



**SUNOVA ESS**

**Smart Energy Explorer.**

# e-Fox-L/H Series ESS

——Jisto T. Mutsena

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**Sharing Value with SUNOVA ESS**  
**January. 2023**

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# Introduction



01

Introduction

# Introduction



- It is an off-grid energy storage system (ESS).
- Built-in LFP battery, off-grid inverter & BMS.
- Supports wifi remote monitoring via app (Ucaness).
- One dc input (solar panels), one ac input (grid/generator) & one ac output (load).
- Sunova-eFox-L-30E, Sunova-eFox-H-30E, **Sunova-eFox-H-35E & Sunova-eFox-H50E.**

Sunova-eFox-H50E



Rated AC output power: 5000W

# Introduction

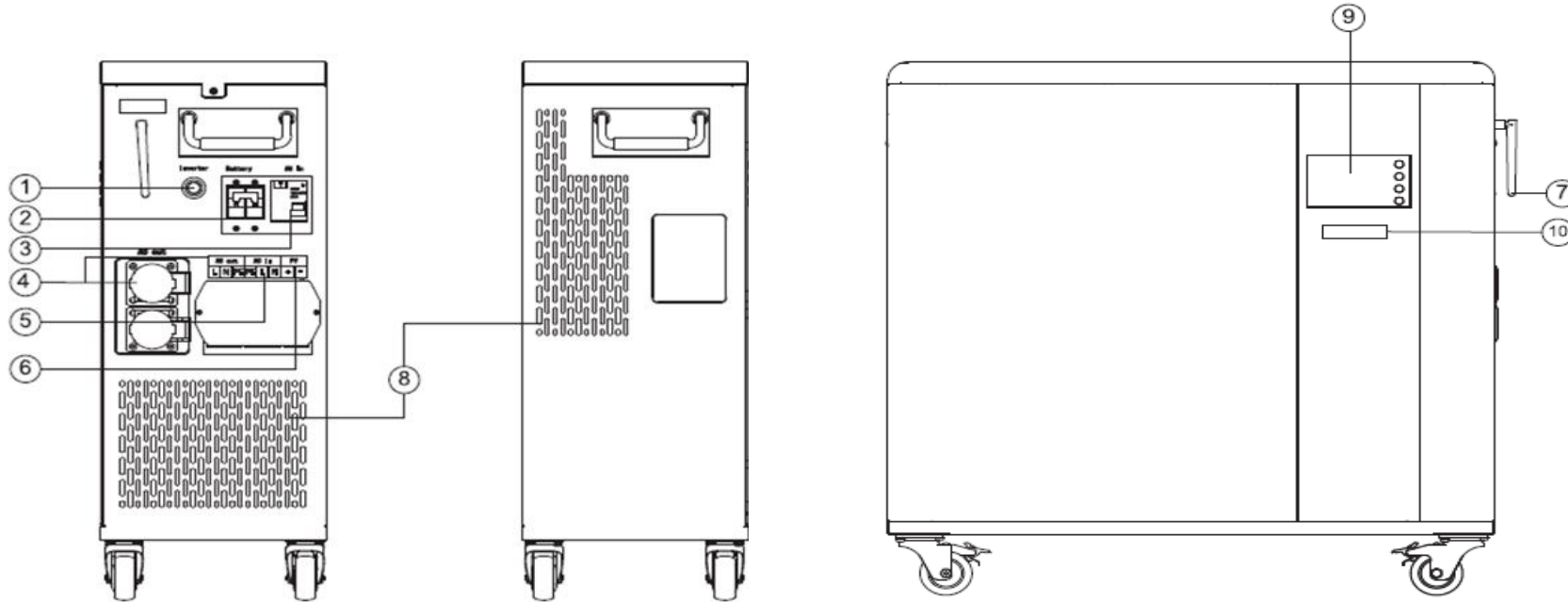


## Advantages

- Easy to install & move.
- Fast & convenient PV & grid charge.
- User friendly
- High reliability

# Introduction

## Device overview



1. Inverter Switch
2. Battery Breaker
3. AC Input Breaker
4. AC Output
5. AC Input

6. PV Input
7. Wifi Antenna
8. Heat Dissipation Hole
9. LCD Screen
10. Battery Status Indicator

# Introduction



## Datasheet (Summary)

Model	eFox-L-30E	eFox-H-30E	eFox-H-35E	eFox-H-50E
<b>Battery</b>				
Rated Volt.	51.2V	51.2V	51.2V	51.2V
Capacity	3.43kWh	5.12kWh	5.12kWh	5.12kWh
<b>AC Output</b>				
Rated power	3000W	3000W	3500W	5000W
Max. Output I	13.7A	13.7A	16A	22.7A
<b>PV Input</b>				
Max. Power	1800W	1800W	4500W	6000W
Max. Volt.	145V	145V	450V	450V
MPPT Volt. Range	60-115V	60-115V	120-430V	120-430V
Max. Charge Current	30A	30A	80A	100A

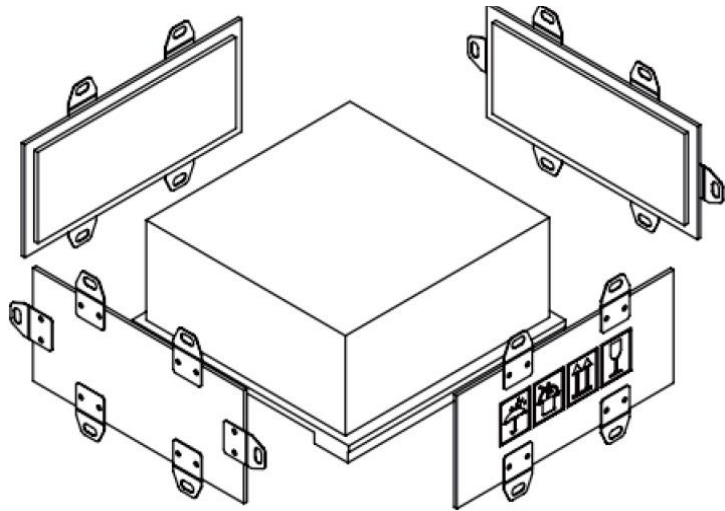
02

Installation

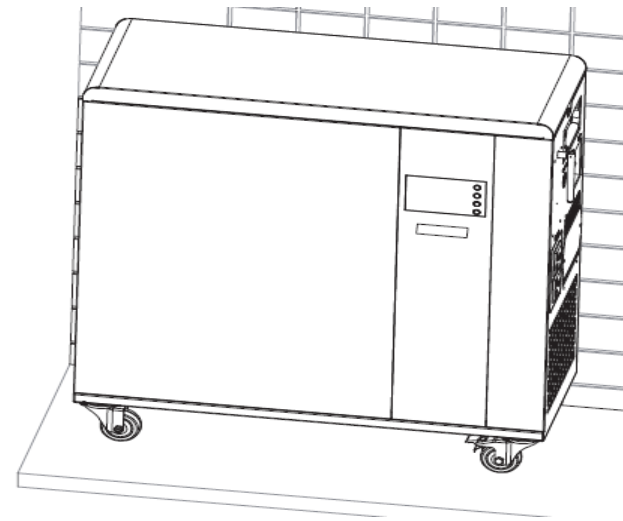


# Installation

Only qualified electricians are allowed to install, maintain & inspect the units:

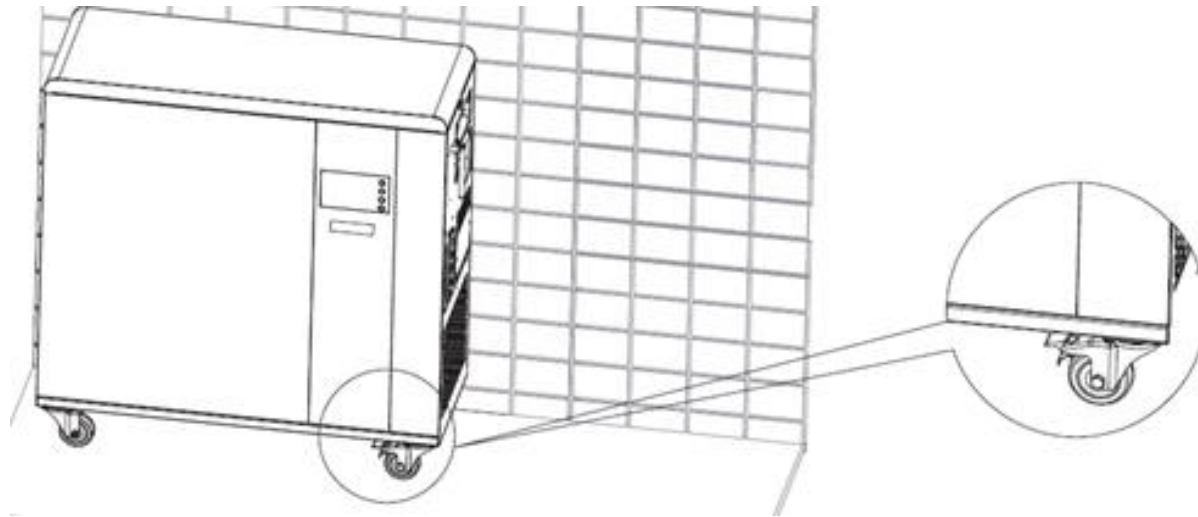


1. Unbox the unit



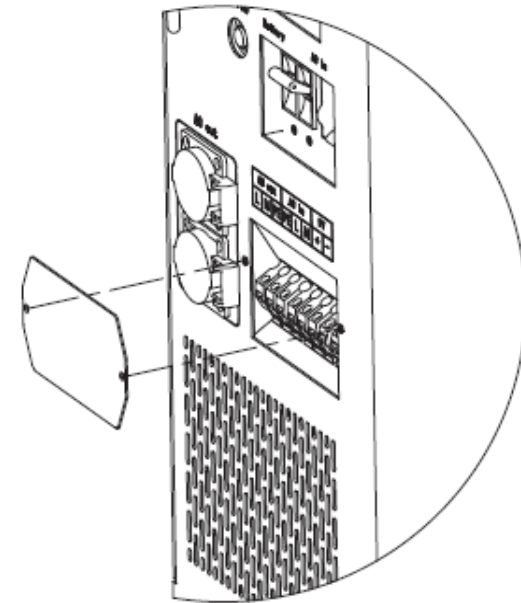
2. Install the unit indoors

# Installation



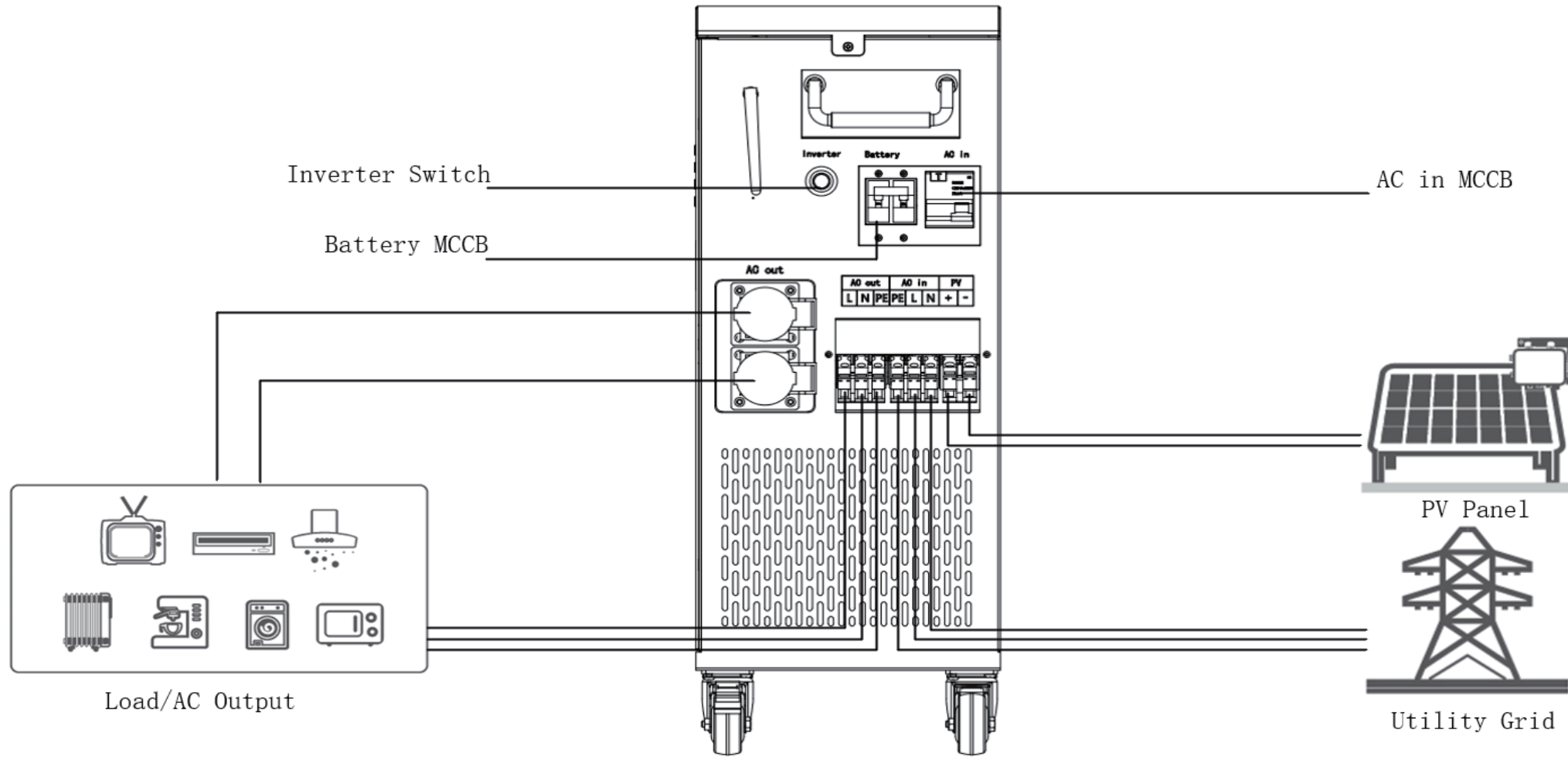
3. Lock the castle buckle to prevent sliding

4. Foreign objects to be placed 200mm away from the unit
5. Before wiring the unit to the grid & panels make sure the unit is off



6. Remove the side cover case

# Installation



7. Wire the unit as shown.

# Installation



Connecting to solar panels:

- 10 awg (or 6 mm<sup>2</sup>) DC cables for PV systems are recommended.
- Open circuit voltage (Voc) of PV modules should not exceed maximum PV array open circuit voltage of the unit
- Open circuit voltage (Voc) of PV modules should be higher than minimum start voltage

Model	eFox-L-30E	eFox-H-30E	eFox-H-35Ee	eFox-H-50E
<b>PV input</b>				
Max Power	1800W	1800W	4500W	6000W
Max PV Volt.	<b>145V</b>	<b>145V</b>	<b>450V</b>	<b>450V</b>
MPPT Volt Range	<b>60-115V</b>	<b>60-115V</b>	<b>120-430V</b>	<b>120-430V</b>

- For the **Sunova panels (SS-550\*72MDH)**:
- Maximum power- $P_m$  (W): 550
- Open circuit voltage- $V_{oc}$  (V): 49.60

Using **eFox-H50E** as an example:  
Max. # of panels:  $(450/49.60) \approx 9.07 = 9$   
Min. # of panels:  $(120/49.60) \approx 2.4 = 3$

# Installation



AC input and AC output terminal connections:

- Be careful to distinguish the L, N and PE of the AC cables.
- Flexible cords are recommended for easy installation.
- Recommended size: 10 awg (or  $6\text{mm}^2$ )

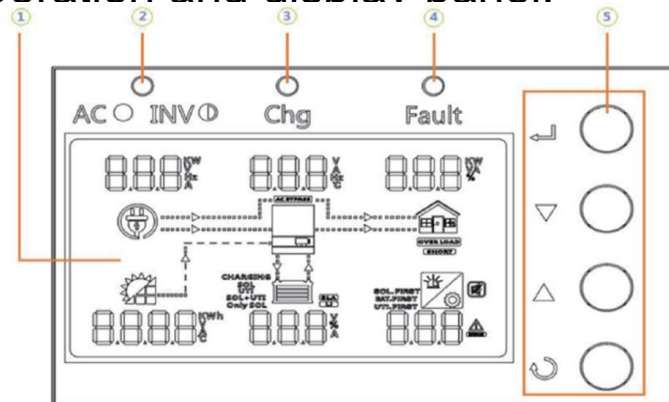
Starting up the unit:

- Switch on the Battery breaker first
- Turn on the inverter switch
- Finally, turn on the AC in breaker

Shutting down the unit:

- Switch off the AC in breaker first
- Turn off the inverter switch
- Finally, switch off the battery breaker

Operation and display panel:

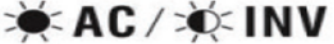




1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons

# Installation



Led indicator messages:

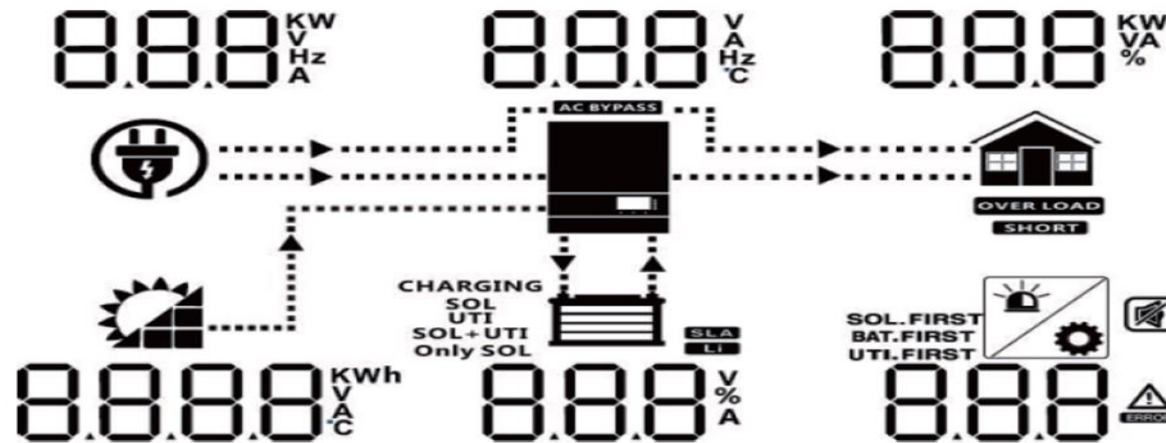
LED Indicator		Messages	
 <b>AC / INV</b>	Green	Solid On	Output is powered by utility grid.
		Flashing	Output powered by battery or PV in battery mode.
 <b>CHG</b>	Green	Solid On	Battery is fully charged.
		Flashing	Battery is charging.
 <b>FAULT</b>	Red	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.

The function buttons of the unit:

Function Button	Description
ESC	To exit setting mode
UP	To go to previous selection
DOWN	To go to next selection
ENTER	To confirm the selection in setting mode or enter setting mode

# Installation

LCD display icons:



Meaning of some of the icons:

<p><b>CHARGING</b> <b>SOL</b> <b>UTI</b> <b>SOL+UTI</b> <b>Only SOL</b></p>	<p>Indicates charging source priority: Solar first, Utility first, solar and utility, or only solar</p>
<p><b>SOL.FIRST</b> <b>BAT.FIRST</b> <b>UTI.FIRST</b></p>	<p>Indicates output source priority: Solar first, Utility first, SBU mode or SUB mode.</p>

# Installation



Modes of operation:

Mode	Operation
SOL (Solar first)	PV panels → load
UTI (Utility first)	Grid → load + bat. (cap. low)
SBU (Solar-Battery-Utility) <b>Default</b>	PV panels → load + bat. PV panels + bat. → load Grid → load & PV panels → bat.
SUB (Solar-Utility-Battery)	PV panels → load + bat. Grid → load & PV panels → bat.

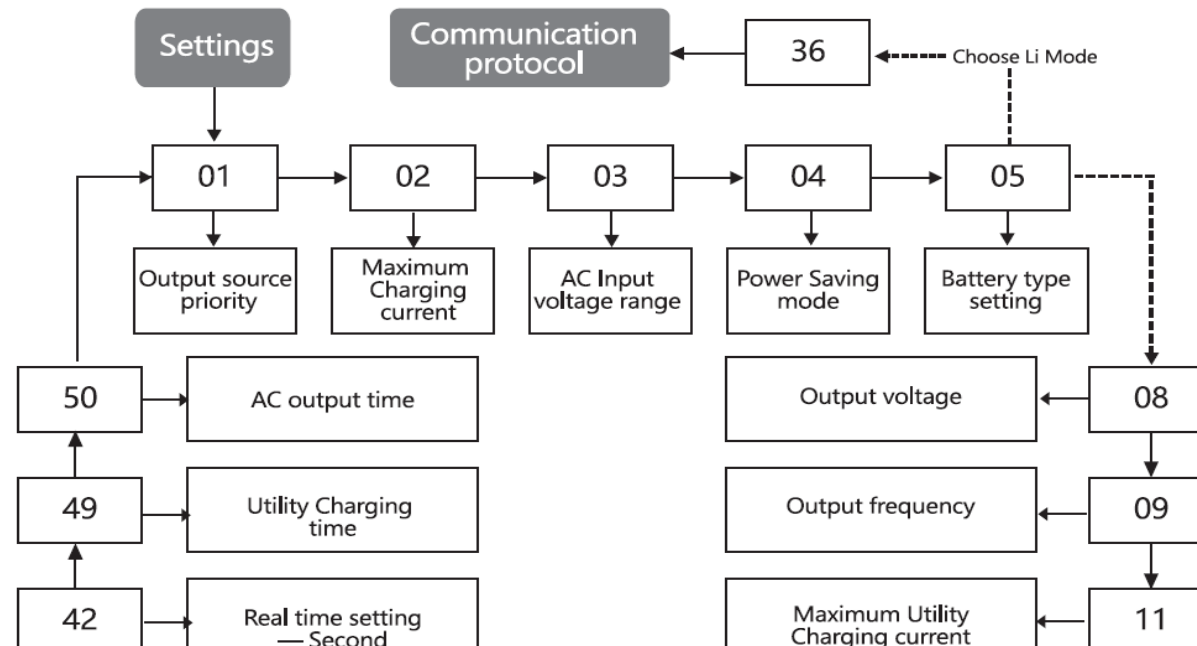


# Installation



LCD settings:

- Press & hold the “ENTER” button for 3 seconds
- Unit will enter into setting mode
- Press “UP” or “DOWN” button to select setting programs from 01 to 50
- Press “ENTER” button or “ESC” button to exit



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Flow of program settings (partial diagram)

# Installation



Restore factory settings:

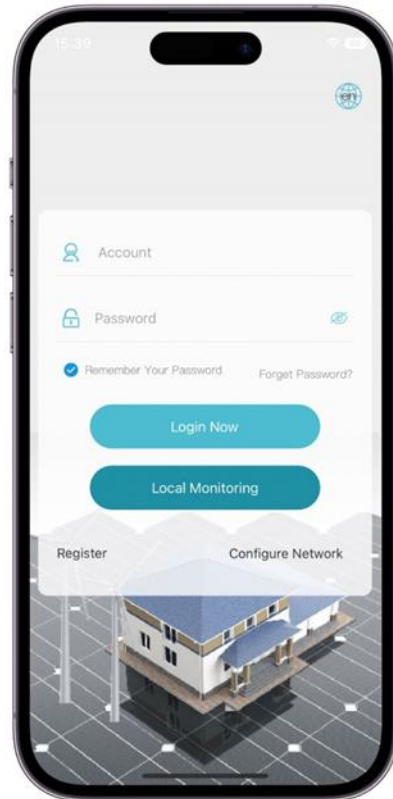
- Press & hold the “DOWN” & “UP” buttons at the same time until **PASS 000 000** appears on the LCD
- Press the “ENTER” button
- Set **PASS 000 000** to **PASS 305 000**
- Press “ENTER” button (**EE RSt 034 appears on the LCD**)
- Press “ENTER” button (**RSt flashes on the LCD**)
- Press “ENTER” button again (**RSt stops flashing on the LCD**)
- Finally, press “ESC’ button

# Installation

Remote monitoring via UCANESS Mobile App:



1. **Download** the app from <http://ucaness.com/download/ucaness.apk> or google play



2. Install & open the app on your mobile phone
3. Click on the “**Register**” button (if not yet registered) or “**Login**” button (registered email & password required)
4. To register an account:
  - i. Click on the “Register” button
  - ii. Check the “Terms of Service and Privacy Policy” statement
  - iii. Input your preferred username, email address and set your account login password
  - iv. Click the “Verification Code” button & enter the verification code send to your email address
5. Login into your account using your registered email address & password

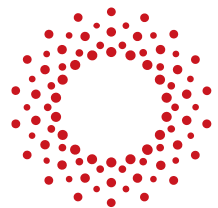
**03**

**Troubleshooting**

# Troubleshooting



Problem	LCD/LED/Buzzer	Explanation	What to do
Unit shuts down automatically during start up process	LCD/LEDs and buzzer will be active for 3 seconds and then turn off	The battery voltage is too low (<setting in program 5)	<ol style="list-style-type: none"><li>1. Recharge battery</li><li>2. Replace battery</li></ol>
No response after power on	No indication	<ol style="list-style-type: none"><li>1. The battery voltage is too low</li><li>2. Battery polarity connection reversed</li></ol>	<ol style="list-style-type: none"><li>1. Check if batteries and wires are connected well</li><li>2. Recharge battery</li><li>3. Replace battery</li></ol>



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言出必行

Make It Happen