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Please adhere to the actual products in case of any discrepancies in this user manual.

If you encounter any problem on the EPM, please find out the EPM S/N and contact us, we will try to respond to your question ASAP.

Solis 5G Series Export Power Manager

Installation and Operation Manual

Ver 1.1

Ginlong Technologies Co., Ltd.

Contents

1.1 Product Description

Solis 5G Series Export Power Manager can monitor and control the backflow power from the inverter to the grid thus providing export power control of inverters.
The export power manager is suitable for use with all solar PV grid tie inverters.
Model: Solis-EPM1-5G(for single phase system)
Solis-EPM3-5G-PRO(for three phase system).

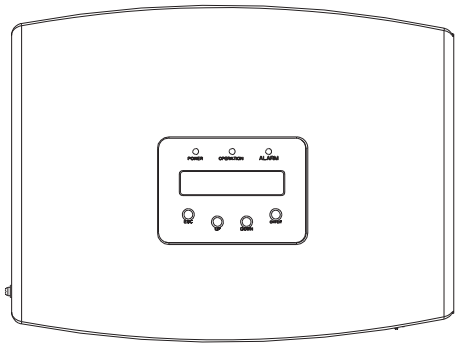


Figure 1.1 Front view

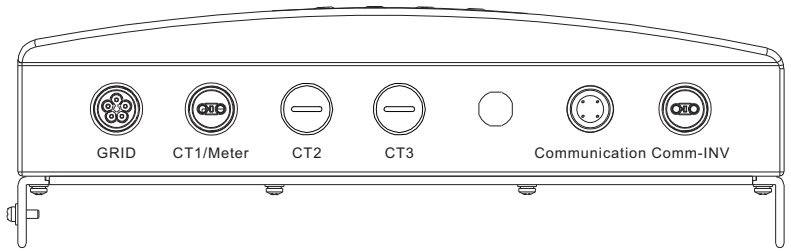


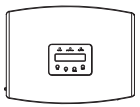
Figure 1.2 Bottom view

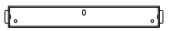
NOTE:
CT1 interface is for EPM1-5G external CT connection.
Meter interface is for EPM3-5G-PRO external meter connection.

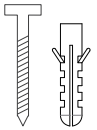
1. Introduction

1.2 Packaging

When you receive the EPM please ensure that all the parts listed below are included:


EPM x1


Back plate x1


Expansion screw set x3

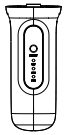

Locking screws x2


3 core AC connector x 1
(For EPM1-5G)
5 core AC connector x 1
(For EPM3-5G-PRO)


COM Connector x1
CT/Meter Connector x1


Meter x1
(only for EPM3-5G-PRO)


RS485 cable x5
(Inverter RS485 terminal x5 pcs)


WiFi datalogger x1
(Optional)

Manual
User manual x1

Quick installation guide
Quick installation guide x1

If anything is missing, please contact your local Solis distributor.

2.1 Safety Symbols

Safety symbols used in this manual, which highlight potential safety risks and important safety information, are listed as follows:

WARNING:
WARNING symbol indicates important safety instructions, which if not correctly followed, could result in serious injury or death.

NOTE:
NOTE symbol indicates important safety instructions, which if not correctly followed, could result in some damage or the destruction of the inverter.

CAUTION:
CAUTION, RISK OF ELECTRIC SHOCK symbol indicates important safety instructions, which if not correctly followed, could result in electric shock.

CAUTION:
CAUTION, HOT SURFACE symbol indicates safety instructions, which if not correctly followed, could result in burns.

2.2 General Safety Instructions

WARNING:
Electrical installations must be done in accordance with the local and national electrical safety standards.

WARNING:
It is forbidden to insert or unplug the CT cable with power on.
If accidentally disconnected the CT cable, please turn off the main AC switch and wait for 5 mins before reconnect the cable.

CAUTION:
Risk of electric shock. Do not remove cover. There is no user serviceable parts inside. Refer servicing to qualified and accredited service technicians.

CAUTION:
Risk of electric shock from energy stored in capacitors.
Do not remove cover until 5 minutes after disconnecting all sources of supply expect service technician. Warranty may be voided if any unauthorized removal of cover.

2. Safety Instructions

2.3 Notice For Use

The Export Power Manager has been constructed according to the applicable safety and technical guidelines.

Use the Export Device in installations that meet the following specification ONLY:

1. Permanent installation is required
2. The electrical installation must all the applicable regulations and standards.
3. The Export Power Manager must be installed according to the instructions stated in this manual.
4. The Export Power Manager must be installed according to correct technical specification.
5. To install the Export Device you should notice the phase of sampling voltage and the direction of sampling current, then you can connect sampling wires and CT (current transformer).

3. Overview

3.1 Front Panel Display

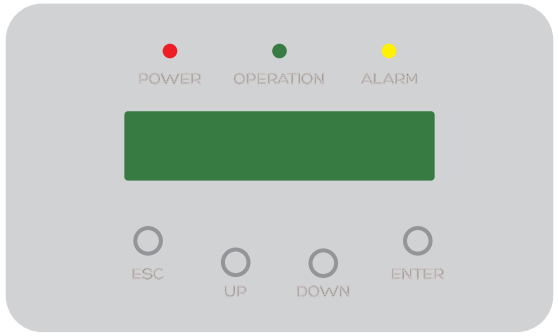


Figure 3.1 Front Panel Display

3.2 LED Status Indicator Lights

	Light	Status	Description
①	POWER	ON	Export Device power on
		OFF	Export Device power off
②	OPERATION	ON	Communication with inverter
		OFF	No communication with inverter
③	ALARM	ON	Alarm
		OFF	No alarm

Table 3.1 Status Indicator Lights

3.3 Keypad

There are four keys in the front panel of the Inverter(from left to right):
ESC, UP, DOWN and ENTER keys. The keypad is used for:

- Scrolling through the displayed options (the UP and DOWN keys);
- Access to modify the adjustable settings (the ESC and ENTER keys).

3.4 LCD

The two-line Liquid Crystal Display (LCD) is located on the front panel of the EPM, which shows the following information:

- Export Power Manager operation status and data;
- Service messages for operator;

4. Installation

4.1 Select a Location for the EPM

To select a location for the EPM, the following criteria should be considered:

- The temperature of the EPM could up to 75℃.
- The EPM is designed to work in extreme temperature range is from -25℃ to 60℃.
- The EPM should be kept minimum 300mm clearance from the other device.
- The EPM cannot be placed in direct sunlight.

4.2 Mounting the EPM

Please attach back plate onto wall horizontally where to install the product.
Then mark A , B and C for drilling points.(see Figure 4.1)

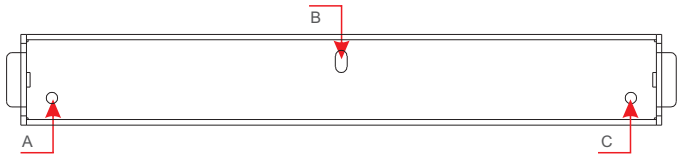


Figure 4.1 Bracket

Drill three φ8 holes and insert expandable shell into the holes which make the bracket alignment. After that fix the bracket on the wall.(see Figure 4.2)

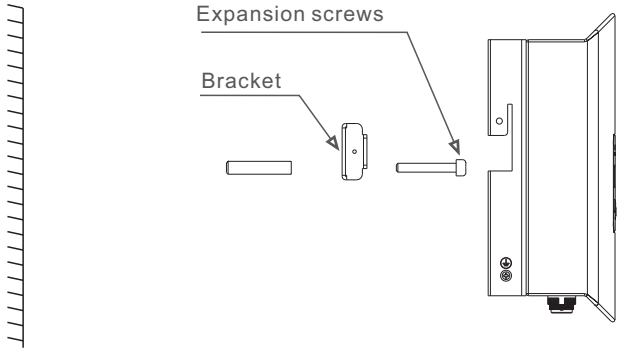


Figure 4.2 Fix the bracket on the wall

Hang the EPM in the bracket by the steps below .(see Figure 4.3)

Figure 4.3 Hang the EPM in the bracket

Fix the two screw at the side of bracket.(see Figure 4.4)

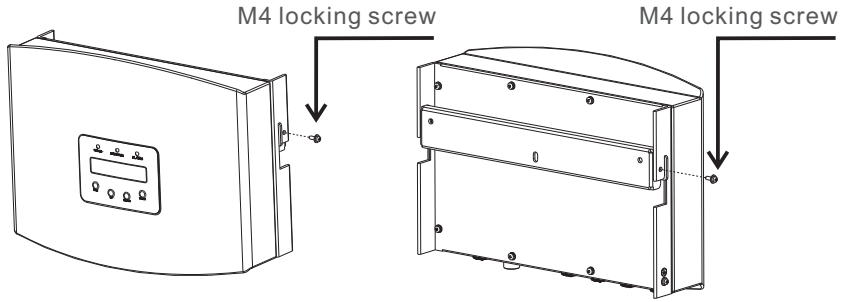


Figure 4.4 Fix the two screw

4.3 Electrical Connections

The EPM is designed for electrical connection without removing the cover.
The meaning of the symbols located at bottom of the EPM is listed in Table 4.1.

Grid	AC voltage sampling terminal, EPM power supply terminal
Meter/CT1	Connect to Meter RS485 interface(EPM3-5G-PRO); Or connect to CT(EPM1-5G)
Comm_INV	Connect to solis inverters
Communication	Monitoring device or Upgrade Stick

Table 4.1 The meaning of the symbols located at bottom of the EPM

NOTE:
A 6A breaker is recommended between the EPM and AC power supply.

System connection diagram is as follows:

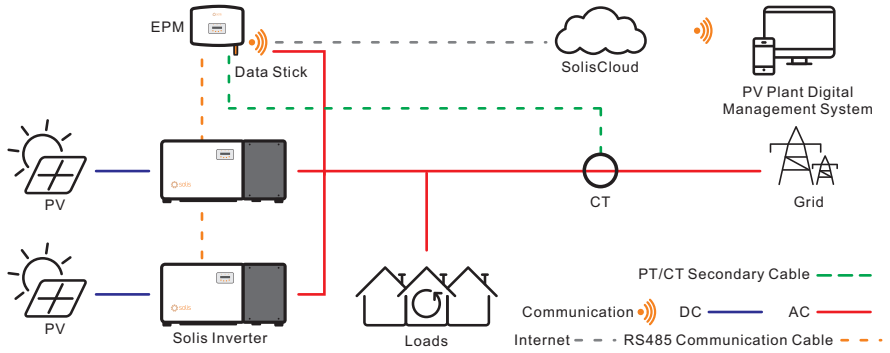


Figure 4.5 EPM1-5G system diagram

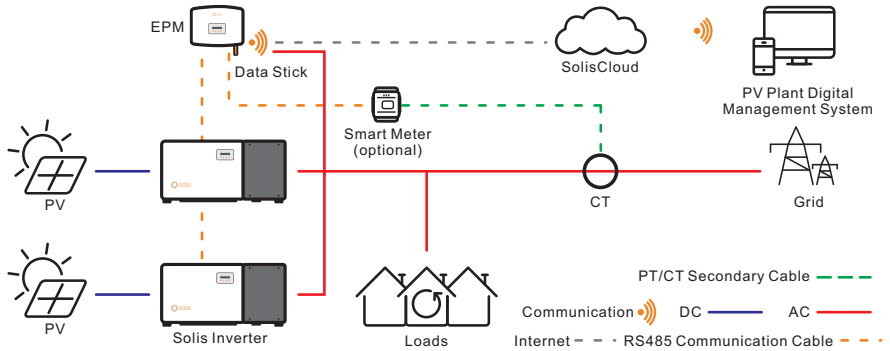


Figure 4.6 EPM3-5G-PRO system diagram(grid voltage ≤480V)

4. Installation

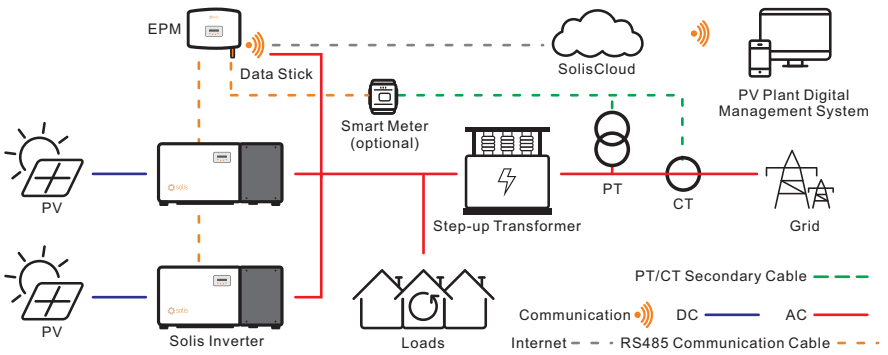


Figure 4.7 EPM3-5G-PRO system diagram(grid voltage >480V)

4.3.1 Make the grid input cable

a. Measure the distance from EPM to power distribution box. And find proper cable for grid input. 3 core cable for Solis-EPM1-5G and 3 or 5 core cable for Solis EPM3-5G-PRO.
b. For EPM1-5G installation connect L, N, PE to pin L, N, ⏚ (see figure 4.8).
c. For EPM3-5G-PRO installation, when using 5 core cable, connect U, V, W to pin1, 2,3 and connect N to pin4, connect PE to ⏚ (see figure 4.9);
When using 3 core cable, connect PE to ⏚, and connect the other 2 cores to pin1,2, make sure rated voltage between pin1 and pin2 is 230V.

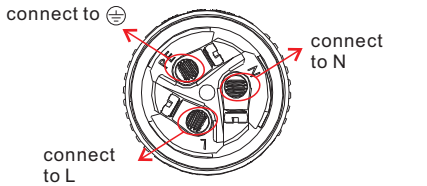


Figure 4.8 EPM1-5G connection

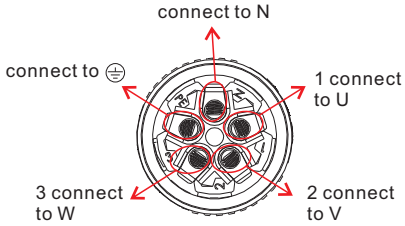


Figure 4.9 EPM3-5G-PRO connection

d. Strip the end of cable to 3mm.

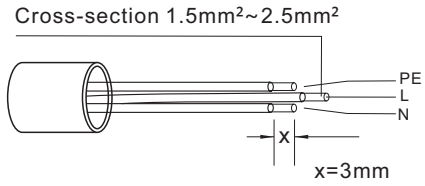


Figure 4.10 Strip the cable(Single phase)

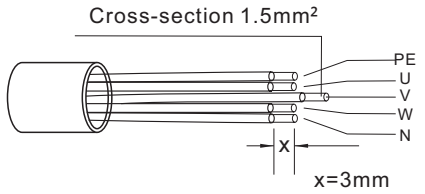


Figure 4.11 Strip the cable(Three phase)

e. Through the cable to the washer and use a suitable screw driver to fix the wire to the connector. (Torque 10N*M is recommended)

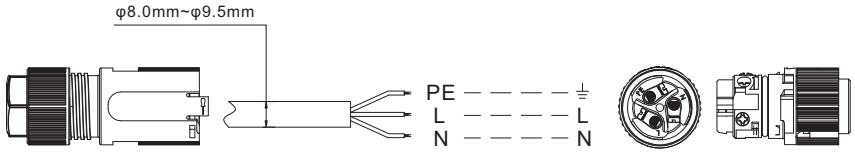


Figure 4.12 Welding wire to connector(Single)

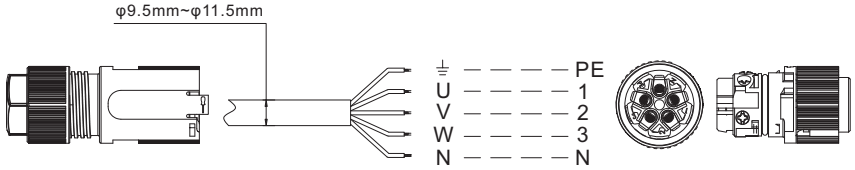


Figure 4.13 Welding wire to connector(Three)

f. Assemble the connector. (Torque 10N*M is recommended)

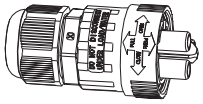


Figure 4.14 Assemble connector (Single phase)

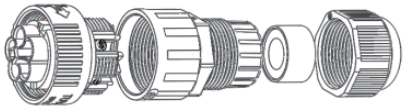


Figure 4.15 Assemble connector (Three phase)

4. Installation

4.3.2 Make RS485 cable(COMM-INV port)

a. Refer to figure 4.16, the RS485 terminals for inverter and EPM are already assembled.
Tips:RS485 cable: preferred 0.5mm², max 1.0mm².

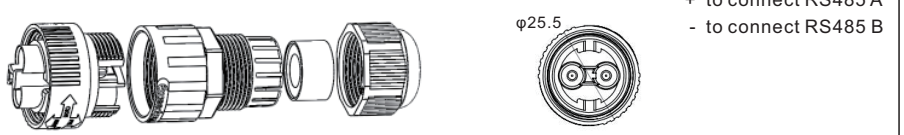


Figure 4.16 RS485 terminal

b. Refer to figure 4.17, connect communication cable between inverter and EPM, the RS485 line length between the inverter 1 and EPM should less than 1000 meters.

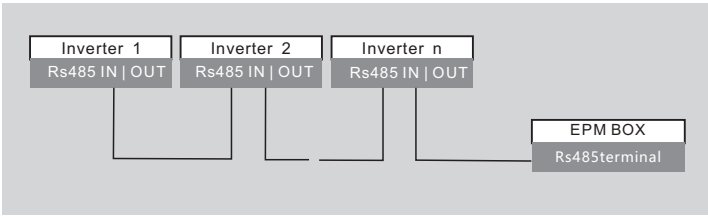


Figure 4.17 RS485 cable connection

c. Follow step1 to assemble 2 connectors to each end of cable.

NOTE:
1. 4pin-to-2core or USB-to-2core communication accessories may be needed according to inverter models when connecting RS485 cable.
2. In the standard packaging, 5pcs 4pin-to-2core accessories is included; while USB-to-2core accessories need to be ordered additionally.
3. Please list your Inverter models which will connect to EPM and contact sales representative for more help.

4Pin-to-2core accessory
Yellow: RS485-A; Blue: RS485-B

USB-to-2core accessory
Black: RS485-A; Red: RS485-B

4.3.3 Meter connection (only for EPM3-5G-PRO)

Connection between EPM and meter

EPM3-5G-PRO needs to communicate with meter to read and display the power, voltage, and current data on the grid side.

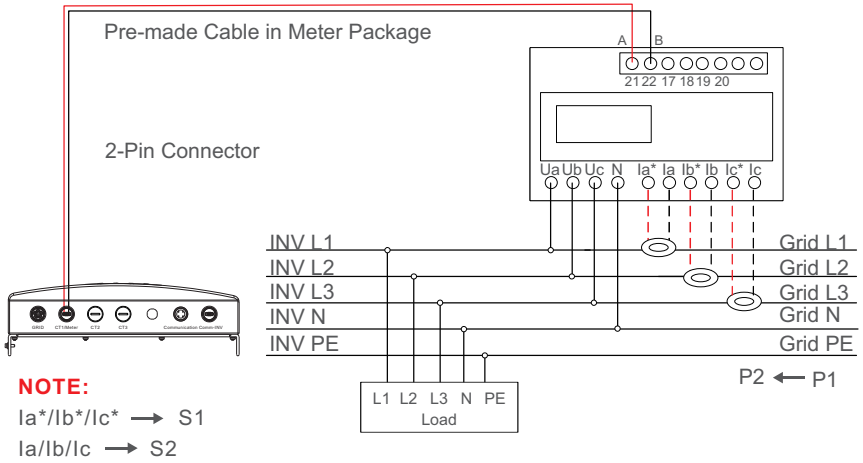


Figure 4.18

Wiring and installation of meter

1.1 Meter Dimension

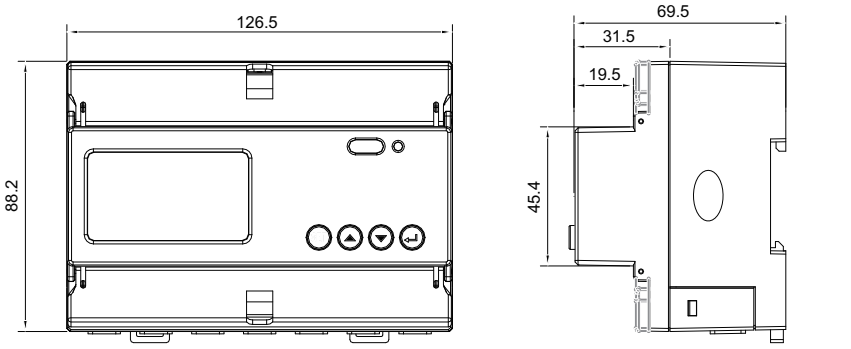


Figure 4.19

4. Installation

1.2 Meter specification

Specification		3 phase 3 wires, 3 phase 4 wires
Voltage	Reference voltage	3-110V, 3-400V, 3-480V, 3-66/115V, 3-230/400V, 3-277/480V
	Input voltage fluctuation	0-120%
	Consumption	<10VA(Single phase)
	Impedance	>2MΩ
	Accuracy class	Error±0.2%
Current	Input current	3-1(6)A
	Consumption	<1VA(Single phase rated current)
	Accuracy class	Error±0.2%
Power		Active, reactive, apparent power, error±0.5%
Frequency		45~65Hz, Error±0.2%
Energy		Active energy(Accuracy class:0.5, 1), reactive energy(Accuracy class 2)
Energy pulse output		1 active optocoupler output, Resistive load(Voltage is not more than 24V, current is not more than 5mA)
Switching input		1 optocoupler input,Maximum allowed voltage: ~ 220V, OVC Ⅲ
Width of pulse		80±20ms
Pulse constant		400imp/kWh
Interface and communication		RS485：Modbus RTU
Range of communication address		Modbus RTU:1~ 247;
Baud rate		1200bps~19200bps
Working temperature		-25℃~+55℃
Relative humidity		≤95%(No condensation)
Altitude		≤ 2000m
Installation environment		Indoor use
Pollution degree		Class 3

1.3 Wiring and Installing

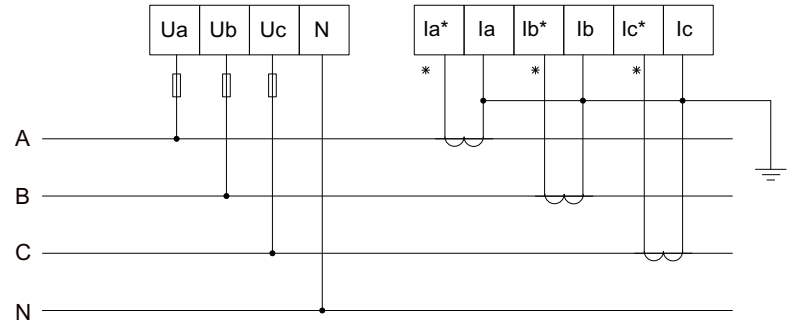


Figure 4.20 Three phase four lines connect via CT

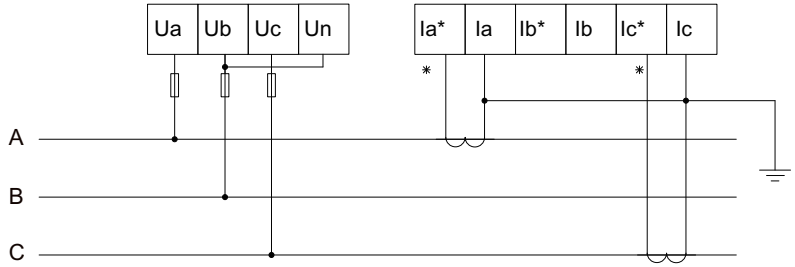


Figure 4.21 Three phase four lines connect via CT

NOTE:
Please select the right wiring mode at the meter LCD according to the on-site wiring. See the meter manual for details.

4.3.4 Connect and fix the CT

To detect the backflow power, the CTs need to be installed at the PCC (Point of Common Coupling), instead of the load branch circuit.

NOTE:
For three phase system, CT must be installed on U,V and W with correct sequence, otherwise EPM can not detect the correct data.
"The CT cable outer diameter is 6.5mm-7.5mm, cross-sectional area 1.5mm²".

a. Switch off the main switch, disconnect the line cables.
b. Insert the cables through the CT, make sure the P1 on CT is towards grid and P2 is towards the inverter.
c. Reconnect the line cables.

NOTE:
If the CT is installed in the wrong direction, the EPM can't work normally.

NOTE:
The CT must be grounded on the secondary side.

4. Installation

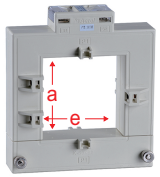
Specification	Dimensions(mm) W x H x D	Hole size(mm) a x e	CT Ratio	AKH-0.66K
CT-30×20-100A	90 x 114 x 40	22 x 32	100:5A	
CT-60×40-300A	114 x 140 x 36	42 x 62	300:5A	
CT-80×40-600A	122 x 162 x 40	42 x 82	600:5A	
CT-80×40-1000A	122 x 162 x 40	42 x 82	1000:5A	
CT-160×80-2000A	184 x 254 x 52	82 x 162	2000:5A	
CT-160×80-3000A	184 x 254 x 52	82 x 162	3000:5A	

Table 4.2 CT Ratio

NOTE:

Solis recommends customers to purchase suitable current transformers from local suppliers according to the max possible current in different projects.
As long as the secondary current is 5A, no matter what the primary current is, it will not affect the warranty of the EPM devices and inverters.
Solis can also provide above current transformers as an optional accessory. Customers can contact Solis sales rep to place the order based on their project requirements.

4.3.5 MV Meter Connection

For some C&I systems, the export limitation must be sampled on the medium voltage side due to the presence of multiple low-voltage derived circuits.

NOTE:

EPM Plus is not suitable for MV installations.

1. Install(Check)the PT/CT at the MV Switchgear

In this case, voltage transformers (PT or VT) are required to convert the medium voltage(MV) into an acceptable low voltage for the AC voltage measurement of the smart meter.
Current transformers(CT) are required to convert the large current into an acceptable low current for the AC current measurement of the smart meter.
E.g, for an 22kV L-L MV, PT ratio shall be 22/0.1kV=220;for an 2000A current, CT ratio shall be 2000/5A=400. Normally, PTs and CTs have already been installed at the MV switchgear, just carefully check the onsite PT/CT parameters to see if applicable.
There are 2 wiring method, 3P4L and 3P3L. 3P4L could measure L-L voltage, L-N voltage and three phase current. While 3P3L could only measure L-L voltage and three phase current(The phase B current is calculated by meter).

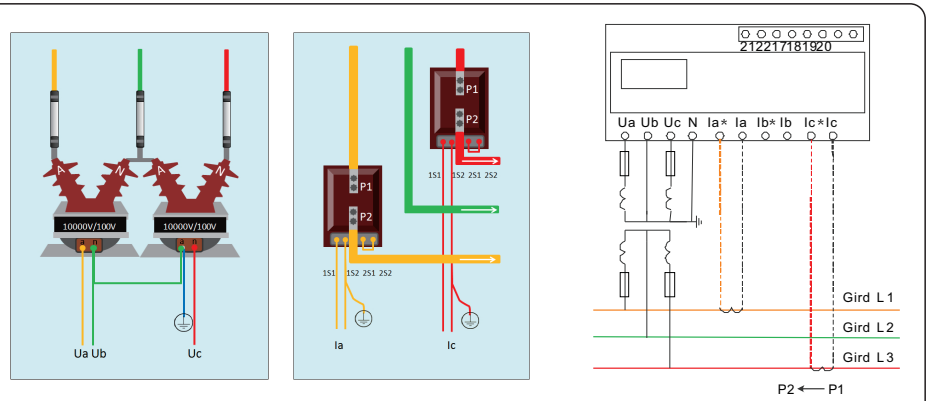


Figure 4.22 PTs and CTs in 3P3L Wiring

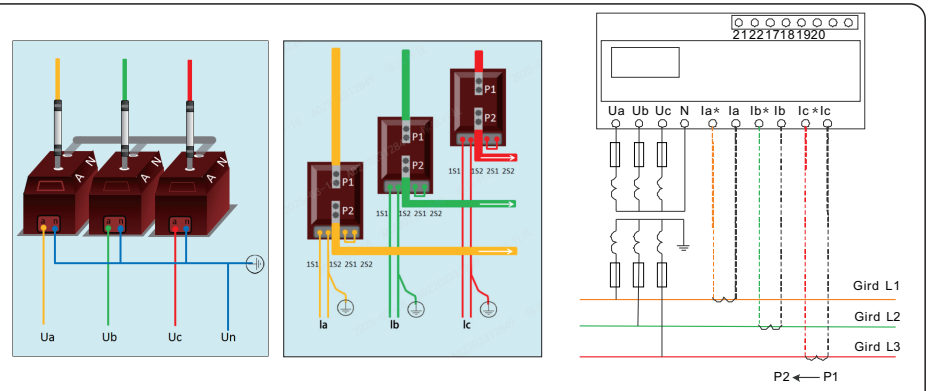


Figure 4.23 PTs and CTs in 3P4L Wiring

2. Set the Meter Parameter

Once properly installed, the following modifications must also be made in the Meter settings:

2.1 Network type setting

SET – PASS – 0001 – ENTER – Sys – Choose 3P4L or 3P3L – SET (twice) and when SAVE appears, press ENTER.

2.2 PT or CT Ratio Setting

PT ratio: SET – PASS – 0001 – ENTER – Sys – IN – PT – Set ratio (e.g., [Primary] 22kV / [Secondary] 100V = 220) – ENTER – SET (twice) – SAVE – ENTER.
CT ratio: SET – PASS – 0001 – ENTER – Sys – IN – CT – Set ratio (e.g., [Primary] 2000A / [Secondary] 5A=400) – ENTER – SET (twice) – SAVE – ENTER.

Figure 4.24 Choose 3P4L or 3P3L

Figure 4.25 PT or CT Ratio Setting

3. Set the EPM (Disable “Phase B voltage check”)

When using 3P3L wiring, please disable "Phase B voltage check" (phase B voltage not measured under 3P3L wiring) in the EPM professional settings: Professional Settings – Volt Check – Uncheck phase B.

If you don’t disable "Phase B voltage check", you will get the following alarms.

Figure 4.26 LCD display

4.3.6 Muti inverter connection

Please follow the previous system diagrams to connect multiple inverters.

EPM can control max 20 inverters (Different models are allowed).

The system can ONLY has one grid connection point.

4.3.7 Monitoring

Inverters which connected to EPM can be monitored by Ginlong Monitoring device.

(WiFi/Cellular/LAN stick)

NOTE:

When inverter connected to EPM, no other monitoring device is allowed to be connected to the inverter.

5.1 Commissioning

1. Switch off all the AC breakers and DC breakers in the system.
2. Complete AC and DC wirings for inverters by following inverter manuals.
3. Connect AC cables to the Grid terminal on the EPM.
4. Install the CTs to the grid connection side with correct direction as mentioned in EPM manual.
5. Connect RS485 communication cables between inverters and EPM Comm-INV port.
6. Switch on the DC breakers for Inverters and set the inverters to "OFF" in LCD and Set "External EPM Set"- "5G EPM" -"Failsafe: ON". Then assign slave addresses accordingly in inverters.
7. Switch on all the AC breakers for inverters and EPM
8. Set EPM settings including“Inverter Qty Set”, "Backflow Power", "Set CT Ratio" and "Set Capacity" based on the actual system configuration.
9. Turn on some loads and check the power flow data on EPM. Negative power indicates taking power from grid and CT direction is correct. Positive power indicates export power to grid and the CT direction is reversed (Change the CT direction accordingly).
10. If the CT direction is confirmed correct and EPM is not reporting any alarms, set all inverters to ON in inverter LCD.
11. Commissioning Completed.

5.2 Decommissioning

In order to aovid the backflow power to grid, please stop the inverter before stop the EPM.

1. Turn off the inverter output AC breaker.
2. Turn off inverter input DC breaker.
3. Turn off the grid input breaker of EPM.
4. Disconnect all cable of EPM, disassemble EPM after 5mins.

During normal operation, the display alternately shows the power of grid side and the operation status .Screens can also be scrolled manually by pressing the UP and DOWN keys. Press the ENTER key to access to the Main Menu.

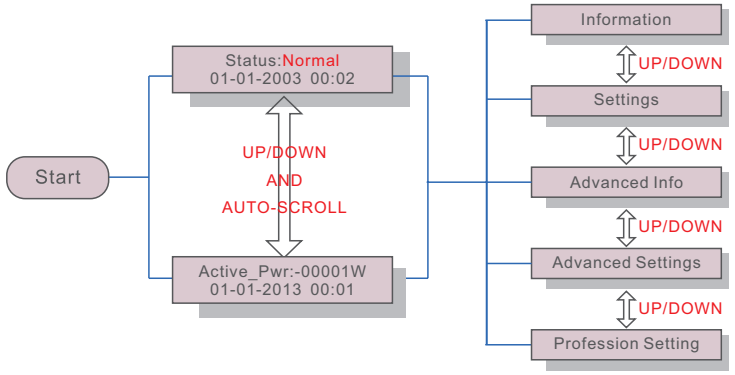


Figure 6.1 Operation Overview

6.1 Main Menu

There are four submenus in the Main Menu (see Figure 6.1):

1. Information
2. Settings
3. Advanced Info.
4. Advanced Settings
5. Profession Setting

6. Operation

6.2 Information

Solis Export Power Manager main menu provides access to operational data and information. The information is displayed by selecting "Information" from the menu and then by scrolling up or down.

Display	Description
VacA_Grid: 000.0V IacA_Grid: 000.0A	Vac_Grid: Grid voltage and current.
VacB_Grid: 000.0V IacB_Grid: 000.0A	
VacC_Grid: 000.0V IacC_Grid: 000.0A	
Load_Pwr: 0000.0KW Total_PINV: 0000.0KW	Load_Pwr: Load Power. Total_PINV: Total output power of inverters.
Export Limited: 000% Freqency: 00.00Hz	Export Limited: Inverter output power percentage. Freqency: Grid frequency.
Active_APwr: +00000W Active_BPwr: +00000W	Active_Pwr: Power of the power grid.
Active_CPwr: +00000W Active_TPwr: +00000W	Active_Pwr: Power of the power grid. Active_TPwr: :Power flows through CTs.
G100 EPM Status	Status under G100_V2 standard.

Table 6.1 Information list

6.2.1 Lock screen

Pressing the ESC key returns to the Main Menu. Pressing the ENTER key locks (Figure 6.2(a)) or unlocks (Figure 6.2 (b)) the screen.

(a) (b)

Figure 6.2 Locks and Unlocks the Screen of LCD

6.3 Settings

The following submenus are displayed when the Settings menu is selected:

1.Set Time

2.Set Address

6.3.1 Set Time

This function allows time and date setting. When this function is selected, the LCD will display a screen as shown in Figure 6.3.

Figure 6.3 Set Time

Press the UP/DOWN keys to set time and data. Press the ENTER key to move from one digit to the next (from left to right). Press the ESC key to save the settings and return to the previous menu.

6.3.2 Set Address

This function is used to set the EPM address.
The default address number is “01”.

Figure 6.4 Set Address

6.4 Advanced Info - Technicians Only

NOTE:
This area is for fully qualified and accredited technicians only.
Enter menu “Advanced Info.”, “Advanced settings” and “Profession Setting” will need password).

Select “Advanced Info.” from the Main Menu.
The screen will require the password as below:

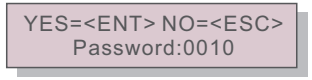


Figure 6.5 Enter password

After enter the correct password the Main Menu will display a screen and be able to access to the following information.

1. Inverter Power

2. Version

3. Model EPM

4. Communication Data

5. Energy Info

6. Alarm Message

6.4.1 Inverter Power

The screen shows the information of Inverter Power for each inverter which connected to the EPM.

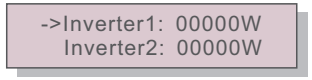


Figure 6.6 Inverter Power

6.4.2 Version

The screen shows the the firmware version of the EPM.

Figure 6.7 Version

6.4.3 Model EPM

The screen shows the EPM Model.

Figure 6.8 Model Inverter

6.4.4 Communication Data

The screen shows the internal communication data of the Inverter,
for service technicians only.

Figure 6.9 Communication Data

6.4.5 Energy Info

This shows the energy records on the EPM.
1.Load Total E. 2.INV Send Total E. 3.Send Grid Total E. 4.Get Grid Total E.

Figure 6.10 Energy Info

6.4.6 Alarm Message

The screen will show the current alarm of EPM.

Figure 6.11 Alarm Message

6. Operation

6.5 Advanced Settings - Technicians Only

NOTE:
This area is for fully qualified and accredited technicians only.
Please follow 6.4 to enter password to access this menu.

Select Advanced Settings from the Main Menu to access the following options:

1. Inverter Quantity
2. Total Capacity
3. Export Power
4. Meter Settings
5. Select Standard
6. Export Work Mode
7. Control Limit
8. Restore Settings
9. Set Passcode

6.5.1 Inverter Quantity

Set the total number of the inverters connected with EPM.

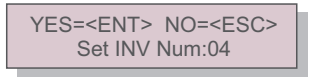


Figure 6.12 Inverter Qty. Set

Enter the setting , LCD screen will show all the number of inverters which connected to the EPM.
The number(01~20) can be select by pressing the UP/ DOWN keys.

6.5.2 Total Capacity

Set the total capacities of the inverters connected with EPM.

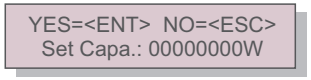


Figure 6.13 Set Total Capacity

6.5.3 Export Power

Set the allowed power that inverter can generate to the grid.

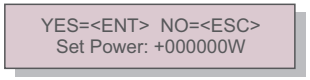


Figure 6.14 Set Export Power

6.5.4 Meter Settings

1. Meter Selection
2. Set Meter CT
3. Set Meter PT
4. CT Direction

6.5.4.1 Meter Selection

Select meter model accrording to actual installation.

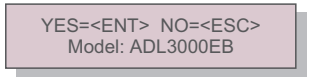


Figure 6.15 Meter Selection

6.5.4.2 Set Meter CT

Set the CT(Current Transformer) ratio according to the actual CT used at site.

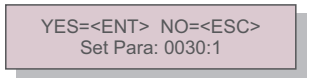


Figure 6.16 Set Meter CT

6. Operation

6.5.4.3 Set Meter PT

Set the PT(Voltage Transformer) ratio according to the actual PT used at site.
This setting is useful when EPM is used in a system voltage larger than 480V, e.g. 10kV or 22kV especially.

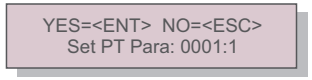


Figure 6.17 Set Meter PT

6.5.4.4 CT Direction

Set the CT direction forward or reversed. This setting is useful when CT installation is finished and which direction is wrong, customer do not need to re-install, just use this setting to change direction.

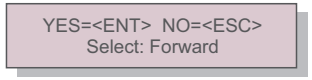


Figure 6.18 CT Direction

6.5.5 Select Standard

G100_V1: UK power control.
G100_V2: UK current control.
(1)G100 ON/OFF: G100_V2 standard on/off switch.
(2)Backflow Current: Set the allowed current that inverter can generate to the grid.
(3)Clear Fault: Manually reset function for G100_OVI_PRO alarm required by G100
(4)Reset Setting: Set the customer type as Resi(Residential) or NonResi(Non-Residential).
RD244: Spain power control.
Others: Power control for other scenarios.

Figure 6.19 Select Standard

6.5.6 Export Work Mode

Set the export power calculation mode.
Mode 1: Average Mode.
As shown in the figure 6.20, at this mode, each phase of inverter will generate the power that equals to the average of the three-phase load power, and which is more than the minimum load phase power.

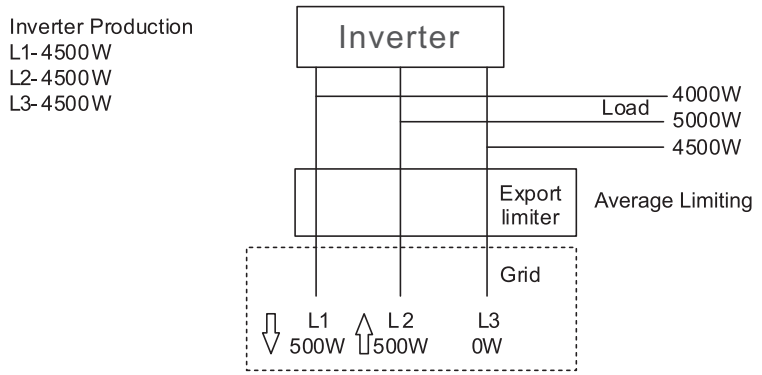


Figure 6.20

Mode 2: Min.Phase Mode.
As shown in the figure 6.21, at this mode, each phase of inverter will generate the power that equals to minimum phase load power.

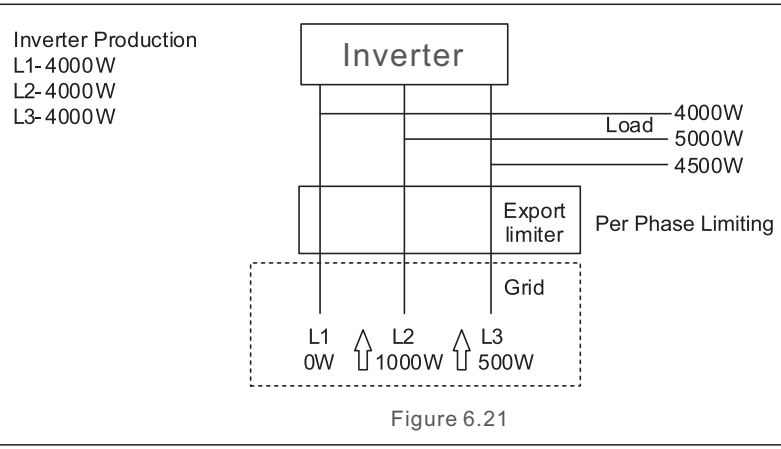


Figure 6.21

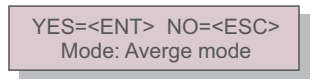


Figure 6.22 Export Work Mode

6.5.7 Control Limit

Set the maximum control percentage(50%~110%) sent by EPM to inverters.
Setting range is 50~110%. Default is 110%.

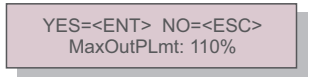


Figure 6.23 Control Limit

6.5.8 Restore Settings

When Restore Settings is selected, the LCD will display as shown in Figure 6.25.

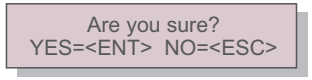


Figure 6.24 Restore Settings

Press the ENTER key to execute the setting.
Press the ESC key to return to the previous menu.

6.5.9 Set Passcode

If set a new password, please keep it well and avoid forgetting.

Figure 6.25 Set Password

Firstly, input the origin password and press Enter button;
Second, input the new password, press Enter button to save it. UP/DOWN button can be used to move the cursor.
Third, Press ESC button to get to the previous page.

6.6 Profession Setting - Technicians Only

NOTE:
This area is for fully qualified and accredited technicians only.
Please follow 6.4 to enter password to access this menu.

Select Profession Setting from the Main Menu to access the following options:

1. FailSafe
2. Export Compensate
3. Transmit
4. System Update
5. Clear Energy
6. CT check choose
7. Vol check choose
8. Time of Use

6.6.1 FailSafe Setting

When the Fail Safe is set "Run" :
If EPM lost communication with external meter, EPM LCD screen will display "MeterCom Fail". And EPM will control inverters output power to 0 kW.
When the Fail Safe is set "Stop":
Communication lost between EPM and external meter will not affect the output of inverters.

Figure 6.26 FailSafe Setting

6.6.2 Export Compensate

This setting is used to compensate the export power value which is set at 6.5.3.

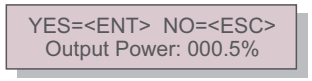


Figure 6.27 Export Compensate

6. Operation

6.6.3 Transmit Switch

Transmit switch is only useful when upgrading inverters.
Turn on the transmit switch to upgrade the inverters.
Turn off the transmit switch after upgrading, otherwise EPM control will be failed.

Figure 6.28 Transmit ON/OFF

6.6.4 System Update

This function is used when upgrading EPM firmware by an external upgrading stick.

Figure 6.29 System Update

6.6.5 Clear Energy

This function is used to clear energy information in the EPM.

6.6.6 CT Check and Vol Check

CT check: Check if 3 phase current signal is normal, a CT-FailSafe alarm will occur when losing CT signal. Default is ON, every single phase check is optional.
Vol check: Check if 3 phase voltage signal is normal, a M-VFailSafe alarm will occur when losing Voltage signal. Default is ON, every single phase check is optional.

6.6.7 Time of Use

Set different export power at different time zones. The function is off at default.
Each time zone is defined with a beginning time and ending time, and there are 5 time zones in total. Each time zone has an independent ON/OFF switch.

6.7 Inverter Set

6.7.1 Set Inverter EPM

NOTE:
Make sure the inverter internal EPM function is OFF according to the inverter manual. Otherwise, the EPM3-5G-PRO or EPM1-5G will not work properly.

EPM has two versions: EPM-2G, EPM-5G. While inverter is working with EPM, please ensure to change the inverters settings as below:

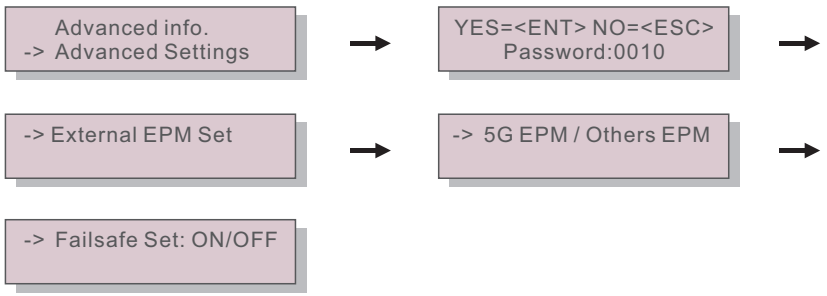


Figure 6.30 Set EPM

NOTE:
If you are using EPM-5G, please choose “5G EPM”, and set it “Failsafe Set: ON”. If you are using EPM-2G, please choose “Others EPM”, and set it “Failsafe Set: ON”. Only one setting needs to be set.

6.7.2 Set Address

Select the address of the inverter, the default is "01", the range is “01-20", please set a continuous value.

Figure 6.31 Set Address

The EPM is designed in accordance with the most important international safety and EMC requirements. Before delivering to the customer, the EPM has been subjected to several tests to ensure its optimal operation and reliability.

When the EPM is running , the LCD screen will display running status. The status messages and descriptions are listed in Table 7.1.

Message Name	Information Description	Troubleshooting Suggestion
Normal	The EPM works normally	/
RS485Fail	EPM has lost communication with one or some of the inverters	1. Check the inverter status, the inverter which lost communication with EPM will give a “Failsafe” alarm. 2. Check the communication line between the inverter and EPM.
MeterCom Fail	EPM has lost communication with external meter	Check the communication line between EPM and meter.
CT-Failsafe	Current Sensor failed	1. Check the lines between EPM and CT. 2. Check if the CT installation is normal.
M-VFailSafe	Meter Phase Voltage Lack	1. Check the lines between EPM and voltage sampling ponit. 2. Check the lines between PT and EPM. 3. Check if the PT installation is normal.
G100_OVI_PRO	G100_V2 over current	The alarm appears when the actual current exceeds G100_V2 backflow current under scenarios stipulated by G100 standard. As required by G100, G100_OVI_PRO alarm should be manually reset. Please select the “Advanced Settings -> Select Standard -> G100_V2->clear fault” to reset.

8. Specifications

Model	Solis-EPM1-5G
AC Input	
Rated voltage	1/N/PE, 230V
Input voltage range	100V-300V (L-N)
Voltage fluctuation	±20%
Maximum input current	0.5A
Input frequency range	45-65Hz
Communication	
Inverter communication	Modbus
Communication with inverter	RS485 (Wired)
Maximum communication distance	1000m
Maximum communication inverter numbers	20 pcs
Monitoring	WiFi/4G/LAN Stick (Optional)
General data	
Installation environment	Indoor
Ambient temperature	-25℃~+60℃
Relative humidity	5%~95%
Max. operation altitude	2000m
Ingress protection	IP65
Pollution degree	PD 2(Inside), PD3(Outside)
Overvoltage category	III
Self power consumption	＜6W
Dimensions(W*H*D)	364mm*276mm*114mm
Weight	2.7kg (without CT, Meter)
AC connection	Quick connection terminal
Display	LCD, 2*20Z
Smart meter	No
CT conection	Plug terminal
CT specification	Single phase: Standard(100/5A or 300/5A)
Power control accuracy	1%
Features	
Failsafe fuction	Yes
Remote upgrated	Yes
Control time	5s
Warranty	2 years

8. Specifications

Model	Solis-EPM3-5G-PRO
AC Input	
Rated voltage	1/N/PE, 230V 3/(N)/PE, 230V/400V 3/PE, 480V
Input voltage range	100~300V(L-N) 175~519V(L-L)
Voltage fluctuation	±20%
Maximum input current	0.5A
Input frequency range	45-65Hz
Communication	
Inverter communication	Modbus
Communication with inverter	RS485 (Wired)
Maximum communication distance	1000m
Maximum communication inverter numbers	20 pcs
Monitoring	WiFi/4G/LAN Stick (Optional)
General data	
Installation environment	Indoor
Ambient temperature	-25℃~+60℃
Relative humidity	5%~95%
Max. operation altitude	2000m
Ingress protection	IP65
Pollution degree	PD 2(Inside), PD3(Outside)
Overvoltage category	III
Self power consumption	＜6W
Dimensions(W*H*D)	364mm*276mm*114mm
Weight	2.7kg (without CT, Meter)
AC connection	Quick connection terminal
Display	LCD, 2*20Z
Smart meter	Split phase: AGF-AE-D Three phase: ADL3000-E-B
CT conection	Plug terminal
CT specification	Split phase: Standard (200 / 40 mA) Three phase: Optional (Secondary current is 5A)
Power control accuracy	1%
Features	
Failsafe fuction	Yes
Remote upgrated	Yes
Control time	5s
Warranty	2 years