



H1-G2&AC1-G2 SERIES

2024.03.07



Objective

- You shall understand the specification of the FoxESS hybrid inverter
- You shall be familiar with the installation requirement and process
- You shall know how to commission the system
- You shall have knowledge about different solution scenarios
- You shall know the troubleshooting tips and tools
- You shall have the information on how to get in contact with us



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Product Overview





H1 (G2)/AC1 (G2) SERIES



Single Phase AC power 3K-6kW

H1-G2 - 3.0 / 3.7 / 4.6 / 5.0 / 6.0

AC-G2 - 3.0 / 3.7 / 4.6 / 5.0 / 6.0



High
Voltage



IP65
Rated



Easy
Installation



Remote
Monitoring



Scalable
Storage



FEATURE

H1(G2)/AC1(G2)



Features:

- Single-phase energy storage inverter
- Power: 3-6kW ;
- Protection level: IP65 ;
- Independent MPPTs: 2 ;
- Number of strings for each MPPT channel: 1 ;
- Maximum DC input current: 16A ;
- Maximum charge and discharge current: 40A ;
- Number of battery connection strings: 1 ;
- Supporting battery model :
ECS2900/4300/4800, Mira-HV25, HV2600;
- 10 year warranty
- 10 parallel on grid
- 4 parallel off grid



Easy Installation

Flexible configuration,
plug and play set-up,
built-in fuse protection.



High Voltage

Includes high-voltage
batteries for maximum
round-trip efficiency.



IP65 Rated

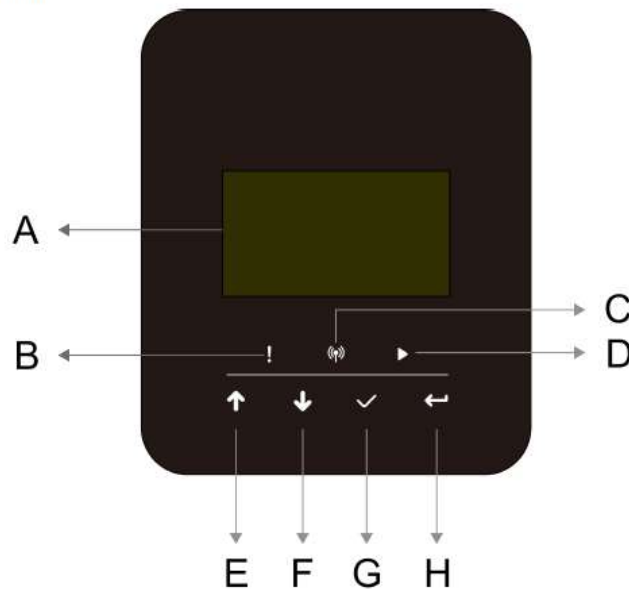
Engineered to last with
maximum flexibility. Suitable
for outdoor installation.



Remote Monitoring

Monitor your system
remotely via smartphone
app or web portal.

8.1 Control Panel



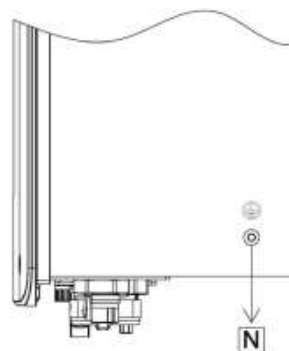
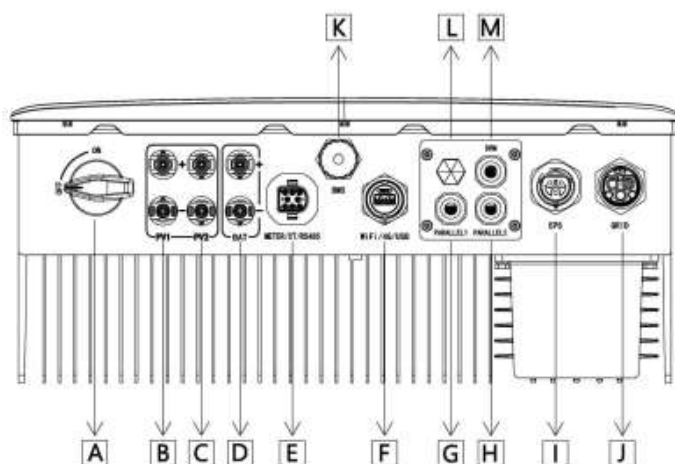
Object	Name	Function
A	LCD screen	Display the information of the inverter.
B	Indicator LED	Red: The inverter is in fault mode.
C		Blue: The inverter is normally connected to the battery.
D		Green: The inverter is in normal state.
E	Function button	Up button: Move cursor to upside or increase value.
F		Down button: Move cursor to downside or decrease value.
G		OK button: Confirm the selection.
H		Return button: Return the previous operation.

OK Button:

- Long press to enter the work condition.
- Allows user to start or stop production.
- User should stop production before changing the settings!



APPRAENCE



Item	Description
A	DC Switch (For Hybrid Only)
B	PV1 (For Hybrid Only)
C	PV2 (For Hybrid Only)
D	Battery Connector
E	METER/CT/RS485
F	WiFi / 4G / USB
G	PARALLEL 1
H	PARALLEL 2
I	EPS
J	GRID
K	BMS
L	Waterproof Lock Valve
M	DRM
N	Grounding Screw

Dimension[mm]

434*418*185

Net/gross weight[KG]

22



Technical Data





Model	H1-3.0-E-G2 AC1-3.0-E-G2	H1-3.7-E-G2 AC1-3.7-E-G2	H1-4.6-E-G2 AC1-4.6-E-G2	H1-5.0-E-G2 AC1-5.0-E-G2	H1-6.0-E-G2 AC1-6.0-E-G2	H1-4.6-E1-G2 AC1-4.6-E1-G2	H1-5.0-E1-G2 AC1-5.0-E1-G2
INPUT PV (ONLY FOR HYBRID)							
Max. PV Array Power [Wp]	6000	7400	9200	10000	12000	9200	10000
Max. Input Power [W]	4500 A:2250 B:2250	5500 A:2750 B:2750	6900 A:3450 B:3450	7500 A:3750 B:3750	9000 A:4500 B:4500	6900 A:3450 B:3450	7500 A:3750 B:3750
Max. Input Voltage [V]				600			
Start-up Input Voltage [V]				75			
Rated Input Voltage [V]				360			
MPPT Operating Voltage Range [V]				80 ~ 550			
Max. Input Current [A]				16 / 16			
Max. Short-circuit Current [A]				20 / 20			
No. of Independent MPP Trackers				2			
No. of Strings per MPP Tracker				1			
BATTERY CONNECTION							
Battery Type	Lithium Battery (LFP)						
Battery Voltage [V]	80 ~ 480						
Max. Charge/Discharge Current [A]	40						
Communication Interface	CAN(communicate with inverter, upgrade BMS)						

Model	H1-3.0-E-G2 AC1-3.0-E-G2	H1-3.7-E-G2 AC1-3.7-E-G2	H1-4.6-E-G2 AC1-4.6-E-G2	H1-5.0-E-G2 AC1-5.0-E-G2	H1-6.0-E-G2 AC1-6.0-E-G2	H1-4.6-E1-G2 AC1-4.6-E1-G2	H1-5.0-E1-G2 AC1-5.0-E1-G2
AC INPUT AND OUTPUT (GRID)							
Max. AC Input Power [VA]	6000	7680	9200	10000	12000	9200	10000
Max. AC Input Current (per phase) [A]	27.3	34.9	41.8	45.5	54.5	41.8	45.5
Rated Output Power [W]	3000	3680	4600	5000	6000	4600	5000
Rated Apparent Power [VA]	3000	3680	4600	5000	6000	4600 ²	5000 ³
Max. Output Apparent Power [VA]	3300	4048/3680 ¹	5060	5500	6600	4600	5000
Rated Output Current (per phase) [A](For AUS)	13.0	16.0	20.0	21.7	26.1	20.0	21.7
Max. Output Current [A]	15.0	18.4	23.0	25.0	30.0	20.9	22.7
Rated Grid Voltage [V]	220/230/240						
Rated Grid Frequency [Hz]	50/60						
Power Factor	1 (Adjustable from 0.8 leading to 0.8 lagging)						
THDi [%]	<3 @rated power						
EPS OUTPUT (WITH BATTERY)							
Max. Output Apparent Power [VA]	3000	3680	4600	5000	6000	4600	5000
Rated Output Power [W]	3000	3680	4600	5000	6000	4600	5000
Peak Output Apparent Power (60s) [VA]	3600	4400	5500	6000	7200	5500	6000
Max. Current (per phase) [A]	13.6	16.7	20.9	22.7	27.3	20.9	22.7
Rated Output Voltage [V]	220/230/240						
Rated Output Frequency [Hz]	50/60						
Power Factor	1 (Adjustable from 0.8 leading to 0.8 lagging)						
THDv (linear Load) [%]	<2 @rated power						
Parallel operation [PCS]	10						
Switch time [ms]	<20						
EFFICIENCY							
Euro Efficiency [%]	95.26	95.70	96.23	96.30	96.33	96.23	96.30
Max. Efficiency [%]	97.01	97.08	97.04	97.08	97.08	97.04	97.08
Max. Battery Charge Efficiency (PV to BAT) (@full load) [%]				98.50			
Max. Battery Discharge Efficiency (BAT to AC) (@full load) [%]				97.00			



DATASHEET

GENERAL DATA

Dimensions (WxHxD) [mm]	434*418*185
Weight [kg]	22
Installation	Wall-Mounted
Topology	Non-isolated
Cooling Method	Natural
Noise Emission [dB]	35
Max. Operating Altitude [m]	2000
Operating Temperature Range [°C]	-25 ~ 60
Humidity (No Condensation) [%]	0 ~ 100
Ingress protection	IP65
Standby consumption[W]	<15
Monitoring Module	WiFi, LAN(optional) , 4G(optional)
Communication	RS485, DRM, Ripple Control, USB, CAN
Display	LCD, App, Website
Country Of Manufacture	China

STANDARD COMPLIANCE (MORE AVAILABLE UPON REQUEST)

Safety	EN 62109-1, EN 62109-2
EMC	EN 61000-6-2, EN 61000-6-3
Grid Regulation	EN50549-1, C10 / 11, VDE-AR-N 4105, G98, G99, CEI 0-21, NRS 097-2-1, AS / NZS 4777.2

* More technical characteristics are available on demand and customized.

1、 3680 for G98. 2、 4600 for German and Belgium. 3、 5000 for Belgium.

V1.3 | 2024/05/20

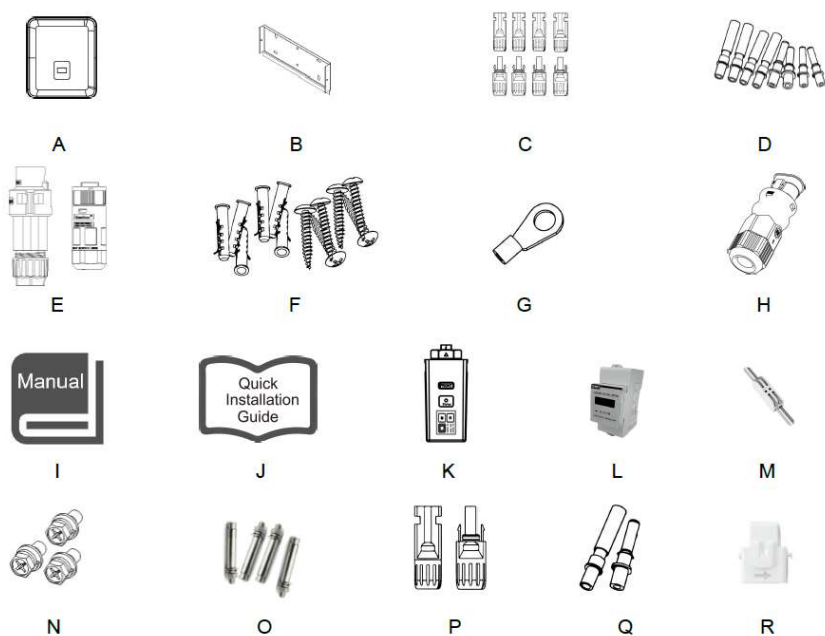


Installation





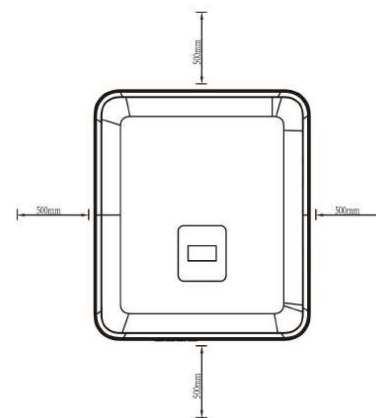
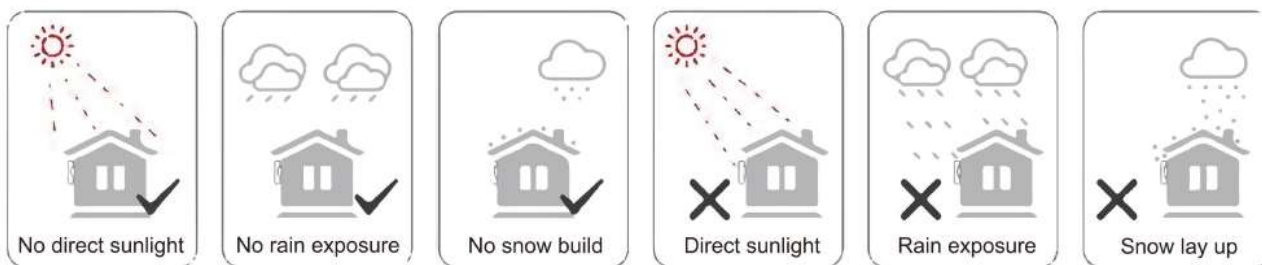
PACKING LIST



Object	QTY	Description	Object	QTY	Description
A	1	Inverter	J	1	Quick installation guide
B	1	Bracket	K	1	WIFI/GPRS /LAN (Optional)
C	8	PV connectors(Only for KH)(4*positive, 4"negative)	L	1	Meter (Optional)
D	8	PV pin contacts(Only for KH)(4 positive,4' negative)	M	1	CT extension connector
E	2	AC connectors	N	3	Hexagonal screws
F	6	Expansion tubes&Expansion screws	O	4	Expansion screws(For ground installation
G	1	Earth terminal	P	2	Battery connectors1positive , negative)
H	1	Communication connector	Q	2	Battery pin contacts1 " positive , 1 " negative)
I	1	Product manual	R	1	CT (with 10m cable)



INSTALLATION

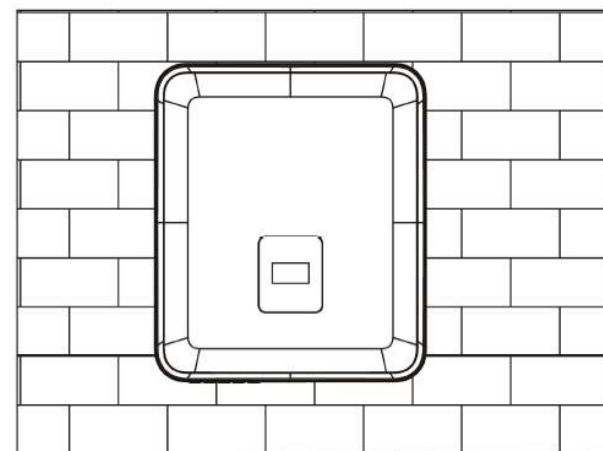
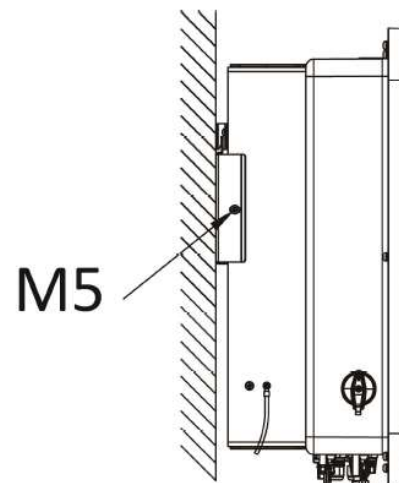
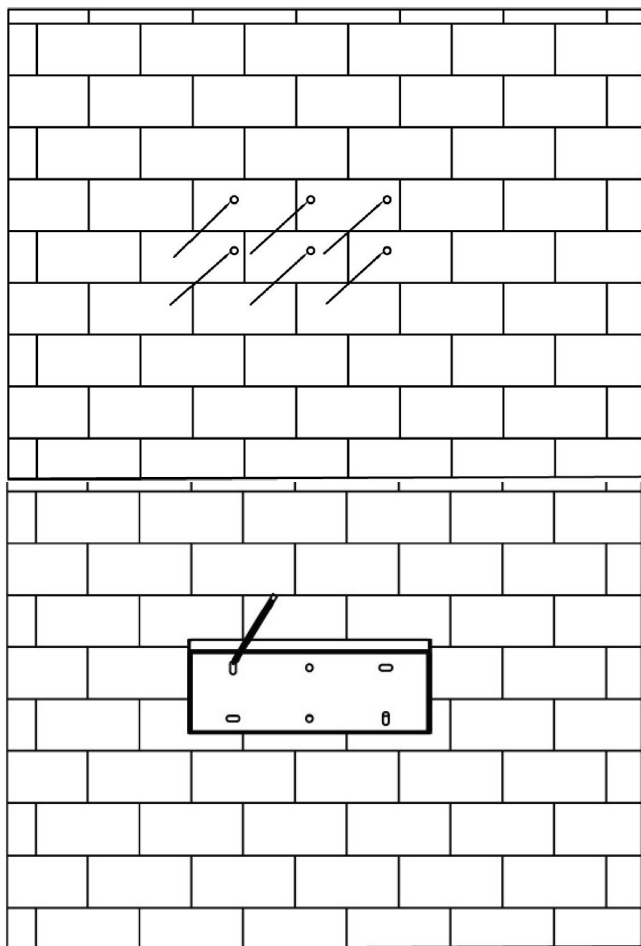


Position	Min Distance
Left	500mm
Right	500mm
Top	500mm
Bottom	500mm

- Not in direct sunlight
- Not in areas where highly flammable materials are stored
- Not in potential explosive areas
- Not in the cool air directly .
- Not near the television antenna or antenna cable
- Not higher than altitude of about 2000m above sea level
- Not in environment of precipitation or humidity (> 95 %)
- Under good ventilation condition
- The ambient temperature in the range of -25°C to + 60°C
- The slope of the wall should be within + 5
- Please avoid direct sunlight , rain exposure , snow laying up during installation and operation



INSTALLATION



05



Electrical Wiring

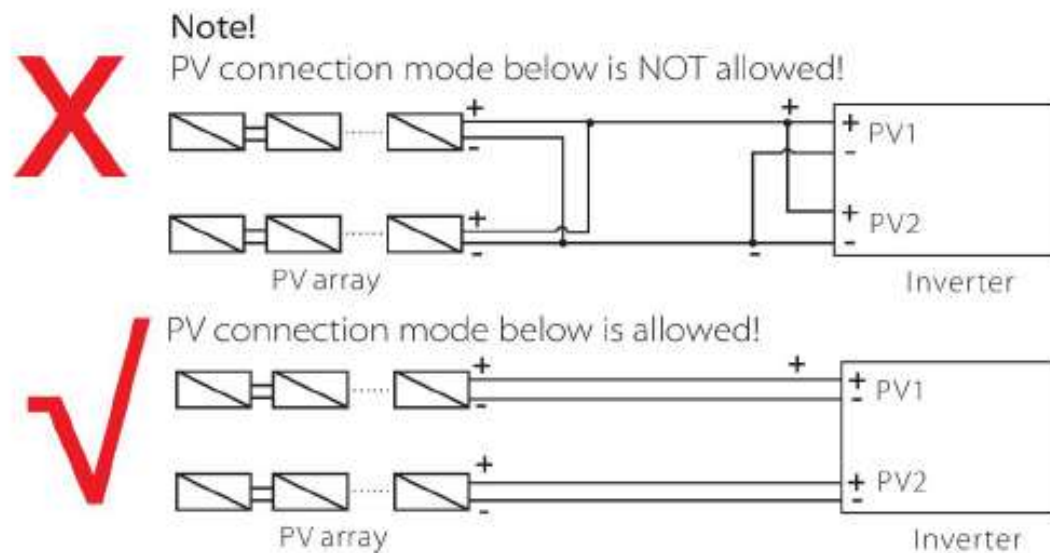




PV WIRING

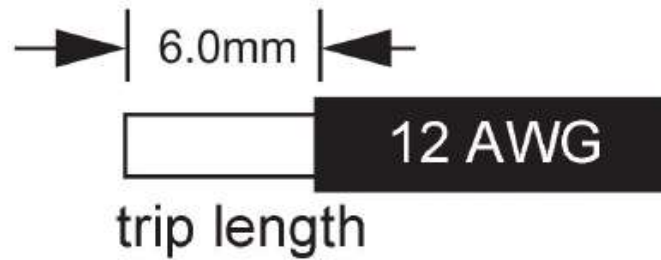
PV Connection

- 2 MPPT
- 1 string per MPPT
- 80-550V PV voltage
- 16 A PV current

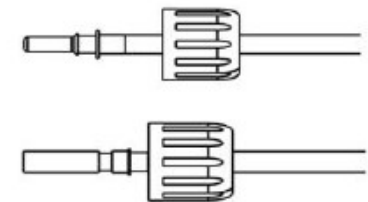
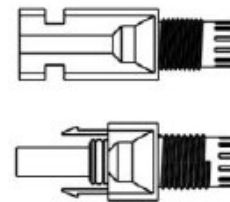
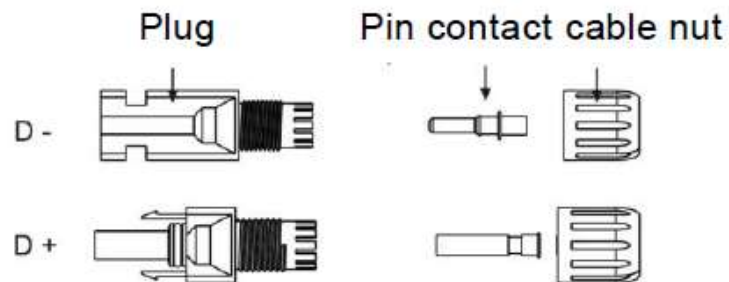


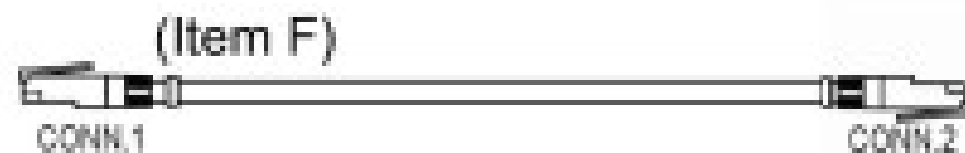
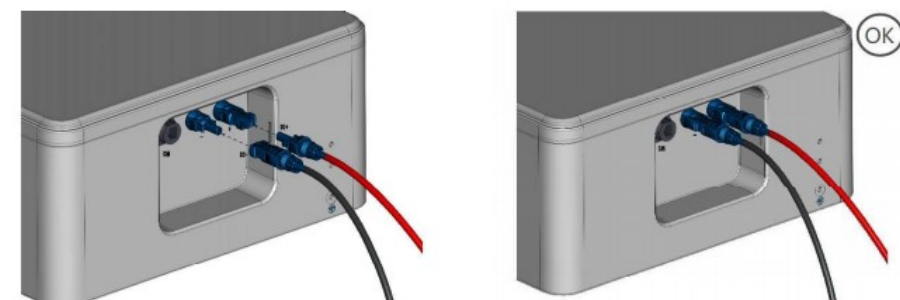


PV WIRING



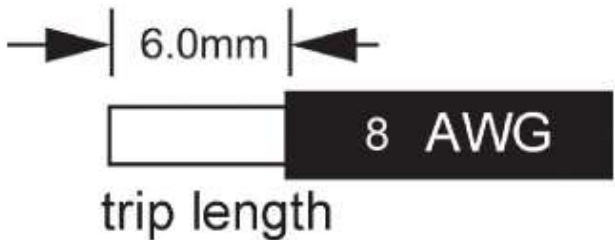
Choose 12AWG wire to connect the PV module



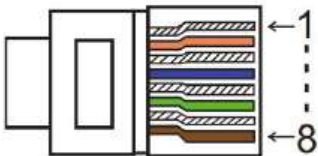




BATTERY WIRING



Choose 8AWG wire to connect the battery



CAT 5E/6/6E...
RJ45 PLUG

PIN	1	2	3	4	5	6	7	8
Definition	GND	GND	BMS-485B	BMS-CANL	BMS-CANH	BMS-CANH	BMS-CANL	BMS-485A



AC CABLE SIZING

Model	H1-3.0-E-G2 AC1-3.0-E-G2	H1-3.7-E-G2 AC1-3.7-E-G2	H1-4.6-E-G2 AC1-4.6-E-G2	H1-5.0-E-G2 AC1-5.0-E-G2	H1-6.0-E-G2 AC1-6.0-E-G2
Cable (Grid/ With EPS)	4.0mm ² /8.0- 10.0mm ²	4.0mm ² /8.0- 10.0mm ²	4.0mm ² /8.0- 10.0mm ²	4.0mm ² /8.0- 10.0mm ²	4.0mm ² /8.0- 10.0mm ²
Cable (EPS)	4.0mm ²	4.0mm ²	6.0mm ²	6.0mm ²	6.0mm ²
Micro-Breaker (Micro- Breaker)	25A/50A	25A/50A	32A/63A	32A/63A	40A/63A

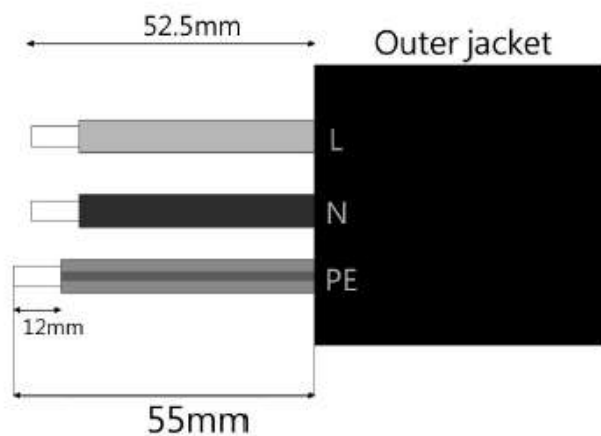
If you don't use the EPS function, the wiring conduct core section can use 4mm².
At the same time you can choose 25/32A circuit breaker.

If you use the EPS function, the wiring conduct core section should be 8mm²-10mm².
At the same time you can choose 50/63A circuit breaker.

A circuit breaker for max output over-current protection device shall be installed between inverter and grid, and the current of the protection device is referred to the table above, any load should not be connected with inverter directly.



AC WIRING



L: Brown/Red Wire

N: Blue/Black Wire

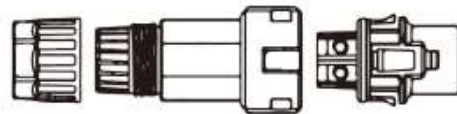
PE: Yellow & Green Wire

Note: Please refer to local cable type and color for actual installation

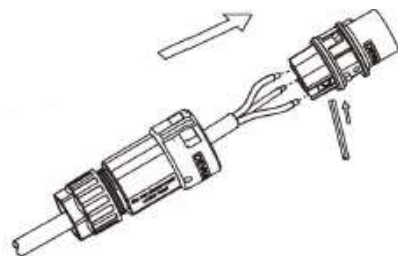


AC WIRING

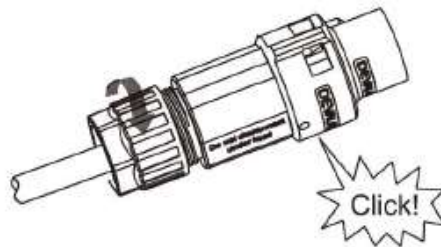
Grid Port



Connector

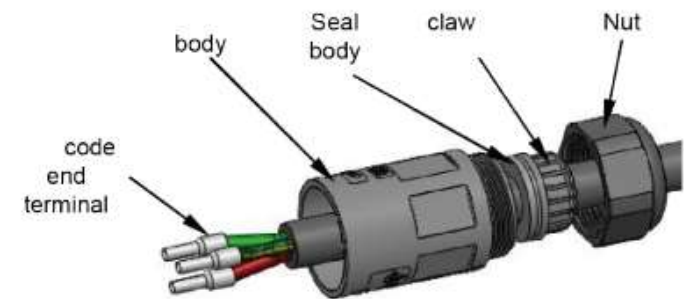


Wiring



Secure locking

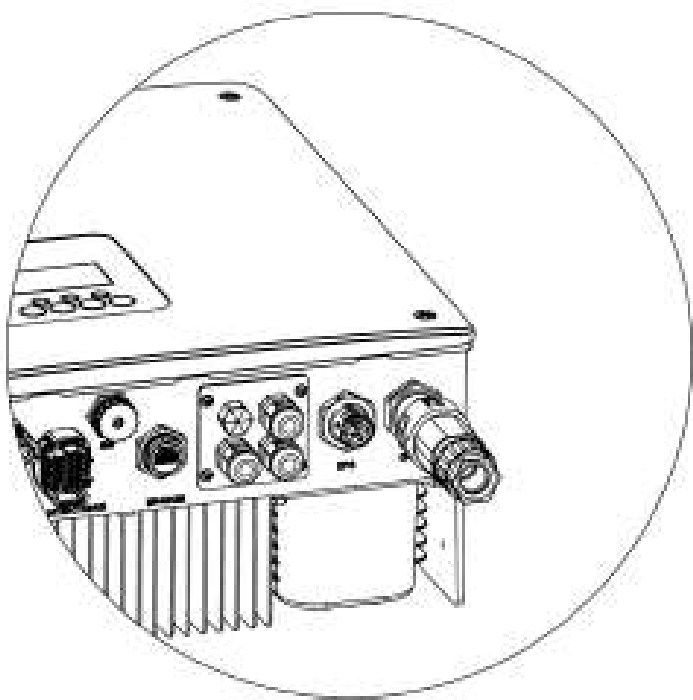
EPS Port





AC CONNECTION

Grid Port

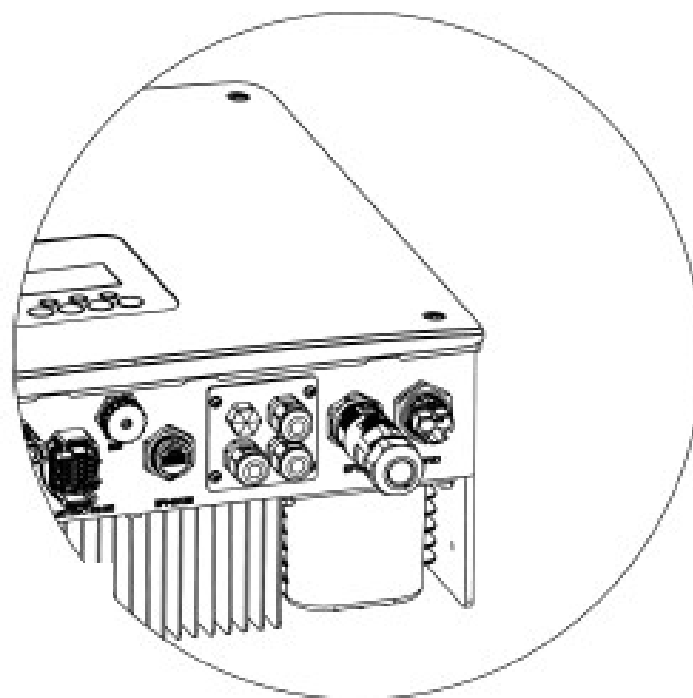


Inverter Connection

Removal



EPS Port





GROUNDING

**Ensure that the inverter is grounded.
There is separate grounding for the battery.**





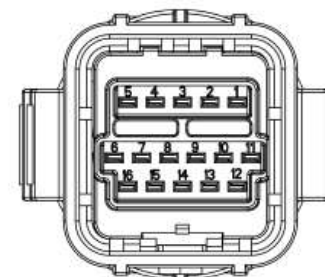
METER WIRING

Compatible Meter type:
DDSU666(CHINT)
SDM230(EASTRON)



PIN	1	2	3	4	5	6	7	8
Definition	Meter485A	Meter485B	485B	485A	CT2+	CT2-	CT1-	CT1+

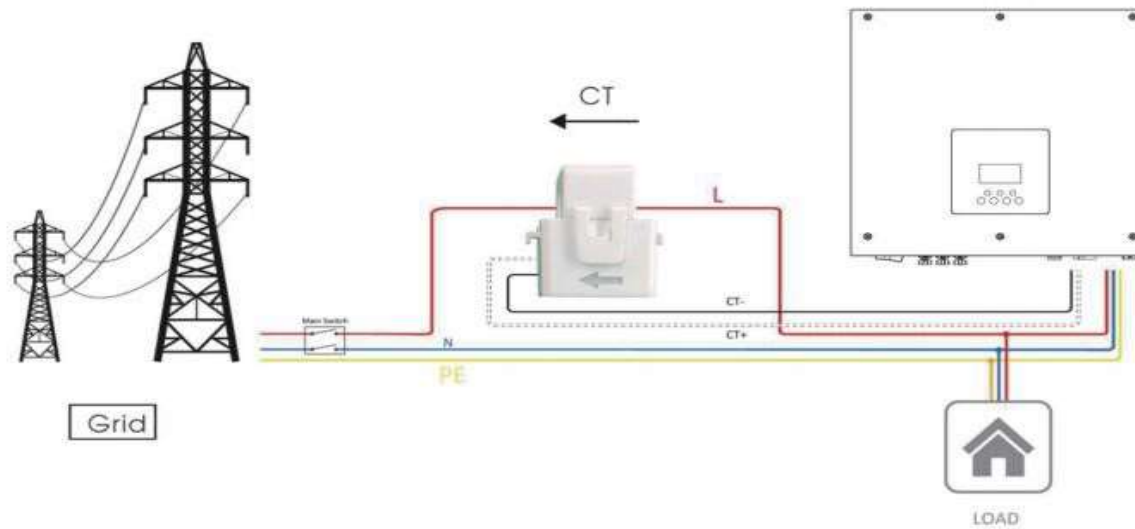
For 16P:



PIN	1	2	3	4	5	6	7	8
Definition	Meter485A	Meter485B	485B	485A	CT2+	CT2-	CT1-	CT1+

PIN	9	10	11	12	13	14	15	16
Definition	/	K1	K2	K3	K4	/	DI	COM

CT WIRING

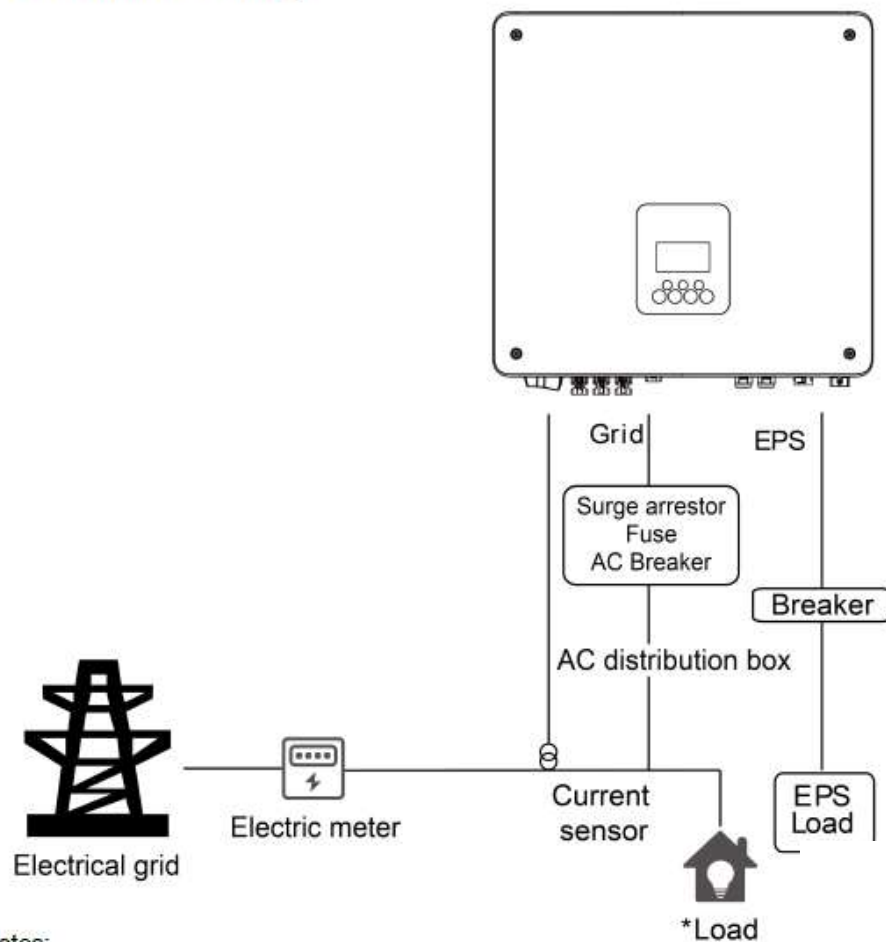


CT orientation:

Grid ← Load

FOX ESS EPS WIRING

- **Use Internal EPS Wiring:**



Notes:

- **On-grid mode: EPS load should be less than bypass power**
- **Off-grid mode: EPS load should be less than maximum EPS power**
- **Not recommending inductive load on EPS**

06

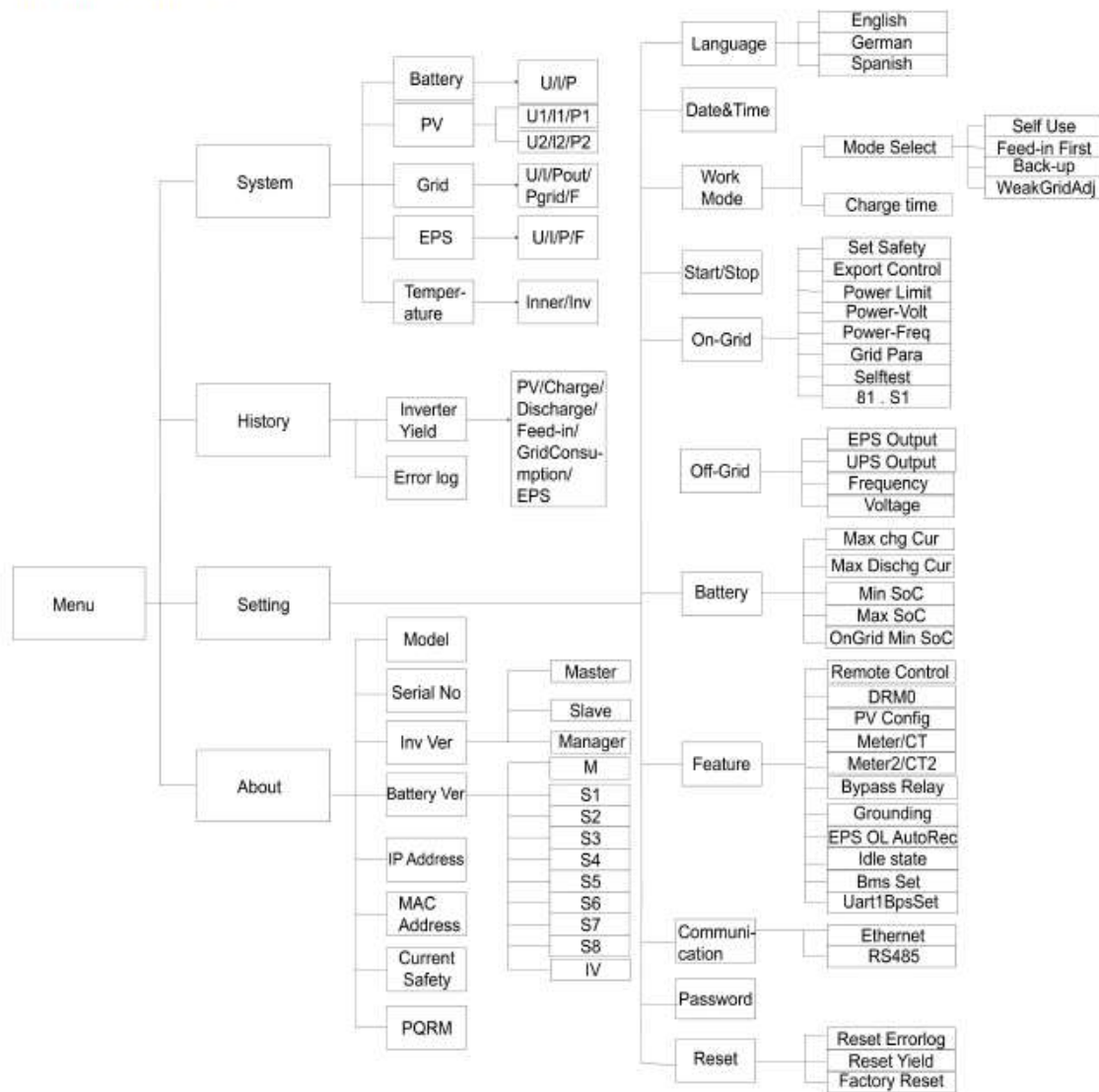


Commissioning



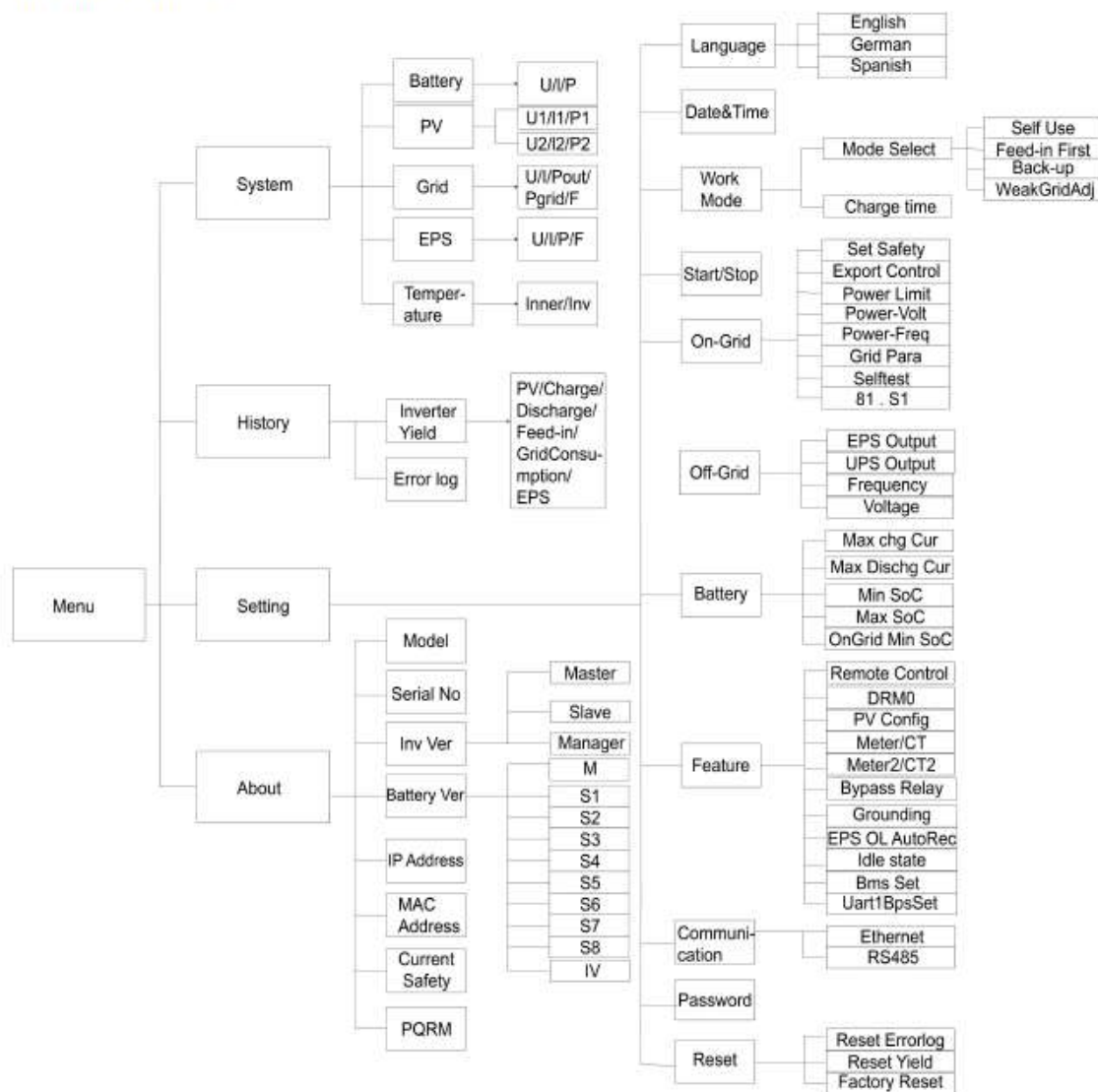


8.2 Function Tree



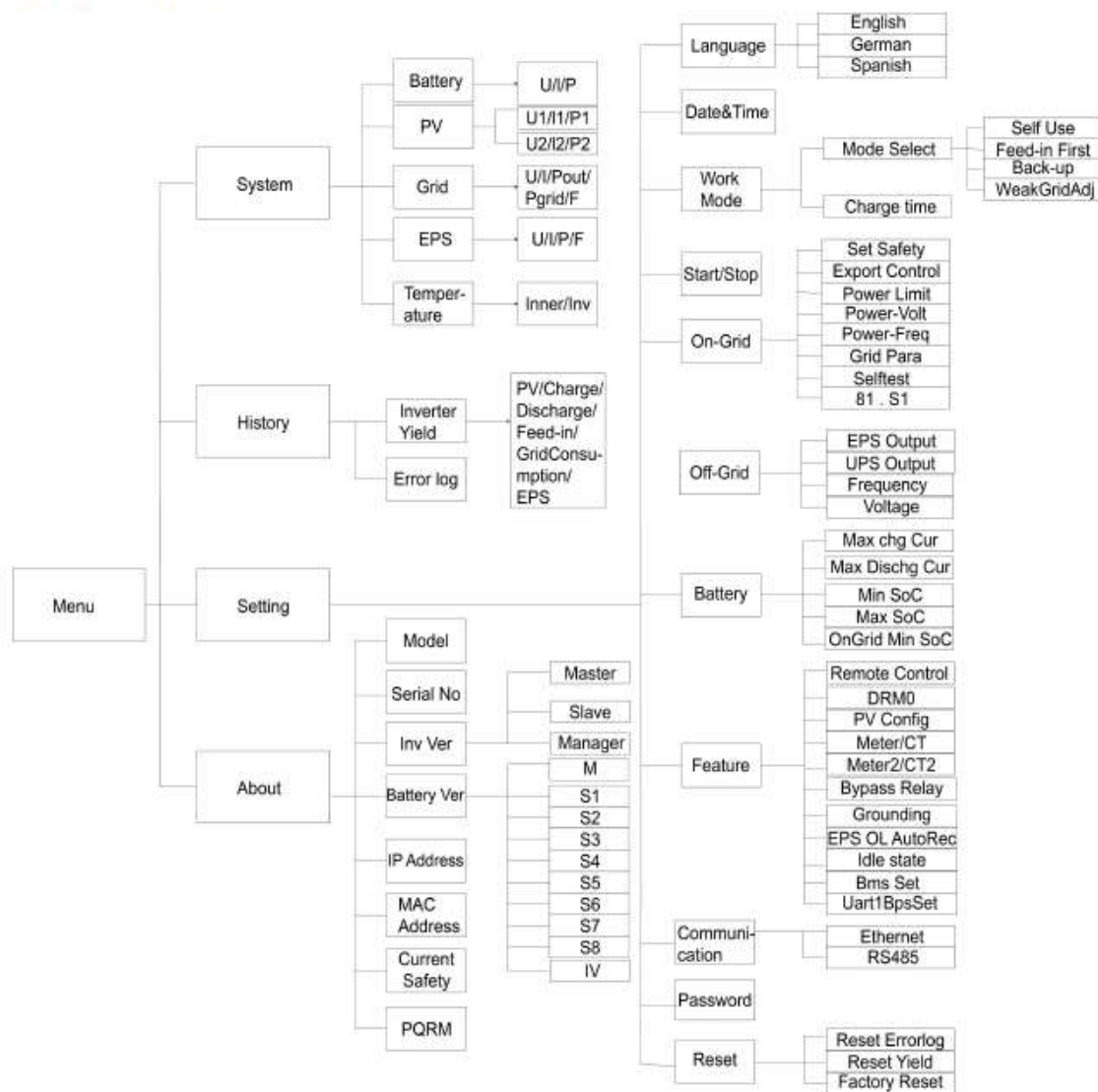


8.2 Function Tree





8.2 Function Tree





WOKE MODE

Woke modes	Priority	Description
Self-use (with PV power)	load > battery > grid	Energy produced by the PV system is used to optimize self-consumption . The excess energy is used to charge the batter then is exported to gird
Self-use (without PV power)	load > battery > grid	PV supplied , battery will discharge, grid will supply power when the battery capacity is not enoug
Feed in piority	load > grid >battery	In the case of the external generator , the power generated will be used to supply the local loads firstly , then export to the public grid . The redundant power will charge the battery
Force time use	battery>load>grid (when charging) load>battery>grid (when discharging)	This mode applies the area that has electricity price between peak and valley. User can use off-peak electricity to charge the battery. The charging and discharging time can be set flexibly, and it also allows to choose whether charge from the grid or not.
EPS MODE		When the grid is off , system will supply emergency power from PV or battery to supply the home loads (Battery is necessary in EPS mode

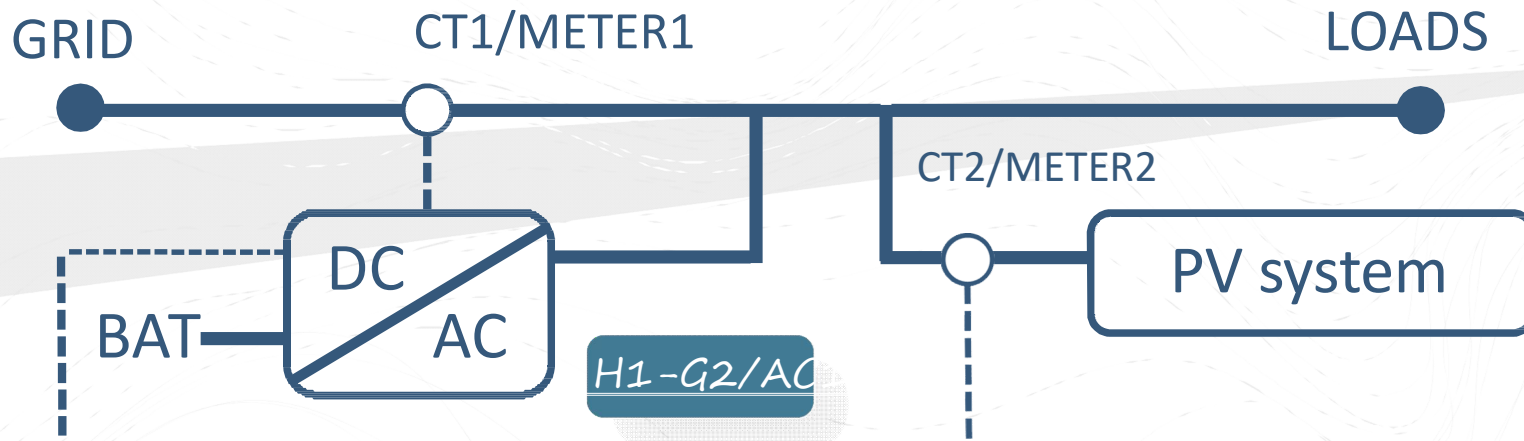
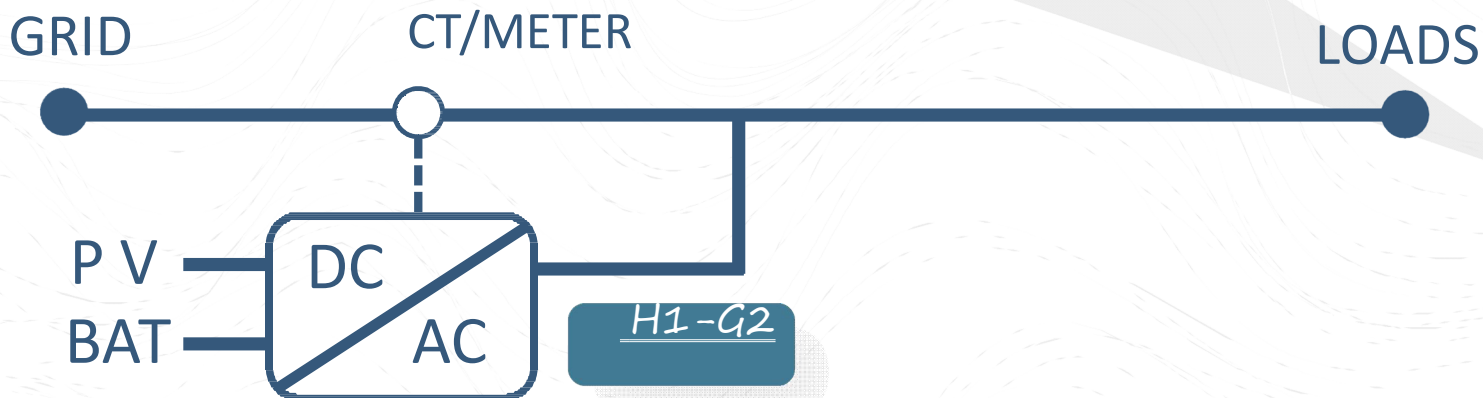


Special Solutions

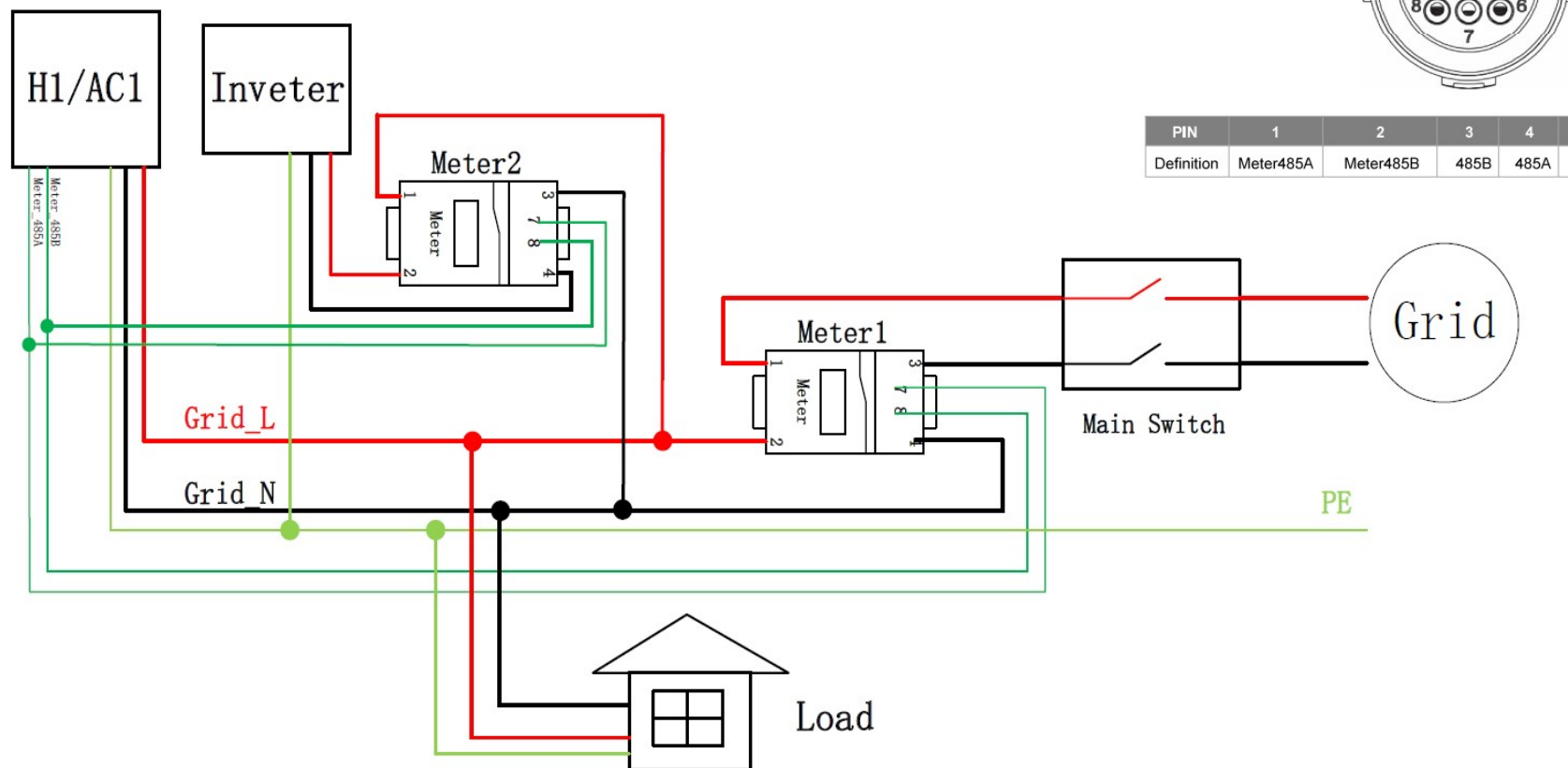




AC COUPLE SOLUTION



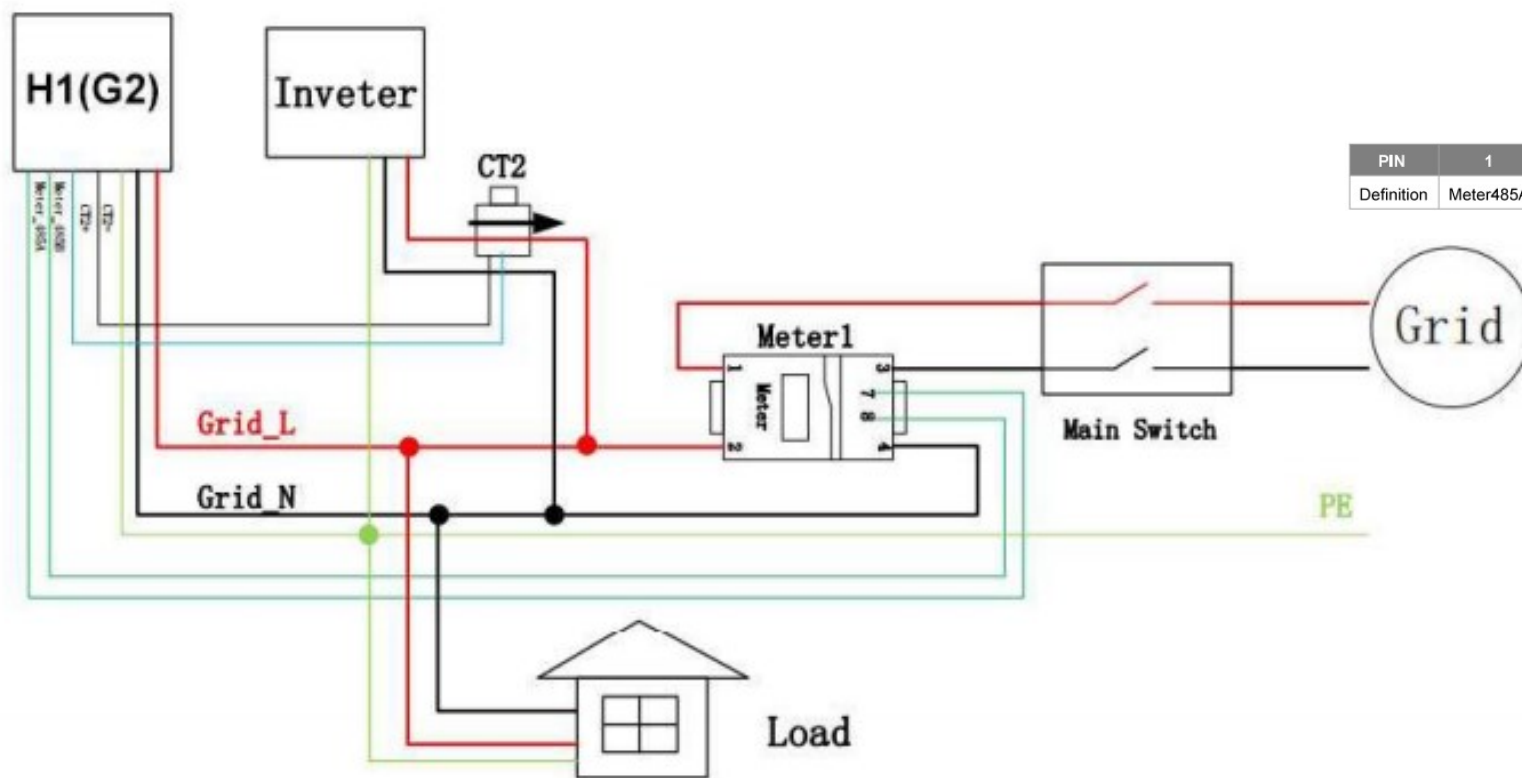
AC COUPLE 2 METER



PIN	1	2	3	4	5	6	7	8
Definition	Meter485A	Meter485B	485B	485A	CT2+	CT2-	CT1-	CT1+



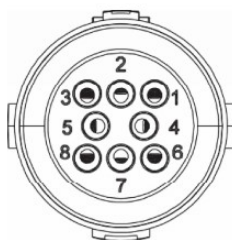
AC COUPLE METER+CT



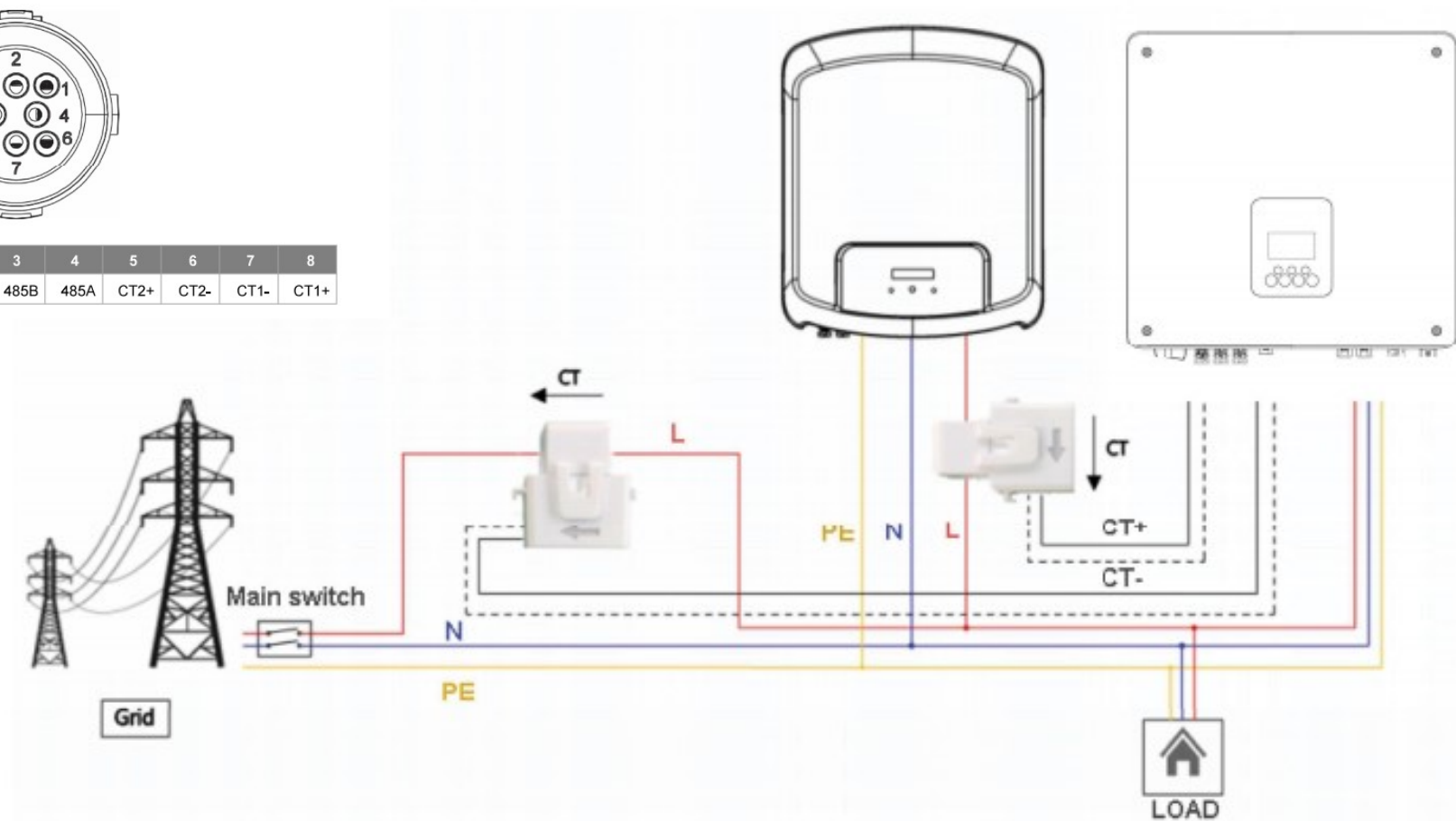
PIN	1	2	3	4	5	6	7	8
Definition	Meter485A	Meter485B	485B	485A	CT2+	CT2-	CT1-	CT1+



AC COUPLE 2 CT

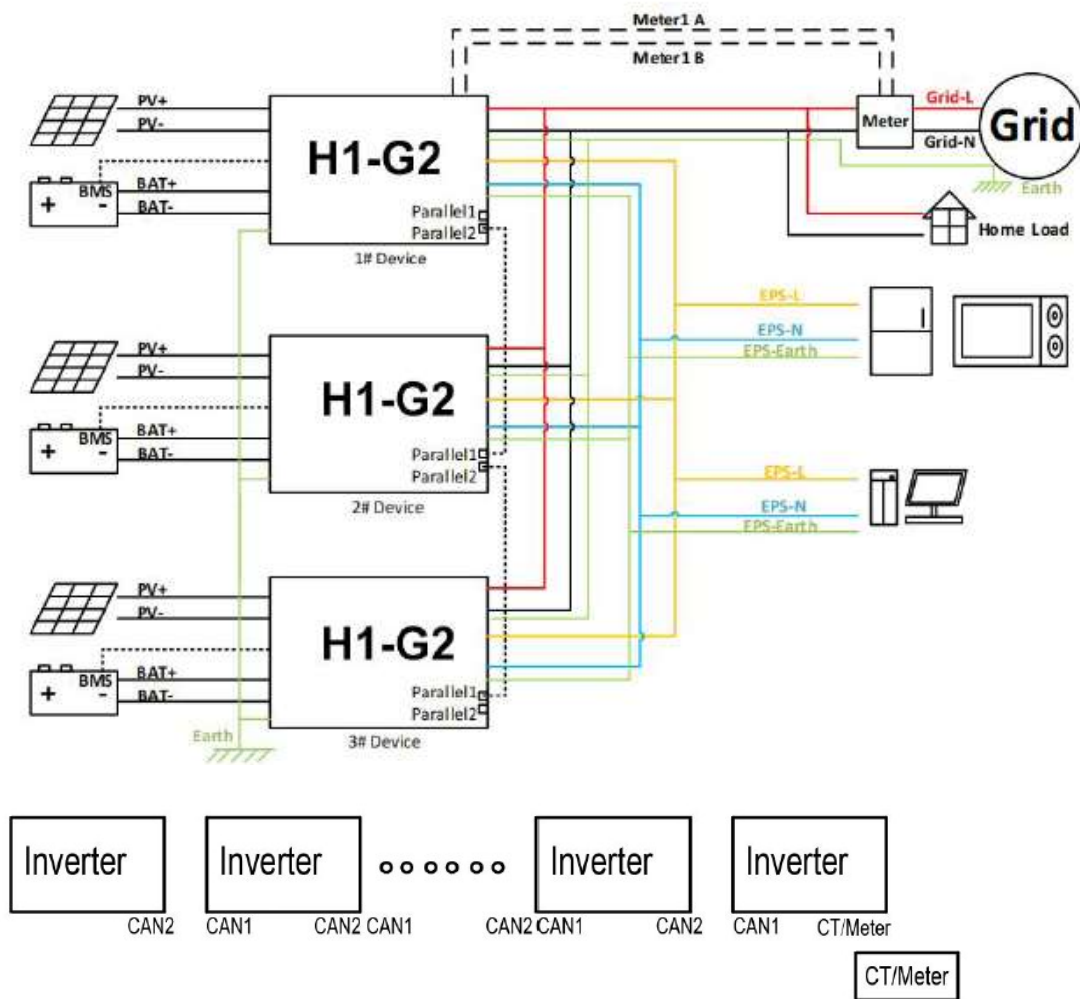


PIN	1	2	3	4	5	6	7	8
Definition	Meter485A	Meter485B	485B	485A	CT2+	CT2-	CT1-	CT1+





ON/OFF GRID PARALLEL



Typical wiring of parallel connecting

- More parallel devices only need one CT/meter connected to master.
- Grid tied EPS output parallel connection requires phase-to-phase alignment with Grid. L1-L2-L3
- Multiple parallel CAN wires are connected by one by one in Daisy Chain.
- 10 on-grid
- 4 off-grid



ON-GRID PARALLEL

===	Settings	===
	Battery	
	Feature	
→	Parallel	

Set the address ID first and then parallel number.

Enter a Address		
0	0	0

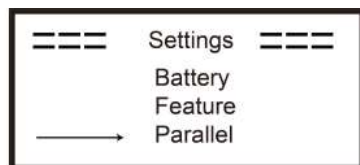
Address range is 1-249.

Enter a Number	
0	

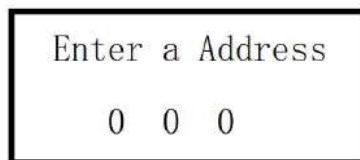
Number: 2-8



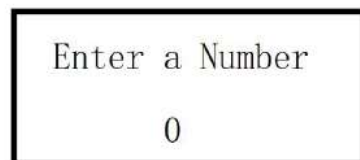
ON-GRID PARALLEL



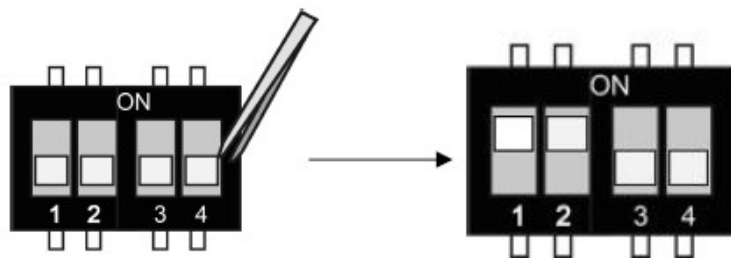
Set the address ID first and then parallel number.



Address range is 1-249.



Number: 2-8



- DIP switch is required on the inverter with meter/CT connection



ON-GRID PARALLEL

===	Settings	===
	Battery	
	Feature	
→	Parallel	

**If one inverter wants to exit from parallel system.
Set the id and number to 0**

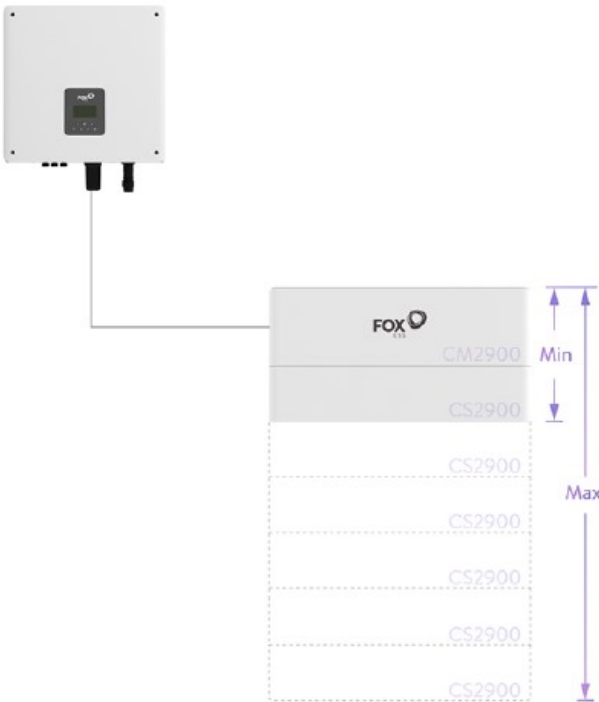
Enter a Address		
0	0	0

Enter a Number	
0	

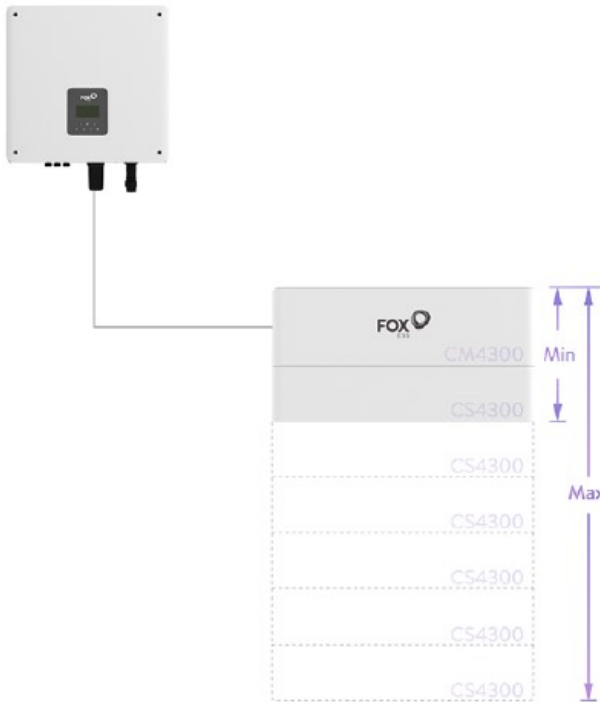


ECS/EQ SERIES CONNECTION

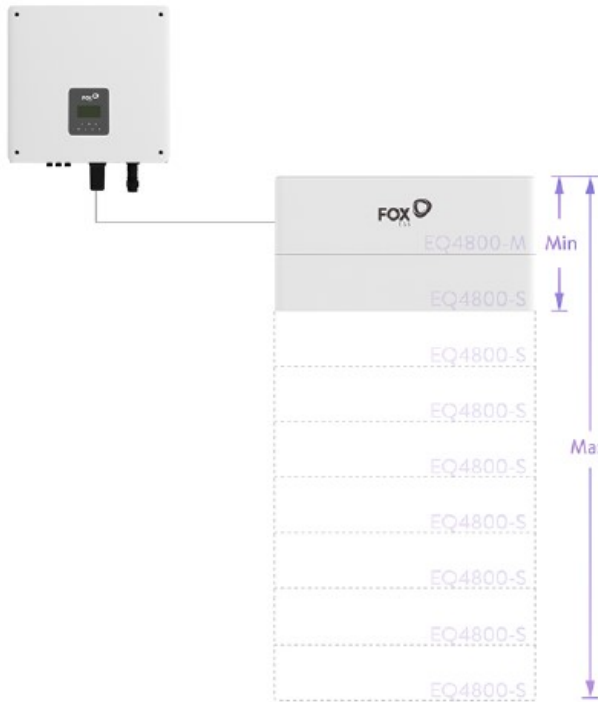
H1
AC1 Series (G2) + ECS2900



H1
AC1 Series (G2) + ECS4300

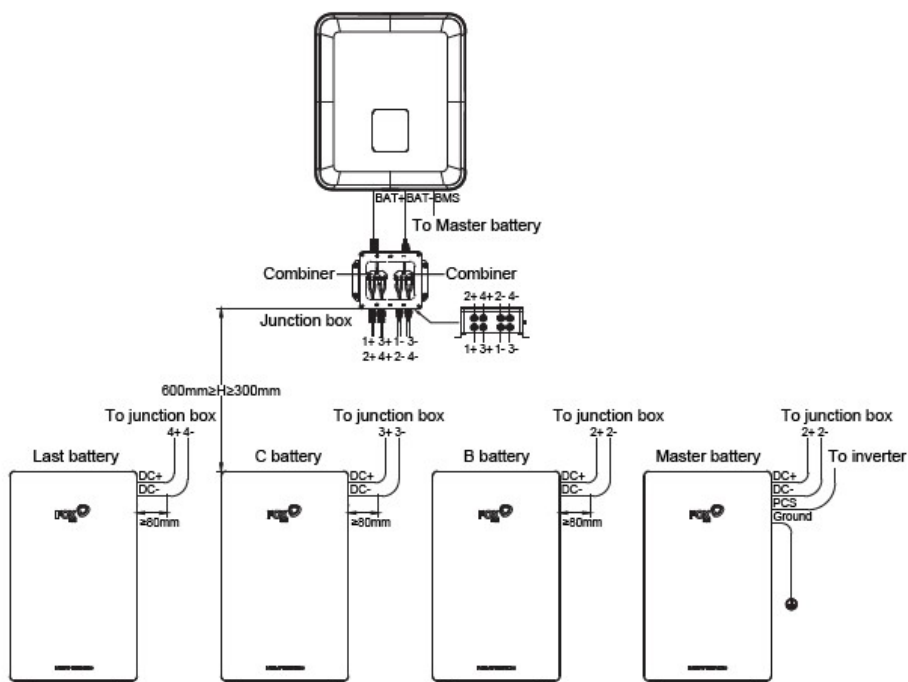


H1
AC1 Series (G2) + EQ4800





EP5 & EP11 CONNECTION



HV JUNCTION BOX

- Supports up to 4-way battery parallel connection
- Scalable up to 40kwh
- Easy Installation
- IP65 Protection Level





BATTERY COMPATIBILITY

Fox ESS Inverter & Battery Configuration Guide

For All countries except Italy and US:

Inverter Model Battery Model	H1/AC1 H1-G2/AC1-G2 (Battery Qty Min.~Max.)	H3/AC3 (Battery Qty Min.~Max.)	H3 PRO (Battery Qty Min.~Max.)	KH/KA (Battery Qty Min.~Max.)
HV2600	2~7	3~8	3~16	2~8
Mira-HV25	2~7	3~8	3~16	2~8
CM2800&CS2800	(1CM+1CS)~(1CM+6CS)	(1CM+2CS)~(1CM+6CS)	(1CM+2CS)~(2CM+12CS)	(1CM+1CS)~(1CM+6CS)
CM2900&CS2900	(1CM+1CS)~(1CM+6CS)	(1CM+2CS)~(1CM+6CS)	(1CM+2CS)~(2CM+12CS)	(1CM+1CS)~(1CM+6CS)
CM4100&CS4100	(1CM+1CS)~(1CM+6CS)	(1CM+2CS)~(1CM+6CS)	(1CM+2CS)~(2CM+12CS)	(1CM+1CS)~(1CM+6CS)
CM4300&CS4300	(1CM+1CS)~(1CM+6CS)	(1CM+2CS)~(1CM+6CS)	(1CM+2CS)~(2CM+12CS)	(1CM+1CS)~(1CM+6CS)
EQ4800	(1EQ-M+1EQ-S)~(1EQ-M+8EQ-S)	(1EQ-M+2EQ-S)~(1EQ-M+8EQ-S)	(1EQ-M+1EQ-S)~(2EQ-M+16EQ-S)	(1EQ-M+1EQ-S)~(1EQ-M+8EQ-S)
EP5	1-4	1-4	1-8	1-4
EP11	1-4	1-4	1-8	1-4

Inverter Model Battery Model	AIO-H1/AIO-AC1 (Battery Qty Min.~Max.)	AIO-H3/AIO-AC3 (Battery Qty Min.~Max.)
HV2600	2~4	4

1. When 1CM+2CS or 3 HV/Mira-HV batteries connected with H3: Black Start of system is not supported.
2. Black Start: Start inverter without PV and Grid, only start with battery.



Monitoring





ACCESSORY

MONITORING DATALOGGER



SMART WIFI

SMART
GPRS

SMART
LAN

Meter/CT

Meter model	Factory	Current	Frequency
SDM230-Modbus	EASTRON	0.5%	0.2%
DDSU666	CHINT	1%	1%

CT model	Factory	Ratio
CTSA016	YUANXING	100A/33.33mA
EICT-120K-T1000C	ELECMAT	120A/40mA



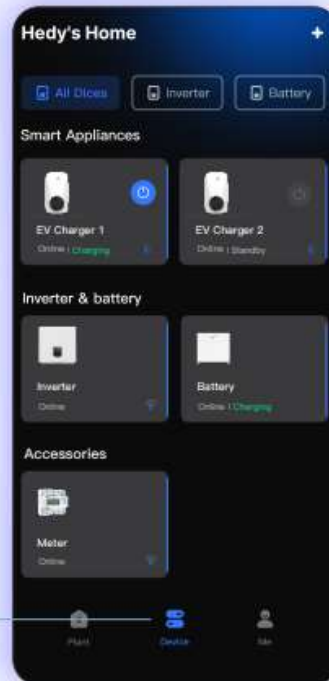
MONITORING

FoxApp 2.0



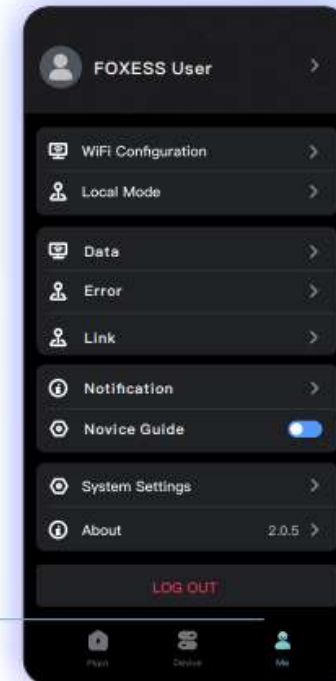
Plant

- System Energy Flow
- Essential data
- Quick setting



Device

- Devices overview
- Real-time data information
- Device control settings



Me

- Edit Personal Information
- Report and error summary
- Network Configuration



MONITORING

FoxApp 2.0

English ▾

FOX
ESS

Account login

Enter your email or username

Your Password

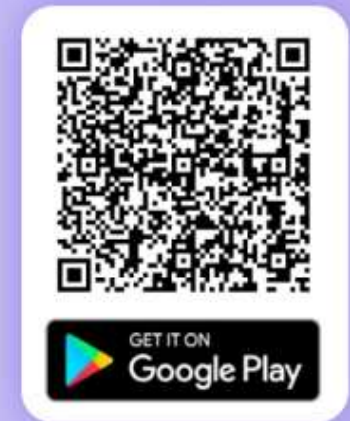
☐ remember password

☐ Agree [Privacy policy](#) and [Terms&Conditions](#)

[Forgot your password?](#)

Sign In

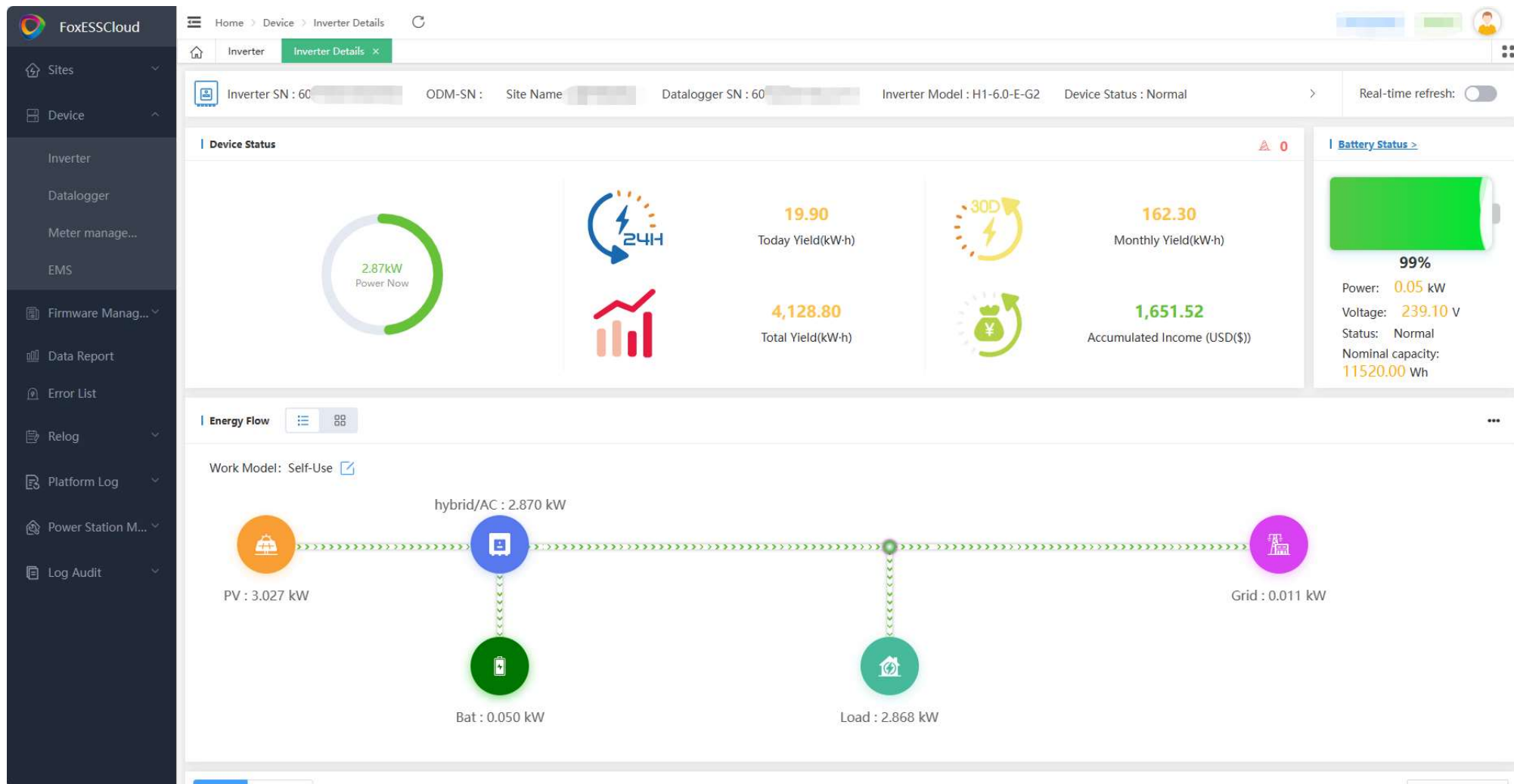
[Demo](#)



<https://www.fox-ess.com>



MONITORING





MONITORING

Fox Cloud





Troubleshooting





COMMON ERROR LIST

<i>Common Site Error Code (More in the manual)</i>	<i>Description & Solution</i>
<i>Grid Lost/Volt/Freq Fault</i>	<i>Grid is lost/voltage or Frequency out of range System will reconnect if the utility is back to normal.</i>
<i>Bat Volt Fault</i>	<i>Battery voltage fault. Check if the battery input voltage is within the normal range.</i>
<i>Iso Fault</i>	<i>The isolation is failed. Please check if the insulation of electric wires is damaged. Wait for a while to check if back to normal.</i>
<i>Ground Fault</i>	<i>The ground connection is failed. Check the voltage of neutral and PE. Check AC wiring. Disconnect PV, grid and battery, then reconnect.</i>
<i>Meter Lost Fault</i>	<i>The communication between meter and energy station is interrupted. Check if the communication cable between meter and energy station is correctly.</i>
<i>BMS Lost</i>	<i>The communication between BMS and energy station is interrupted. Check if the communication cable between BMS and energy station is correctly and well connected.</i>



THANKS

