

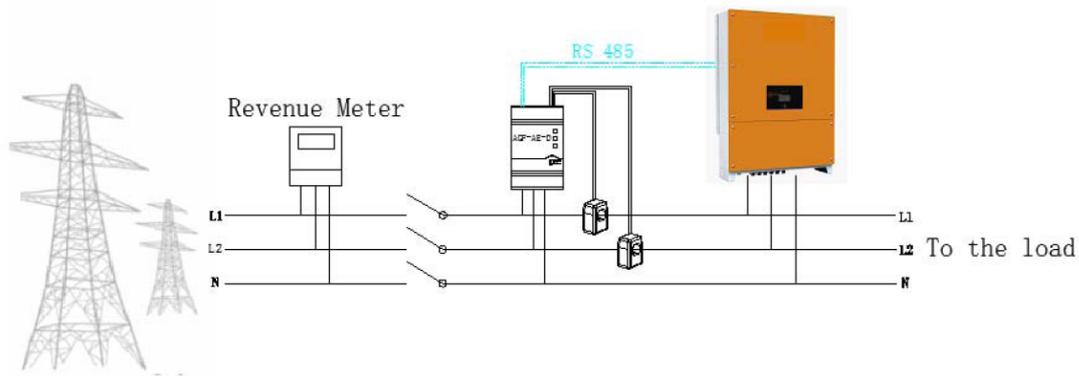


AGF-AE-D

Electricity Meter Installation Guide

Step1 Overview

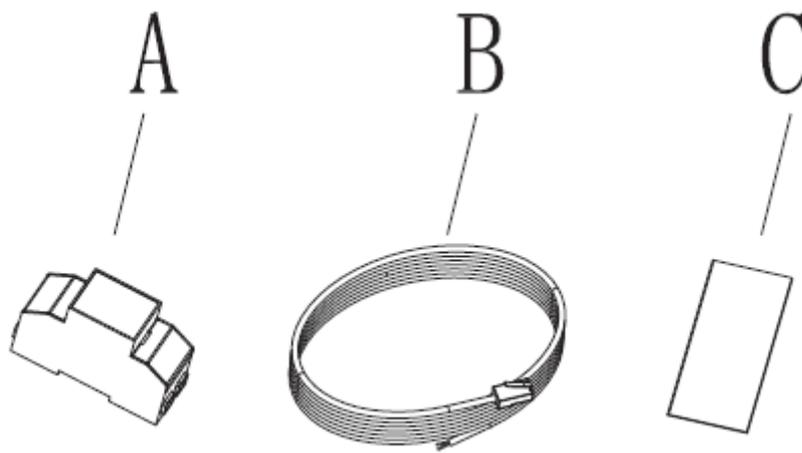
The energy-meters are used to residential, utility and Industrial application. The meter provides a communication port for remote reading and monitoring. Bi-directional energy measurement makes the unit a good choice for solar PV energy metering.



Step2 Technical Parameters

Meter Electrical Service		Units
Rated Voltage-Line to N	120	V
Rated Voltage-Line to Line	208/240	V
Extended Voltage Range	88%~110%	
AC Frequency	60	Hz
Grids Supported	L1/L2/N/PE	
Power Consumption	1.2	W
Communication		
Meter Communication Interfaces	RS 485	
Response Time	≤1	S
Meter Accuracy		
Rated RMS current	200	A
1%-100% of CT Current	±1	%
Current Transformers		
Number of Supplied Current Transformers	2	
Dimensions	70.5×54.5×39 (H×W×D)	mm
Installation Specifications		
Dimensions (H×W×D)	54.1×87.8×52	mm
Weight	0.2	kg
Operating Temperature Range	-30~55	°C
Relative Humidity (non condensing)	5 - 90	%
Mounting Type	DIN-Rail, 35mm	
Standard Compliance		
Safety	UL1741	

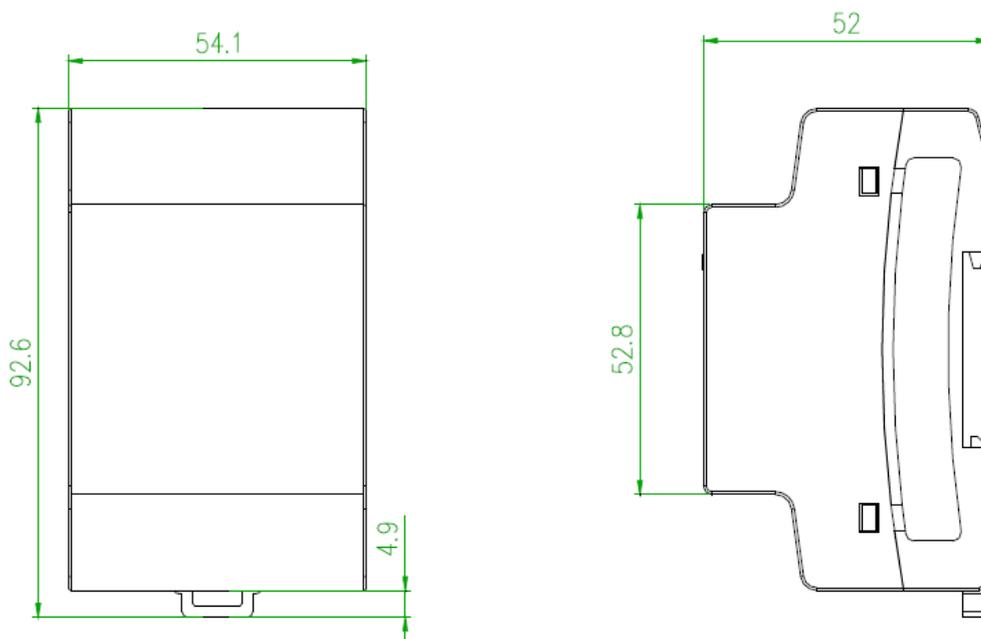
Step3 Unpacking



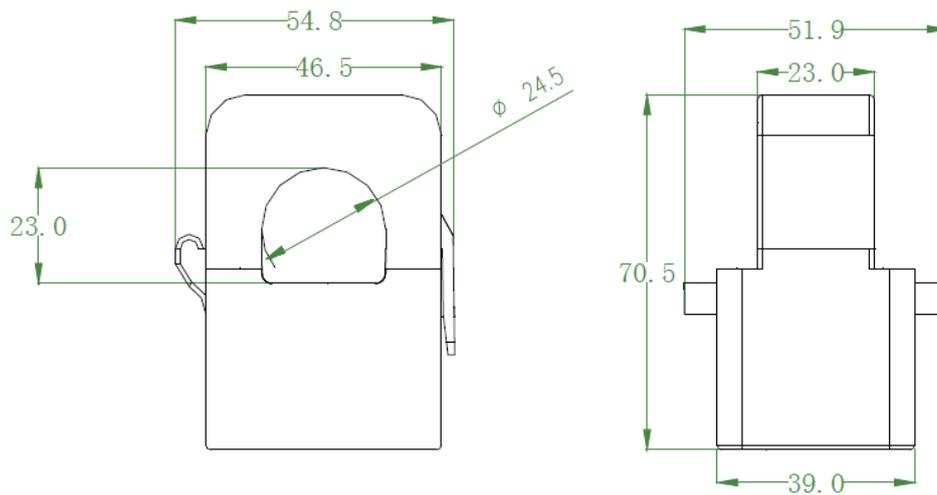
图片需要修改，根据实际配件进行画图

Item	Number	Description
A	1	meter
B	1	RS485 cable (standard length 5m)
C	1	User Manual

Step4 Dimension



Meter Dimensions ($\pm 0.5\text{mm}$)



Current Transformers Dimensions ($\pm 0.5\text{mm}$)

Step4 Installation

4.1 Installation Guidelines

The meter is connected to the inverter using RS485.

1. AC wire specifications: 1.3 to 2.0 mm diameter / 22-18 AWG stranded wire, 600 V, type THHN, MTW, or THWN.

2. RS485 wiring specifications: Cable type: Min. 3-wire shielded twisted pair (a 4-wire cable may be used);

Wire cross-section area: 0.32- 0.81 mm² / 24-18 AWG (a CAT5 cable may be used).

NOTE:

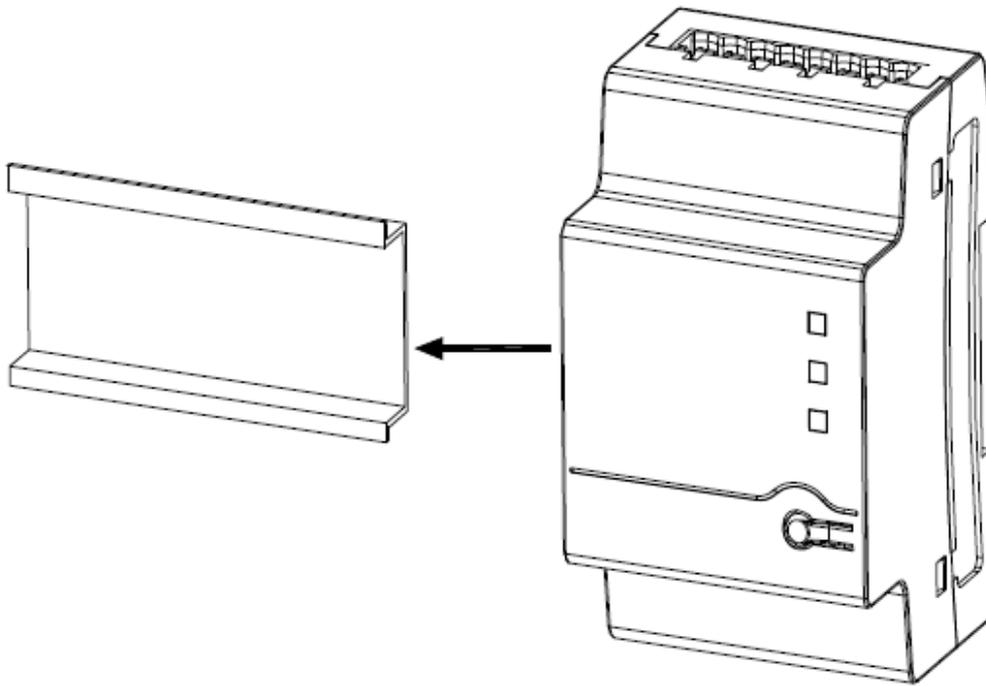
If using a cable longer than 10 m/33 ft in areas where there is a risk of induced voltage surges by lightning, it is recommended to use external surge protection devices. If grounded metal conduit is used for routing the communication wires, there is no need for a lightning protection device.

1. The meter is considered "permanently connected equipment" and requires a disconnect means (circuit breaker, switch, or disconnect) and over current protection (fuse or circuit breaker).
2. The meter draws 10-30mA, therefore the rating of any switches, disconnects, fuses, and/ or circuit breakers is determined by the wire gauge, the mains voltage, and the current interrupting rating required.
3. The switch, disconnect, or circuit breaker must be located near the meter and be easily operated.
4. Use circuit breakers or fuses rated for 20A or less.
5. Use grouped circuit breakers when monitoring more than one line.
6. The circuit breakers or fuses must protect the mains terminals labeled L1 and L2. In the rare cases where neutral has over current protection, the over current protection device must interrupt both neutral and the ungrounded conductors simultaneously.
7. The circuit protection / disconnect system must meet all national and local electrical codes.

4.2 Installing and Connecting the Meter

4.2.1 To mount the meter

1. The meter should be mounted in a Power Distribution Box.
2. Mount the meter on a 35mm DIN rail.

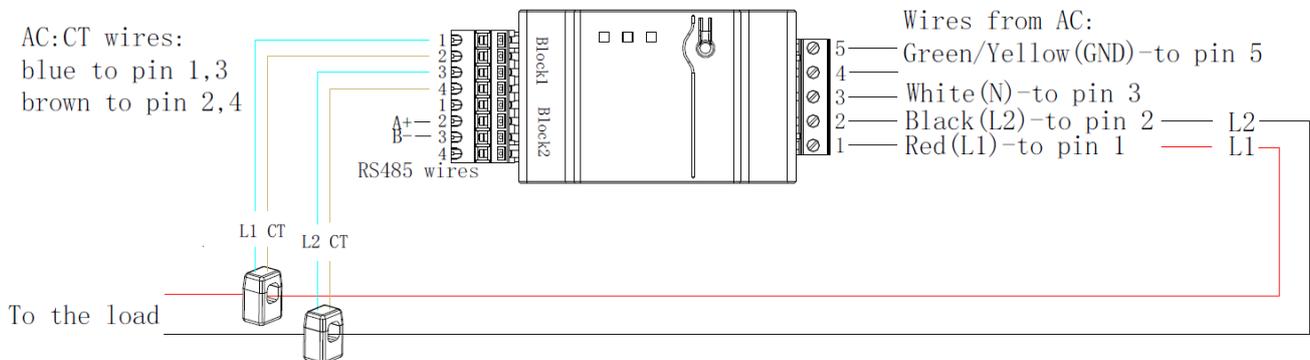


4.2.2 To install the CTs:

1. Turn off AC power before clamping on current transformers.
 2. Install the CTs around the conductor to be measured. Split-core CTs can be opened for installation around a conductor. A nylon cable tie may be secured around the CT to prevent accidental opening.
 3. Install the CT with the arrow pointing to the grid for consumption or export measurement.
- The current transformer is packed together with the meter.

4.2.3 To wire the meter:

If you are connecting the meter to the inverter, refer to the connection diagram below



NOTE:

- Clamp the CT connected to L1 CT around the wire connected to \emptyset L1.
 Clamp the CT connected to L2 CT around the wire connected to \emptyset L2.

1. Verify that power is OFF before making connections.
2. Insert a grounding cable through the appropriate conduit and the knockout that was opened and connect it from Pin 5 of the 5-pin terminal block to the grounding terminal
3. Connect the AC side wires (meter input) using the 5-pin terminal block:
 - a. Insert the wires through the appropriate conduit and the knockout that was opened.
 - b. Loosen the appropriate screws on the 5-pin terminal block.
 - c. Connect each AC wire to the appropriate screw terminal (pins 1, 2). Verify that the lines match the symbols printed on the meter front label.
 - d. Connect ground to pin 5 and neutral to pin 3.

- e. Tighten the screws making sure the wires are fully inserted and cannot be pulled out easily.
 - f. Insert the 5-pin terminal block into the socket on the meter making sure it is fully seated in the meter.
4. Connect the CT wires to the 4-pin terminal block (block1):
 - a. Insert the wires through the appropriate conduit and the knockout that was opened.
 - b. Connect the blue and brown wires according to the dots printed on the label: blue to pins 1/3, brown to pins 2/4.
 - c. Insert the 4-pin terminal block into the socket on the meter making sure it is fully seated in the meter
 5. Connect the RS485 twisted pair cable to the 4-pin terminal block o (block2):
 - a. Insert the wires through the appropriate conduit and the knockout that was opened.
 - b. Connect the wires to the A+ and B- terminals, and connect the shield to the G terminal.
 - c. Insert the 4-pin terminal block into the socket on the meter making sure it is fully seated in the meter
 6. Return the terminal block end-stops to the sides of the meter.

NOTE:

If the meter is used for two-phase two-wire system (no neutral); please connect L2 and N line at the 5-pin terminal block:

Step5 Panel introduction

5.1 Meter Status LEDS

The three status LEDs on the front of the meter can help indicate correct measurements and operation. At normal startup - when power is first applied, all the LEDs light up sequentially for 1 sec.

5.1.1 Power Status LED

LED	LED Color	Function	Indication	Troubleshooting
RUN	Green	Flashing ON/OFF(for 1sec)	Work normally	/
	Red	ON for>3sec	Internal error	Contact Support
	Yellow	Flashing ON/OFF(for 1sec)	No communication	Check that the communication wires are connected correctly.

5.1.2 Phase Status LED

LED	LED Color	Function	Indication	
L1/L2	Green	ON for>3sec	No current	
		Flashing ON/OFF(for 1sec)	Positive power	
	Red	Flashing ON/OFF(for 1sec)	Negative power	Check for reversed CTs, swapped CT wires, or CTs not matched with the lines.
		Flashing with green LED	High voltage>130V	Check the line voltages and the meter rating.
		Flashing with yellow LED	Low voltage<70V	
	Yellow	Flashing ON/OFF(for 1sec)	Break fault<30V	
ON for>3sec		Frequency is below 45Hz or above 70Hz	Check for the presence of high noise.	

5.2 Button description

When the software version of the meter needs to be updated, refer to the following steps:

1. Communicate with the meter by RS 485.
2. Open the programming software and load the new software to update.
3. Press the “reset” button for 3sec, the meter will reset.
4. Wait for the program to be completed.