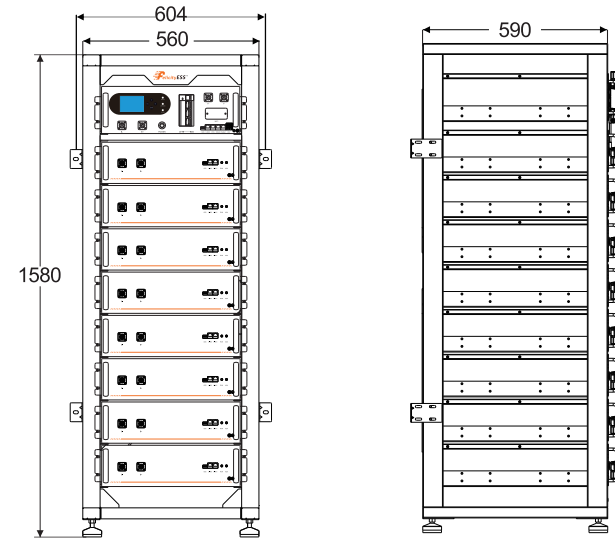
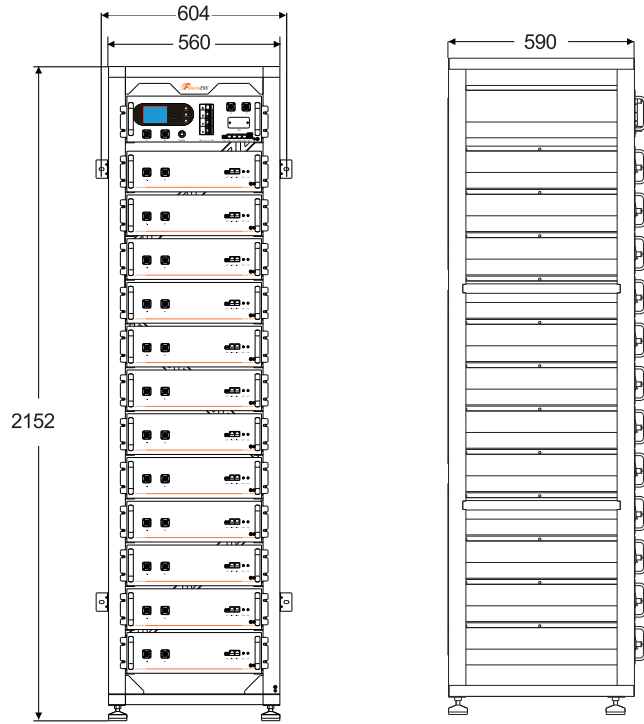
9	Communication Line 2: Communication between the battery pack and the Felicity inverter L: 3000mm, CAT.5E UTP 7*012BC*8C, terminal: Plastic-encapsulated RJ45 crystal head (8P8C) *2, one end is used to connect the main control PCS port of the battery pack, and the other end is used to connect the BMS port of the inverter	1	
10	Screw: used for installing control box.	4	
11	Communication Line 4: Used for communication connection between master and slave control. L: 1200mm, S/FTP 24AWG 4P+B+AL+ cotton wire, terminal: RJ45 shielded crystal head (8P8C), nickel-plated iron shell *2	1	
12	Signal Terminal: used for creating custom communication cables.	2	
13	Ground Wire: 10AWG, 5.26mm <sup>2</sup> , 145mm, used for grounding connections between battery pack modules. Terminal: RNB5.5-5*2, compatible with M5 screws	1	
14	Ground Wire: 10AWG, 5.26mm <sup>2</sup> , 2000mm, for reliable grounding of this product with the bottom edge	1	

LUX-Y-48100HMG01			
NO.	DESCRIPTION	QUANTITY	PICTURE
1	5.12kWh battery module	1	
2	User manual for LUX-Y-48100HG01MN	1	
3	Warranty card	1	
4	Power Cable: 60mm, 4AWG, 21.15mm <sup>2</sup> , allowing charge and discharge current of 110A, used for series connections between battery pack modules.	1	
5	Communication Cable: used for communication connections between battery pack modules. L: 155mm, CAT.5E 26AWG S/FTP 4P+B+AL+ cotton wire, terminal: RJ45 shielded crystal head (8P8C), nickel-plated iron shell *2	1	
6	Ground Wire: used for grounding connections between battery pack modules. Terminal: RNB5.5-5*2, compatible with M5 screws	1	

7	Screw: used for installing battery pack modules.	4	
---	--	---	---

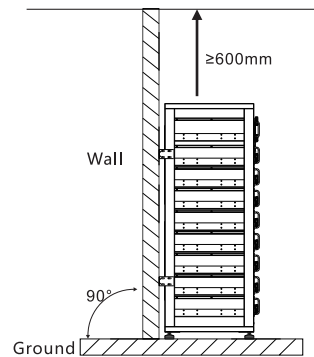
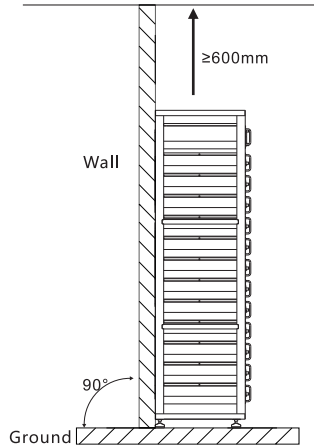
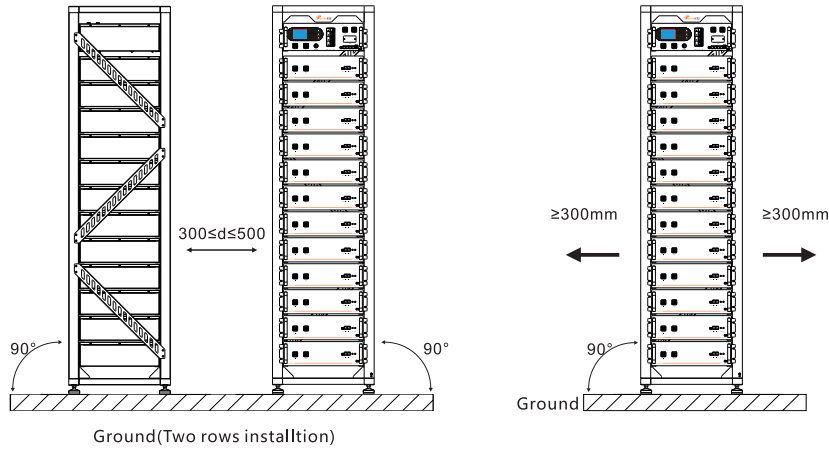
LUX-Y-48100HR13G01			
NO.	DESCRIPTION	QUANTITY	PICTURE
1	LOGO board	1	
2	Cross beam	1	
3	Right side beam	1	
4	Left side beam	1	
5	Left diagonal brace	1	
6	Right diagonal brace	2	
7	Rack fastener	4	
8	BOT Foot Cup	4	
9	Tripod	4	
10	Expansion screw	4	
11	Screw M6×12*66 PCS Screw M5×12*1 PCS	/	
12	Ribbon: Used to fix the power cord	5	

9.3 Product size information



### 9.4 Floor installation with base

#### Installation Location Requirements



### 9.5 Install Environment

- Working temperature:  $-20^{\circ}\text{C}\sim+50^{\circ}\text{C}$
- Charging temperature range:  $0^{\circ}\text{C}\sim+50^{\circ}\text{C}$
- Discharging temperature range:  $-20^{\circ}\text{C}\sim+50^{\circ}\text{C}$
- Storage temperature:  $0^{\circ}\text{C}\sim+35^{\circ}\text{C}$
- Relative humidity: 5% ~ 95%
- Elevation:  $\leq 2000\text{m}$
- Installation clearance:  $D\geq 300\text{mm}$
- Indoor humidity:  $+5\%\leq\text{RH}\leq+95\%$
- Heat source:  $\geq 50\text{cm}$
- Fire source:  $\geq 500\text{cm}$
- Clearance to the roof:  $\geq 600\text{mm}$

Operating environment: Suitable for indoor installation at locations shielded from direct sunlight, wind, conductive dust, and corrosive gases. Pollution PD2, overvoltage category II  
Ensure the following conditions are met:

- The installation site should be distant from the sea to prevent exposure to saltwater and high humidity.
- The ground at the installation location must be flat and level.
- The site should be free of flammable or explosive materials.
- Optimal ambient temperature:  $20^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ .
- Avoid areas with excessive dust or clutter.

### 9.6 Installation Procedure

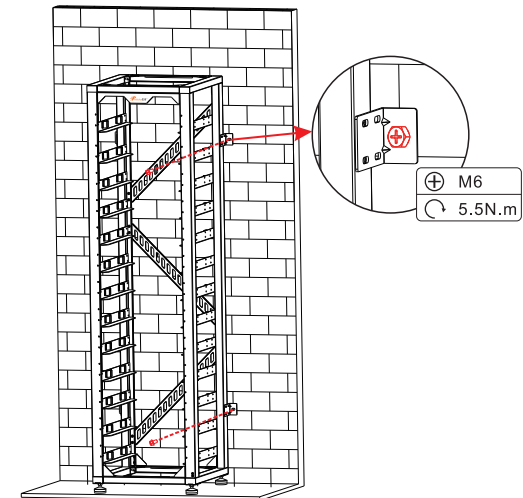
Step 1: Remove the battery, control box, and frame from the packing case.

Use a hammer drill to make a frame fixing hole in the wall. (Aperture 10mm, depth 60mm).

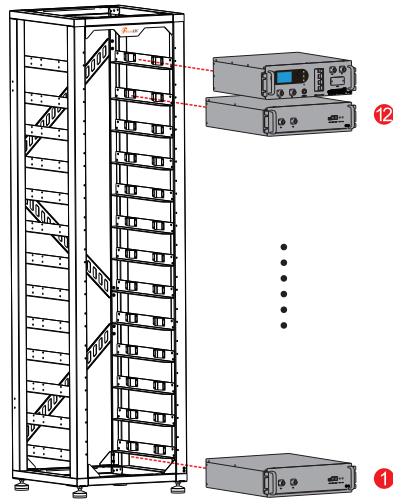
Step 2: Attach the rack to the wall, then install the battery from the bottom to the top, and make sure the battery is secured.

Step 3: Secure the battery, control box to the rack.

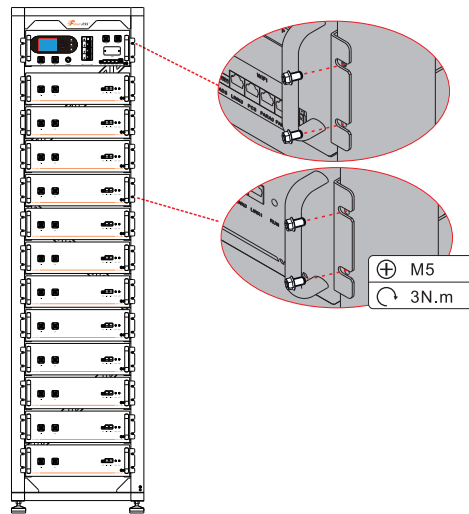
Step 1:



Step 2:



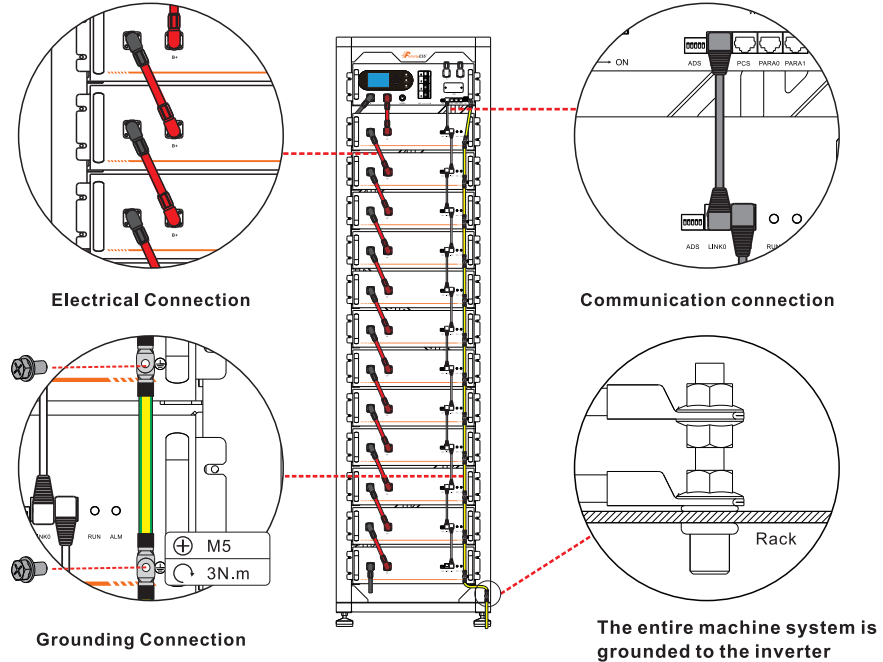
Step 3:



Note:

1. Before installation, check that the ground is flat and has no tilt.
2. Ensure that the rack is against a wall and secured.
3. When placed, it should be pushed inward from the bottom up and from the direction of the arrow.
4. When placing the battery, ensure that the battery is pushed to the bottom.
5. Fasten the battery with the accessory screws. Be careful that the battery falls down.
6. After securing the battery, insert the power cable.

9.7 Wiring procedure

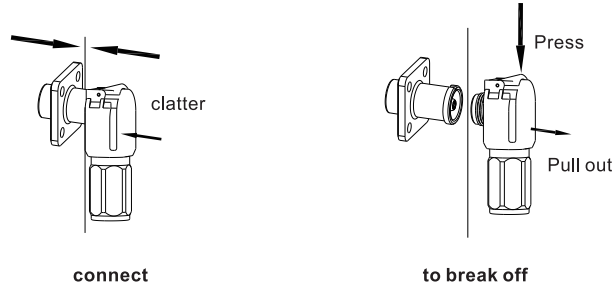


Note:

- Connect battery packs in series only, following the electrical connection procedure. Start from the top pack: connect its negative terminal to the positive terminal of the next pack below. Repeat this step for each subsequent pack. For the final pack, connect its negative terminal to the negative terminal of the high-voltage control box. Then, connect the positive terminal of the top pack to the positive terminal of the high-voltage control box. DO not connect packs in parallel. Parallel connection may result in system failure, equipment damage, or personal injury.
- When installing the equipment, first make a reliable grounding connection to the inverter through the grounding port at the bottom of the frame, and then make a reliable grounding connection to the battery system and the frame. When disassembling the equipment, first disconnect the power circuit between the battery system and the inverter, then disconnect the grounding connection between the battery system and the frame, and finally disconnect the grounding connection between the frame and the inverter
- Screw compression torque 5N.
- The control box is connected to the ground wire of the base.

### 9.8 Terminal Connection

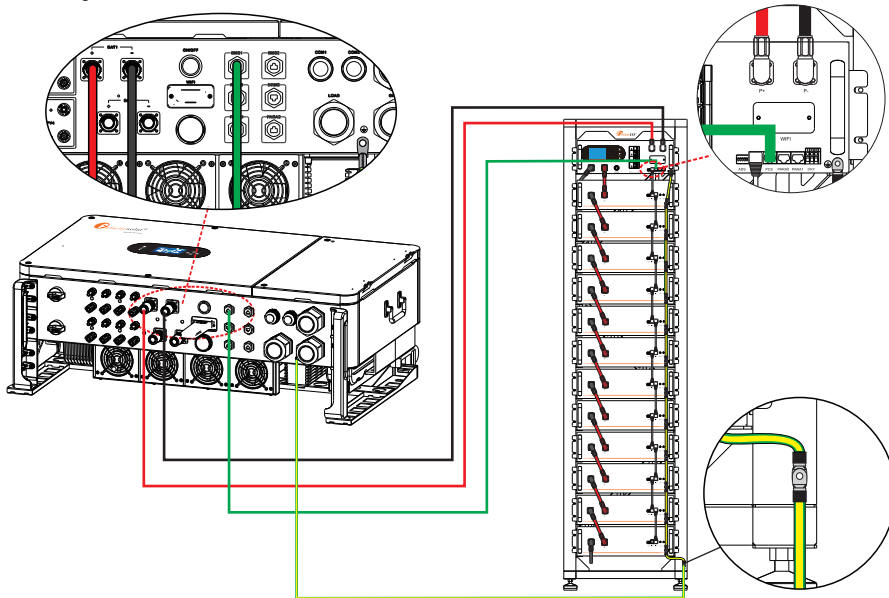
#### Power terminal



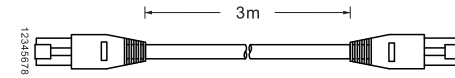
**Note:** Press the position indicated in the figure above before disconnecting the power terminal.

### 9.9 System Wiring Schematic

9.9-1 Matching side inverter IVGM50KHP3G2



9.9-2 Description for Communication port



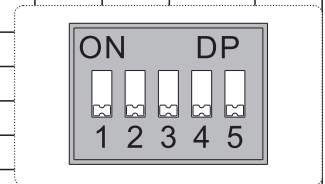
#### PCS Port Pin Definition

Pin	Function Definitions	Function Declaration
1	NC	NC
2	NC	NC
3	NC	NC
4	CAN-H	Communication between the battery pack and the inverter through the CAN port
5	CAN-L	
6	CAN-GND	CAN-GND
7	RS485-A	Communication between the battery pack and the inverter through the RS485 port
8	RS485-B	

### 9.10 Parallel DIP Switch

Adjust each battery pack dialer from left to right according to the diagram below (from top to bottom)

No.of BAT	1	2	3	4	5	6	7	8	9	10	11	12
1PCS	1,5 ON											
2PCS	1,5 ON	2,5 ON										
3PCS	1,5 ON	2 ON	1,2,5ON									
4PCS	1,5 ON	2 ON	1,2 ON	3,5ON								
5PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3,5ON							
6PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3,5ON						
7PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3,5ON					
8PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3 ON	4,5ON				
9PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3 ON	4 ON	1,4,5ON			
10PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3 ON	4 ON	1,4 ON	2,4,5ON		
11PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3 ON	4 ON	1,4 ON	2,4 ON	1,2,4,5ON	
12PCS	1,5 ON	2 ON	1,2 ON	3 ON	1,3 ON	2,3 ON	1,2,3 ON	4 ON	1,4 ON	2,4 ON	1,2,4,ON	3,4,5ON



### 9.11 Switch On/Off

**Startup Operation Instructions:**

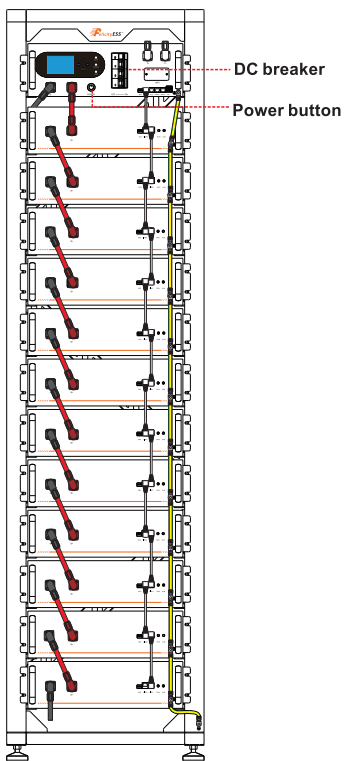
1. Before startup, verify that all electrical, communication, and grounding connections have been made as described in the wiring procedure.
2. Turn on the DC breaker: Switch the DC breaker of the high-voltage box from "OFF" to "ON" to connect the main power supply of the equipment.
3. Start the device: Press the "Power On" button on the operation panel of the high-voltage box. Startup is complete when the device indicator lights up or the startup information appears on the screen.

**Shutdown Operation Instructions:**

1. Before shutdown, the battery system must stop charging and discharging with the inverter. Taking the inverter described in Section 9.9-1 as an example, this can be achieved by pressing the inverter's OFF button. The battery system is then in battery mode, with only the "STATUS" indicator remaining steady on and the "CHARGING" indicator staying off.
2. Turn off the DC breaker: Switch the DC circuit breaker from "ON" to "OFF" to disconnect the power supply circuit of the high-voltage box and all live conductors of the battery system.
3. Confirm shutdown: Shutdown is complete when all indicators and the screen turn off.

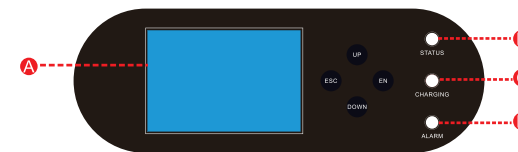
**Note:**

Before performing any maintenance, repair, or replacement on the battery system, verify that it has been completely shut down following the shutdown procedure.



**DC breaker:** Both the positive and negative poles of the battery system are connected through the DC circuit breaker, Opening the breaker isolates all live conductors in the battery system.  
**Power button:** Used to start the device.



## 10. LCD DISPLAY ICONS



OBJECT	NAME	DESCRIPTION
A	LCD touch screen	Display the information of the battery.
B	Status LED	Indicates the operating status of the battery, which is always on when running normally.
C	Charging LED	Indicates the charging status of the battery, flashing indicates charging.
D	Alarm LED	Indicates the fault status of the battery, which lights up when the fault occurs.
ESC	Function Button	Esc: Return from current interface or function.
UP		Up: Move cursor to upside or increase value.
DOWN		Down: Move cursor to downside or decrease value.
EN		Enter: Confirm the selection.

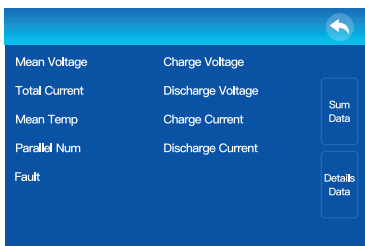
### 10.1 Main interface

Battery Information	
	Indicate SOC.
	I Indicates the battery level, with each grid representing 5%.

	When charging, this icon lights up
	This icon lights up to indicate that the battery is waiting to be connected, and there is no output at this time. After entering normal working mode, this icon disappears.

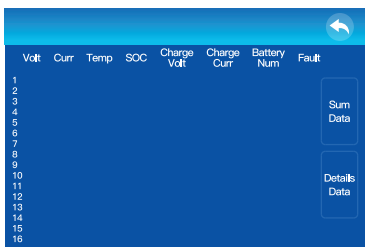
**Sum data interface:**

This interface displays a summary of battery parallel connection information, including average battery voltage, total battery current, average BMS temperature, number of parallel connections, charging limit voltage, discharging limit voltage, charging limit current, discharging limit current, and fault information. Click "Sum Data" and "Details Data" to switch between summary data or detailed data of parallel batteries



**Details data interface:**

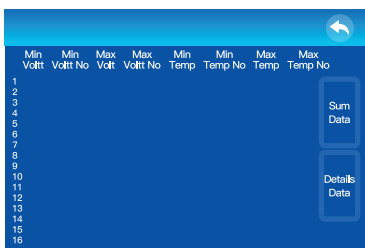
This interface displays a summary of battery parallel connection information, including average battery voltage, total battery current, average BMS temperature, number of parallel connections, charging limit voltage, discharging limit voltage, charging limit current, discharging limit current, and fault information. Click "Sum Data" and "Details Data" to switch between summary data or detailed data of parallel batteries



**Details data interface:**

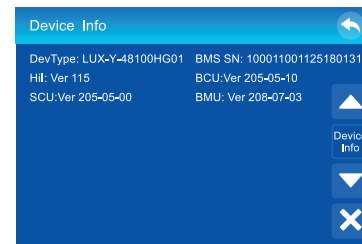
This interface displays detailed information about parallel batteries, including minimum cell voltage, minimum cell voltage number, maximum cell voltage, maximum cell voltage number, minimum cell temperature, minimum cell temperature number, maximum cell temperature, and maximum cell temperature number

1 to 16 represent the addresses of parallel batteries.



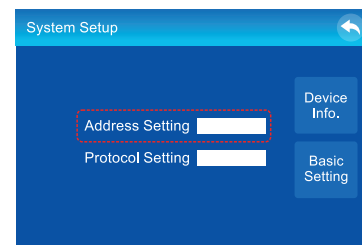
## 10.2 Cluster Setting Instructions

Before the system is set up, upgrade the software version of the main control and LCD screen to be no lower than that indicated in the picture



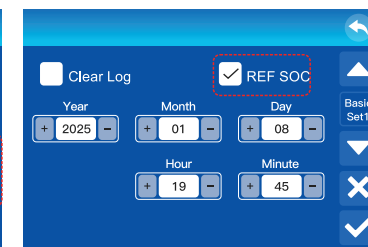
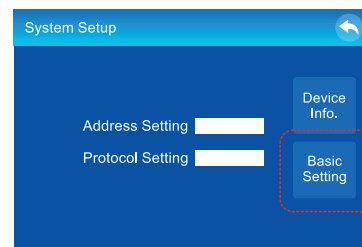
**Battery pack parallel operation address setting:**

1. After connecting the battery cable, power on the battery pack and set the main control address through the screen. Each main control address cannot be set repeatedly, and the maximum setting is 16.
2. After setting the address, restart the battery.



**SOC Averaging Settings for Parallel Connection:**

1. After connecting the battery cable, enter the System Setup page and click on Basic Settings.
2. Check the "REF SOC" option



### 10.3 Fault Code Table

FAULT CODE	EXPLAIN	TREATMENT MEASURE
01	High Battery Voltage	Stop charging
02	Low Battery Voltage	Stop discharging
03	High Cell Voltage	Stop charging
04	Low Cell Voltage	Stop discharging
05	High Charging Current	Reduce charging current
06	High Discharging Current	Reduce discharging current
07	High Bms Temperature	Stop charging and discharging ,wait for the temperature to drop
08	Low Bms Temperature	Wait for temperature rise
09	High Cell Temperature	Stop charging and discharging , wait for the temperature to drop
10	Low Cell Temperature	Wait for temperature rise
11	Afe fault	Restart, if the fault still exists, contact our engineer
12	Soft Start Failed	Restart, if the fault still exists, contact our engineer
13	Slave Communication Failure	Check for poor contact of the communication line
14	Low Output Impedance	Restart, if the fault still exists, contact our engineer
15	Slave Version Fault	Contact our engineer to upgrade the progra
16	Slave Device Version Fault	Contact our engineer to upgrade the program
17	Parallel Fault	1. Please check if the number of parallel battery slave controls is the same 2. Please check if a single unit is installed in a parallel system 3.If this error occurs during parallel installation, please check the wiring. f they are connected correctly, please install them in parallel first and then restart the device. 4.If the problem persists, please contact the installation personnel.
18	Relay Adhesion Fault	Restart, if the fault still exists, contact our engineer

## 11. CONFIGURE NETWORK

Install the WIFI module to the main control WIFI port of the battery pack, download the APP for network configuration, and use it to upload the battery pack information to the web page to achieve information monitoring of the battery pack system

### 11.1 Download APP

Scan the QR Code on the right side and download the APP.



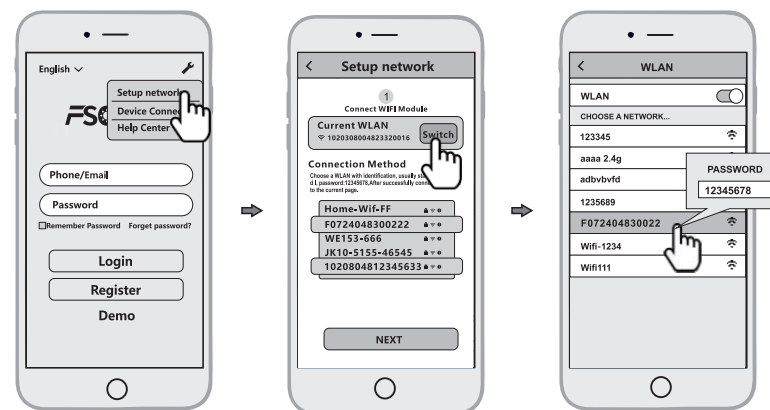
FsolAR APP

### 11.2 Connect to Built-in WIFI wireless network

Configure the mobile phone WLAN to connect to the wireless network of the Built-in WIFI

- 1) Run the APP, enter the login page, click the [Setup network] button to enter the network configuration page.

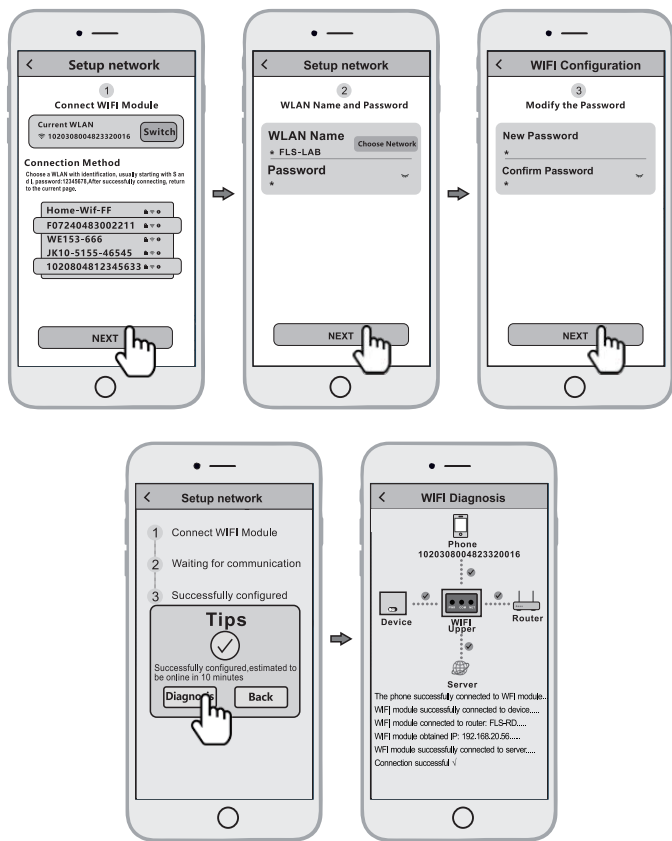
- 2) On the network configuration page, click the [Switch] button to enter the mobile phone WLAN page.
- 3) On the WLAN page of the mobile phone, find the corresponding wireless network name (SSID) of the Smart WiFi module, starting with F(e.g. Fxxxxxxxxxxxxxxxx, the xxxxxxxxxxxxxxxxx is the same as the device serial number). enter the module wireless network password (default password: 12345678), and connect to the wireless network of the Built-in WIFI.



### 11.3 Configure the network

- 1)After connecting your mobile phone's WLAN to the collector's wireless network, return to the network configuration page in the APP and click the [Next] button to enter the router information page.
- 2)On the WiFi configuration page, select the router's wireless network to which the collector needs to connect, or directly enter the router's name and its wireless network password, then click the [Next] button.
- 3)Modify the collector's direct-connect WiFi password (as required by safety regulations), enter the new password, and click the [Next] button.
- 4)Wait for the collector to connect to the router's wireless network and complete the WiFi password modification.

**Note:** If the NET indicator is constantly lit, it means the collector has established a connection with the server. Otherwise, the collector has not connected to the server, and you can use the APP's diagnostic function or refer to the troubleshooting appendix to identify and resolve issues.

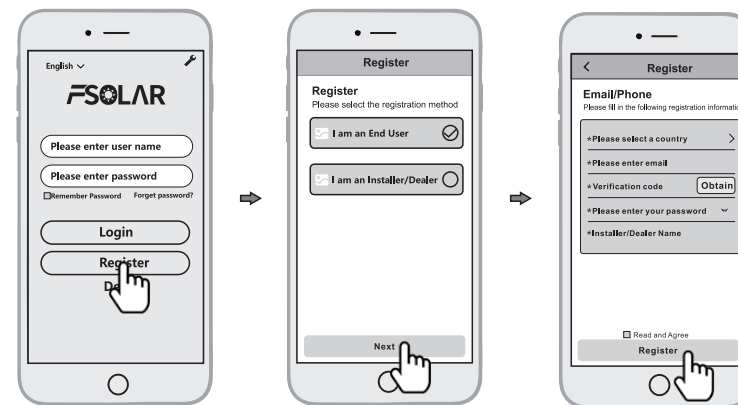


### 11.4. Create the plant

After the Built-in WIFI is connected to the server, it will transmit the data of the device to the server. And after the plant is created, users can view and manage the device via the APP or web browser.

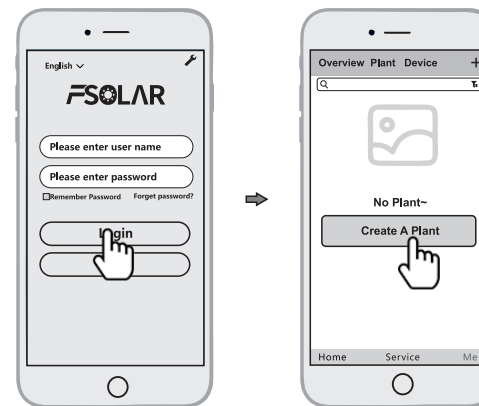
#### 11.4.1 Manage device via APP

- 1)Register an account  
Run the app, enter the login page, click the [Registration] button, select the role you want to register, enter and fill in the relevant information (optional email/phone number) to register.

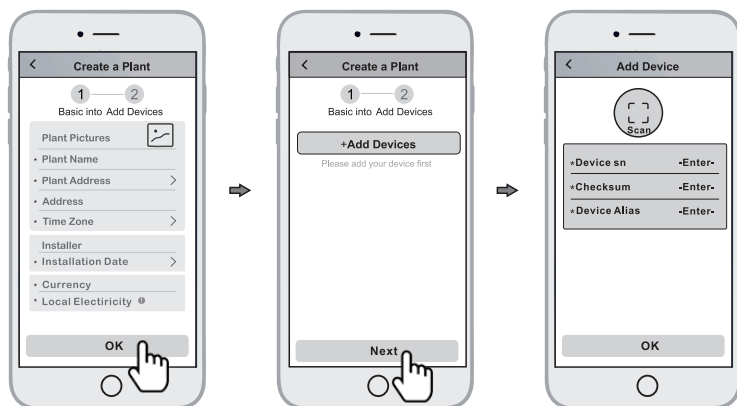


- 2)New power station construction

- Log in with the newly registered account, enter the homepage, and click on [ Create A Plant ]



- Fill in the corresponding information and click [OK]
- Click [Add device], click the above icon [scan], align the bar code/two-dimensional code on the side of the inverter or battery pack to scan, or fill in the SN and activation code on the label.



- Manage the device via a web browser, please refer to: <https://shine.felicitysolar.com>

## 12. WARRANTY

The warranty shall not cover the defects caused by normal wear and tear, inadequate maintenance, handling, storage faulty repair, modifications to the battery or pack by a third party other than FelicityESS, failure to observe the product specification provided herein or improper use or installation, including but not limited to the following.

Damage during transport or storage.

- Incorrect Installation of battery into pack or maintenance.
- Use of battery pack in appropriate environment.
- Improper, inadequate, or incorrect charge, discharge or production circuit other than stipulated herein.
- Incorrect use or inappropriate use.
- Insufficient ventilation.
- Ignoring applicable safety warnings and instructions.
- Altering or attempted repairs unauthorized personnel.
- In case of force majeure (ex: lightning, storm, flood, fire, earthquake, etc.).
- There are no warranties-implicit or express-other than those stipulated herein. FelicityESS shall not be liable for any consequential or indirect damages arising or in connection with the product specification, battery or pack.

## 13. TROUBLESHOOTING AND MAINTENANCE

### 13.1 Maintenance

There are no operator serviceable parts in side this equipment. Service should be provided only by a qualified service technician.

- 1.Regularly check whether the service environment of the battery meets the requirements, and the installation position should be far away from the heat source.
- 2.In case of one of the following situations, it needs to be charged in time:
  - The battery is often under charged;
  - The battery has been out of use or stored for more than 3 months.
- 3.Regularly check whether the battery and its supporting terminals, connecting cables and indicator lights are normal.

### 13.2 Troubleshooting

When the red/white LCD on the panel is flashing or normally on, it does not mean that the Battery system is abnormal, it may be just an alarm or protection. Please check the 'Fault Code Table' in chapter 8 for the detailed faulty definition before any trouble-shooting steps. In general, the alarm indication is normal without manual intervention. When the alarm triggering state is removed, Battery system will automatically return to normal use.

#### - Problem determination based on the following points

- Whether the red light on the LUX-Y-48100HG01 is on;
- Whether the battery can be output voltage or not.
- Whether the battery system can be communicated with inverter;

#### - Preliminary determination steps

LiFePO4 Battery System for HouseholdsBattery system cannot work, when DC switch on and POWER on, the LCD doesn't light up or flash, please consider contact the local distributor.

- The LCD display of LUX-Y-48100HG01 is normal, but it cannot charge and discharge. Observe the display screen of inverter and there is no SOC. Please check whether the CAN communication between LUX-Y-48100HG01 to inverter is well connected. If the connection is good, please replace a CAN communication cable. If the SOC is still not visible on the inverter display screen, please contact the local distributor.
- After the battery system is powered on, if you can see the alarm information on the LCD and inverter display screen at the same time, please contact the local distributor.