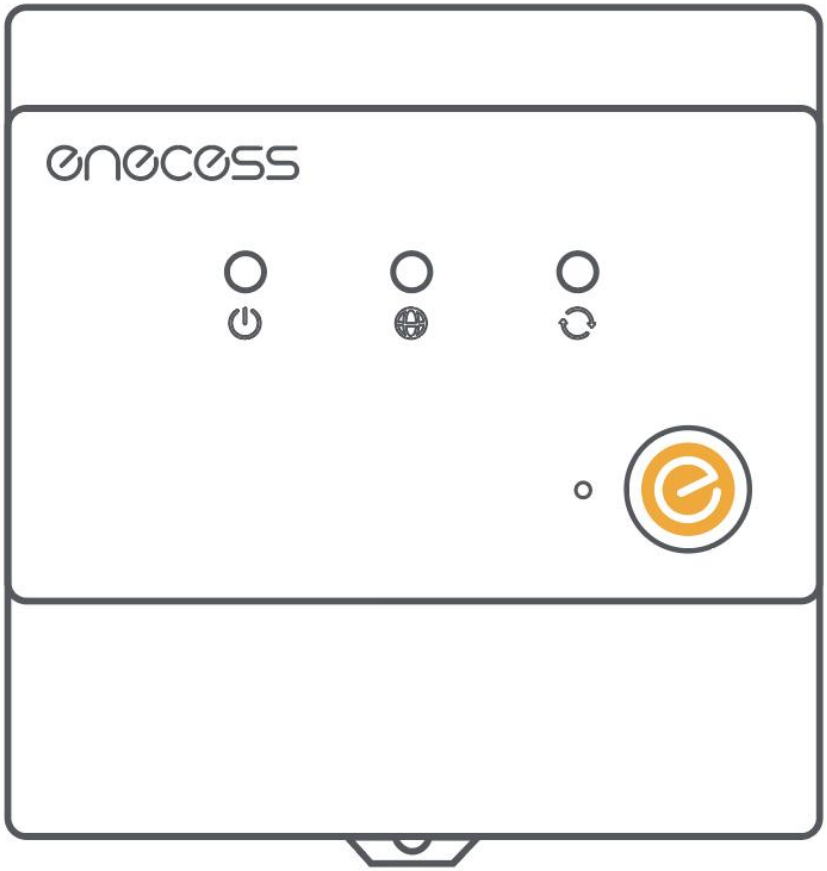
ecoMain Installation & Configuration Guide



V 1.0

Revision History ：

Version	Date	Description
V1.0	2026.5.25	Initial Release

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Specifications are subject to change without notice.

Safety Instructions :

- Disconnect power before installation.
- Do not use the device in wet environments.
- Do not disassemble or modify the device.
- Do not exceed rated current or power.
- Installation by qualified personnel is recommended.

Symbols and Conventions :

The following symbols may appear in this document and their meanings are as follows.

Symbol	Description
TIP	Helpful suggestions and recommendations
NOTE	Important supplementary information
WARNING	Risk of incorrect operation or equipment damage
DANGER	Risk of electric shock, serious injury, or death

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1 System Overview

1.1 Product Introduction

ecoMain is a multi-channel AC energy monitor designed for real-time monitoring of residential and commercial electrical distribution systems, including:

- Main circuits
- Branch circuits
- PV circuits
- High-power loads such as heat pumps, EV chargers, and dryers

ecoMain continuously measures and analyzes voltage and current data from each monitored circuit, helping users better understand energy usage. The collected data can be used for energy management, efficiency optimization, and automation applications.
ecoMain supports:

- Single-phase systems
- Split-phase single-phase three-wire systems
- Three-phase four-wire systems

Users can monitor and manage main and branch circuit energy data through:

- enecess App
- Home Assistant integration

Available monitoring data includes:

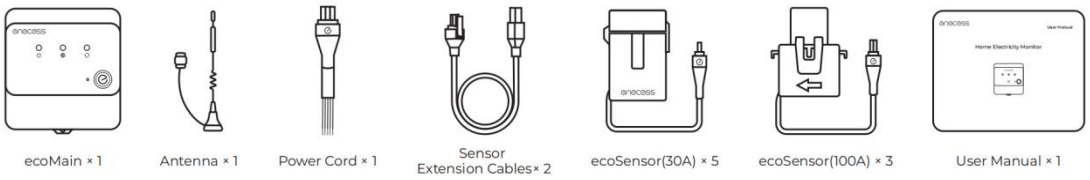
- Real-time power
- Energy consumption
- PV generation
- Historical energy data
- Branch circuit analysis

TIP

ecoMain is not only an energy monitoring device, but also an important part of a home energy automation and smart energy management system.
By integrating with smart home platforms such as Home Assistant, ecoMain supports energy optimization, automation control, and smart home automation.

1.2 Package Contents

Package contents may vary depending on the model. The following example shows the package contents of the E2401 kit:



Name	Qty	Description
ecoMain （Main Unit）	×1	Main controller and data acquisition unit
WiFi Antenna	×1	Provides Wi-Fi Connectivity
Power Cable	×1	Provides power supply supply and voltage sensing for ecoMain
ecoSensor（30A Current Sensor）	×5	For branch circuit monitoring
ecoSensor（100A Current Sensor）	×3	For main circuit monitoring
Current Sensor Extension Cable	×2	Extend current sensor cable length
Channel Label Stickers	×1	Used for channel identification
User Manual	×1	Installation and configuration instructions

1.3 Operating Principle

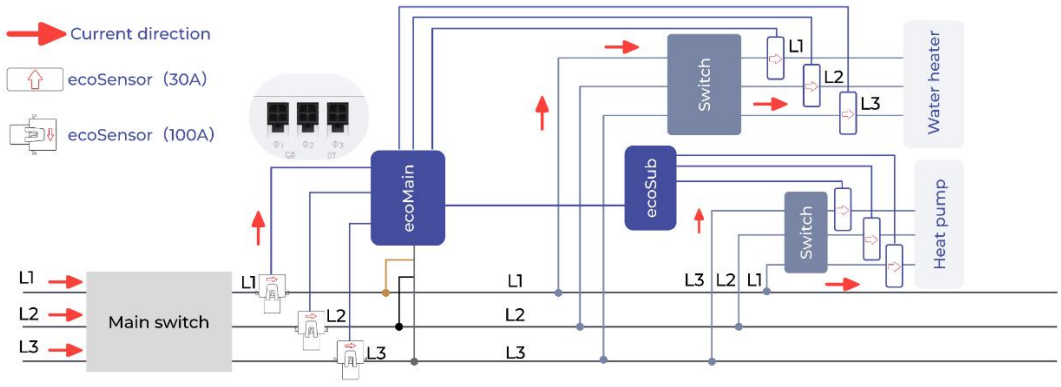
ecoMain:

- Measures voltage through the power cable
- Measures circuit current through ecoSensor current sensors

Based on the collected voltage and current data, ecoMain calculates:

- Real-time power
- Energy consumption
- PV generation
- Circuit energy analysis

The following diagram shows a typical ecoMain installation in a three-phase electrical system.
Actual installation environments and electrical distribution structures may vary depending on regional standards, building layouts, and distribution system types. Please refer to the actual installation conditions on site.



In the diagram:

- L1 / L2 / L3 correspond to different power phases
- Single-phase systems typically use one phase only
- Three-phase systems use all three phases simultaneously

1.4 Main Circuit and Branch Circuit Monitoring

1.4.1 Main Circuit Monitoring (100A Current Sensors)

Three 100A ecoSensor current sensors are used to monitor:
- L1 main incoming line
- L2 main incoming line
- L3 main incoming line

The sensors are typically installed on the main incoming lines after the utility meter and main breaker.

1.4.2 Branch Circuit Monitoring (30A Current Sensors)

30A ecoSensor current sensors are used to monitor branch circuits. Branch circuits may correspond to:
- Room circuits
- Dedicated equipment circuits

Examples include:
- Room circuits
- Air conditioners
- Heat pumps
- Dryers
- Water heaters
- PV inverters

Each current sensor corresponds to one ecoMain monitoring channel.

1.5 Supported Power Systems

ecoMain supports:

System Type	Support
Single-phase two-wire system	Supported
Split-phase single-phase three-wire system	Supported
Three-phase four-wire system	Supported

For single-phase systems:

• Only the power wires for the corresponding phase need to be connected

• Unused exposed wires must be properly insulated

Examples:

• Single-phase two-wire systems use L1 only

• Split-phase single-phase three-wire systems use L1 + L2

DANGER

Unused phase wires must be fully wrapped with electrical tape and must not be left exposed.

2 Installation Preparation

2.1 Installer Requirements

DANGER

This product involves high-voltage electrical distribution system installation and should be installed by a qualified electrician. Incorrect installation may result in:

- Personal injury
- Equipment damage
- Electrical distribution system failure

2.2 Pre-Installation Checklist

Before installation, confirm the following information.

2.2.1 Confirm the System Phases

For three-phase electrical systems, identify the three main incoming lines in the distribution panel and label their corresponding phases as:

- L1
- L2
- L3

NOTE

Unused phase wires must be fully wrapped with electrical tape and must not be left exposed.

In a three-phase electrical distribution system, three independent main incoming lines (L1 / L2 / L3) supply the distribution panel.

Each main incoming line supplies its own branch circuits, which are connected to different rooms or equipment in the building.

All branch circuits connected to the same main incoming line belong to the same phase.
For example:
- If a main incoming line is identified as L1
- Then all branch circuits supplied by that line also belong to phase L1

Why Phase Identification Is Required?

For both main circuits and branch circuits, ecoMain calculates power by measuring:
- Current from the current sensor
- Voltage from the power cable

After receiving current data from a current sensor, each ecoMain monitoring channel also needs to know:
- Which voltage phase (L1 / L2 / L3) corresponds to the monitored circuit

Accurate power calculation is only possible when the current phase and voltage phase are correctly matched.
This affects:
- Real-time power
- Energy consumption

- PV generation
- Energy statistics

In simple terms, ecoMain not only needs to know how much current is flowing through a circuit, but also which phase (L1 / L2 / L3) the circuit belongs to.
For example:

- If a current sensor is installed on an L1 circuit
- But the channel phase is configured as L2 in the App
- Power calculation and displayed data may become inaccurate

2.2.2 Confirm the Current Direction

ecoSensor current sensors are directional. The installation direction is indicated by an arrow on the sensor housing.

WARNING

The current sensor installation direction must match the current direction specified for each circuit in the following sections.

Otherwise:

- Power readings may be incorrect
- Power generation and consumption may be identified in reverse
- Energy statistics may become inaccurate

TIP

The enecess App supports sensor direction reversal.
If a current sensor is installed in the wrong direction, the sensor direction can be reversed in the App without reinstalling the sensor.
However, correct installation according to the specified direction is still strongly recommended to reduce configuration complexity and avoid direction confusion during future maintenance.

i. Current Direction for Different Circuit Types

(a) Load Circuit Current Direction

Distribution Panel → Electrical Load
Examples:

- Room circuits
- Air conditioners
- Heat pumps
- Dryers

> **NOTE**
>
> Energy storage systems connected through outlet-based load circuits are also treated as load circuits, and the current direction defined above still applies.

(b) PV Circuit Current Direction

PV Inverter → Distribution Panel Grid Connection Point

> **NOTE**
>
> Both rooftop PV circuits and balcony PV circuits are treated as PV circuits.
> Regardless of whether the PV system includes energy storage, the current direction defined above still applies.

- **Rooftop PV Circuit**

A PV circuit connected to the distribution panel through a PV inverter, typically using a dedicated circuit.

- **Balcony PV Circuit**

A small PV system connected to the household grid through a power outlet.

(c). Current Direction for Energy Storage Systems

The current direction depends on how the energy storage system is connected.

Common energy storage systems are generally divided into the following types:

1. AC-Coupled Grid-Tied Energy Storage System

An energy storage system directly connected to the household distribution panel through the AC side.

This type of system is treated as a load circuit.

Current direction:

Distribution Panel Grid Connection Point → Energy Storage System

2. DC-Coupled Energy Storage System

An energy storage system connected to the DC side of a PV inverter, typically sharing the same PV inverter with the PV system.

In this case, ecoMain usually monitors the AC output of the PV inverter, so the circuit is treated as a PV circuit.

Current direction:

PV Inverter → Distribution Panel

3. Plug-In Energy Storage System (Balcony Storage / Portable Storage)

An energy storage system connected through a power outlet, where the same branch circuit also supplies other electrical loads.

This type of system is treated as a load circuit.

Current direction:

Distribution Panel → Load

Table: Current Direction for Energy Storage Systems

Scenario	Circuit Type	ecoMain Current Direction
AC-Coupled Energy Storage System	Load Circuit	Distribution Panel → Energy Storage System
DC-Coupled Energy Storage System	PV Circuit	PV Inverter → Distribution Panel
Plug-In Energy Storage System	Load Circuit	Distribution Panel → Energy Storage System

NOTE

The current direction defined here is only used to determine the installation direction of the ecoSensor current sensor.
It is not related to the actual current flow direction of the energy storage system during operation.
The actual current flow direction may change continuously under different operating modes, such as charging and discharging. This is normal behavior.

2.2.3 Confirm the Circuits to Be Monitored

It is recommended to plan in advance:

- Which rooms need to be monitored
- Which devices require dedicated monitoring

For example:

Type	Examples
Room Circuits	Living room, kitchen, bedroom
Dedicated Equipment	Heat pump, dryer, water heater
Power Generation Equipment	PV inverter

2.2.4 Record Circuit Information During Installation

During installation, record the following information for each monitored circuit:

- Circuit name (room or equipment name)
- Channel number connected to the ecoMain
- Circuit phase (L1 / L2 / L3)
- Whether the current sensor installation direction matches the circuit current direction

This information will be used later in the enecess App for:

- Channel naming
- Phase configuration
- Sensor direction configuration

This ensures that ecoMain can correctly identify and calculate:

- Real-time power
- Energy consumption
- PV generation
- Energy statistics

2.3 Recommended Installation Procedure

Follow the recommended installation procedure below:

Step 1

Install:

- ecoMain
- ecoSensor current sensors

Step 2

Install the enecess App.

Step 3

Complete network configuration in the enecess App to connect ecoMain to the network.

Step 4

Complete the configuration of all ecoMain channels in the enecess App, including:

- Current sensor direction check
- Circuit naming
- Phase configuration
- Verify that all channel power readings are correct

3 Main Unit Installation

3.1 Power Off the Distribution Panel

DANGER

This product involves high-voltage electrical distribution system installation and should be installed by a qualified electrician.

Procedure:

1. Turn off the main power breaker
2. Confirm that the distribution panel is fully de-energized
3. Remove the mounting screws from the distribution panel
4. Remove the distribution panel cover

WARNING

In some homes, the main breaker may be located outside the distribution panel. Make sure all related power sources are turned off before installation.

3.2 Mount and Install ecoMain

Choose a location inside the distribution panel that:

- Is close to the monitored circuits
- Allows convenient cable routing
- Provides space for a 4P DIN rail installation

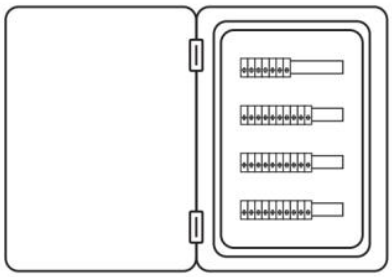
It is recommended to install ecoMain on a DIN rail.

ecoMain supports:

- 35 mm standard DIN rail mounting

Installation Procedure:

1. Pull down the bottom locking clip
2. Hook the top of the unit onto the DIN rail
3. Press the unit inward
4. Push up the locking clip to secure the unit



TIP

When space inside the distribution panel is limited, it is recommended to arrange the ecoMain installation sequence according to the available working space.

In most cases, the following procedure is recommended:

- Complete the cable connections first
- Then mount ecoMain onto the DIN rail

This makes it easier to identify connector labels and connect the power cable, current sensors, and antenna.

For installations with many cables, the unit may also be mounted first, followed by cable connection and cable arrangement.

Always reserve sufficient space for wiring and future maintenance.

3.3 Connect the Power Cable

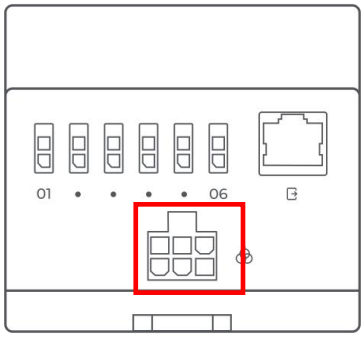
The ecoMain power cable is used for both power supply and voltage sensing.

Incorrect wiring may cause:

- Incorrect data
- Phase errors
- Equipment damage

Carefully verify all wiring before powering on.

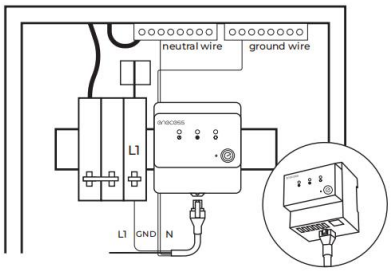
Connect the power cable as shown on the right. Plug one end of the power cable into the ecoMain
power connector.



The other end should be connected to the following positions in the distribution panel.

Single-Phase 2-Wire System

Wire Color	Connection
Brown (L1)	Breaker output live wire
Blue (N)	Neutral busbar (N busbar)
Yellow-Green (PE)	Ground busbar (PE busbar)



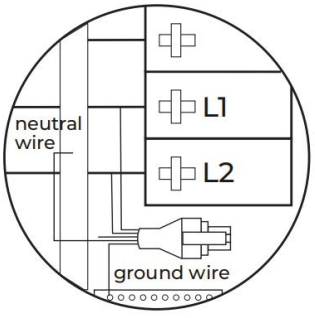
Unused wire:

- Black (L2)
- Gray (L3)

Unused wires must be properly insulated.

Split-Phase 3-Wire System

Wire Color	Connection
Brown (L1)	L1 breaker
Black (L2)	L2 breaker
Blue (N)	Neutral busbar (N busbar)
Yellow-Green (PE)	Ground busbar (PE busbar)



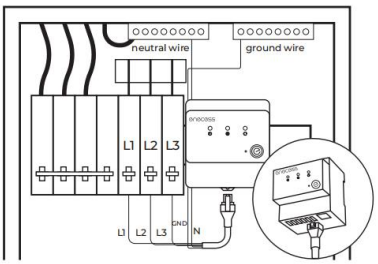
Unused wire:

- Gray (L3)

Unused wires must be properly insulated.

Three-Phase 4-Wire System

Wire Color	Connection
Brown (L1)	L1 breaker
Black (L2)	L2 breaker
Gray (L3)	L3 breaker
Blue (N)	Neutral busbar (N busbar
Yellow-Green (PE)	Ground busbar (PE busbar)



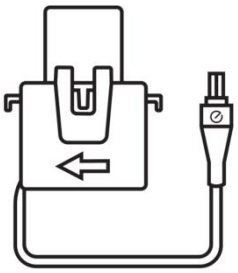
3.4 Install ecoSensor Current Sensor

This section covers:

- Main circuit current sensor installation
- Branch circuit current sensor installation
- Channel number recording

3.4.1 Main Circuit Current Sensor Installation

Use the 100A ecoSensor as shown below.



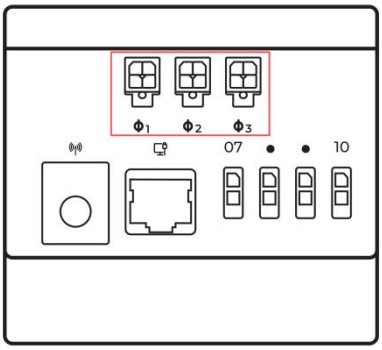
The 100A current sensors are used to monitor:

- L1 main circuit
- L2 main circuit
- L3 main circuit

Installation position: Output side of the utility meter and main breaker.

Installation Procedure :

1. Open the current sensor clip
2. Clamp the current sensor onto the corresponding main incoming line
3. Connect the current sensor plugs to the ecoMain main channel ports (Φ1, Φ2, Φ3), as shown in the right figure.



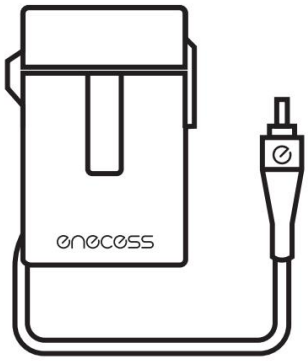
WARNING

Make sure the arrow direction on the current sensor matches the current direction (from the main breaker to the branch breakers). Each main circuit current sensor must be installed on the main incoming line corresponding to the ecoMain main channel port it is connected to.

ecoMain Main Channel Port	Main Incoming Line
Φ1	L1
Φ2	L2
Φ3	L3

3.4.2 Branch Circuit Current Sensor Installation

Use the 30A ecoSensor as shown below.



30A ecoSensor current sensors are used to monitor:

- Room circuits
- High-power equipments
- PV circuits

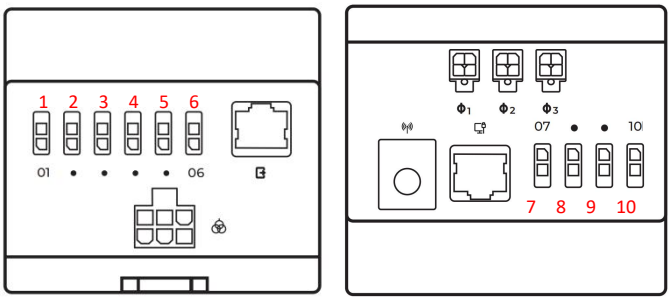
After installation, ecoMain can:

- Monitor the total energy consumption of individual rooms
- Monitor the power consumption or power generation of individual devices connected as dedicated branch circuits

For monitoring individual devices inside a room, enecess ecoPlug smart plugs are also available.

Installation Procedure:

1. Open the current sensor clip
2. Clamp the current sensor onto the corresponding branch circuit
3. Connect the current sensor plug to the ecoMain branch channel ports (01 – 10), as shown below.



WARNING

Make sure the arrow direction matches the current direction.
For current direction details, refer to:
“2 Installation Preparation” → “2.2 Pre-Installation Checklist” → “2) Confirm the Current Direction of Main and Branch Circuits”

3.4.3 Apply Channel Labels

After installing each current sensor:

1. Attach the corresponding ecoMain channel label to the current sensor
2. Record the corresponding branch circuit name
   If monitoring a room, record the room name.
   If monitoring a device, record the device name (for example: dryer).
3. Record the corresponding circuit phase (for example: L2)
4. Record whether the current sensor installation direction matches the circuit current direction

NOTE

Make sure the record sheet is filled out accurately, as the App configuration will rely on this information.

For example:
Channel M3 → Branch circuit: dryer → Phase: L2

In the record sheet:

- M1 – M10 correspond to ecoMain channels 01 – 10 (“M” stands for Main)
- S1 – S10 correspond to ecoSub channels 01 – 10 (“S” stands for Sub)

ecoMain	Circuit Branch	Location
M-1		
M-2	kitchen	Phase L1
M-3	dryer	Phase L2
M-4		
M-5		
M-6		
M-7		
M-8		
M-9		
M-10		

Instructions:

- Record the branch circuit name in “Circuit Branch”
- Record the circuit phase and sensor direction information in “Location”

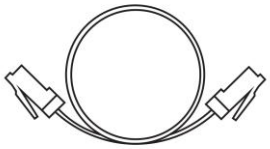
3.5 ecoSub Installation (Optional)

ecoMain provides 10 branch monitoring channels.
If more circuits need to be monitored, ecoSub units can be added.
ecoMain supports cascading up to 3 ecoSubs, providing a maximum of 40 branch monitoring channels.

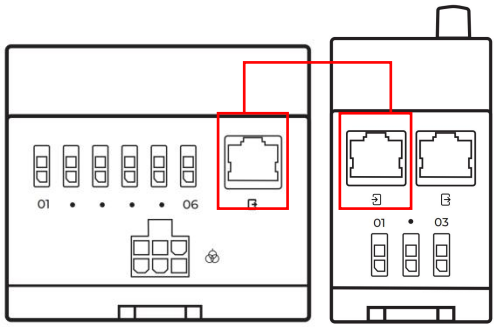
3.5.1 ecoSub Bus Connection

Each ecoSub package includes an ecoBus Cable for connection.
The ecoBus Cable should be connected to:

- The ecoMain OUT port for ecoBus
- The ecoSub IN port for ecoBus



ecoBus Cable



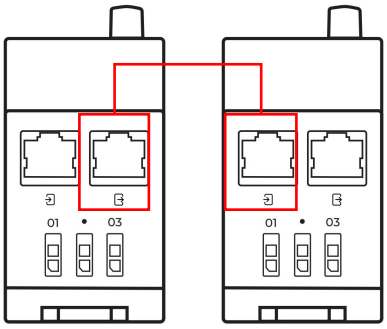
WARNING

Make sure the correct IN and OUT ports are used. Incorrect connections may cause communication failure between devices.

If multiple ecoSubs are used, they can be connected in cascade using ecoBus Cables.
Connection method:

- Connect the OUT port for ecoBus on the upper-level ecoSub
- To the IN port for ecoBus on the next ecoSub

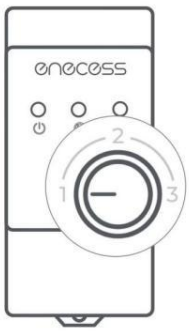
As shown below.



The final cascaded system is shown below.

3.5.2 ecoSub Address Configuration

If multiple ecoSubs are used in the system, each ecoSub must be assigned a different communication address to avoid communication conflicts.
The address is configured using the address dial on the device, as shown below.

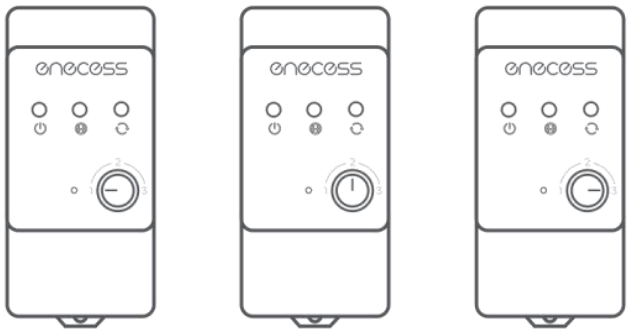


Set the dial pointer to different numbers to assign different communication addresses to each ecoSub.

Example:

ecoSub Unit	Address
First ecoSub	1
Second ecoSub	2
Third ecoSub	3

The figure below shows the dial pointer positions for address settings 1, 2, and 3 respectively.



WARNING

Before powering on the ecoSubs, make sure each ecoSub has been assigned a unique communication address using the address dial.

The communication address is assigned during startup. Changing the address after power-on will not take effect.

3.5.3 Mount and Install ecoSub

Similar to ecoMain, choose a location inside the distribution panel that:

- Is close to the monitored circuits
- Allows convenient cable routing
- Provides space for a 2P DIN rail installation for each ecoSub

It is recommended to install ecoSub on a standard DIN rail.

3.5.4 ecoSub Branch Circuit Sensor Installation

The installation method for ecoSub branch circuit current sensors is the same as that for ecoMain branch circuit current sensors.
Refer to:
“3.4 Install ecoSensor” → “2) Branch Circuit Current Sensor Installation”

3.6 Install the Ethernet Cable or Wi-Fi Antenna

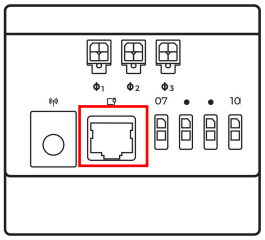
ecoMain supports:

- Ethernet
- Wi-Fi

> **TIP**
>
> Ethernet typically provide higher stability and lower latency. An Ethernet connection is recommended.

3.6.1 Ethernet Connection

Connect the Ethernet cable to the ecoMain Ethernet port, as shown below, and connect the other end to a router or network switch.



> **TIP**
>
> The Ethernet cable is not included and must be prepared by the user.Cat5e or higher specification cables are recommended.

3.6.2 Wi-Fi Antenna Installation

Installation Procedure

1. Tighten the antenna onto the antenna connector, as shown in Figure 1.
2. Place the antenna outside the distribution panel, as shown in Figure2.
3. Avoid metal obstruction.

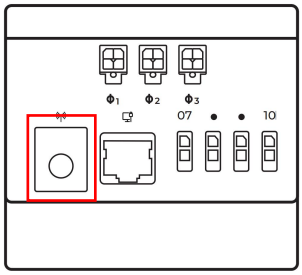


Figure 1

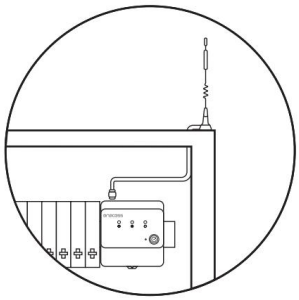


Figure 2

WARNING

The metal enclosure of the distribution panel may significantly affect Wi-Fi signal strength.

Install the antenna outside the distribution panel and avoid metal obstruction whenever possible.
The antenna includes a magnetic base:

- Can be attached directly to iron or steel surfaces
- For non-metal surfaces, use the included magnetic mounting plate

Attach the magnetic mounting plate to a clean and flat surface, then attach the antenna to the mounting plate.

3.7 Final Check and Power On

3.7.1 Pre-Power-On Check

Before powering on the system, confirm that:

1. All current sensors are installed correctly
2. All cables are connected correctly
3. All unused wires are properly insulated
4. The Ethernet cable or Wi-Fi antenna is installed
5. The channel record sheet has been completed

> ⚠ **WARNING**
>
> Verify the following:
> - Current sensor directions are correct
> - Phase assignments are correct
> - Power cable connections are secure
> - ecoBus connections are secure (if ecoSub units are used)
> - Each ecoSub address dial is set to a different position (if multiple ecoSub units are installed)

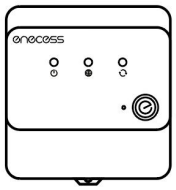
3.7.2 Power On

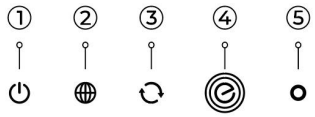
After confirming all checks:

1. Restore the main power and ecoMain power supply
2. Reinstall the distribution panel cover
3. Wait for ecoMain to start up
4. Then proceed to: **“4 Network Configuration and App Setup”**

4 Network Configuration and App Setup

Exterior :





① Power Indicator Light
② Network Status Indicator Light
③ System Status Indicator Light
④ Network Pairing Button
⑤ Reset Button

4.1 Network Configuration Indicator

The ecoMain panel includes three indicators:

- Power indicator
- System status indicator
- Network status indicator

The following sections describe the indicator status definitions.

4.1.1 Power Indicator

Indicator Status	Description
Solid white	Device operating normally
Off	Power supply abnormal

After the first power-on, first confirm the device operating status:

- Power indicator is solid

→ The device is powered correctly and has started successfully.

- If the power indicator is off

→ Check the following:

Whether the distribution panel power supply is normal;

Whether the breaker supplying ecoMain is turned on;

Whether the ecoMain power cable is connected securely.

4.1.2 Network Indicator

Indicator Status	Description
Solid white	Device operating normally
Off	Network abnormal
Flashing white	Bluetooth pairing in progress

If the network indicator remains off after network configuration is completed, check the following:

- Whether the router is operating normally and has Internet access
- Whether the network connection is normal
- Whether the Ethernet cable is connected securely (for Ethernet connection)
- Whether the Wi-Fi network is 2.4 GHz and the signal is stable (for Wi-Fi connection)
- Whether DHCP is enabled on the router and ecoMain has obtained an IP address correctly
- Whether network configuration has been completed correctly

4.2 Network Configuration Button

Network Configuration Button is used to start network configuration.

Operation:

- Press and hold the network configuration button

→ The device enters network configuration mode.

- After network configuration is completed

→ ecoMain connects to the network and starts normal data communication.

4.3 enecess App Setup

4.3.1 Download the enecess App

Search for “enecess” in Google Play or the Apple App Store, then download and install the App.

4.3.2 Register an Account

Open the enecess App on your phone and follow the prompts to tap “Go and register” to create an account.

Enter an email address that can receive verification codes and set a login password.Tap “Get Code” to send a verification code to the registered email address.

Enter the verification code received in the email, then tap “Confirm”. If a registration success message appears, the account has been created successfully.

TIP

Due to different email security policies, if the verification code is not found in the inbox, check the spam folder.

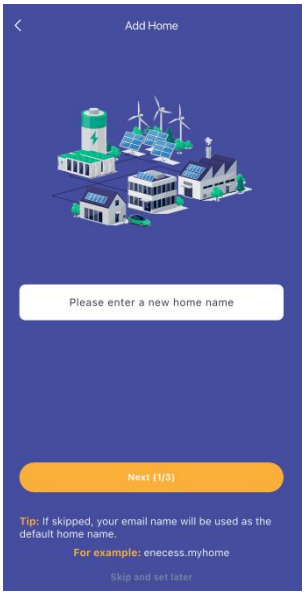
4.3.3 Log In

Log in using the registered account and password.

When logging in:

- Read and agree to the Privacy Policy
- If you want to log in automatically next time without entering the account and password again, enable “Remember me”

4.3.4 Create a Home



enecess supports management of multiple Homes under the same account.

Users with multiple properties can create multiple Homes for independent management.

In commercial applications, multiple energy systems across different sites can also be managed under one account.

Configure the Home based on the type of energy system, such as:

- PV systems
- Non-PV systems

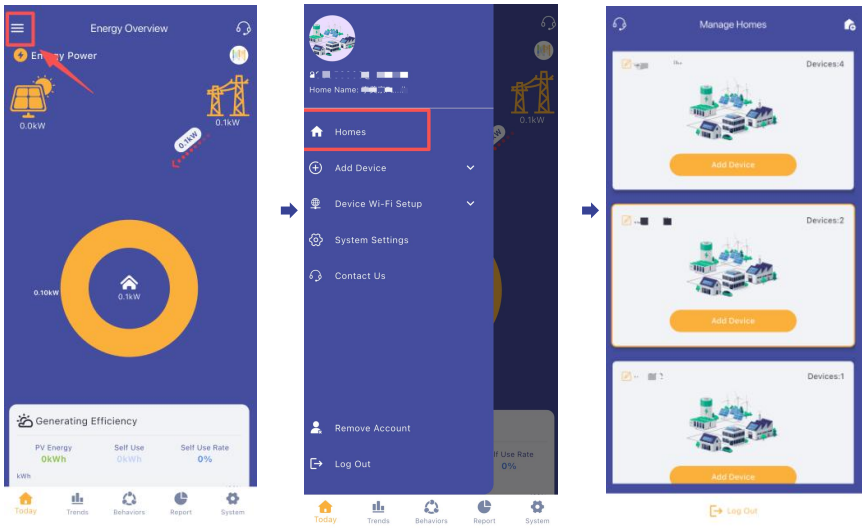
(i) Switch Home

After multiple Homes are created, you can switch between Homes in the App.

Path:

App menu “☰” → “HOMES”

Select the target Home to view and manage its energy system.



(ii) Configure the Energy System Type

Select the energy system type based on the actual installation.

Select “With PV” for all PV systems, including:

- Balcony PV
- Rooftop PV
- Mixed PV installations

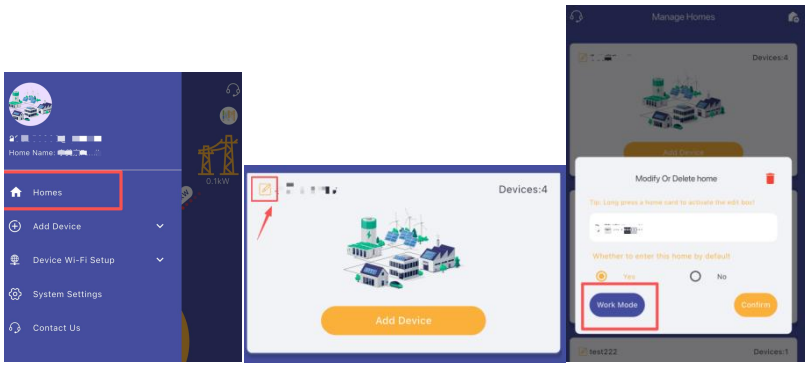
This also applies to PV systems with energy storage.

The setting can be changed later in the Home management page.

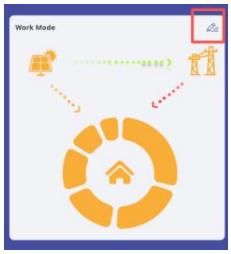
Path:

App menu “☰” → “HOMES”

Tap the edit icon in the upper-left corner of the corresponding Home card, then select “Work Mode” as shown below.

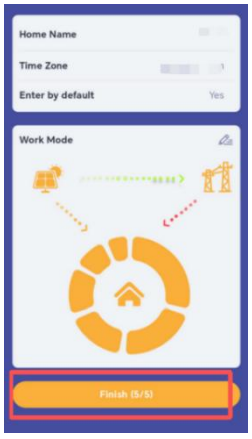


In the Work Mode edit window, tap the edit icon in the selection box to reconfigure the PV and other energy system types, as shown below.



If multiple Homes are configured, selecting “Enter by default” under a Home will set it as the default Home.

The App will automatically switch to this Home and display its energy data after startup.



After selecting the Home energy system type, tap “Finish” to complete the Home configuration.

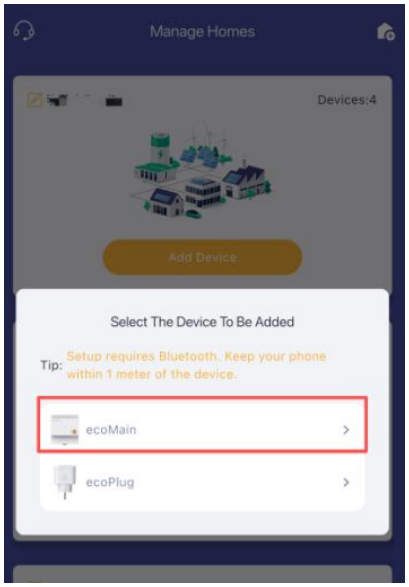
4.3.5 Phone Settings

Before starting ecoMain network configuration, make sure:

- Bluetooth is enabled on the phone
- GPS / Location service is enabled on the phone

4.3.6 Add ecoMain Device

- In the selected Home card, tap “Add Device” to add an ecoMain device to the Home
- Select “ecoMain” to start the device network configuration process



(i) Network Configuration

NOTE

If an Ethernet connection is used, this section can be skipped.

After the Ethernet cable is connected, ecoMain will automatically complete network configuration.

WARNING

To ensure ecoMain can automatically obtain an IP address and access the network, confirm the following:

- DHCP is enabled on the router so ecoMain can automatically obtain an IP address
- If MAC address filtering, firewall rules, or access control policies are enabled, make sure ecoMain is allowed to access the network

The following section describes the Wi-Fi network configuration process.

(a) Start Wi-Fi Network Configuration

- Press and hold the network configuration button on the ecoMain panel until the network indicator starts flashing
- ecoMain enters network configuration mode

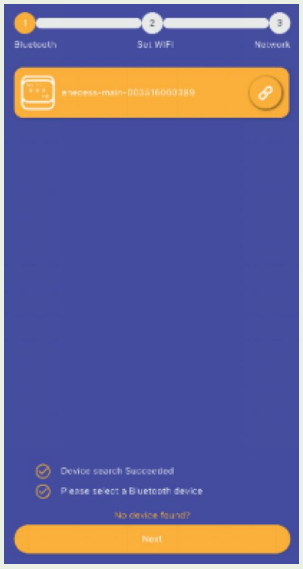
(b) Search Devices via Bluetooth

The App will search for nearby ecoMain devices. Select the target device from the device list.

TIP

If multiple ecoMain devices are installed on site, identify the target device by the serial number shown after the device name.

Example:
enecess-main-003516000389
“003516000389” is the serial number of the corresponding device.
After confirming the device, select it and tap “Next” to continue network connection.



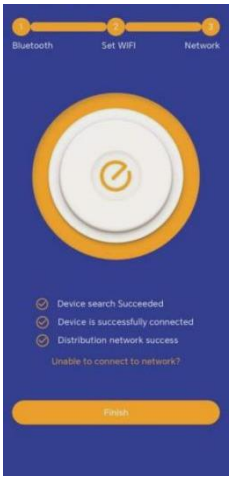
(c) Configure the Network

Select the Wi-Fi network from the hotspot list
Enter the Wi-Fi password, then tap “Next” and wait for the network connection

WARNING

ecoMain supports only 2.4 GHz Wi-Fi networks and does not support 5 GHz Wi-Fi networks. Make sure the selected Wi-Fi network is using the 2.4 GHz band.

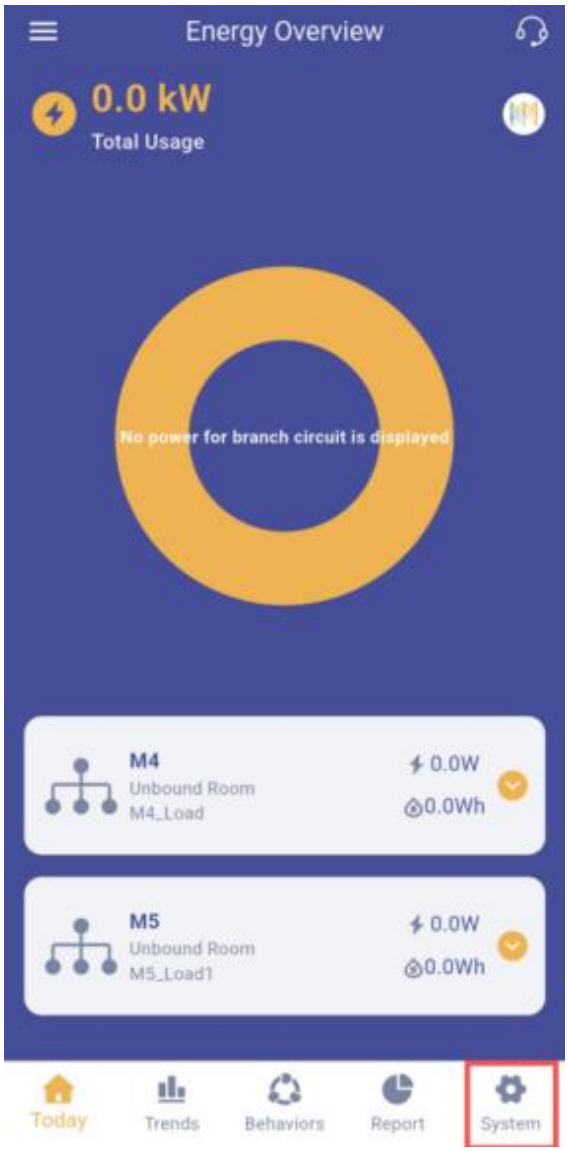
When the screen on the right appears, network configuration is completed and ecoMain can



access the network and upload data.
If network configuration fails, an error message will be displayed. You can also tap “Unable to connect to network?” for troubleshooting suggestions.

(d) Enter the System Configuration Page

After connection succeeds, click System to enter the channel configuration page.

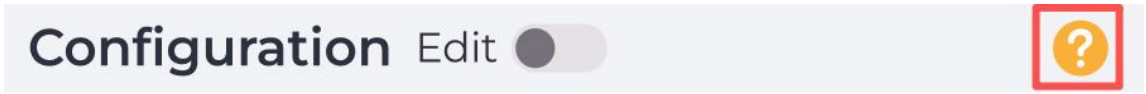


5 Channel Configuration

This section is used to configure the channels of ecoMain and ecoSub (if installed), and to start energy data collection and monitoring.
The App provides help information for :

- Configuration page

- Channel configuration



NOTE

It is strongly recommended to read the help information carefully before configuring channels.
The help content includes installation instructions and configuration notes to help complete channel configuration more quickly and accurately.

5.1 Interface Layout

The system configuration page includes:

- General settings area
- Function button area
- Channel status area
- Channel configuration area

5.1.1 General Settings Area

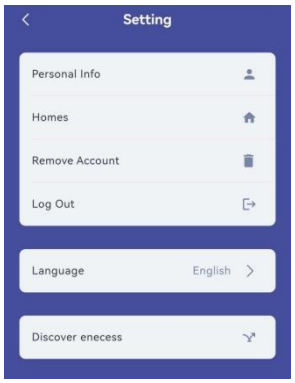
This area is mainly used for system settings, device naming, and online help.

(i) System Settings Button

After tapping “System Settings”, the System Settings window will appear.

Includes functions:

- System language
- Account management
- Home switching



(a) Personal Info

Used to view :

- Account information
- Number of Homes
- Number of devices under all Homes

(b) Account Management

- Log Out
- Remove Account

WARNING

Remove Accoun will remove account-related information. Please proceed with caution.

(c) Language

Used to switch the App display language.
Currently supported languages:

- English (English)
- Français (French)
- Deutsch (German)
- Polski (Polish)
- 简体中文 (Chinese)

More languages will be supported in future updates.

(d) Homes

Used for:

· Adding Homes
· Switching Homes
· Configuring Home energy system types
· Managing devices under each Home

For related configuration methods, refer to:

“4.3 enecess App Setup” → “4) Create a Home”

(e) Discover enecess

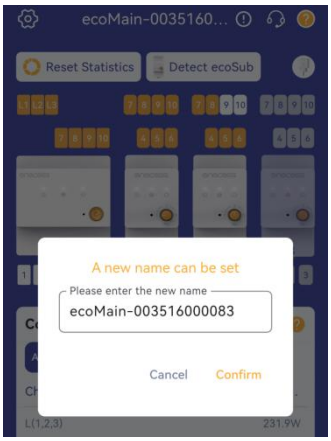
Redirects to the enecess official website for:

· Product information
· Latest news
· Technical support
· Help information

(ii) Device Name

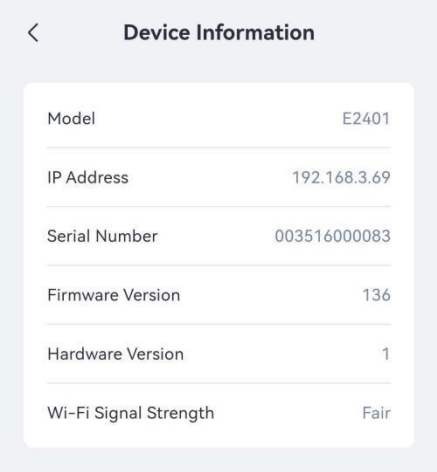
The top area displays the current device name.
If the device name is too long, the end of the name will be truncated with “…”.

Tap the device name area to view the full device name.
By default, the device name uses the format:
• Device type + Serial number
Example:
• Device name: ecoMain
• Serial number: 003516000083
Tap the device name to modify it, as shown on the right.



(iii) Device Information

Tap "!" to view the detailed device information .
Includes:
• Model
• IP Address
• Serial Number
• Firmware Version
• Hardware Version
• Wi-Fi Signal Strength



If the signal is weak, adjust the router or device installation location to improve communication stability.

(iv) Contact Us

If you encounter any issues during installation or use, feel free to contact us for technical support.
Suggestions and feedback are also welcome to help us continuously improve the product and user experience.

(v) Online Help

Provides online help information for the current configuration page.

(vi) Device Switching

In the “Channel Status” and “Channel Configuration” areas, swipe left or right to switch between installed enecess devices.
For example:
• ecoMain
• ecoPlug
• Multiple ecoMains
The device name displayed at the top will also change accordingly, allowing you to identify the current device page.

5.1.2 Function Button Area

Including Statistics Reset, ecoSub Detection, and Smart Plug Access.

(i) Reset Statistics

Used to reset energy statistics.
After installation or device configuration changes, temporary installation data may still remain in the historical database, which can affect statistical accuracy.
Use “Reset Statistics ” to clear historical statistics and restart data collection.

NOTE

It is recommended to perform a statistics reset after:

- Installation
- Channel configuration changes

WARNING

Statistics reset cannot be undone. Proceed with caution.

(ii) Detect ecoSub

After ecoSubs are installed and powered on, run “Detect ecoSub” to discover and activate the installed ecoSubs.

After activation, the corresponding channels can be configured and used for energy monitoring.

TIP

ecoSub is used to expand monitoring channels and supports up to three-level cascading.
By cascading ecoSubs, the original 10 branch monitoring channels of ecoMain can be expanded to a maximum of 40 channels.
Each ecoSub provides 10 additional branch monitoring channels.

1. Before running “Detect ecoSub”, confirm the following:

(a) Configure ecoSub Addresses Correctly

Before powering on ecoSubs, each ecoSub must be assigned a different address (1–3).

The address is configured using the address dial on the ecoSub panel.

WARNING

Different ecoSubs must not use the same address. Otherwise, address conflicts and communication failure may occur.
ecoSub address detection occurs during startup. Address configuration must be completed before power-on. Changing the address dial after power-on will not take effect immediately.

NOTE

ecoSub is powered by ecoMain through the ecoBus cable.
After ecoSub is connected to ecoMain, powering on ecoMain also powers on ecoSub.

(b) Connect the ecoBus Correctly

Use the supplied ecoBus cable and make sure all cable connections are secure.

Incorrect or loose connections may prevent ecoSub from being detected correctly.

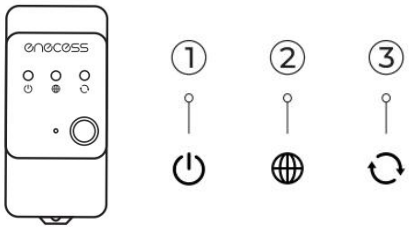
For ecoSub installation details, refer to: **“3.5 ecoSub Installation”**

The current status can be identified using the indicators on the ecoSub front panel.

NOTE

When the Power Indicator shows solid white, the power supply is operating normally.

① Power Indicator Light
② System Status Indicator Light
③ Network Status Indicator Light



After detection is successful:
• A success message will appear
• The corresponding ecoSub image in the channel status area will become active
• The corresponding ecoSub tab in the channel configuration area will become active

If no installed ecoSub is detected, the system will display a device not found message.

(iii) Detection Failure Troubleshooting:

(a) App Has No Network Connection

Check whether the phone network connection is working properly and the App can access the server.

(b) Server Cannot Communicate with ecoMain

Make sure ecoMain has completed network configuration and check whether the network communication status of ecoMain is normal. For related checks, refer to: **“4 Network Configuration and App Setup”**

(c) ecoMain Cannot Detect ecoSubs

Possible causes include:

1. ecoSub Installation or Connection Problems

Check the following:
- Whether ecoSub is installed correctly
- Whether the supplied ecoBus cable is used
- Whether the ecoBus connection is secure
- Whether the ecoSub power indicator is on normally

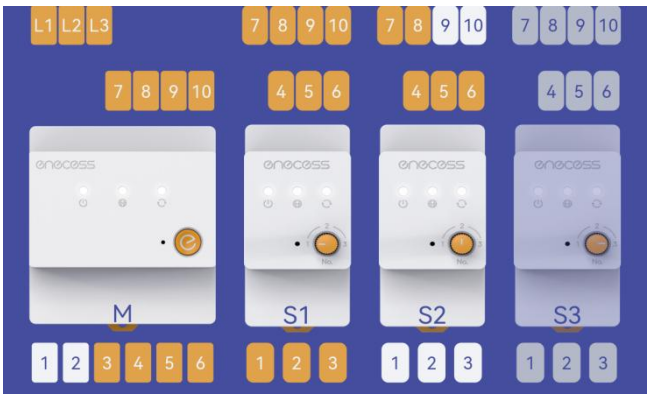
2. Incorrect ecoSub Address Configuration

Confirm the following:
- Each ecoSub is assigned a different address (1 – 3)
- Address configuration was completed before system power-on

5.1.3 Channel Status Area

This area displays the activation status of ecoMain and ecoSub devices, as well as the status of their monitoring channels.

The brightness of the device images indicates whether the device is activated:
- Highlighted: device activated
- Dimmed: device not activated



In this example:

- M, S1, and S2 are activated
- S3 is not activated

(i) ecoMain Activation Status

After ecoMain completes network configuration.

(ii) ecoSub Activation Status

After installation, ecoSub requires a “Detect ecoSub” operation before activation.
Once detected and confirmed by the system, ecoSub will be activated.
Only activated ecoSubs can be configured and used for data collection.

(iii) Channel Status

The numbered icons around the device indicate the status of each monitoring channel.
Different colors represent different states:

- Dimmed

The device is not activated, and the channel is unavailable.

- White

The channel has not been configured or enabled.

Before enabling the channel, install an ecoSensor current sensor on the corresponding circuit.

- Orange

The channel has been configured and activated successfully. Energy

monitoring is enabled and the channel can collect energy data normally.

(iv) Icons and Labels

- L1 / L2 / L3

Three-phase main circuit monitoring channels..

- 1 – 10

Branch circuit monitoring channels.

- M

ecoMain main unit.

- S1 / S2 / S3

ecoSub units, where the number corresponds to the ecoSub address.

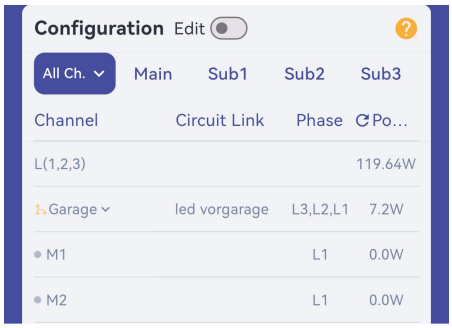
Example:
- S1: ecoSub with address 1
- S2: ecoSub with address 2
- S3: ecoSub with address 3

Each ecoSub provides 10 additional branch monitoring channels.

5.1.4 Channel Configuration Area

(i) Channel Configuration Area

The channel configuration area is for configuring and managing monitoring channels for ecoMain and ecoSub.



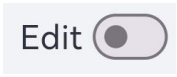
Includes:
- Channel editing and activation
- Circuit Link configuration
- Phase configuration
- Power reading display
- Switching between ecoMain and ecoSub channels

(ii) Configuration Guide

Tap the “?” button in the upper-right corner to open the Configuration Guide page.
Includes:

- How to enter edit mode
- Sensor direction configuration
- Circuit binding
- Phase configuration
- Power reading troubleshooting

It is recommended to read the guide before first-time configuration.

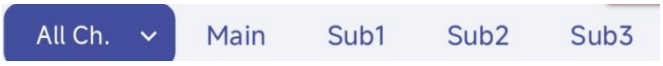
(iii) Edit Mode 

Turn on the “Edit” switch to enter edit mode, as shown on the right.

In edit mode:

- Channel parameters can be modified
- Circuit names can be configured
- Phases can be selected
- Editable items are highlighted in orange

After configuration is completed, turn off the “Edit” switch to exit edit mode and save the configuration.

(iv) Channel Filter 

The top area supports channel filtering and device switching for quickly locating monitoring channels.
Users can switch between devices to view and edit channel configurations.

(a) All Ch. Channel Filter

By default, all channels are displayed.
Tap the “All Ch.” drop-down list to filter channels by status, including:

- All channels
- Activated channels
- Non-activated channels

This helps quickly locate channels that require configuration or inspection.

(b) Main / Sub1 / Sub2 / Sub3 Device Filter
Used to filter channels of different devices:

- Main

ecoMain channels

- Sub1 / Sub2 / Sub3

ecoSub channels corresponding to different addresses
Only activated ecoSubs detected successfully through “Detect ecoSub” will be available for configuration.

(v) Configuration List

- Channel

Monitoring channel number.

- Circuit Link

Bound circuit name .

- Phase

Channel phase (L1 / L2 / L3).

- Power

Real-time power reading of activated channels.
Data is refreshed every minute. Tap the refresh button to update immediately.

WARNING

For accurate energy statistics, each channel must be configured correctly for:

- Sensor direction
- Circuit Link
- Phase

5.2 Channel Configuration Guide

To ensure accurate energy monitoring, each monitoring channel must be configured correctly in the following order:

- Sensor Direction
- Circuit Link
- Phase

NOTE

Incorrect configuration may cause:

- Channel not activated and no data collection
- Incorrect power readings
- Abnormal energy statistics
- Incorrect energy flow analysis

5.2.1 Step 1 - Sensor Direction

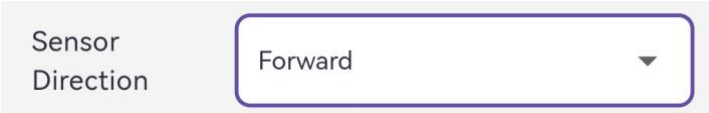
Used to configure the sensor direction of the ecoSensor.
It is recommended that the current sensor direction (arrow direction on the sensor housing) matches the direction defined in:
“2 Installation Preparation” → “2.2 Pre-Installation Checklist” → “2) Confirm the Current Direction of Main and Branch Circuits”
If the installation direction is correct, this step can be skipped and you can proceed directly to Circuit Link configuration.

If the sensor is installed in the opposite direction, the enecess App provides a sensor direction reverse function.The sensor does not need to be reinstalled. Simply change the sensor direction setting from:

- Forward

to:

- Reverse



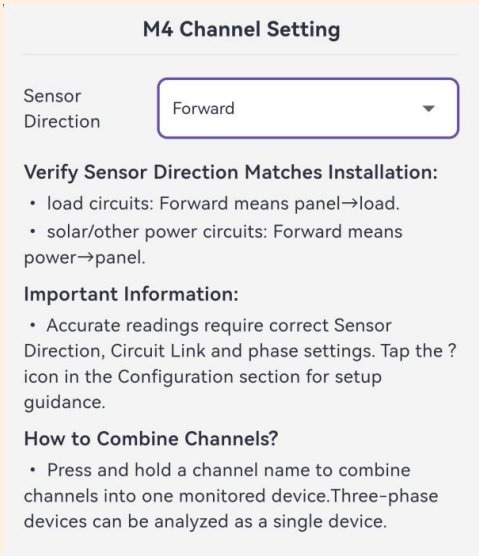
WARNING

Sensor direction must be configured correctly before Phase configuration.

This is because the “Auto Detect Phase” function depends on the correct sensor direction configuration to identify phases accurately.

Tap the corresponding channel name area to open the Sensor Direction configuration window for the selected channel.

The figure on the right shows the configuration window after tapping channel M4.



If the current sensor is installed correctly, keep the default setting:

- Forward

If the current sensor is installed in reverse, change the setting to:

- Reverse

This ensures correct power direction and energy flow calculation.

5.2.2 Step 2 - Circuit Link

Used to bind the monitoring circuit and configure the circuit type for channels.

The system uses Circuit Link to identify the monitored device or circuit.

(i) Circuit Type

Each monitoring channel must be assigned a Circuit Type:

- Load
- PV

The circuit type affects energy flow, energy consumption, and PV generation analysis, so it must match the actual circuit type.

(a) Load Circuit Type

Applicable to:

- General load circuits
- Air conditioners, heat pumps, dryers, and similar devices
- Room lighting and socket circuits
- EV chargers
- AC-coupled energy storage systems
- Plug-in energy storage systems (balcony or portable storage)

Typical current direction: Distribution panel → Device

> **WARNING**
>
> Plug-in energy storage systems must still be configured as Load, even if the system supports charging and discharging functions.

(b) Applicable to:

PV Circuit Type

- Rooftop PV systems
- Balcony PV systems
- PV inverter output circuits of DC-coupled energy storage systems

Typical current direction: PV inverter → Distribution panel

WARNING

For DC-coupled energy storage systems, ecoMain monitors the AC output of the PV inverter.
Therefore, the circuit must be configured as: PV, instead of an energy storage load.

Table Energy Storage System Summary

Energy Storage System Type	Circuit Type
AC-coupled energy storage system	Load
Plug-in energy storage system	Load
DC-coupled energy storage system	PV

(ii) Circuit Name

Used to configure the monitoring circuit name, such as:

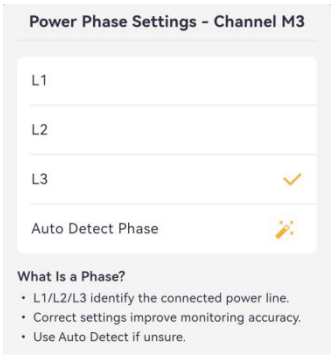
- Garage
- EV Charger
- Air Conditioner
- Kitchen

This helps identify circuits in the App energy dashboard.

(iv) Binding

After configuring the circuit type and circuit name, tap “Binding” to complete channel binding.

5.2.3 Step 3 - Phase Setting



Used to configure the phase of channels. Correct phase configuration is important for accurate power calculation and energy statistics.

(i) Single-Phase Systems

Usually keep the default setting:

- L1

(ii) Three-Phase Systems

Set according to the actual wiring:

- L1
- L2
- L3

(iii) Auto Detect Phase

If the phase cannot be confirmed manually, use Auto Detect Phase. The system will automatically attempt to identify the correct phase.

> ⚠ WARNING
>
> Auto Detect Phase works correctly only when:
> - Sensor Direction is configured correctly
> - Circuit power is greater than 200 W
>
> Otherwise, the detection result may be inaccurate.
> For better accuracy, perform auto phase detection while the load is operating with stable power consumption.

(iv) Runtime Auto Phase Detection

During installation, some devices may not be powered on, making it impossible to meet the 200 W requirement for auto phase detection. To address this, the system includes Runtime Auto Phase Detection (enabled by default).

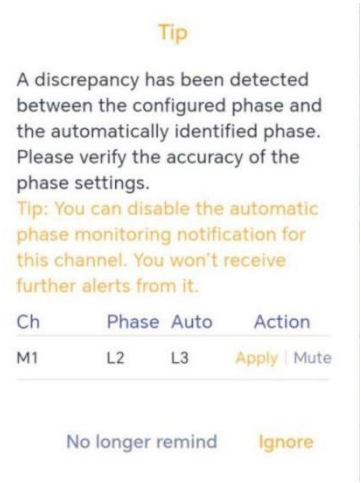
During normal operation, phase detection will run automatically when:

- The device is operating
- Circuit power exceeds 200 W

If a phase mismatch is detected during operation, the App will display a phase correction suggestion popup.

Example:
The original phase setting for channel M1 is:
- L2

The system automatically detects the actual phase as:
- L3



(a) Confirm the Detected Phase

To change the phase of channel M1 to L3，tap:
- Apply.

(b) Keep the Original Phase Setting

If you want to keep the original phase setting and stop future reminders for this channel, tap:
- Mute

The system will no longer display auto phase correction suggestions for this channel.

(c) Disable All Runtime Auto Phase Reminders

To disable all runtime auto phase detection reminders, tap:
- No longer remind

The system will no longer display any auto phase detection reminder popups.

5.2.4 Step 4 - Combine Channels

Used to combine multiple channels into one monitoring object.

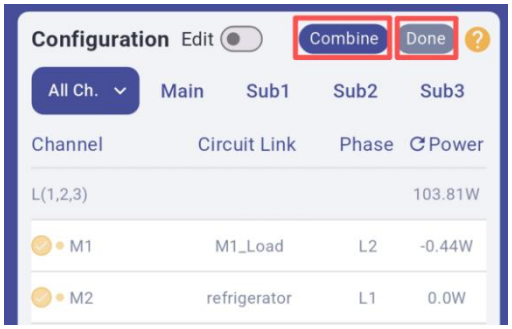
Applicable to:
- Two-phase or three-phase devices
- Multi-circuit powered devices
- Devices requiring combined energy statistics

Examples:
- Three-phase EV chargers
- Three-phase air conditioners
- Three-phase heat pumps

(i) Combine Channels

Press and hold a channel name to enter Combine mode.

After entering Combine mode:
- “Combine” and “Done” buttons will appear at the top
- Checkboxes will appear in front of each channel

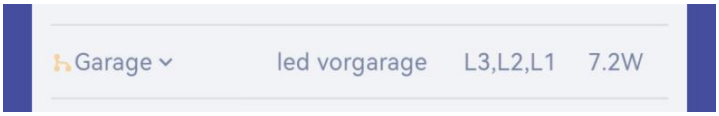


Select the channels to combine, then tap:
- Combine

The selected channels will be combined into one monitoring object for unified power and energy statistics.

(ii) Uncombine Channels

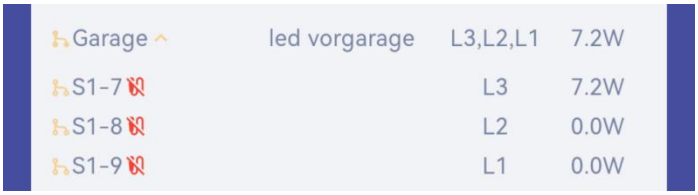
Combined channels can also be separated.
For example, “Garage” below is a combined channel.



Tap the channel name to expand and display the original combined channels.

In the example below, “Garage” is combined from:

- S1-7
- S1-8
- S1-9



Tap the channel to unbind, such as:

- S1-7

Then tap Confirm to complete the unbinding operation.

NOTE

If a channel is unbound, any ecoPlug smart plug bound to that channel will also be unbound and must be rebound manually.

5.2.5 Step 5 - Reset Statistics

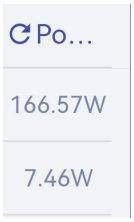
After completing all channel configurations, it is recommended to perform:

- Reset Statistics

This clears temporary statistical data generated during installation to avoid affecting future energy analysis.

5.2.6 Step 6 - Power Reading

The Power reading displays the real-time power value of channels.



After modifying configuration settings, tap to refresh data.

Abnormal Power Readings

Negative power readings may indicate:

- Incorrect Sensor Direction setting
- Incorrect Phase setting

Check the corresponding channel configuration.

NOTE

For bidirectional circuits, such as energy storage systems, negative power during charging is normal.

5.3 Start Energy Monitoring

After all channel configurations are completed, household energy monitoring and management can begin.

All configured and activated channels will automatically appear on the Today page for real-time energy monitoring.

5.3.1 Energy View

The Today page provides two display modes:

- Power Distribution Diagram
- Energy Flow Diagram

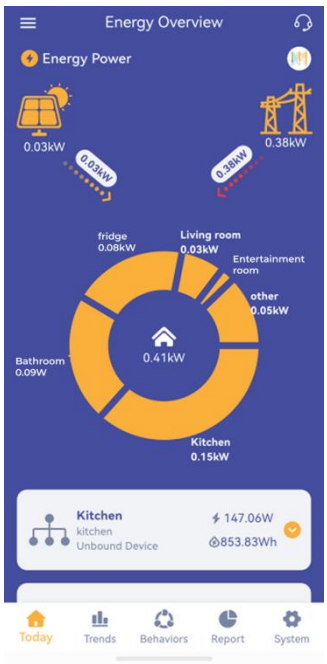
Users can switch between the two views as needed.

(i) Power Distribution Diagram

The Power Distribution Diagram displays the real-time household power distribution.

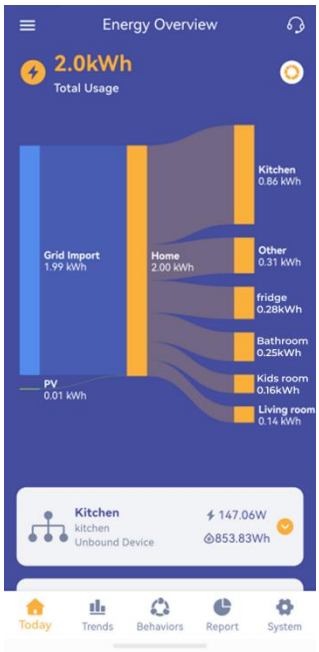
This view shows:

- Real-time power
- Power share of each circuit
- Total household load distribution
- Real-time power relationships between PV grid, and loads



(ii) Energy Flow Diagram

The Energy Flow Diagram displays the energy flow and energy distribution between different circuits in the household.

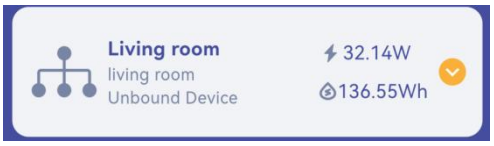


This view shows:

- Grid Import
- PV generation contribution
- Total Home Usage
- Energy consumption share of each load circuit
- Energy flow between the grid, PV system, and household circuits

5.3.2 Circuit Monitoring Card

The monitoring cards on the Today page display the real-time operating status and energy usage of each monitored circuit. Each monitoring card corresponds to a configured monitoring circuit and displays:



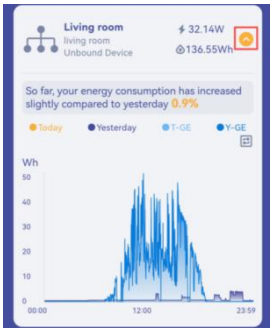
- Real-time power
- Today’s energy consumption
- Circuit name

For example:

- “Living room” is the circuit name
- 32.14 W is the current real-time power
- 136.55 Wh is the energy consumption today

(i) Expand the Card for Detailed Information

Tap the expand button on the right side of the card to enter the detailed monitoring view.



(ii) Energy Usage Trend Analysis

The system automatically compares the current channel with yesterday’s data and provides energy usage trend information.

Example:
Compared to yesterday, energy consumption increased by 0.9%.
This helps users quickly understand energy usage changes.

(iii) Trend Chart

The trend chart displays power and energy changes over different time periods.

Legend colors represent:
- Today: today’s energy consumption
- Yesterday: yesterday’s energy consumption
- T-GE: today’s energy export to grid
- Y-GE: yesterday’s energy export to grid

The trend chart helps users:
- Analyze device operating times
- Identify high energy usage periods
- Compare daily energy usage changes
- Optimize household energy usage habits

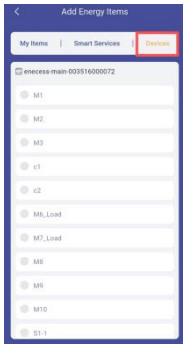
5.3.3 Edit Channel Monitoring Cards

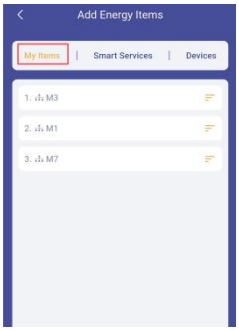
The Today page supports customized monitoring card display. Users can add, remove, or rearrange monitoring channels based on their preferences.

(i) Add Monitoring Cards

(a) No Card Mode

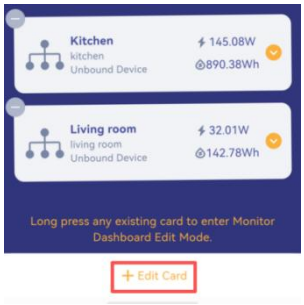
Tap Add Energy Items to enter the card addition mode. You can add cards from Smart Devices or Devices. In the card editing window, select channels or sockets under ecoMain (in Devices) to add them to My Items. The monitoring card is then added.





(b) Card Mode

If monitoring cards are already added, click + Edit Card at the bottom of edit mode to add new monitoring channel cards as needed.



Thus, accidentally deleted cards can be re-added at any time.

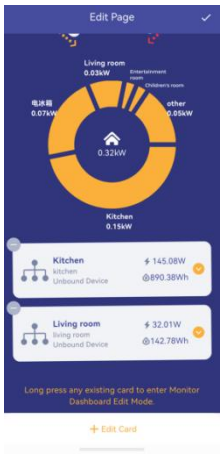
(ii) Enter Card Edit Mode

Press and hold any monitoring card to enter:

- Monitor Card Edit Mode

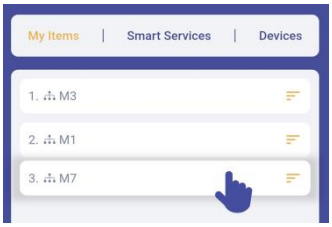
After entering edit mode:

- “Edit Page” will appear at the top
- A delete button will appear on the left side of each card



(iii) Remove Monitoring Cards

In the card editing window, within "My Items", long-press and drag a card up or down to reorder the monitoring cards in "Today".



(iv) Remove Monitoring Cards

In edit mode:

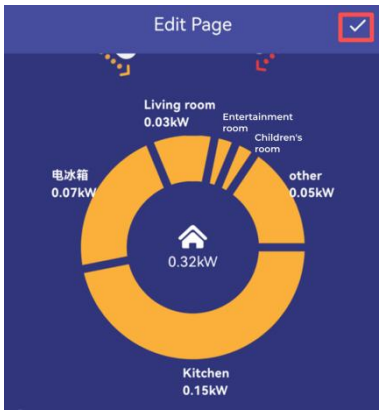
- Tap the “—” button on the left side of a card

to remove the corresponding monitoring card from the Today page.

> **NOTE**
>
> Removing a card only removes it from the Today page display.
> It does not delete:
> - Channel configuration
> - Monitoring data
> - Energy statistics

(v) Exit Edit Mode

After editing is completed, tap the “√” button in the upper-right corner to save the current card layout and exit edit mode.



5.3.4 More Features

The enecess App also provides:

- Historical data analysis
- Device management
- Monthly reports
- Energy optimization features

to help users better understand and optimize household energy usage.

For more feature introductions, App guides, and operation videos, visit the enecess Help Center:

https://www.enecess.com/pages/help-center

The Help Center provides:

- Product documentation
- App user guides
- Demonstration videos
- FAQs
- Technical support and update information

For questions, suggestions, or technical support, contact:

support@enecess.com

energy assets easy to access

Website: www.enecess.com

Email: support@enecess.com

Company: Cyberiot Technology Co., Ltd.

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