1. Introduction

Load Monitoring Solution is combined of one eSolar SEC module and one meter to precisely record and monitor the real time load consumption in 24 hours non-stopped manner. The data recorded by the smart meter will be transmitted to end users via Wi-Fi/ Ethernet. It can fit with single-phase and three-phase grid systems.
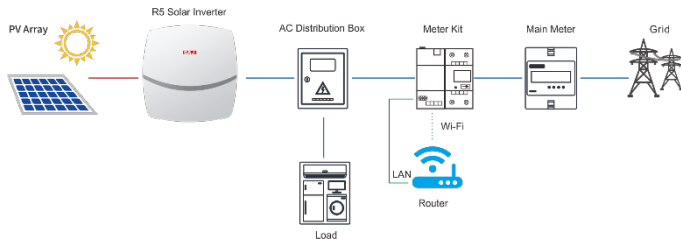

Fig 1.1 Load monitoring schematic

Packing list：

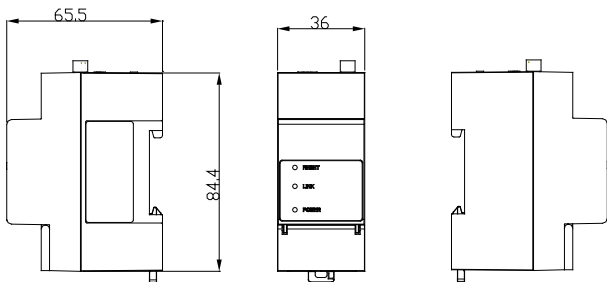|	
Smart Meter*1	External Wi-Fi antenna *1
eSolar SEC*1	RS485 Cable*1
User manual*1	Screw Driver*1

2. Product Appearance

2.1 eSolar SEC
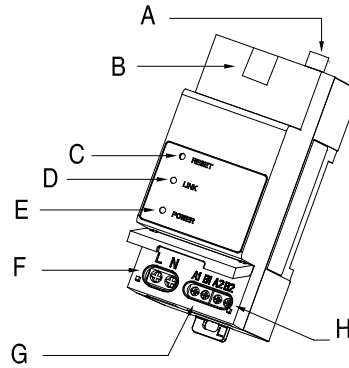

Fig 2.1 eSolar SEC Configuration

2.2 Meter Overview

Fig 2.2 eSolar SEC definition

Code	Name
A	External Wi-Fi antenna
B	LAN
C	RESET
D	LINK*1 (LED INDICATOR)
E	POWER*2 (LED INDICATOR)
F	Power input
G	RS485 for inverter
H	RS485 for Smart meter

Table 2.1 Interface description

Note: *1 Green light flickering indicates Ethernet is connected to server; blue light flickering indicates Wi-Fi is connected to server.

*2 LED indicator keeps ON indicating power is working properly, while LED indicator turning OFF indicates power supply is abnormal.

3. Installation Instructions

3.1 Installation

Load Monitoring equipment should be installed on a 35mm width track for security mount.

The meter can be mounted on the track by the following steps:

1. Pull down to release the clip at the back side of the meter

2. Mount the meter onto the track and push up the clip to secure.
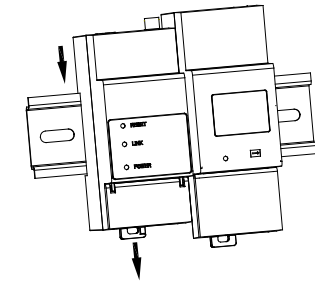

Fig 3.1 Installation method

3.2 Electrical Connection

During connection of the meter, it should be noted that the meter is integrated with an internal CT, no external CT is required.
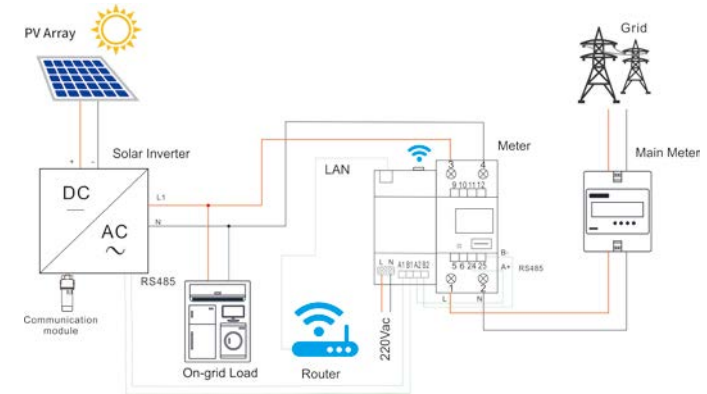
Single-phase Connection

Fig 3.2 Single-phase connection diagram

Please use the eSolar O&M APP to scan either the bar code below or the bar code on the side of the SEC module to link SEC module to inverter during power plant creation.
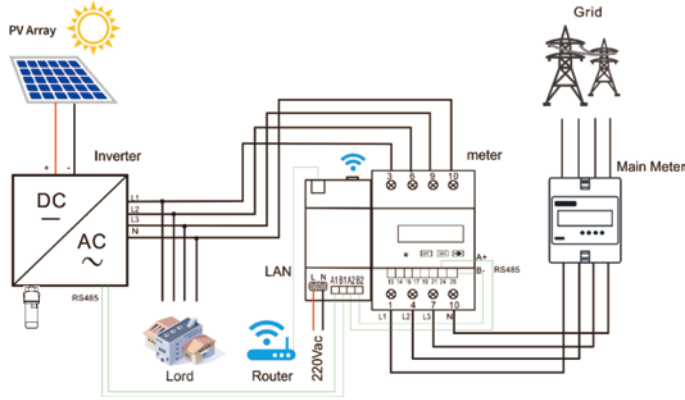
Three-phase Connection

Fig 3.3 Three-phase connection diagram

Note: Module requires an individual 220V AC power resource, a

circuit breaker is recommended for protection.

4. Datasheet

Parameter	
Type	eSolar SEC
Application	Load monitoring
Communication port	WiFi/LAN/Bluetooth/RS485
Data collection interval[min]	1~30[optional]， 10[Standard]
Firmware update method	Serial port/Remote
Access data method	APP/Integrated webpage/Remote server
Status display	LED
Electrical parameter	
Input voltage	100-240Vac
Input frequency	50/60Hz
Static consumption [W]	<0.8
Max. instant consumption [W]	<5
Environment	
Operating temperature range	-25℃~+60℃
Storage temperature range	-30℃~+70℃

Dimensions [H*W*D][mm]	84.4*36*65.5
Weight [g]	600
Ingress protection	IP20
Others	
Mounting method	Track mounting
Warranty [Year]	2
Certificates	CE、RoHs

5. Monitoring Platform

5.1 Monitoring APP Connection

1) Download eSolar O&M APP

For iOS system, search "eSolar O&M" in App Store to download.
For Android system, search "eSolar O&M" in Google Play to download.

2) Bluetooth connection

① Turn on mobile phone Bluetooth connection.

② Open eSolar O&M APP→ Select "My" → "Remote Configuration"

→ Select "Bluetooth"→ "Next" →Search devices → Click on the

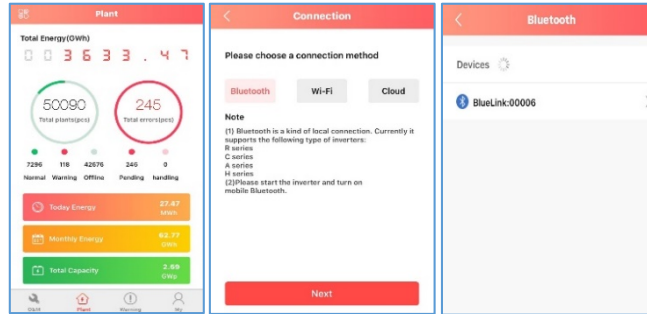Bluetooth name of the eSolar SEC (such as BlueLink:00006).

Fig 5.1 Bluetooth connection   Fig 5.2 Search devices

5.1 Real-time Data Monitoring on APP

Real-time data of eSolar SEC, Smart Meter and inverter are available

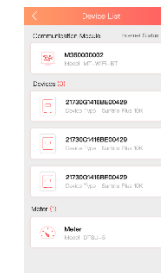for monitoring by choosing the corresponding device.

Fig 5.3 Devices list   Fig 5.4 Meter data

The load monitoring data can be checked by the following steps:

1. Tap on the "total plants" area

2. Tap on pencil icon and select "load monitoring"
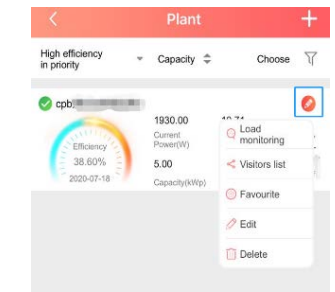

Fig 5.5 Step 1   Fig 5.6 Step 2

5.2 Real-time Data Monitoring on Web

Real-time data monitoring is also available in eSolar O&M Web Portal.

Displaying information of PV energy, consumption, import, export and

self-consumption rate of power station. Additionally, all the data can
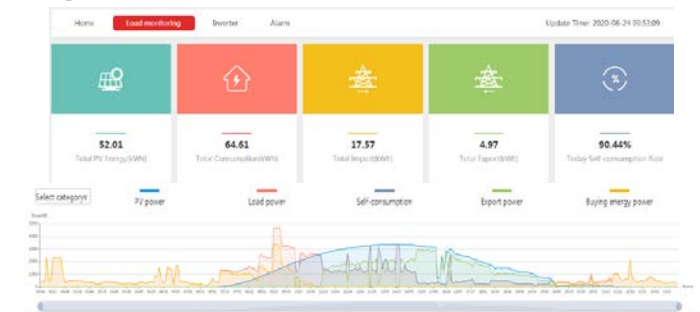
be summarized on a daily, monthly or yearly basis for clearer

comparison.

Fig 5.5 Load monitoring overview