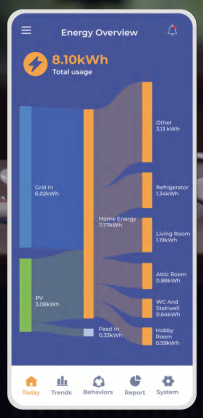
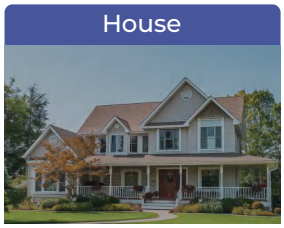
ecoMain/ecoSub

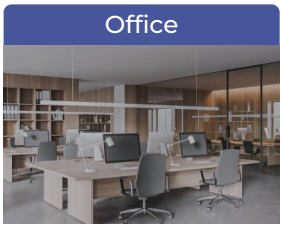


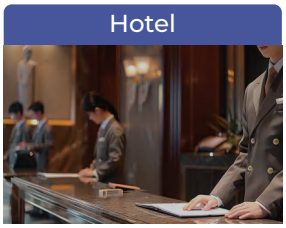
Multi-channel Energy Monitoring System

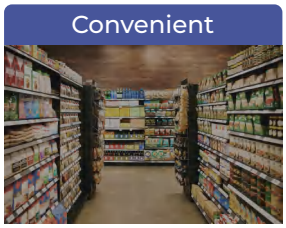
Suitable for residential, small and medium-sized commercial & industrial energy monitoring

Application Scenarios

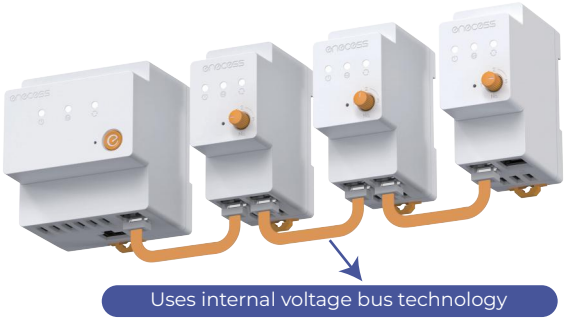








One System = Up to 13×3P or 40×1P Meters

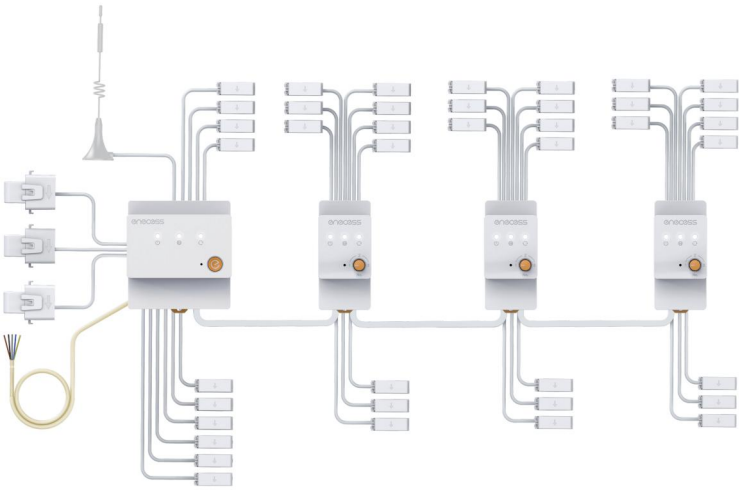


- Split design: Main unit + expansion units
- Cascadable sub-units, expandable up to 40 channels
- Power and data transmission via a single Ethernet cable
- Voltage sensing via the main unit – no additional wiring required

Feature

- **Modular design with maximum flexibility:** Each module offers 10 channels, allowing the system to be expanded from 10 to up to 40 channels.The modular design allows for flexible installation in different areas of the distribution cabinet and optimises available space. Expand the system when needed – avoid high initial investments while remaining flexible.
- **Modular & Scalable:** Modular hardware supports dozens to hundreds of circuits with flexible add-on devices for cost-adjustable investment.
- **No Complex Wiring:** Non-intrusive split-core current sensors are used for current measurement, while voltage sampling is shared with the system power supply, eliminating complex wiring and simplifying installation.
- **Slim-form Power Sensor:** Only 12mm thick for easy mounting in compact cabinets. Adjustable phase & direction boosts installation flexibility, with extendable cables eliminating improper cable length issues.
- **Wide Platform Compatibility:** Natively connects to enecess cloud; open Modbus for seamless integration with Home Assistant and other systems.
- **Universal Power Compatibility:** Works with single/three/split-phase circuits for residential & commercial applications.

Modular



Modular Design

Flexible module and channel expansion for multi-circuit requirements in residential and commercial applications

Main Module (ecoMain)

- Integrated power supply and voltage measurement for easy wiring
- Dual communication: Wi-Fi and Ethernet for reliable connectivity
- Wide input voltage: 100–240VAC, 50/60Hz
- Supports single-phase, split-phase, and three-phase systems

3 Main Circuits + 10 Branch Circuits

10 Branch Circuits

Sub Module (ecoSub)

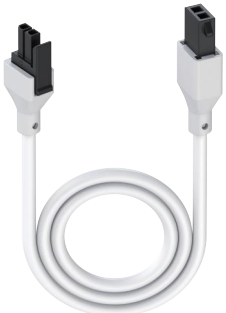
- Expands system monitoring to up to 40 channels
- Power and data via a single Ethernet cable for easy deployment
- Current sensors per channel, with voltage shared and phase configurable
- Typical measurement accuracy: ±2%

Current Sensor (ecoSensor))

- 30A / 100A models for branch and main circuits
- Clip-on, non-intrusive installation with no wiring changes
- Ultra-slim design for compact panels
- High accuracy with long-term stability
- Additional current sensor specifications are available upon request.

ecoSensor (30A)

ecoSensor (100A)



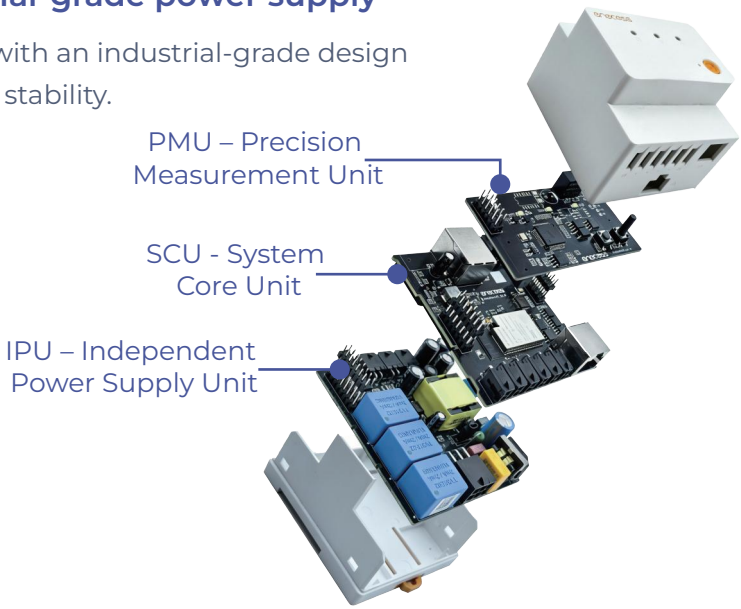
Sensor Extension Cables

- Extends sensor connection distance for flexible installation
- Excellent anti-interference performance for stable signal transmission
- Snap-lock connectors for fast and reliable installation

Industrial Design

No compromises on safety | Industrial-grade power supply

An independent power module combined with an industrial-grade design ensures maximum reliability and long-term stability.



Industrial Highlights

Flexible Monitoring Channels

Modular design, expandable from 10 to 40 channels for flexible monitoring in residential and commercial environments.

One Cable for All

A single cable delivers both power and communication, simplifying installation and enabling flexible system expansion.

Ultra-Thin

Proprietary ultra-thin sensors reduce installation effort.

Flip-Open Design

Foldable clip-on design enables installation without interrupting the circuit.

External Antenna

External antenna enables flexible installation and improved signal coverage.

Reliable Wired Connection

Reliable wired communication for stable and uninterrupted data transmission.

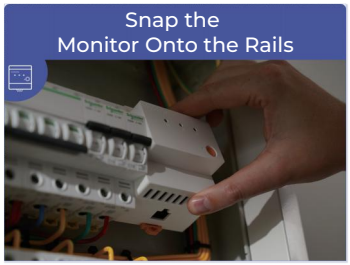
Plug Design

Quick-connect design ensures reliable operation and eliminates complex wiring.

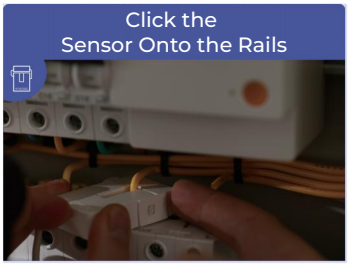
Strethable Cables

Extension cables can be added to reach remote measurement points for simplified installation.

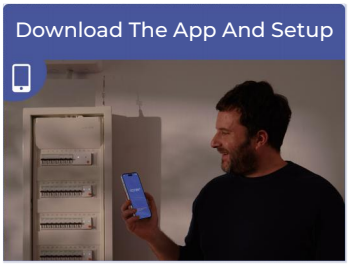
Easy Installation & Configuration



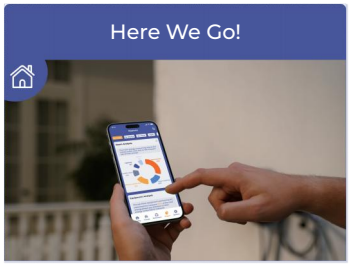
Mount ecoMain on DIN rails in the distribution board and press until it clicks. Repeat for optional ecoSub expansion unit if needed.



Clamp the sensors onto the monitored branch cable and plug the other end into the monitor



Download The enecess app for Android or iOS from the official app store install it and follow the in-app guide to set it up



Grab your phone and start monitoring your home energy consumption anytime anywhere

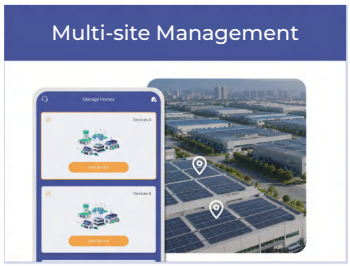
Three Steps to Complete Channel Configuration

Channel Naming: A visual channel mapping view clearly shows the relationship between monitored circuits and sensors, making channel identification and naming quick and intuitive.

Sensor Direction: Sensor direction can be adjusted directly in the software without reinstalling or repositioning the sensors.

Phase Identification: Built-in automatic phase identification automatically matches phases, reducing manual configuration and commissioning effort.

Advanced App Features



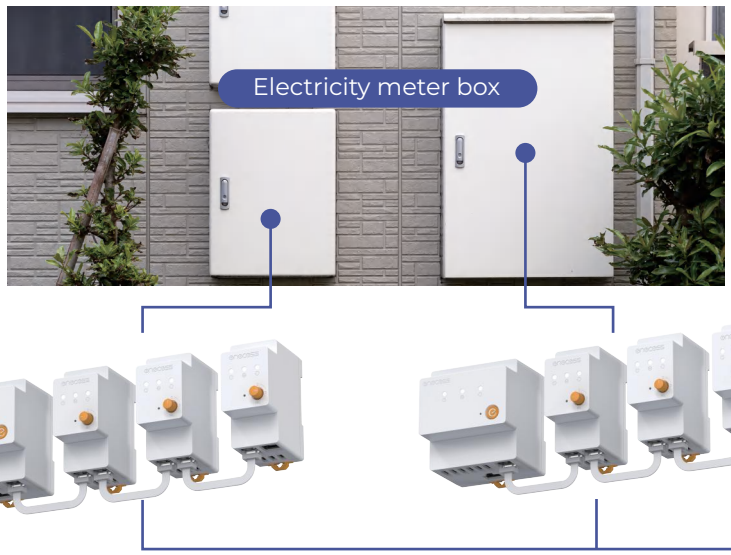
Centralize the management of multiple sites and monitor system performance, device status, and alarms from a single platform.

Visualize energy generation, savings, and financial returns to better understand project performance and business value.

Generate standardized operational reports automatically, making data collection and reporting faster and more efficient.

Quickly export historical data and reports for further analysis, project documentation, and long-term record management.

Multisystem



enecess App

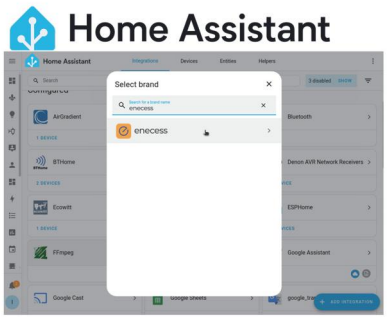
- Single account management
- ecoMain consolidation
- Multi-floor deployment
- Multi-panel installation

Multi-Mode Data Access

enecess offers cloud services, mobile apps, Home Assistant integration, and open Modbus support. It supports both cloud and local data access, enabling users to collect and view data independently of cloud services.

enecess Cloud&App

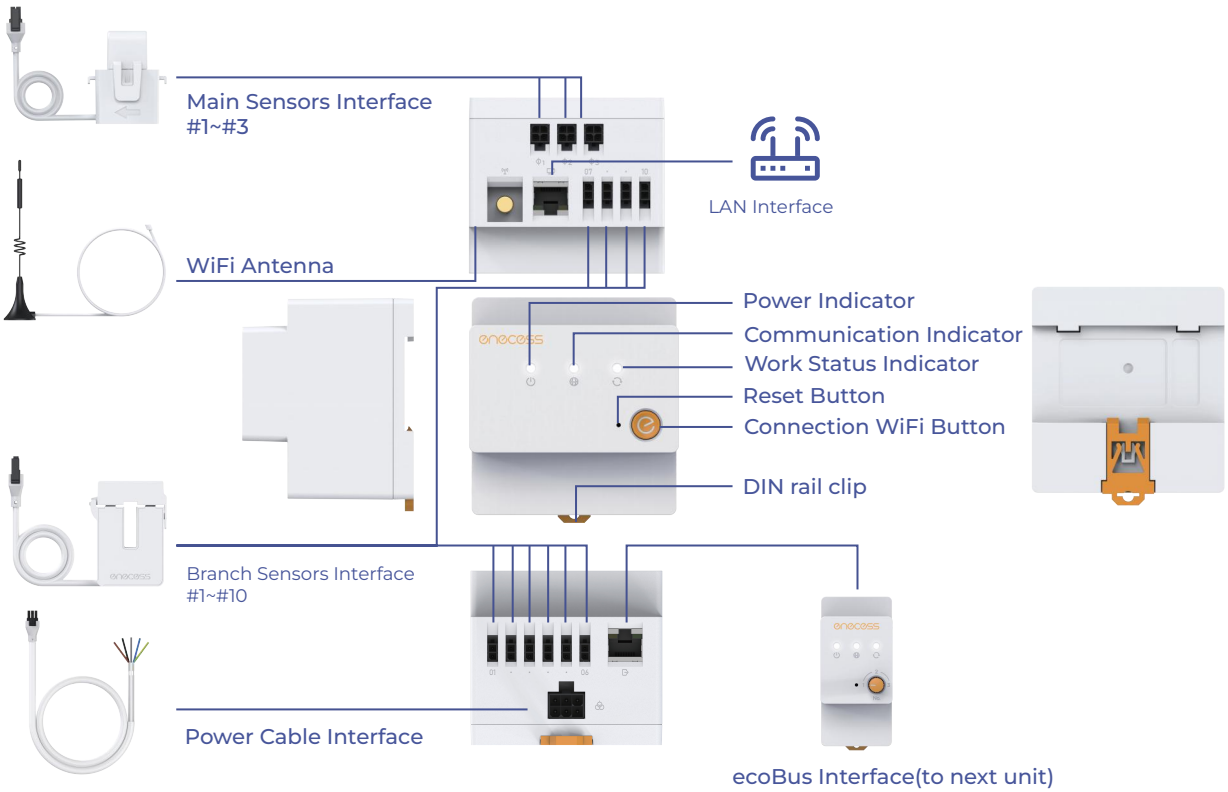
Modbus Protocol & API



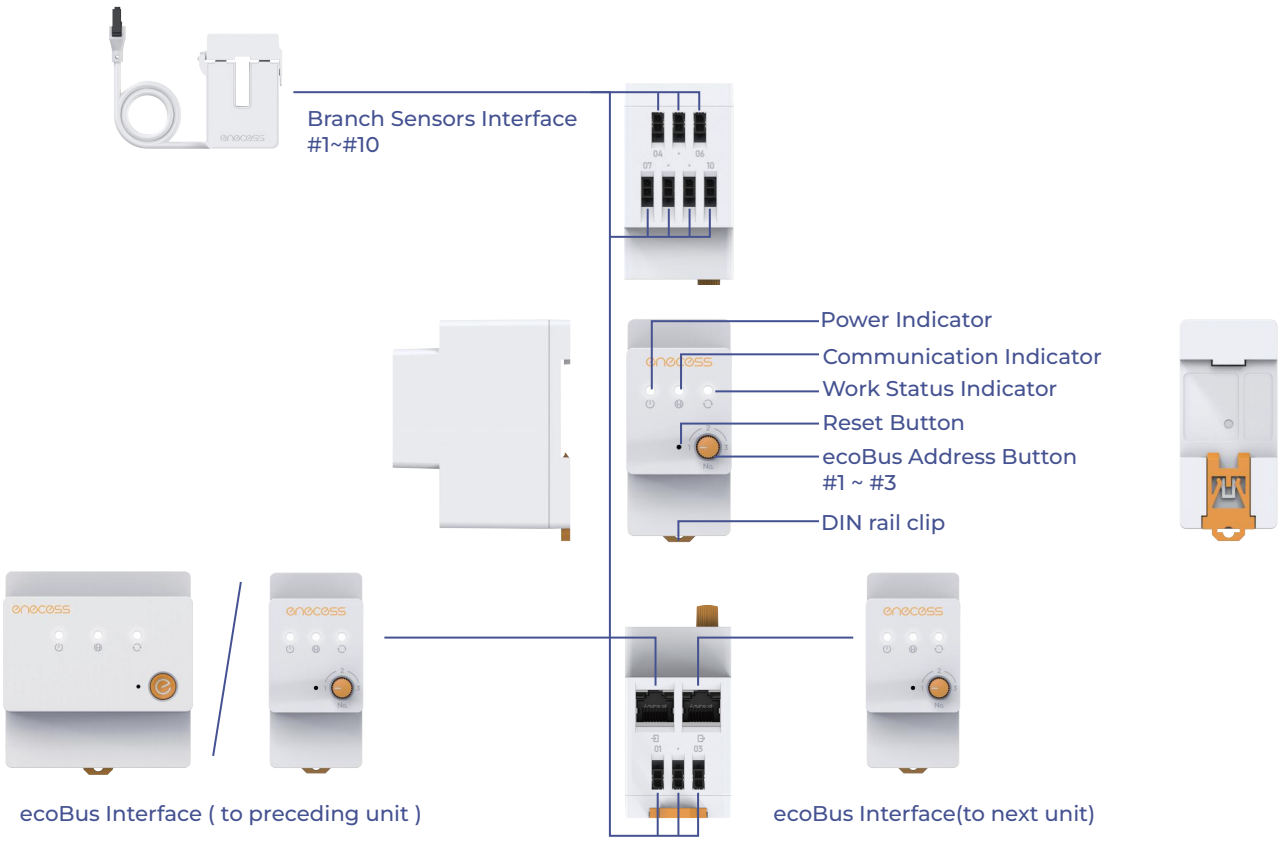
Home Assistant Integration

Product Interface

Master Interface (ecoMain)



Slave Interface (ecoSub)



Specifications

ecoMain		
Item	Specification	Description
General Information	Dimensions (H × W × D)	73mm×78mm×66mm
	Net Weight	223g
Measurement Parameters	Supported Electrical Systems	Single-phase 2-wire, Split-phase 3-wire, Three-phase 4-wire Wye (Y)
	Maximum Voltage Measurement	260 VAC Line-to-Neutral (L-N)
	Voltage Measurement Channels	3 Phases (L1, L2, L3)
	Current Measurement Channels	3 × 100 A (Main Circuits), 10 × 30 A (Branch Circuits)
	Energy Measurement Accuracy	±2% (Typical)
Power Supply	Operating Power Supply	100–240 VAC Line-to-Neutral, 50/60 Hz
	Power Consumption	< 3W
Communication Parameters	Wi-Fi	2.4 GHz IEEE 802.11 b/g/n, Max EIRP 20 dBm
	Bluetooth	Bluetooth v4.2, Max EIRP 10 dBm
	Ethernet	10/100Base-T
Environmental Parameters	Operating Temperature	0~40℃
	Operating Humidity	20~80%
	Storage Temperature	-20~55℃

ecoSub		
Item	Specification	Description
General Information	Dimensions (H × W × D)	36mm×78mm×66mm
	Net Weight	85g
Grid-Tied Power Generation Acquisition	Number of Acquisition Channels	3 channels for 3-phase or 10 channels for single-phase power generation grid-tied point acquisition
	Current Acquisition Channels	10 branch grid-tied point currents
Data Communication	ecoBus	Custom bus, supporting communication and power supply with the upper-level ecoMain and cascaded ecoSub units
Power Supply	Power Supply	Powered by ecoMain
	Power Consumption	1W
Environment	Operating Temperature	-20°C ~ +60°C
	Storage Temperature	20°C ~ +80°C

ecoSensor(30A)		
Item	Specification	Description
General Information	Dimensions (H × W × D)	73×78×66mm
	Net Weight	38g
Measurement Parameters	Maximum Current	30A
	Maximum Voltage	250V (Primary) / 333mV (Secondary)
	Cable Length	0.4m
	Maximum Measurable Cable Diameter	8mm
	Measurement Accuracy	±1% (Typical)

ecoSensor(100A)		
Item	Specification	Description
General Information	Dimensions (H × W × D)	34×30.7×49mm
	Net Weight	101g
Measurement Parameters	Maximum Current	100A
	Maximum Voltage	250V (Primary) / 333mV (Secondary)
	Cable Length	0.8m
	Maximum Measurable Cable Diameter	16mm
	Measurement Accuracy	±1% (Typical)

Website: www.enecess.com
Email: support@enecess.com
Company: Cyberiot Technology Co., Ltd.

Youtube Facebook