

Refoss EM06

Refoss EM06 Three-Phase Smart Energy Monitor User Manual

INTRODUCTION

The Refoss EM06 is a sophisticated three-phase smart energy monitor designed to provide real-time and historical data on electricity consumption. It integrates with Home Assistant and offers up to 36 independent measurement channels, enabling efficient energy management and potential cost savings. This manual provides essential information for the safe and effective use of your EM06 device.

KEY FEATURES

- **Home Assistant Compatibility:** Seamless integration for advanced smart home automation.
- **6 to 36 Independent Measurement Channels:** Monitor individual circuits with expandability. Each channel supports up to 150A (rated 120A).
- **Real-time Energy Monitoring:** Accurate measurement of power, voltage, current, and power factor with up to 1% precision.
- **Historical Data Storage:** Access up to 36 months of consumption data via the Refoss cloud service.
- **Smart Alerts:** Receive notifications for electrical anomalies like overload or short circuits.
- **Solar Panel Monitoring:** Track energy production from renewable sources.

SAFETY INFORMATION

Please read and understand all safety instructions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or other hazards.

- Installation must be performed by a qualified electrician in accordance with local electrical codes and regulations.
- Always disconnect power at the main circuit breaker before installing, wiring, or performing any maintenance on the device.
- Do not expose the device to moisture, water, or extreme temperatures. It is designed for indoor use only.
- Do not attempt to open, modify, or repair the device. Refer all servicing to qualified personnel.
- Ensure all connections are secure and properly insulated to prevent short circuits.

PACKAGE CONTENTS

Verify that all items are present in the package:

- Refoss EM06 Smart Energy Monitor Unit
- Current Transformers (CTs) (6 units for standard package)
- User Manual



Image: The Refoss EM06 Smart Energy Monitor, its orange packaging, and six orange current transformers (CTs) are displayed. The main unit is orange with connection ports.

PRODUCT OVERVIEW

The EM06 unit is designed for compact installation within an electrical panel, typically mounted on a DIN rail. It features multiple ports for connecting current transformers and power input.

Small but Mighty



Support
Home Assistant



CTs up
to 150A



3-year Free
Data Storage



Monitor
6 Points



Bluetooth
Setup



DIN Rail
Mounting



Consumption
Alarm



Monitor
Solar Panel



Measuring
Charts



Data
Export



Image: A diagram illustrating the compact size of the Refoss EM06 (7.3cm x 5.2cm x 2.45cm) and highlighting key features such as Home Assistant support, 150A CTs, 3-year free data storage, 6-point monitoring, Bluetooth setup, DIN rail mounting, consumption alarm, solar panel monitoring, measuring charts, and data export.

SETUP

1. Physical Installation

The Refoss EM06 is designed for installation within an electrical panel. It can be mounted on a standard DIN rail.

Wiring Diagram

Refer to the detailed wiring diagram provided in the physical manual for correct connection of the main power lines and current transformers (CTs). Ensure all connections are secure and follow proper electrical safety procedures. The CTs should be installed around the live wires of the circuits you wish to monitor.



Image: The Refoss EM06 unit is shown installed on a DIN rail inside an electrical distribution box, with various wires and current transformers connected, demonstrating its compact design and integration within an electrical system.

2. App Installation and Device Pairing

To manage and monitor your EM06, download the Refoss App:

1. Download the **Refoss App** from the Apple App Store or Google Play Store.

2. Create a Refoss account or log in if you already have one.
3. Power on the EM06 device. The device will enter pairing mode.
4. Open the Refoss App, tap the "+" icon to add a new device, and follow the on-screen instructions. The device supports both Wi-Fi and Bluetooth for initial setup.
5. Configure Wi-Fi settings within the app to connect the EM06 to your home network (2.4GHz Wi-Fi required).

3. Home Assistant Integration

The Refoss EM06 is compatible with Home Assistant for advanced energy management and automation:

- Ensure your EM06 device firmware is updated to the latest version via the Refoss App.
- The EM06 can be discovered and integrated into Home Assistant, providing detailed sensor data for current, power, voltage, power factor, and energy consumption for each channel.
- Refer to the Refoss support documentation or Home Assistant community resources for specific integration steps.

HA Smart Meter: 6 to 36x Data Insight Boost

HA Smart Meter, 6 Independent Channels for Real-Time Insights into 36 Power Data Points.

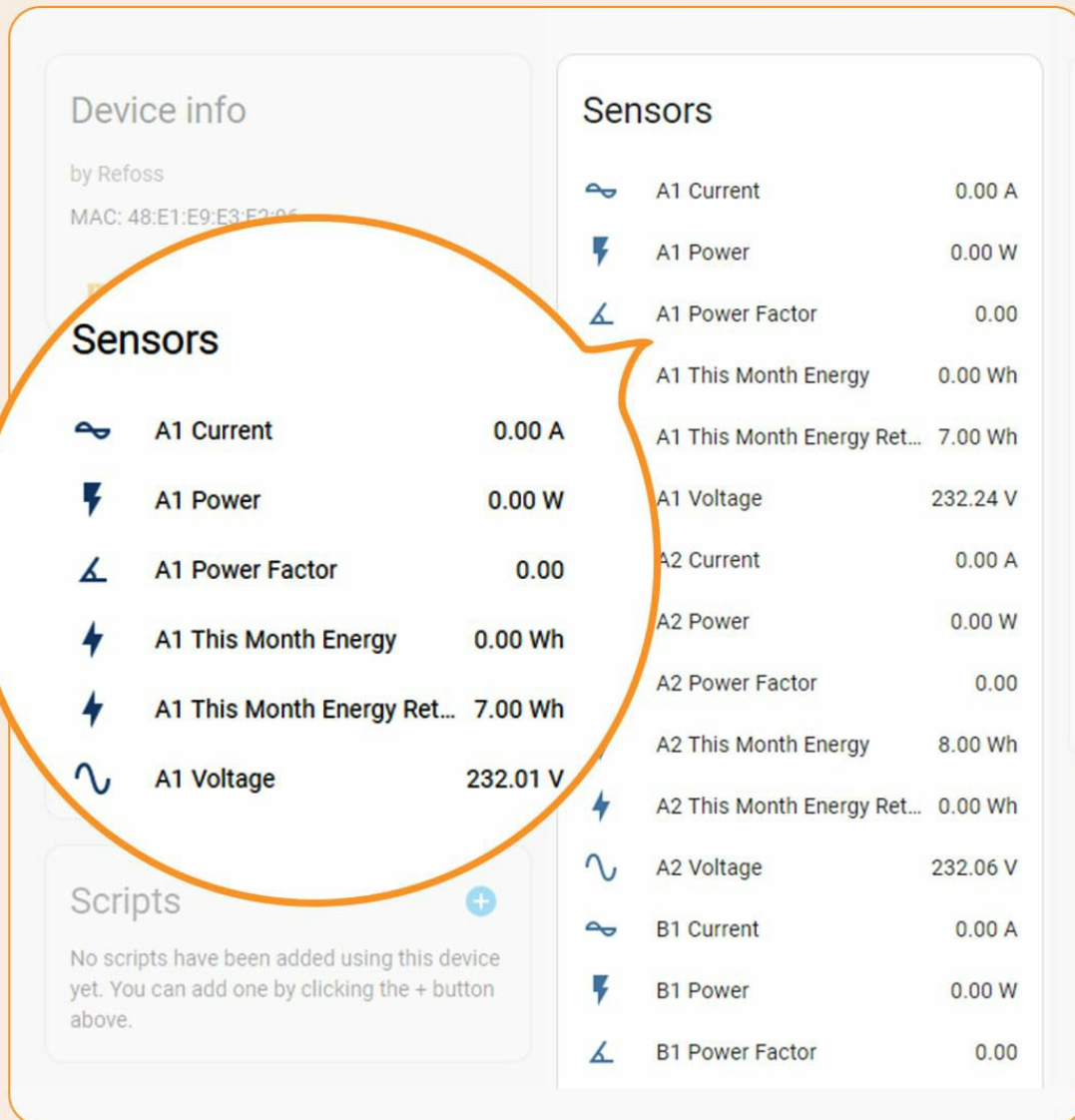


Image: A screenshot of the Home Assistant interface displaying various sensor readings from the Refoss EM06, including current, power, power factor, and voltage for multiple channels (A1, A2, B1).

OPERATING

1. Real-time Monitoring

Once connected, the Refoss App provides real-time data on power consumption for up to 6 independent channels, expandable to 36 with Home Assistant integration. Each channel can monitor up to 150A, allowing for comprehensive oversight of your electrical loads.

Monitoring of Six Loads

Monitoring of up to six loads. Rated 120A and maximum 150A per current transformer.



Image: A smartphone screen showing the Refoss app interface, which displays real-time power, voltage, and current readings for six different electrical loads (e.g., Charging Electric Vehicle, Oven, Water Heater, Garden Light, Air Conditioning). The background shows an electrical panel.

2. Data Logging and Analysis

The device stores up to 36 months of historical consumption data in the cloud. This data can be viewed through intuitive graphs in the Refoss App, showing daily, weekly, and monthly consumption patterns. This feature helps identify energy usage trends and peak consumption periods.

Measurement Chart

Inquire about power changes accurate to the minute and hourly, daily and monthly consumption.



Image: A user is shown interacting with the Refoss app on a smartphone, which displays detailed energy consumption charts. The charts illustrate power changes accurate to the minute, hour, day, and month, with specific kWh and cost values.

3. Smart Alerts

Configure smart alerts within the Refoss App to receive notifications for electrical anomalies such as overload or short circuits. These alerts help ensure the safety and stability of your electrical network.

4. Solar Panel Monitoring

The EM06 can precisely monitor the energy production from solar panels or wind turbines, allowing you to track your renewable energy generation and optimize its use.

Monitoring of Solar Panel

Monitor the amount of power generated by the solar panels.



Image: A residential house with solar panels installed on its roof under a clear sky, symbolizing the device's capability to monitor solar energy generation.

5. Multi-Scenario Application

The EM06 is suitable for various energy management needs in homes, offices, and factories. It can monitor a wide range of devices and systems, including car chargers, solar panels, dryers, air conditioners, lighting, and ovens.

Multi-scenario

Suitable for various energy management needs in homes, offices, and factories.



Six Points



Maximum 150A
(Rated 120A)



- Car Charger
- Solar Panel
- Dryer
- Air Conditioner
- Lighting
- Oven



Image: An illustration depicting multiple application scenarios for the Refoss EM06, including monitoring car chargers, solar panels, dryers, air conditioners, lighting, and ovens. Two electric car charging stations are visible in the foreground.

MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your Refoss EM06.

- Keep the device clean and free from dust. Use a dry, soft cloth for cleaning.
- Regularly check the Refoss App for firmware updates. Install updates to ensure optimal performance, security, and access to new features.
- Do not attempt to open or repair the device yourself. Unauthorized repairs will void the warranty and may pose safety risks.

- If the device is not functioning correctly, refer to the troubleshooting section or contact customer support.

TROUBLESHOOTING

If you encounter issues with your Refoss EM06, try the following solutions:

No Power to Device

- Check the main power supply to the EM06. Ensure the circuit breaker is ON.
- Verify all wiring connections are secure and correctly installed according to the wiring diagram.

Device Not Connecting to Wi-Fi

- Ensure your Wi-Fi network is 2.4GHz. The EM06 does not support 5GHz Wi-Fi.
- Verify the device is within range of your Wi-Fi router.
- Restart the EM06 device and your Wi-Fi router.
- Try re-pairing the device through the Refoss App.

Inaccurate Readings

- Confirm that the current transformers (CTs) are correctly installed and oriented according to the wiring diagram (usually indicated by an arrow).
- Ensure the CTs are rated appropriately for the circuit's maximum current.
- Check for any loose connections that might affect measurement accuracy.

Home Assistant Integration Issues

- Ensure the EM06 firmware is up to date via the Refoss App.
- Verify network connectivity between the EM06 and your Home Assistant instance.
- Check Home Assistant logs for any error messages related to the EM06 integration.

SPECIFICATIONS









Feature	Detail
Model Number	EM06
Dimensions (L x W x H)	7.29 x 5.18 x 2.44 cm
Weight	740 grams
Manufacturer	Refoss
Connectivity	Wi-Fi, Bluetooth
Measurement Channels	6 (expandable to 36 with Home Assistant)
Max Current per Channel	150A (Rated 120A)
Measurement Accuracy	Up to 1%



Feature	Detail
Data Storage	Up to 36 months (cloud service)
Country of Origin	China

WARRANTY AND SUPPORT

For detailed warranty information, technical support, and customer service, please visit the official Refoss website or contact their support team directly. Keep your purchase receipt or proof of purchase for any warranty claims.

Related Documents - EM06

 	Refoss Smart Plug User Manual: Setup, Features, and Troubleshooting Comprehensive user manual for the Refoss smart plug, covering safety information, installation guide, LED status rules, linking with Google Assistant and Amazon Alexa, FAQs, and warranty details.
 	Refoss Smart Plug User Manual - Setup, Features, and Support Comprehensive user manual for the Refoss Smart Plug, detailing safety guidelines, package contents, LED status indicators, step-by-step installation, app setup, voice assistant integration with Alexa and Google Assistant, troubleshooting FAQ, warranty information, and disclaimers. Includes manufacturer details and support links.
 	Refoss EM06 Smart Energy Meter User Manual Comprehensive user guide for the Refoss EM06 Smart Energy Meter, detailing installation, operation, features, safety precautions, and technical specifications for optimal energy monitoring.
 	Refoss MSS620 Smart Outdoor Plug User Manual and Installation Guide Comprehensive user manual and installation guide for the Refoss MSS620 Smart Outdoor Plug, covering setup, operation, features, troubleshooting, warranty, and compliance information.

<div><div></div><div>User Manual</div></div>	<div><div>Refoss Smart Garage Door Opener User Manual</div><div>Comprehensive user manual for the Refoss Smart Garage Door Opener, covering package contents, installation, usage, voice control, notifications, FAQ, and warranty information.</div></div>
<div><div></div><div>User Manual</div></div>	<div><div>Refoss RSS620 Smart Outdoor Plug User Manual and Installation Guide</div><div>Comprehensive user manual and installation guide for the Refoss RSS620 Smart Outdoor Plug, covering safety, setup, operation, troubleshooting, and warranty information.</div></div>