Quick Installation Guide

ESC-Hybrid Series

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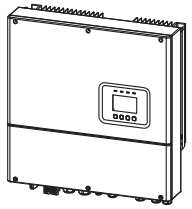
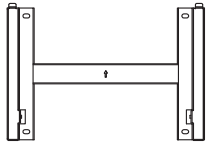
422-00030-01

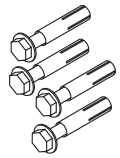
1 Packing List



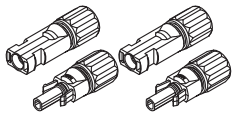
Inverter*1



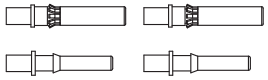
Bracket*1



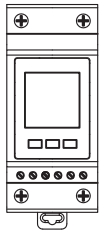
Screw package:
Expansion tube*4
Expansion screw*4



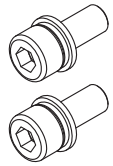
Male DC Connectors x2
Female DC Connector x2



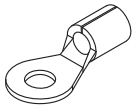
Positive DC Pin contact x2
Negative DC Pin contact x2



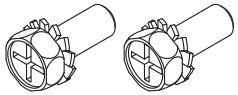
Meter*1 (Optional)



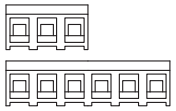
M5 screw*2



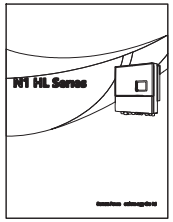
Ground Terminai*1



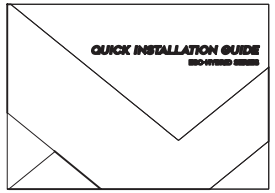
Ground screw*2



3Pin terminal blockmale connector*2
6pin*1



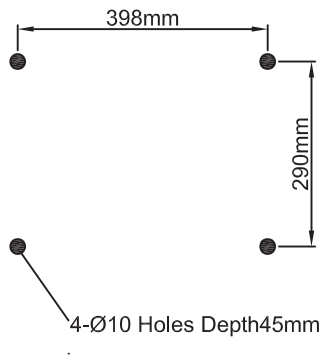
Installation guide*1



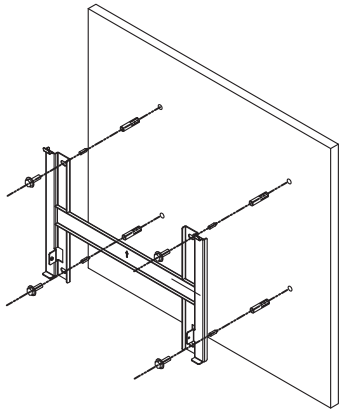
Quck installation guide*1

2 Inverter Installation

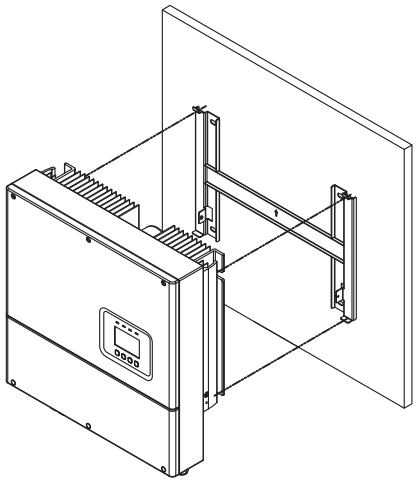
1 Mark the position of four holes



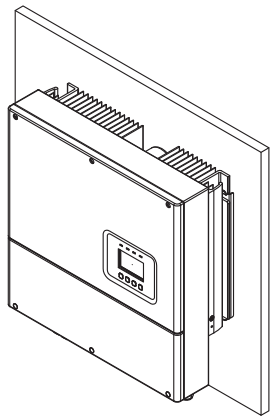
2 Drill holes with ϕ10 drill
Depth: at least 45 mm
Tighten the expansion tubes



3 Screw the expansion screws

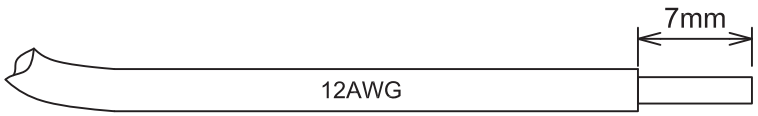


4 Match the inverter with the bracket

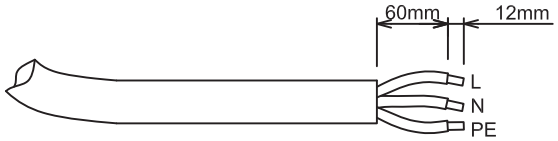


3 PV and AC Connection

PV cable size: 12AWG

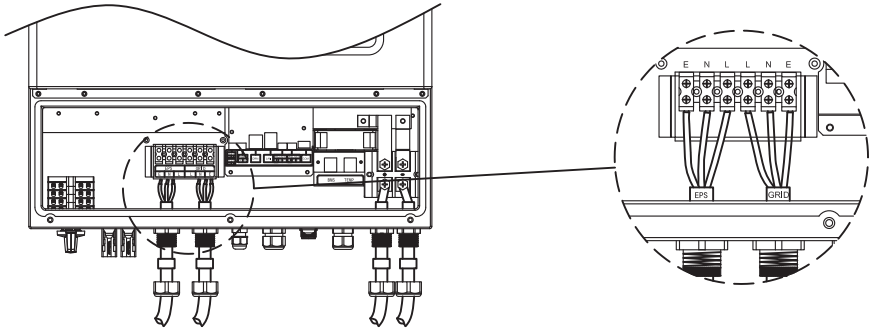


AC cable size: 5mm212 AWG



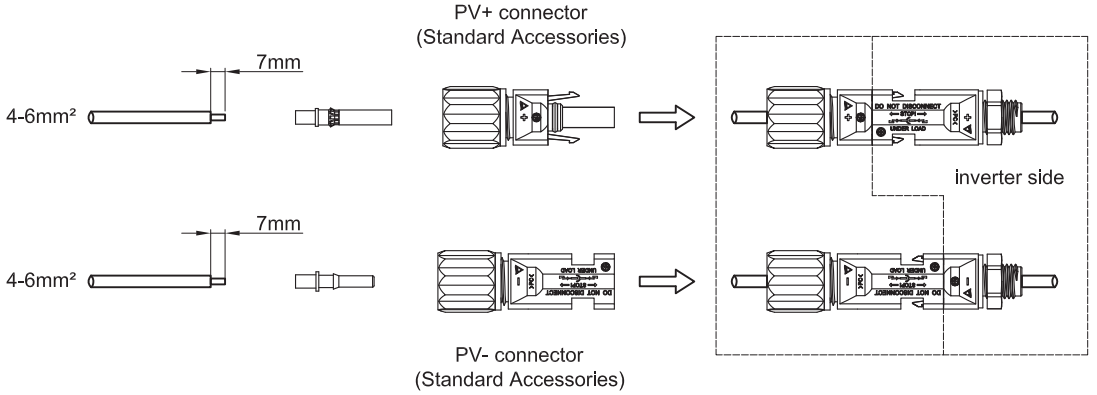
AC connection steps：

1. Trip all the wires (L, N and the PE wires) to 60mm. Use the crimping pliers to trip 12mm of insulation from all wire ends.
2. Connect AC cables into the “GRID” connectors .



PV connection steps：

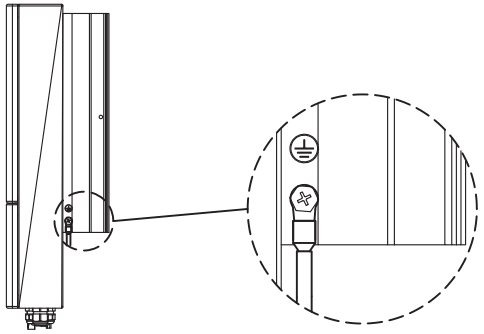
1.Separate the DC connector.
2.Insert striped cable into pin contact.
3.Put the pin contact with striped， cable into the corresponding crimping pliers.
4.Insert pin contact through the cable nut to assemble into back of the male or female plug.
5.Tight the DC connector. Slide the cable nut towards the back shell. Rotate the cable nut to secure the cable.



4 WIFI & GPRS、Earth and Meter Connection

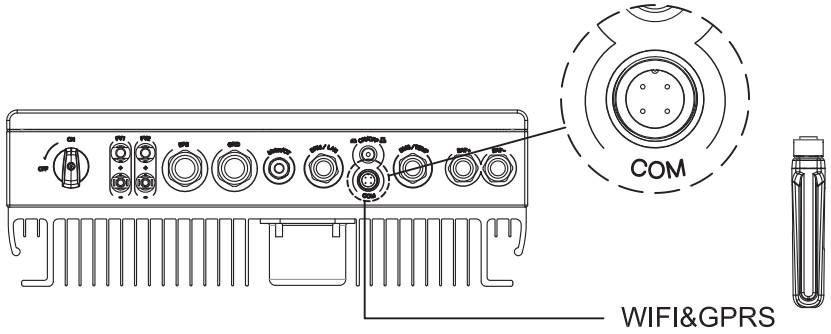
Earth connection steps:

Earth connection steps: 1. Earth cable size: 12 AWG. 2.
Install the earth cable and tighten the screw as picture shown.



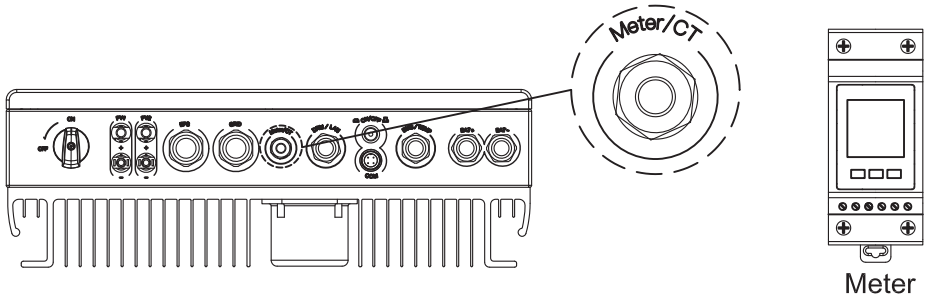
WIFI & GPRS connection steps:

Insert the WIFI module or GPRS module to “COM”port of inverter; for how to setup monitoring please refer to the module user manual in detail.

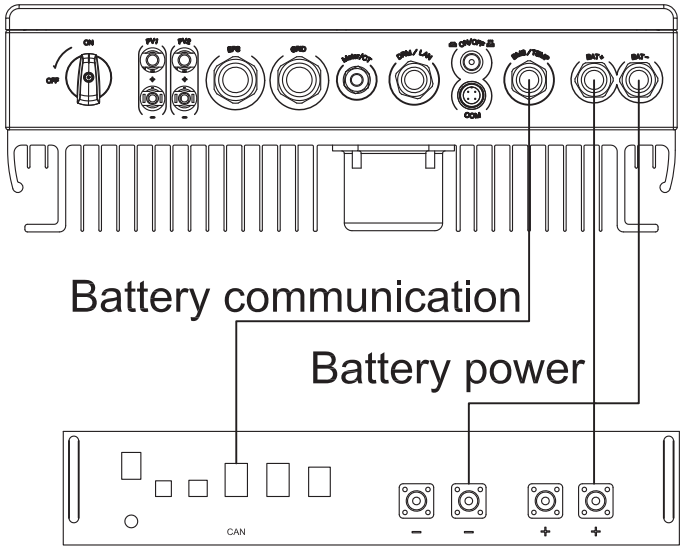


Meter connection steps：

Insert meter connector to meter port of inverter,
details please refer to page 8 “Meter installation”.



5 Battery Connection



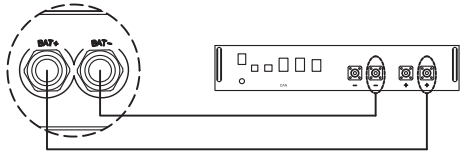
Battery Power Connection

1.Connect one side of the battery connect wire to the inverter.

2.Fit a fuse (63A slow blow) in the both positive and negative battery cable as close as possible to the battery.

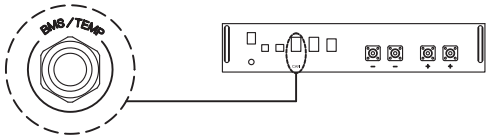
3.Connect the positive side of the battery connect wire to the positive side of the battery, the negative side of the battery connect wire to the negative side of the battery.

4.Make sure the positive and negative side of battery are connected.



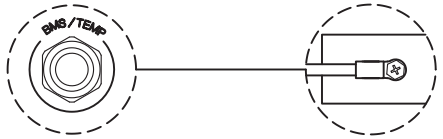
Battery communication connection

Insert one RJ45 side of the cable into BMS port on the inverter and insert the other side of cable into“RS485”port of Lithium battery.



Battery thermal sensor connection

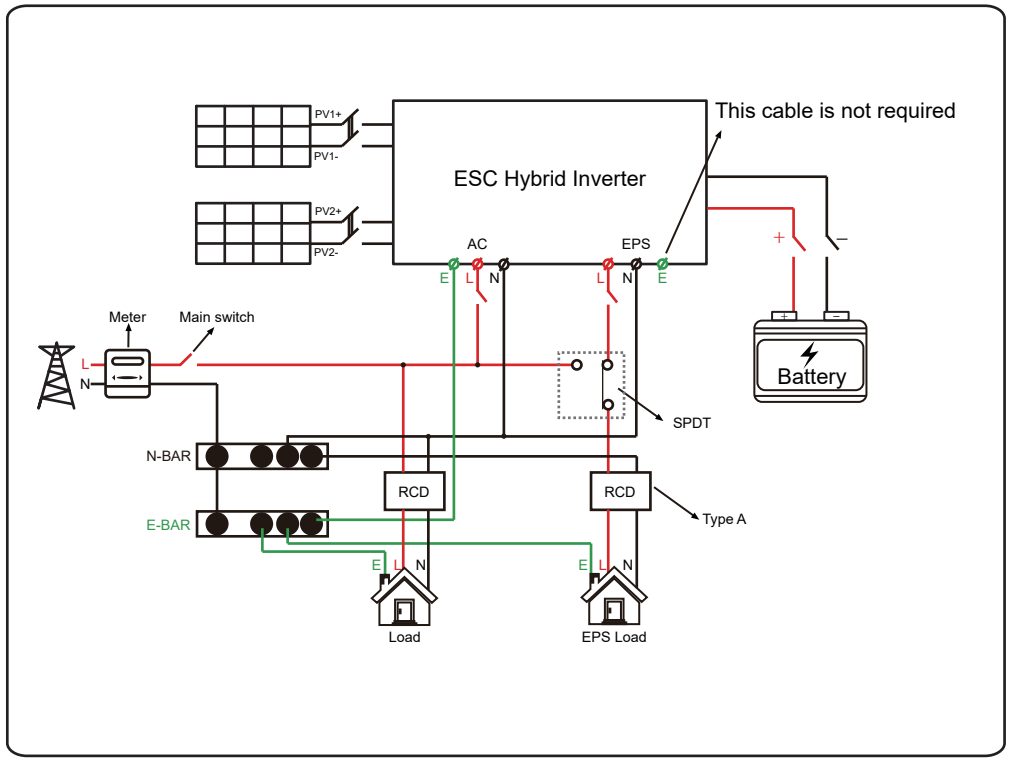
1. Set the RJ45 connector of the thermal sensor to the “TEMP” port of the inverter or the BMS.
   Attention! Lead acid battery connected to”TEMP”port, Lithium battery connected to “BMS”port.
2. Place the other side ring of the thermal sensor near the battery for sampling the ambient temperature of battery.

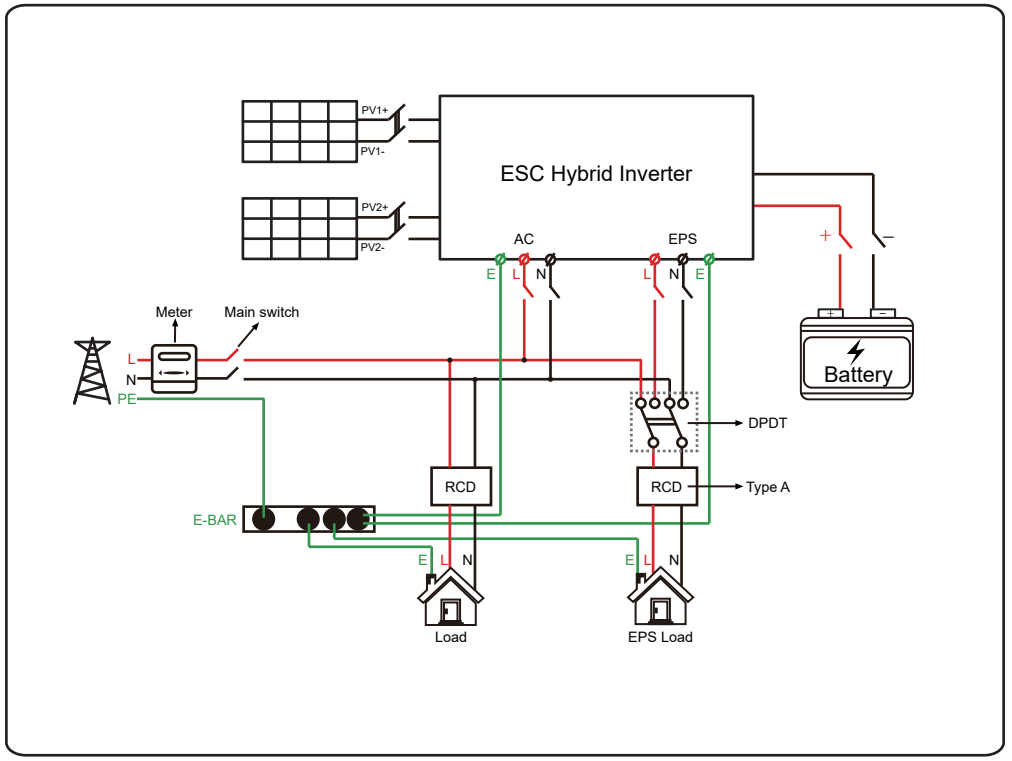


6 EPS Connection

EPS connection steps:
Please refer to AC connection steps for EPS N & L line wiring(Please noted that the PE line is not required on EPS installation).

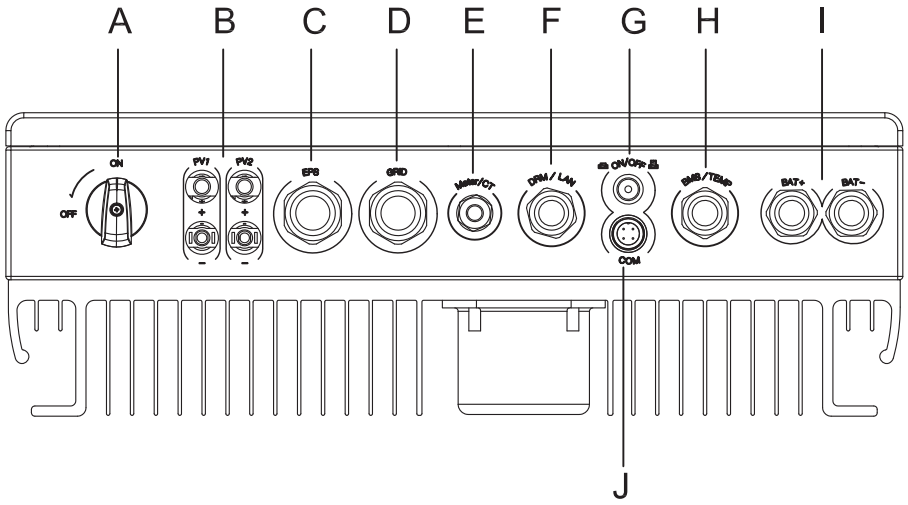
EPS wiring diagram:
The below diagram are for reference based on different local wiring rules, please follow the local rules for the externel wiring to choose suitable wiring mode.
Diagram A : Neutral line of alternative supply must not be isolated or switched. Diagram B: Neutral line of alternative supply can be isolated or switched.





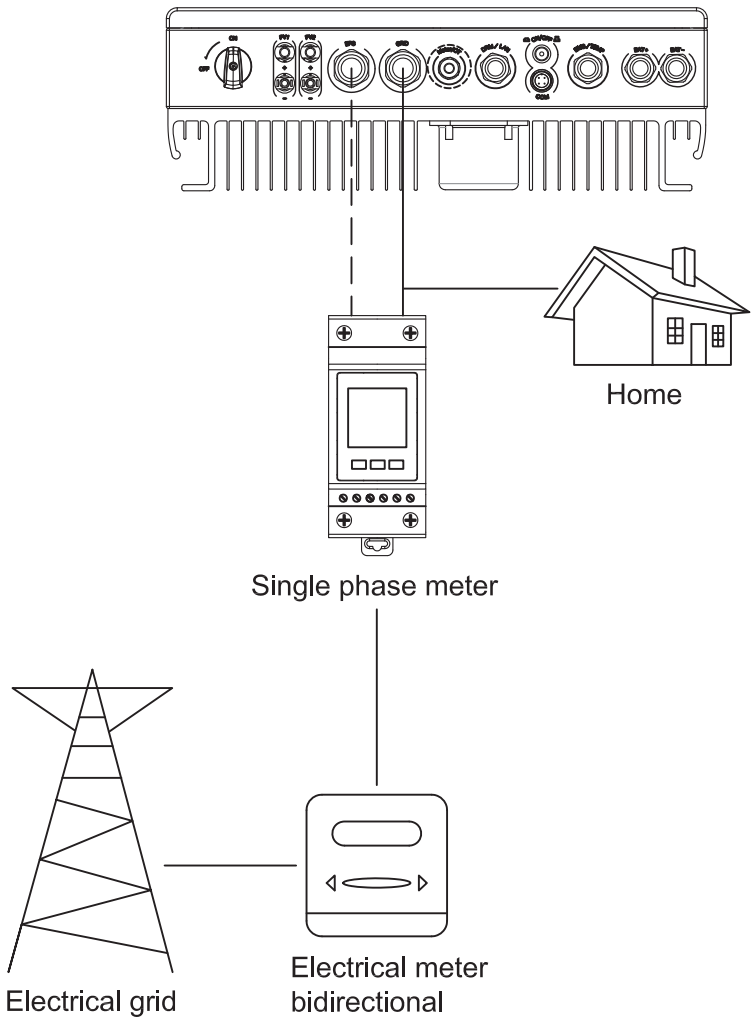
It is a manual method to achieve EPS function.
An external switch needs to be installed, which should be suitable with EPS output current.
If user wants to achieve EPS function automatically, please contact Renac power can provide detailed technital solution.

Terminals



Object	Description
A	DC switch
B	DC connector area
C	EPS output
D	Grid output
E	Outside current sensor or meter port
F	Communication port for dry contact
J	Communication port for update
G	ON/OFF button
H	Battery communication port
H	Temperature port for battery
I	Battery connector

Meter Installation



Make data line to connect meter and inverter.

Insert communication cable into RJ45 connector following PIN definition rule.

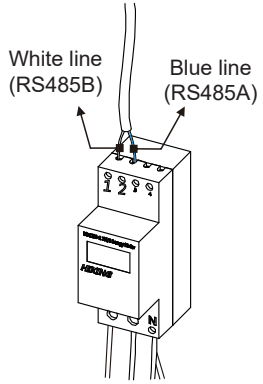
	CT1		CT2		METER	
Pin	1	2	3	4	5	6
CT	Black wire	white wire	X	X	X	X
Meter	X	X	X	X	485A	485B

Connect communication cable between meter and inverter.

Connect meter connector to the meter port of the inverter, and wire the other side to the meter as below.

White line connect to Port 1

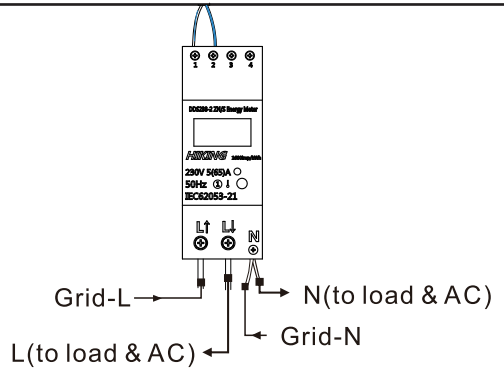
Blue line connect to Port 2



Connect power cable between meter and inverter.

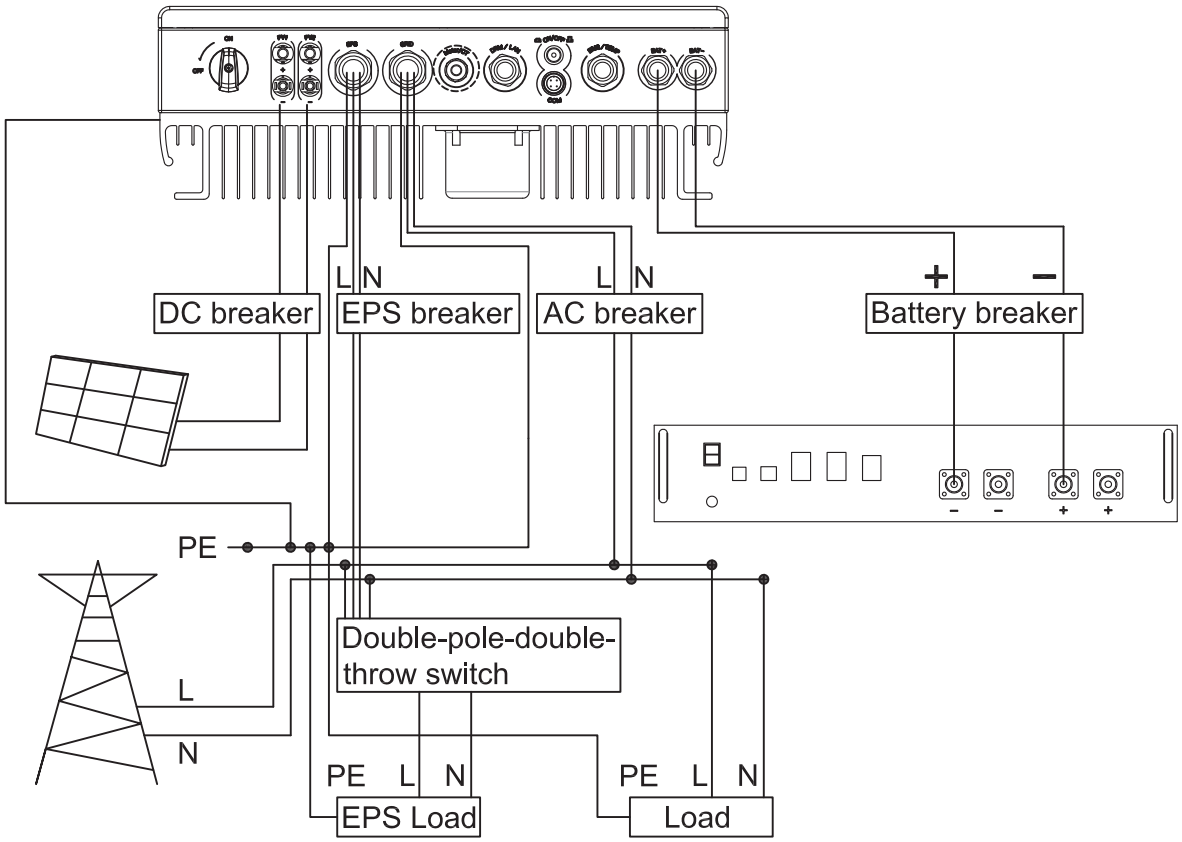
L(to load&AC)means loads-L-wire and AC-L-wire are in parallel at this port.

N(to load&AC)means loads-N-wire and AC-LN-wire are in parallel at this port.



Inverter Power On/Off Procedure

System wiring diagram:



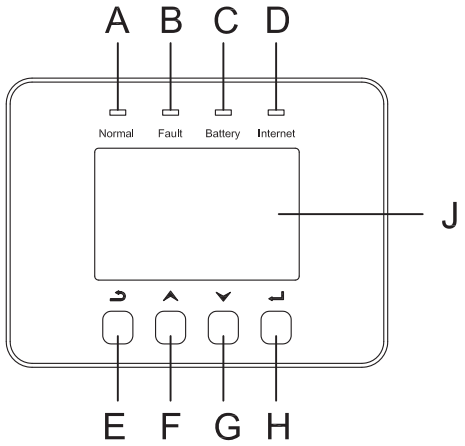
Inverter boot steps:

Step1:Turn on AC & EPS breaker.	AC breaker, EPS breaker
Step2:Turn on DC breaker.	DC breaker
Step3:Turn on DC switch.	
Step4:Turn on battery switch.	(Lead acid ✗) (Lithium ✓)
Step5:Turn on battery breaker.	Battery breaker
Step6:Turn on Inverter switch.	

Inverter power off steps:

Step1:Turn off AC & EPS breaker.	
Step2:Turn off battery breaker.	Battery breaker
Step3:Turn off battery switch.	(Lead acid ✗) (Lithium ✓)
Step4:Turn off DC switch.	
Step5:Turn off DC breaker.	DC breaker
Step6:Turn off AC & EPS breaker.	AC breaker, EPS breaker

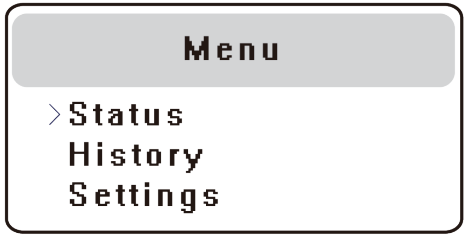
Programming Guide

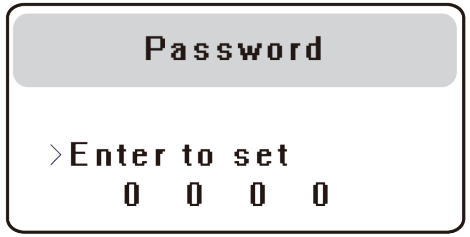


Object	Name	Description
A	Indicator LED	Green: Normal working Status.
B		Red: Error
C		Blue: Battery charging or discharging.
D		Yellow: Communication status.
E	Function Button	ESC button: Leave from current interface or function.
F		Up button: Move cursor to upside or increase value.
G		Down button: Move cursor to downside or decrease value.
H		OK button: Confirm the selection.
J	LCD Screen	Display the information of the inverter.

1.Enter the setting interface, The default password is“0000”.

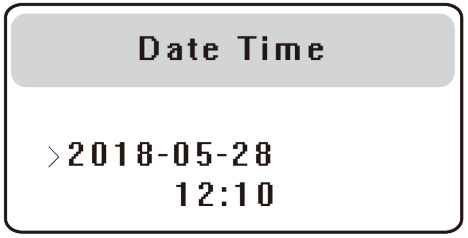
(Installer password(1919) use for professional setting.)





Programming Guide

2. Set date time.



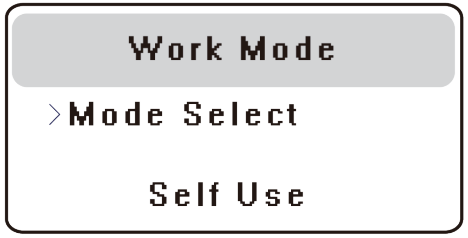
3. Set PV connection.

Comm : single MPP tracking, 2 MPPT working together;
Multi: multi-MPP tracking, 2 MPPT work independently.

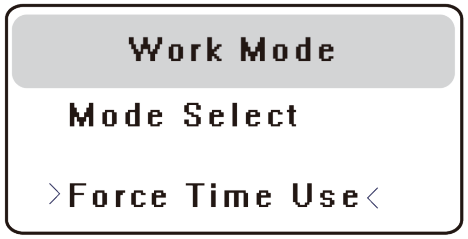
4. Set export control.

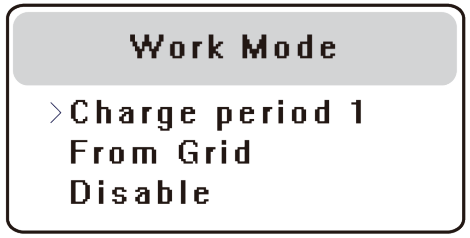
00000 means none export.

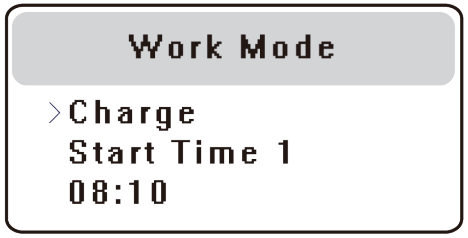
5. Set Work mode.

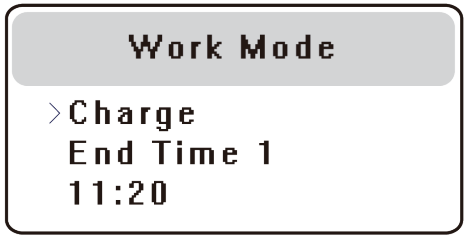


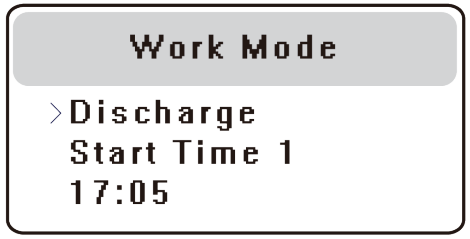
Self-Use mode
-In this mode, the priority of the PV generated power is: local load > battery > public grid.

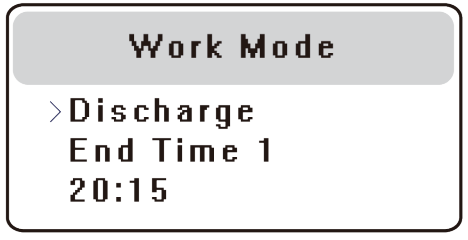








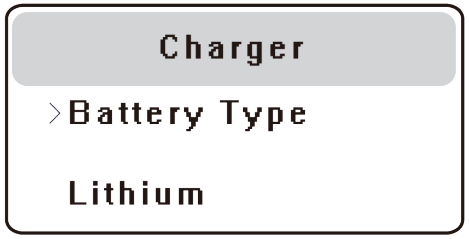


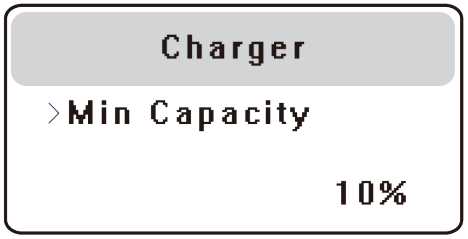


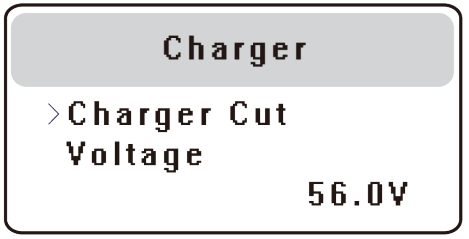
-In this mode you can set two periods of charging and discharging time according to your wishes and can choose if charge from grid.

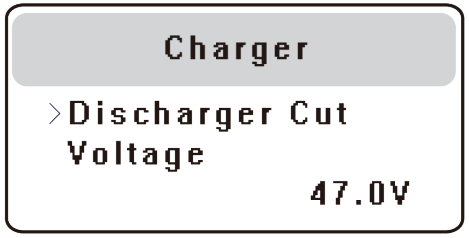
6. Set charge.

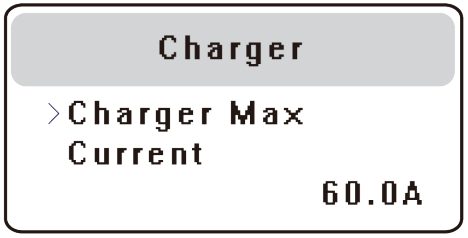
-With BMS connection system will convert to lithium battery mode and update the default value automaticall y as above.
-You can also set the parameters according to battery's requirements manually.
-Battery awaken means if battery voltage drops too low that cannot work, please choose "Yes"to charge battery
(The BUS voltage must excess 300V).

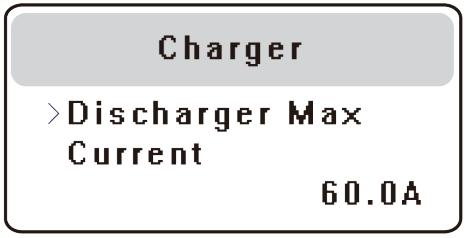


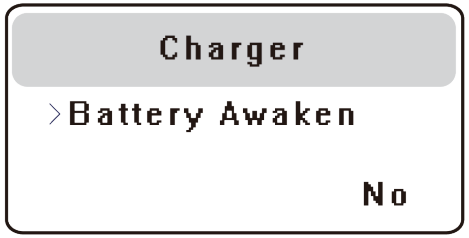


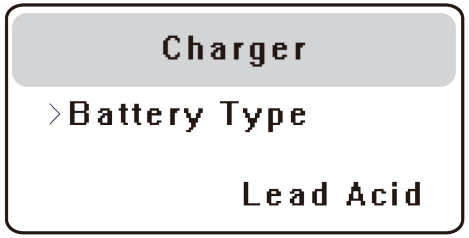


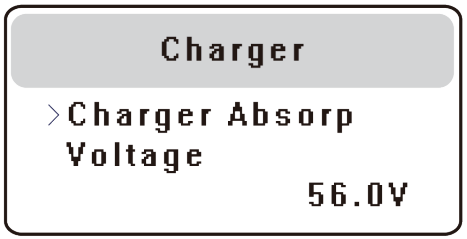


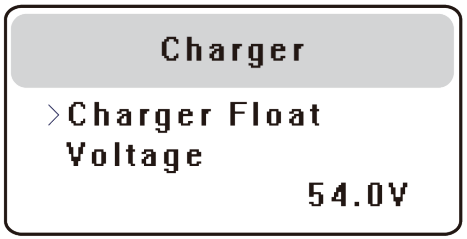


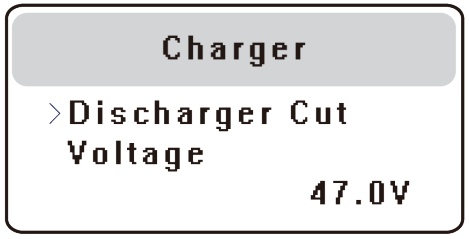


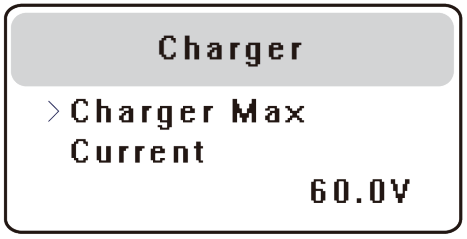


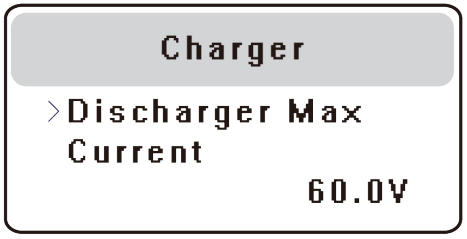


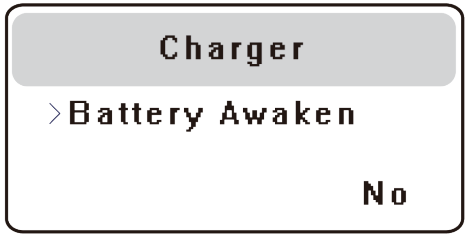












-With BMS connection system will set lead acid battery mode as a default battery and update the default value as above.
-You can also set the parameters according to battery's requirements manually.
-Battery awaken means if battery voltage drops too low that cannot work, please choose "Yes"to charge battery (The BUS voltage must excess 300V).

7. Set EPS.

-Mute option can be set"No"or"Yes" .
No means there is a beep happened while system under ESP mode.
Yes means no alert no matter if the syetem under EPS mode.
-Frequency can be set according to the relevant loads.
-Discharger cut voltage needs to be higher than Battery backup diacharger Volt.