Micro Energy Storage System

358-S010022-00B

FelicityESS™

USER MANUAL

Micro Energy Storage System

In order to prevent improper operation before use, please carefully read this manual.

Contents

1. ABOUT THIS MANUAL

1.1 Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit.
Please read this manual carefully before installations and operations.Keep this manual for future reference.

1.2 Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

1.3 Safety Instructions

WARNING: This chapter contains important safety and operating instructions.
Read and keep this manual for future reference.

1.Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2.Do not put heavy objects on the equipment.
3.CAUTION --To reduce the risk of injury, charge only deep-cycle lead acid type rechargeable batteries.Other types of batteries may burst, causing personal injury and damage.
4.Do not disassemble the unit, Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
5.To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
6.CAUTION--Only qualified personnel can install this device with battery.
7.NEVER charge a frozen battery.
8.For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
9.Be very cautious when working with metal tools on or around batteries. A potential risk exists of droping a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
10.Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
11. Fuses (3 pieces of 30A)are provided as over-current protection for the battery supply.
12.GROUNDING INSTRUCTIONS -This Micro Energy Storage system should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this Micro Energy Storage system.
13.NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input is short-circuited,
14.Warning!! Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
15.In order to extend the cycle life of the built-in lithium battery, please disconnect the overcurrent circuit breaker between the micro energy storage system ,the solar panel and the micro-inverter when it is not used for a long time.
16.CAUTION--The equipment may get more than 60'°C(140'F) while in use. Do not touch its enclosure before it cools down. Also, always keep the equipment out of reach of children and pets.
17.Before you pull out the DC input connector from the microinverter, disconnect the cable from the AC socket end.
18. Make sure the micro energy storage system is off during the whole connection process.
19.You can only connect solar panels to the PV input port and only connect a micro inverter to the DC output port.

2. WARNING MARKS

Warning marks inform users of conditions which can cause serious physical injury or death or damage to the device.They also tell users how to prevent the dangers.The warning marks used in this operation manual are shown below:

Symbols	Name	Instruction
	Danger	Serious physical injury or even death may occur if not follow the relative requirements
	Warning	Physical injury or damage to the devices may occur if not follow the relative requirements
	Electrostatic sensitive	Damage may occur if not follow the relative requirements
	Hot surface	Sides of the device may become hot. Do not touch.
NOTE	Note	Follow the procedures to ensure proper operation

3.TRANSPORTATION

3.1 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 CO2 fire extinguishers.


· 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.


· Improper transport of battery modules may cause injury. A single battery module weighs 24kg and could cause injury if it falls or slips. Use only suitable transport and lifting equipment to ensure safe transport.

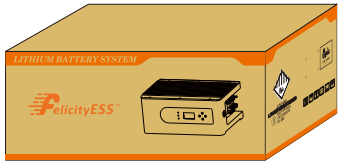
- Wear safety shoes to avoid the danger of injury. When transporting the battery module, their parts may be crushed due to their heavy weight. Therefore, all persons involved in transportation must wear safety shoes with toe caps. Please observe the safety regulations for transportation at the end customer's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

3.2 Permissible and Impermissible Storage Positions of a Packaged

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



4.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.

5. INTRODUCTION

This is a micro energy storage system, combining MPPT solar charger and lithium iron phosphate battery, providing two battery voltage DC output function. Its comprehensive LCD display offers user-configurable and easily accessible push-button operations such as battery charge current, output start/close time, and minimum discharge SOC, among others.

5.1 Features

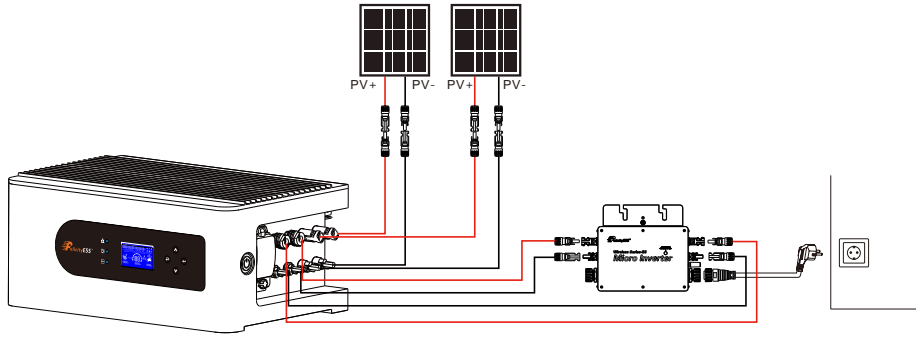
- Built-in MPPT solar charge controller
- Built-in smart BMS
- Configurable battery charging current based on applications via LCD setting
- Configurable output on/off times based on application via LCD setting
- Configurable minimum output SOC based on application via LCD setting
- Overload/Over temperature/ short circuit protection

5.2 Basic System Architecture

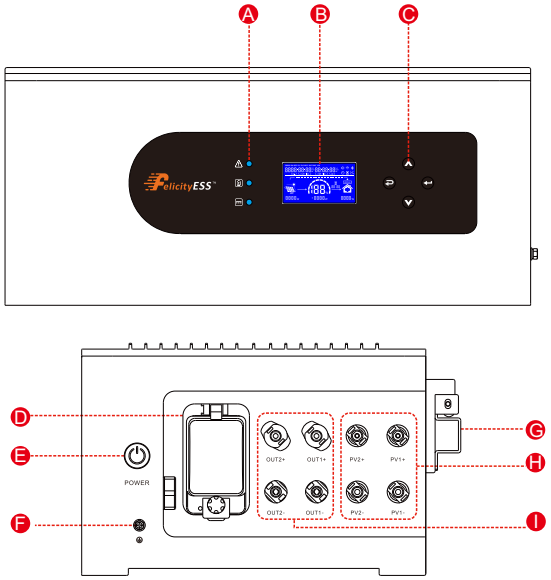
The following illustration shows basic application for this micro energy storage system. it also includes following devices to have a complete running system:

- PV modules
- Microinverter

Consult with your system integrator for other possible system architectures depending on your requirements.



5.3 PRODUCT OVERVIEW



Code	Name
A	LED Indicators
B	LCD display
C	Button
D	Power Breaker
E	Power Switch
F	Ground screw hole
G	Wall mount
H	PV port
I	Out port

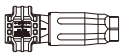
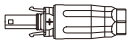
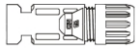
5. 4 SPECIFICATIONS

Model	LUX-S-1600LG01	LUX-S-3200LG01
INPUT DATA		
Commonly Used Module Power	210 to 670W+ (2 Pieces)	210 to 670W+ (2 Pieces) 210 to 450W+ (4 Pieces)
Maximum Input Voltage	60Vdc	60Vdc
MPPT Voltage Range	16-60Vdc	16-60Vdc
Start-up Voltage	22V	22V
Maximum Input Current	2x30A	2x30A
Maximum Input Short Circuit Current	2x35A	2x35A
Number of MPPTs	2	2
Number of Inputs per MPPT	1	1/2[1]
OUTPUT DATA		
Output Voltage Range	28-36Vdc	28-36Vdc
Maximum Output Current	2x25A	2x30A
BATTERY DATA		
Nominal Energy	1600Wh	3200Wh
Battery Type	LiFePO4	LiFePO4
Nominal Voltage	32Vdc	32Vdc
Operating Voltage	28-36Vdc	28-36Vdc
Depth of Discharge(DOD)	≥95%	≥95%
Charging Temperature Range	0°C~ 55°C	0°C~ 55°C
Discharging Temperature Range	-20°C~55°C	-20°C~55°C
Maximum Charge Current	40A	60A
Maximum Discharge Current	50A	60A
MECHANICAL DATA		
Noise(dB)	< 35dB (1 meter)	
Protection Level	IP65	
Cooling	Natural convection – No fans	
Humidity	0-95% (no condensation)	
Altitude	Up to 2,500 meters	
Installation	Wall-Mounted	
Net Weight	24kg	
Gross Weight	28kg	
Product Dimension(WxHxD)	440×325×200mm	
Package Dimension(WxHxD)	537×387×272mm	
FEATURES		
Display	LCD+LED	
Communication	WIFI/Bluetooth	
Monitoring	Fsolar APP	
Protection	Bulti-in Smart BMS,Breaker,Fuse	
Warranty Period[1]	10 Year	
[1]Conditions apply, refer to FelicityESS Warranty policy.		

6.INSTALLATION

6. 1 Unpacking and inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside the package:

NO.	DESCRIPTION	QUANTITY	PICTURE
1	User manual	1	
2	Warranty card	1	
3	Wall Mount: used for securing the product	1	
4	Terminal 1: used for battery pack output port OUT-	2	
5	Terminal 2: used for battery pack output port OUT+	2	
6	Terminal 3: used for battery pack input port PV-	2	
7	Terminal 4: used for battery pack input port PV+	2	
8	Expansion screws	12	
9	Screws M5X12*3 PCS Screws M8X60*2 PCS	/	

6.2 Tools

Screw Driver

Crimping Modular

Safety Shoes

Multimeter

Safety Gloves

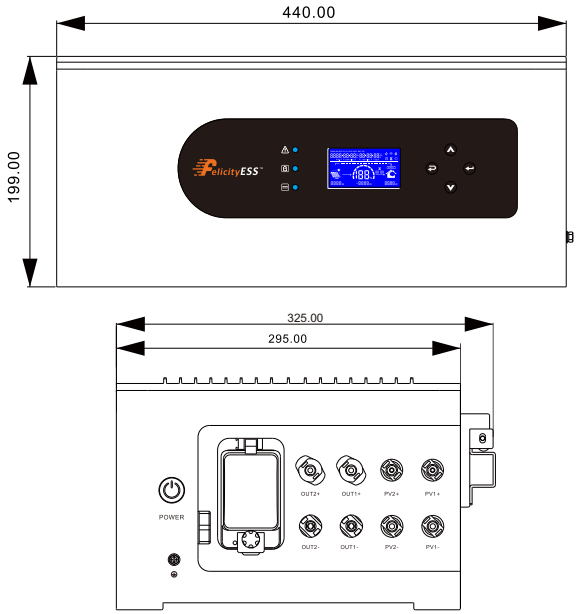
Safety Goggles

Plier

Ribbon

Electric drill

6. 3 Product Size Information

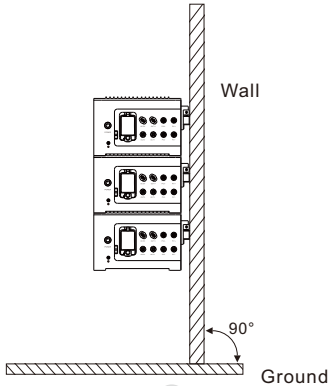


6.4 Mounting the Unit

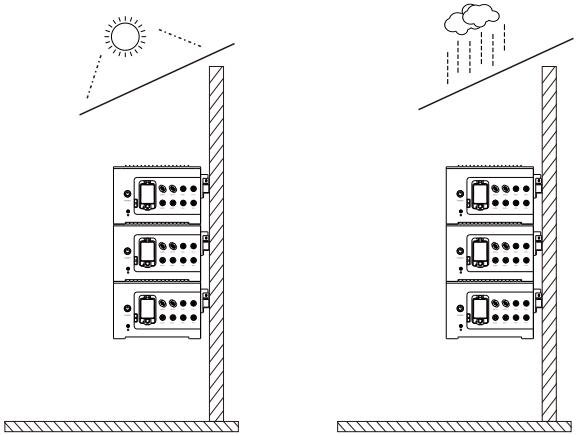
Consider the following points before selecting where to install:

- Do not mount the inverter on flammable construction materials.
- Mount on a solid surface.
- Install this micro energy storage at eye level in order to allow the LCD display to be read at all times.
- The ambient temperature should be between -10°C and 50°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the right diagram to ensure sufficient heat dissipation and to have enough space for removing wires.

⚠ SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON.COMBUSTIBLE SURFACE ONLY.

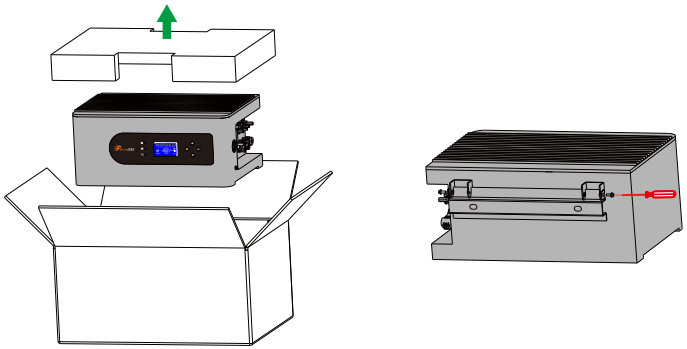


6.5 Install Environment

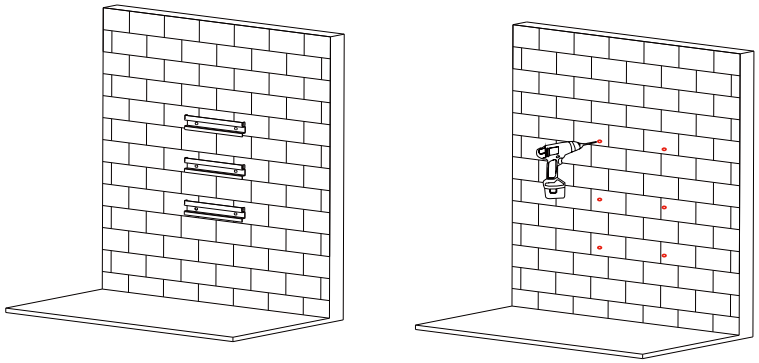


6.6 Installation Procedure

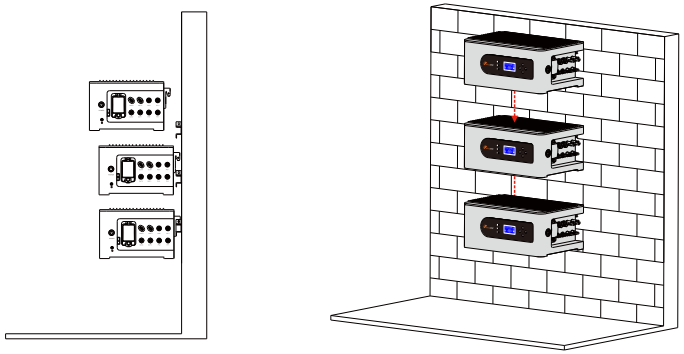
Step 1: Take the products and accessories out of the carton, then use a screwdriver to unscrew the screws that fix the products with the wall hangers, and put the wall hangers aside;
(Please refer to the list of accessories)



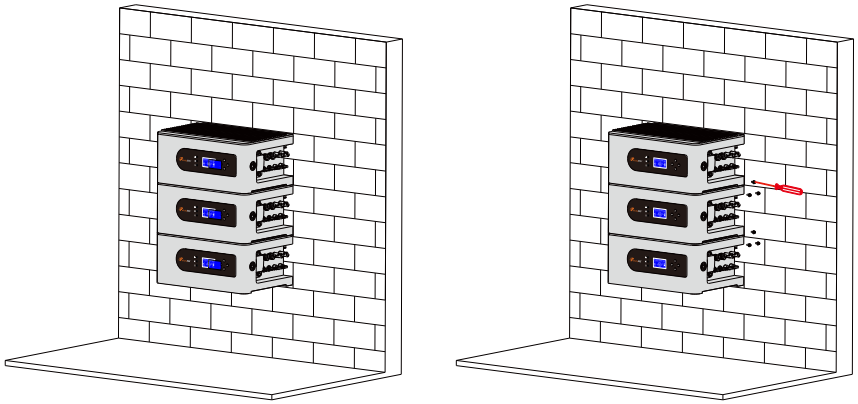
Step 2: Place the wall hangers against the wall, the recommended distance between the product and the ground is 1.5m, mark the corresponding holes of the wall hangers with a marker pen, mark the corresponding holes of the second product wall hangers according to the dimensions shown in the figure, remove the wall hangers, drill holes at the marked points with a hammer drill, drive the expansion screws, and lock the wall hangers;



Step 3: Stack products from low to high

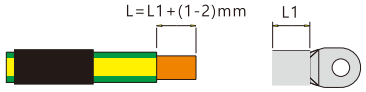


Step 4: Use screws to lock the sheet metal connectors between the stacked products

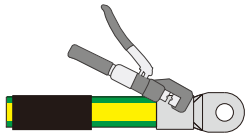


6.7 Ground connection

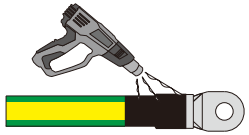
Step 1:



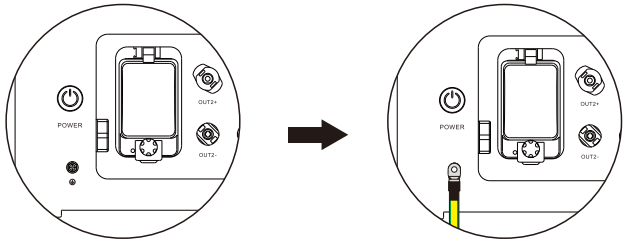
Step 2:



Step 3:



Note:
- When installing equipment, the protective ground wire must be installed first; When removing the equipment, the protective ground wire must be removed last.
- The drawing force after crimping shall be greater than 400N.
- The control box is connected to the ground wire of the base.



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

6.8 PV Connection

Step 1. Prepare PV positive and negative power cables

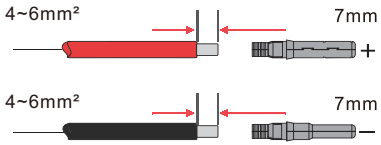


Figure 6.8-1 pv cables and pv plugs

Step 2. Connect PV cables to PV connectors.

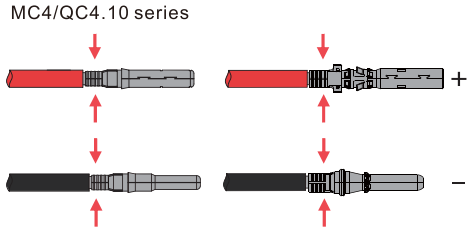


Figure 6.8-2 PV cables to PV connectors

NOTE	• PV cables must be tightly crimped into the connectors. • For Amphenol connector, the limit buckle cannot be pressed. • There will be a “click” sound if connectors are inserted correctly into PV plugs.

Step 3. Screw the cap on and plug it onto inverter side.There will be a click sound if connectors are inserted correctly into PV plugs.(The illustrated products are for reference only).

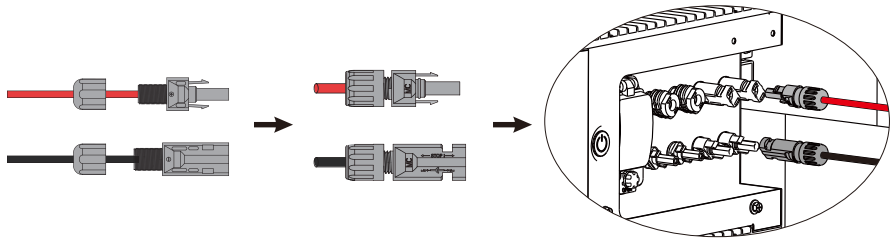
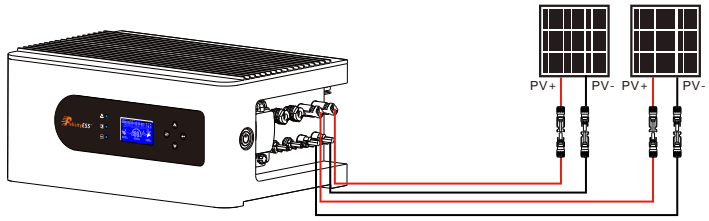


Figure 6.8-3 The PV plug is connected to the inverter

Please follow the steps below to implement PV input connection:
1.Disconnect the circuit breaker before connecting the solar panel input.
2.Please follow the label on the MC4 PV cable to connect the solar panel.
One /Two solar panels can be connected, each with a power between 210W and 670W.



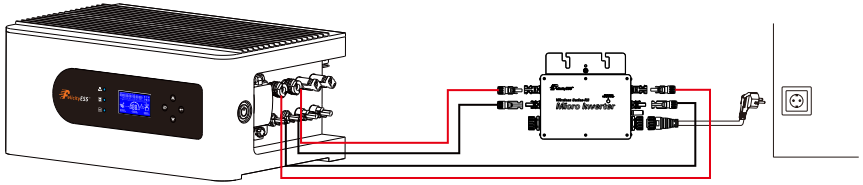
6.9 Microinverter Connection

Microinverter Selection:

1.Minimum MPPT tracking voltage should be less than 30V.
2.Single-channel PV tracking power should be less than 600W.

Please follow the steps below to implement Micro Inverter connection:

1.Disconnect the circuit breaker before connecting the Micro Inverter output.
2.Please follow the label on the MC4 PV cable to connect the micro inverter.
3.The DC output of Micro energy storage system can be connected to 2-channel micro-inverter sat the same time, with a maximum power of 500W per channel.
4.Using MC4 extension cable, you can easily connect the micro inverter.



Step 1. Prepare battery cables and accessories, and route the battery power cable through the battery cover. Use accessories from the accessories box(the battery power cable is 6mm²)

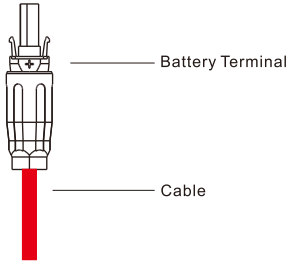


Figure 6.9-1 Battery cable and battery terminal

Step 2. Make battery terminals , Strip cable coat, revealing 10mm length of metal core.Use special crimper to compress battery terminal tightly.

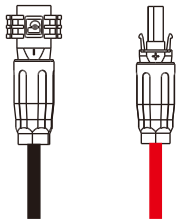


Figure 6.9-2 The battery terminal

Step 3. Connect the battery terminal to the inverter. Ensure that the battery polarity is connected correctly.

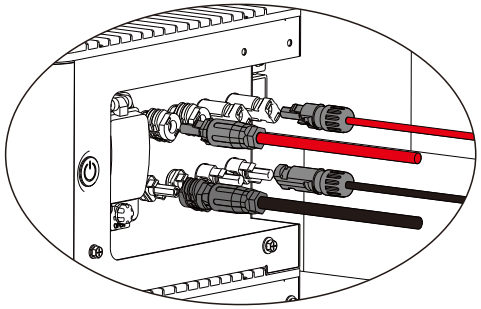
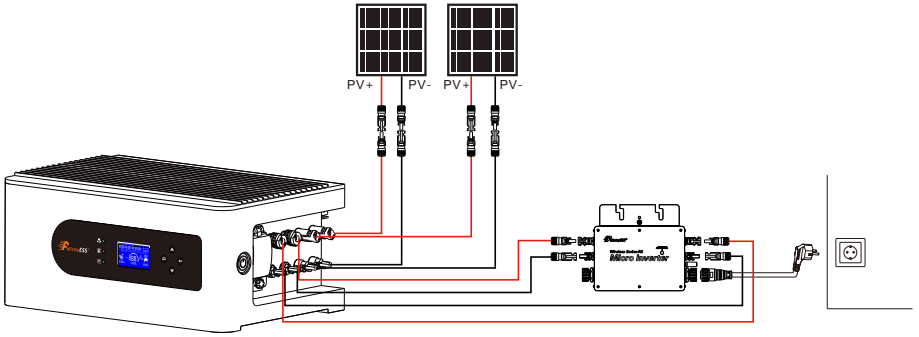


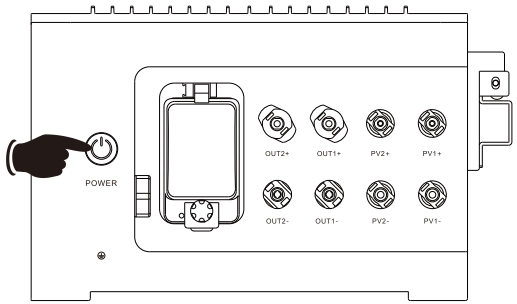
Figure 6.9-3 The battery terminal is connected to the inverter

6.10 Final Assembly

Be sure that Micro inverter is disconnected before attempting to hard wire it to the unit.



7.OPERATION



Once the batteries are well connected,close the breaker to the ON position,and press On/Off button to start Micro Energy Storage System.

7.1 Switch On/0ff

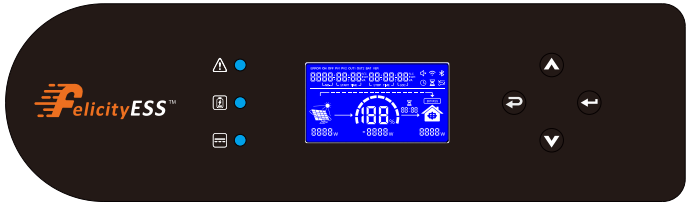
Switch on:press the On/Off button to switch on the battery, then the battery,and then the battery will perform a self-inspection before enabling the output.The LCD will show the SOC and time.

Switch off:press and hold On/Off button for 1 to 3 seconds, the battery will shut down directly.

8. Display and operation

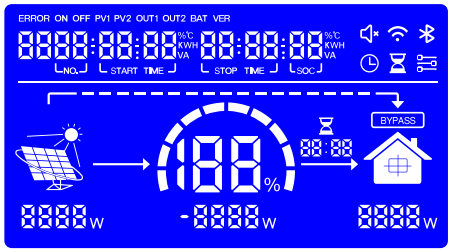
This chapter describes the display of information on the panel and how to operate it, which including the LCD display,LED indicators,and the operation panel.

8.1 Operation and Display Panel



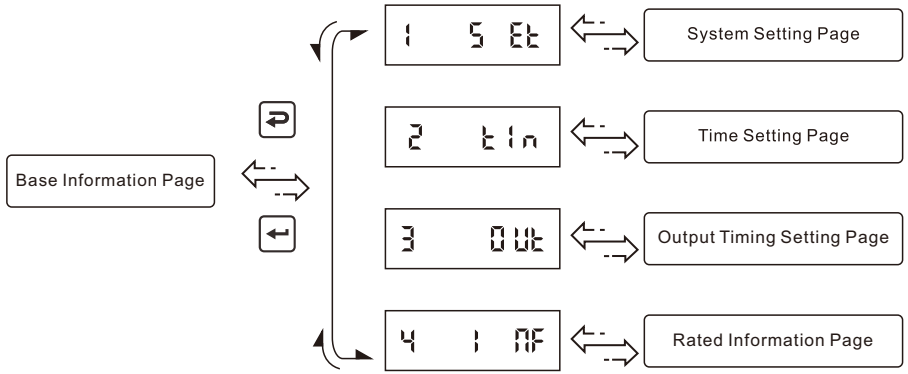
Function Key	Icon	Description
ESC		Hold on the “ESC” button for 3S to turn off the inverter
UP		To go to previous selection
DOWN		To go to next selection
ENTER		Hold on the “ENTER” button for 3S to turn on the inverter
LED Indicator	**Icon**	**Description**
Battery		Charging the battery, the LED flicker. The system is running,the LED light will always-on.
Output		The system Time is on,and the led is always be on; when the system is in Bypass mode,the led will always flash; when the system Time is off or not running in Bypass mode,the led is off;
Fault		If the system is in a fault event,the LED light will always-on. If the system is in a warning event,the LED light will flash. If the system works normally, the LED light will go out.
Buzzer Information		
Buzzer beep	Press any button, the buzzer will last for 0.1s. Hold on the"ENTER" button,the buzzer will last for 3s.If a fault event occurs, the buzzer will keep going. If a warning event occurs,the buzzer will beep discontinuously. (Check more information in the chapter of " Warning Code Table ")	

8.2 LCD Display Icons



Icon	Function description
8888-88-88 88:88:88	Date and Time
PV1 PV2 OUT1 OUT2 BAT VER	PV voltage, PV current ,PV power; battery voltage ,battery current, Cell Max/Min voltage. Cell Max/Min temperature Output voltage.
ON OFF	Output ON/OFF,Output num, Output start Time,Output stop Time,Output SOC
	Indicates when the unit alarm is disabled,wifi, Bluetooth,clock,OUTTIME,Setting
8888W	Indicates the PV panels and PV power
	PV MPPT is working.
88% -8888W	Indicates battery level by 0-10%,11-20%,21-30%, 31-40%,41-50%,51-60%,61-70%,71-80%,81-90%, 91-100%.(When charging,this icon is displayed for horse running;When discharging,the icon displays constant). Battery power
88:88	Output is on(if Output is ON, display OFF time if Output is OFF display ON time)
8888W	Output/Bypass is ON Output power
BYPASS	Bypass mode, PV connected output

8.3 LCD operation flow chart



On base information page, pressing and holding "ENTER" key for 3 sec, the unit will enter param page. Press "UP" or "DOWN" key to switch the selection and press "ENTER" key to enter selected p Press "ESC" key to return to previous page.

8.4 Output function introduction

ON 01 19:30 07:00 05% NO. START TIME STOP TIME SOC	**Timing GROUP1** Timing GROUP1 is ON, START TIME IS 19:30; STOP TIME IS 7:00; STOP SOC is 5,If the battery SOC is less than or equal to 5, the output is turned off. In addition, if multiple battery SOC groups are enabled in the same time range, the SOC off value is the lowest.
OFF 02 18:00 06:00 20% NO. START TIME STOP TIME SOC	**Timing GROUP2** Timing GROUP2 is OFF, START TIME IS 18:00; STOP TIME IS 6:00; STOP SOC is 20.
ON 03 18:00 21:00 10% NO. START TIME STOP TIME SOC	**Timing GROUP3** Timing GROUP3 is ON, START TIME IS 18:00; STOP TIME IS 21:00; STOP SOC is 10,If the battery SOC is less than or equal to 10, the output is turned off. In addition, if multiple battery SOC groups are enabled in the same time range, the SOC off value is the lowest.

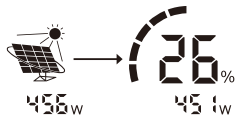
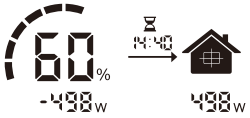
The three sets of time Settings are shown above, with the first set on and the second set off.
The third group is on.
If the current time is 15:00, the output is off.
If the current time is 18:00, the output is on. When the SOC is below 10%, the output will be turned off.
If the current time is 20:00, the output is on, and when the SOC is below 5%, the output will be turned off.
If the current time is 1:00, the output is on, and when the SOC is below 5%, the output will be turned off.

Bypass mode introduction
When the battery is fully charged with 100%SOC, the PV has voltage, and the output does not reach the start time, the bypass mode is entered, and the PV is directly connected to the output.

8.5 Base information Page

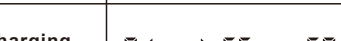
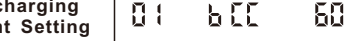
The base information will be switched by pressing "UP"" or "DOWN" key. The selectable information is switched as below order:

LCD Display	Description
	**Date and Time** Date is 2024 -1-1,time is 12:30:12
	**Pv1 Voltage and Current** PV1 Voltage is 35.00V, PV1 Current is 15.00A
	**Pv1 Voltage and Power** PV1 Voltage is 35.00V, PV1 Power is 200W
	**Pv2 Voltage and Current** PV2 Voltage is 40.00V, PV2 Current is 20.00A
	**Pv2 Voltage and Power** PV2 Voltage is 40.00V, PV2 Power is 100W
	**Battery Voltage and Current** Battery Voltage is 30.00V,Battery Current 25.00A
	**Cell Max and Min Voltage** Cell Max Voltage is 3.20V, Cell Min Voltage is 3.18V
	**Cell Max and Min Temp** Cell Max Temp is 29°C, Cell Min Temp is 28°C
	**Output1 Voltage and Output2 Voltage** Output1 Voltage is 29.88V,Output2 Voltage is 29.77V
	**Timing GROUP1** ON/OFF,START TIME ,STOP TIME ,STOP SOC Timing GROUP1 is ON, START TIME IS 18:00; STOP TIME IS 6:00; STOP SOC is 5
	**Timing GROUP2** ON/OFF,START TIME ,STOP TIME ,STOP SOC Timing GROUP2 is OFF, START TIME IS 18:00; STOP TIME IS 6:00; STOP SOC is 10
	**Timing GROUP3** ON/OFF,START TIME ,STOP TIME ,STOP SOC Timing GROUP3 is OFF, START TIME IS 18:00; STOP TIME IS 6:00; STOP SOC is 10

	PV charging power:456W Battery input power:451W Battery SOC:26%
	Battery output power:498W Output off countdown at 14 hours and 40 minutes Output power:498W

8.6 System Setting Page

Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confirm the selection or ESC button to exit.

		Selectable option	
00	Exit setting		
01	Max charging current Setting		Setting range is from 10A to 60A Increment of each click is 1A.
02	Backlight is LCD		DIS If selected, LCD backlight will be off after no button is pressed for 60s. ENA If selected, LCD backlight will be always-on.
03	Auto return to the first page of display screen		DIS If selected, the display screen will stay at the latest screen user finally switches. ENA If selected, it will automatically return to the first page of display screen(Input voltage/output voltage)after no button is pressed for 60s.
04	Buzzer Alarm		DIS If selected, buzzer is not allowed to beep. ENA If selected, buzzer is allowed to beep.
05	Bypass Mode		DIS If the battery is fully charged,it enters output mode. ENA If selected, The battery is is charging Full, If the output is not on, enter bypass mode

8.7 Time Setting Page

Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confrm the selection or ESC button to exit.

LCD Display	Description
	Time Setting Page 1.year setting: Setting range is from 2023 to 2099 2.month setting: Setting range is from 1 to 12 3.day setting: Setting range is from 1 to 31 4.hour setting: Setting range is from 0 to 23 5.minute setting: Setting range is from 0 to 59 6.second setting: Setting is 0

8.8 0utput timing Setting Page

Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confrm the selection or ESC button to exit.

LCD Display	Description
	Output timing Group Setting :Setting range is from 1 to 9
	1.ON/OFF setting 2.START TIME hour setting: Setting range is from 0 to 23 3.START TIME minute setting: Setting range is from 0 to 59 4.STOP TIME hour setting: Setting range is from 0 to 23 5.STOP TIME minute setting: Setting range is from 0 to 59 6.STOP SOC setting: Setting range is from 0 to 80

8.9 Rated information page

Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confrm the selection or ESC button to exit.

LCD Display	Description
	**Max Pv Voltage /Max MPPT Current** Max PV Voltage is 95V,Max MPPT Current is 30A
	**Rated battery voltage /Max. charging current** Rated battery voltage is 32V, Max charge current is 60A
	**Output Max Voltage / Max Current** Output Max Voltage is 36V,Output Max Current is 25A
	**Firmware version** Firmware version is 100

8.10 Fault Code Table

When a fault event happens, inverter will cut off output, and the fault LED is solid on. At the same time, fault code, icon and ERROR are shown on the LCD screen.

1	Battery voltage is too high	Restart the unit, If the error happens again, please return to repair center.
2	Battery voltage is too low	Restart the unit, If the error happens again, please return to repair center.
3	Cell voltage is too high	Restart the unit, If the error happens again, please return to repair center.
4	Cell voltage is too low	Restart the unit, If the error happens again, please return to repair center.
5	Over charge current	Restart the unit, If the error happens again, please return to repair center.
6	Over discharge current	Reduce the loads
7	Heat sink temperature is too high	Restart the unit, If the error happens again, please return to repair center.
8	Heat sink temperature is too low	Restart the unit, If the error happens again, please return to repair center.
9	Cell temperature is too high	Restart the unit, If the error happens again, please return to repair center.
10	Cell temperature is too low	Restart the unit, If the error happens again, please return to repair center.
11	PV1 overcurrent	Restart the unit, If the error happens again, please return to repair center.
12	PV2 overcurrent	Restart the unit, If the error happens again, please return to repair center.
13	Output1 overcurrent	Reduce the loads
14	Pv1 voltage is too high	Please check the voltage of the solar panel, it should be less than 95V.If the voltage is ok, please contact your installer.
15	PV2 voltage is too high	Please check the voltage ofthe solar panel, it should be less than 95V.If the voltage is ok, please contact your installer.
16	Output2 overcurrent	Reduce the loads
17	Eeprom is error	Restart the unit, If the error happens again, please return to repair center.
18	SampSensor is error	Restart the unit, If the error happens again, please return to repair center.
19	OutputRes is error	Restart the unit, If the error happens again, please return to repair center.
20	Output overcurrent	Restart the unit, If the error happens again, please return to repair center.
21	PV Mos Short	Restart the unit, If the error happens again, please return to repair center.
22	Batter Relay Error	Restart the unit, If the error happens again, please return to repair center.

9. 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 inappropriate 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-implied 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.

10. TROUBLESHOOTING AND MAINTENANCE

10.1 Maintenance

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 undercharged;
- 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.

10.2 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 'LCD fault message' 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-S-1600LG01 is on;
• Whether the battery can output voltage or not;
• Whether the micro energy storage system can communicate with the inverter.

- Preliminary determination steps

Micro energy storage system cannot work, when the DC switch and the POWER are on,the LCD doesn't light up or flash, please consider contacting the local distributor.

• The LCD display of LUX-S-1600LG01 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-S-1600LG01 and 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.