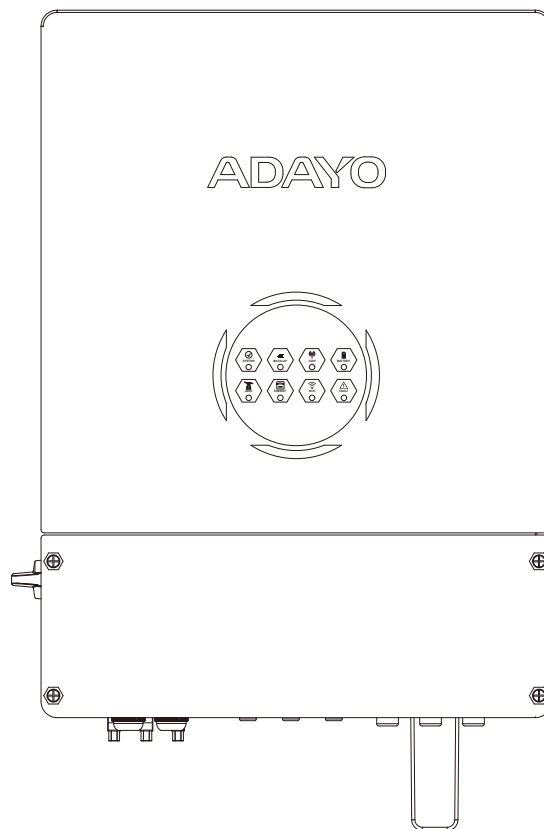# ADAYO

User Manual

EAG08K3L / EAG10K3L / EAG12K3L
Three Phase Hybrid Inverter

ADAYO

Please read the user manual carefully before using
the product and keep it for future reference.

Disclaimer

Thank you for choosing our products and services. Before using the product, please read carefully and fully understand this document to ensure that you can use the product correctly. By using this product, you are deemed to have understood, recognized and accepted all the terms and contents of this document, and the user undertakes to be responsible for his own actions and all consequences arising therefrom.

Incorrect operation of the product or product abnormality caused by force majeure such as fire, typhoon, flood and earthquake may cause unnecessary harm to yourself or others or cause damage to this product and loss of property. All accidents and losses caused by this may have nothing to do with our company. Correspondingly, the service warranty terms promised to you will automatically become invalid.

In compliance with laws and regulations, our company has the final right to interpret product-related documents. If there is any update, revision or termination, no further notice will be given. Our company strives to ensure the accuracy of information such as product functions and features described in the user manual, but does not assume the responsibility for any errors, omissions or subtle differences between the user manual and the product.

If you still have questions, please visit our official website **www.adayopower.com** to get the latest product information.

Contents

1. Introduction

Hybrid inverter series, also called hybrid or bidirectional solar inverters, apply to solar system with participation of PV, battery, loads and grid system for energy management.

The energy produced by PV system shall be used to optimize self-consumption, excess power charge battery and the rest power could be exported to the grid.

Battery shall discharge to support loads when PV power is insufficient to meet self-consumption. If battery power is not sufficient, the system will take power from grid to support loads.

1.1 Safety & Warning

This series of bidirectional energy storage inverters strictly abides by relevant product design and testing safety rules. During installation, operation or maintenance, please carefully read all instructions and precautions on the inverter or user manual. Any improper operation may cause personal or property damage.

• **Storage of the Manual**

⚠	Caution! Failing to observe a warning indicated in this manual may result in injury.
⚡	DANGER High voltage hazard. Disconnect all incoming power and turn off the product before working on it.
♨	Danger of hot surface! High-temperature hazard. Do not touch the product under operation to avoid being burnt.
↑↑	This side up! The package must always be transported, handled and stored in such away that the arrows always point upwards.
🗑	Product should not be disposed as household waste. Do not dispose of the inverter as household waste. Discard the product in compliance with local laws and regulations .or send it back to the manufacturer.
⏚	Grounding point.

	Read through the user manual before any operations.
	Keep dry! The package/product must be protected from excessive humidity and must be stored under cover.
	Inverter will be touchable or operable after minimum 5 minutes of being turned off or totally disconnected, in case of any electrical shock or injury.

• Safety Warning

Any installation and operation on inverter must be performed by qualified electricians, in compliance with standards, wiring rules or requirements of local grid authorities or companies.

Before any wiring connection or electrical operation on inverter, all DC and AC power must be disconnected from inverter for at least 5 minutes to make sure inverter is totally isolated to avoid electric shock.

The temperature of inverter surface might exceed 60℃ during working, so please make sure it is cooled down before touching it, and make sure the inverter is untouchable for children.

Do not open inverter cover or change any components without authorization, otherwise the warranty commitment for the inverter will be invalid.

Usage and operation of the inverter must follow instructions in this user manual, otherwise the protection design might be useless and warranty for the inverter will be invalid.

Appropriate methods must be adopted to protect inverter from static damage. Any damage caused by static is not warranted by manufacturer.

PV negative (PV-) on inverter side is not grounded as default design.

The total open-circuit voltage of PV string/array is lower than the maximum rated DC input voltage of the inverter. Any damage caused by PV over-voltage is beyond warranty.

When the inverter is working, it is prohibited to plug PV, battery, and AC connectors.

1.2 Product Overview

Panel — Gen Port

Battery Terminals

DC Switch (Optional)

PV Terminals

Back-Up Port

On-Grid Port

Wi-Fi Box

To CT

To Battery

Meter Communication Cable
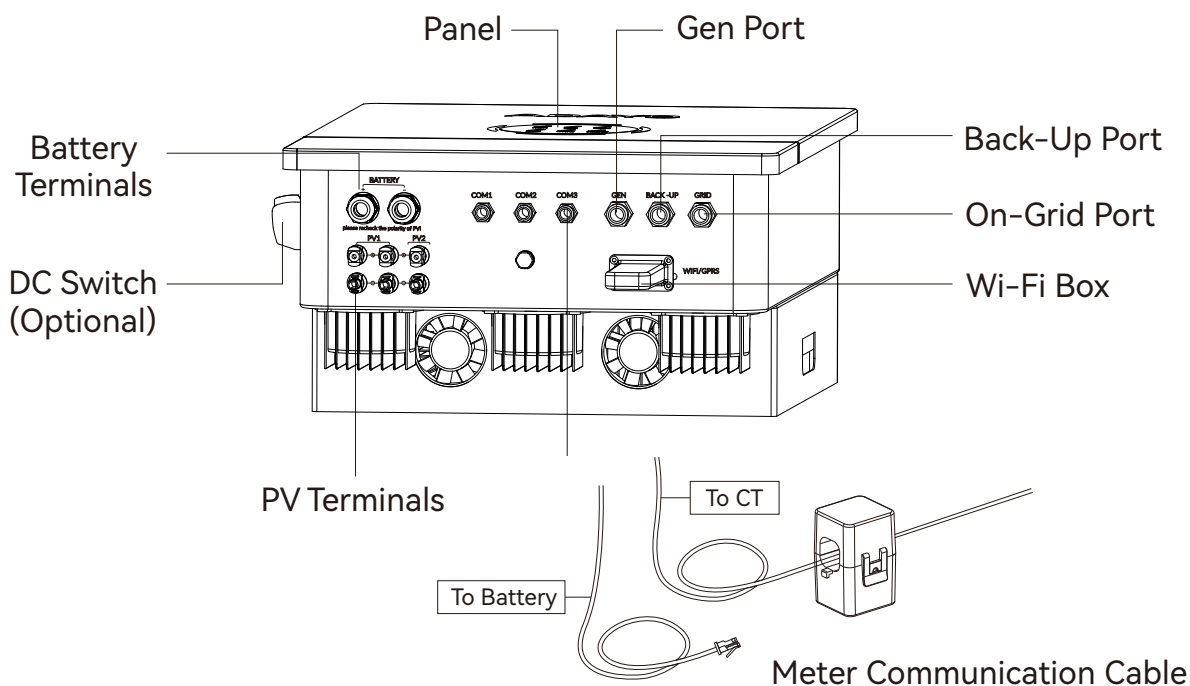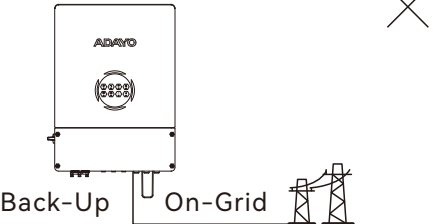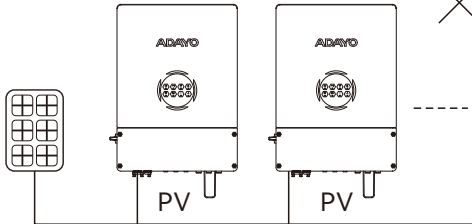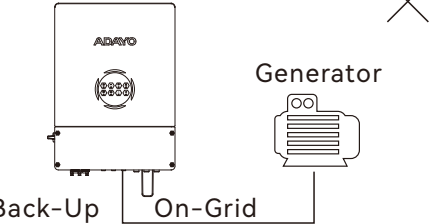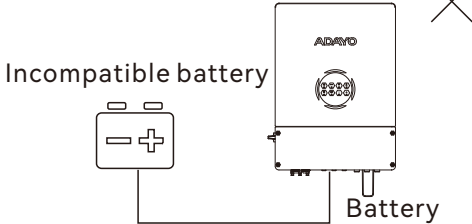
• LED Indicators

Indicator	Status	Explanation
SYSTEM	On (solid green)	On = System Is Ready
	Blink (dotted green)	Blink = System Is Starting Up
	Off	Off = System Is Not Operating
BACK-UP	On (solid green)	On = Back-Up Is Ready /Power Available
	Off	Off = Back-Up Is Off/ No Power Available
COM	On (solid green)	On = BMS And Meter Communication Ok
	Blink (dotted green)	Blink1 = Meter Communication Ok, BMS Communication Fail
	Blink (paired dots)	Blink2 = BMS Communication Ok, Meter Communication Fail
	Off	Off = BMS And Meter Communication Fail
BATTERY	On (solid green)	On = Batteryis Charging
	Blink (dotted green)	Blink 1= Battery Is Discharging
	Blink (paired dots)	Blink 2= Battery Is Low/Soc Is Low
	Off	Off = Battery Is Disconnected/Not Active

GRID	🟩	On = Grid Is Active And Connected
	🟢🟢🟢🟢🟢🟢	Blink = Grid Is Active But Not Connected
	▬	Off = Grid Is Not Active
ENERGY	🟩	On = Consuming Energy From Grid /Buying
	🟢🟢🟢🟢🟢🟢	Blink 1= Supplying Energy To Gridizeroing
	🟢🟢 🟢🟢	Blink 2= Supplying Energy To Grid Selling
	▬	Off = Grid Not Connected Or System Notoperating
WiFi	🟩	On = Wi-Fi Connected /Active
	▬	Off = Wi-Fi Not Active
FAULT	🟥	On = Fault Has Occurred
	🔴🔴🔴🔴🔴	Blink = Overload Of Back-Up Outputireduce Load
	▬	Off = No Fault

2. Installation Instructions
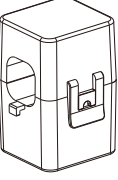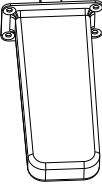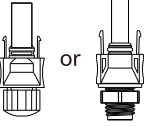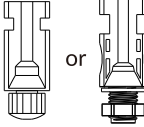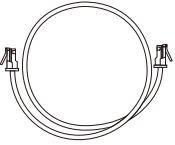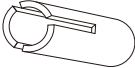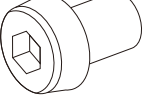
2.1 Unacceptable Installations

Please avoid the following installations, which will damage the system or the inverter.

Back-Up On-Grid	PV PV
Back-Up Side Cannot Connect To Grid.	Single Pv String Cannot Connect To Two Or Moreinverters.
Generator Back-Up On-Grid	Incompatible battery Battery
On-Grid Or Back-Up Side Cannot Connect To Any Ac Generator.	Cannot Connect To Incompatible Batteries.

2.2 Packing List

On receiving the inverter, please check to make sure all the components as below are not missing or broken.

Inverter * 1	Wall-mounted Bracket I * 1	CT * 3	Data Collector * 1
Positive DC Plug * 3	Negative DC Plug * 3	Net cable * 1	Battery terminal * 2
Expansion Bolts * 2	Hexagon head screw * 2	Cold terminals * 15	Hexagon head screw * 2

2.3 Installation

2.3.1 Installation location selection

For inverter's protection and convenient maintenance, mounting location for inverter should be selected carefully based on the following rules:

Rule 1. Inverter should be installed on a solid surface, where is suitable for inverter's dimensions and weight.

Rule 2. Inverter installation should stand vertically or lie on a slope by max 15°.
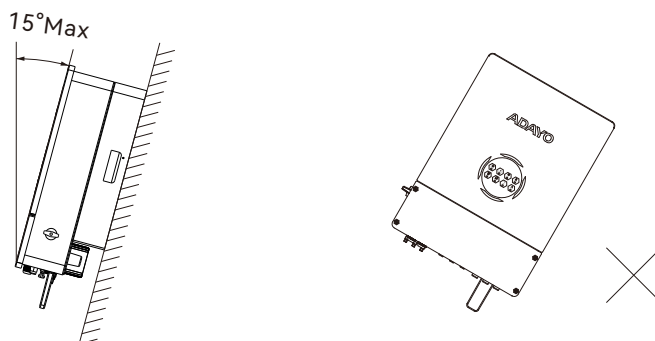
Rule 3. Ambient temperature should be lower than 60°C

Rule 4. The installation of inverter should be protected under shelter from direct sunlight or bad weather like snow, rain, lightning etc.

| No Direct Sunlight | No Exposure to Rain | No Exposure to Snow | Direct Sunlight | Exposure to Rain | Exposure to Snow |
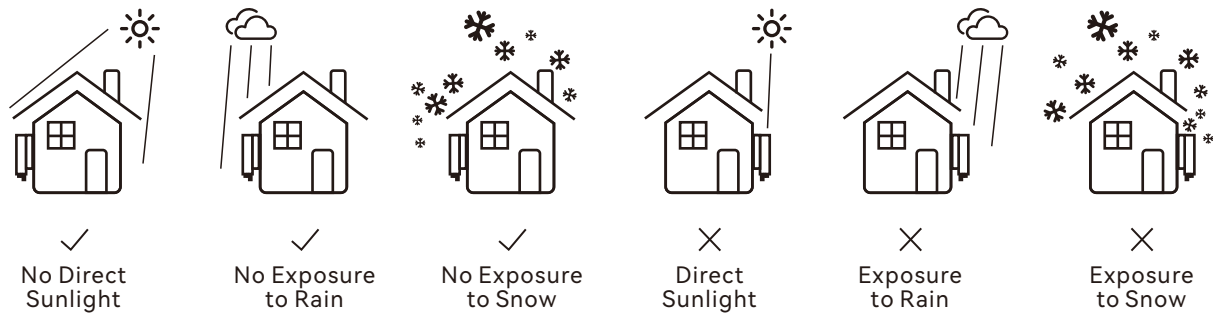
Rule 5. Inverter should be installed at eye level for convenient maintenance.

Rule 6. Product label on inverter should be clearly visible after installation.
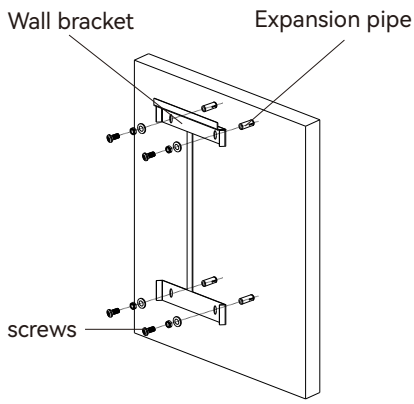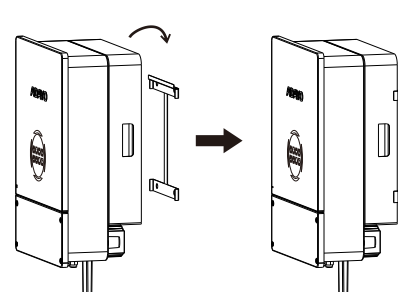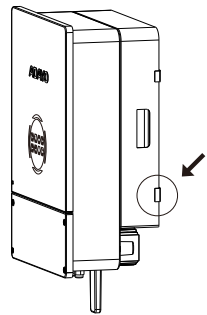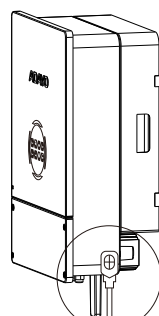
Rule 7. Leave enough space around inverter following the values on pic 3.

300mm

200mm   200mm   300mm

500mm

Upward --------300mm
Downward ------500mm
Front -----------300mm
Both sides ------200mm
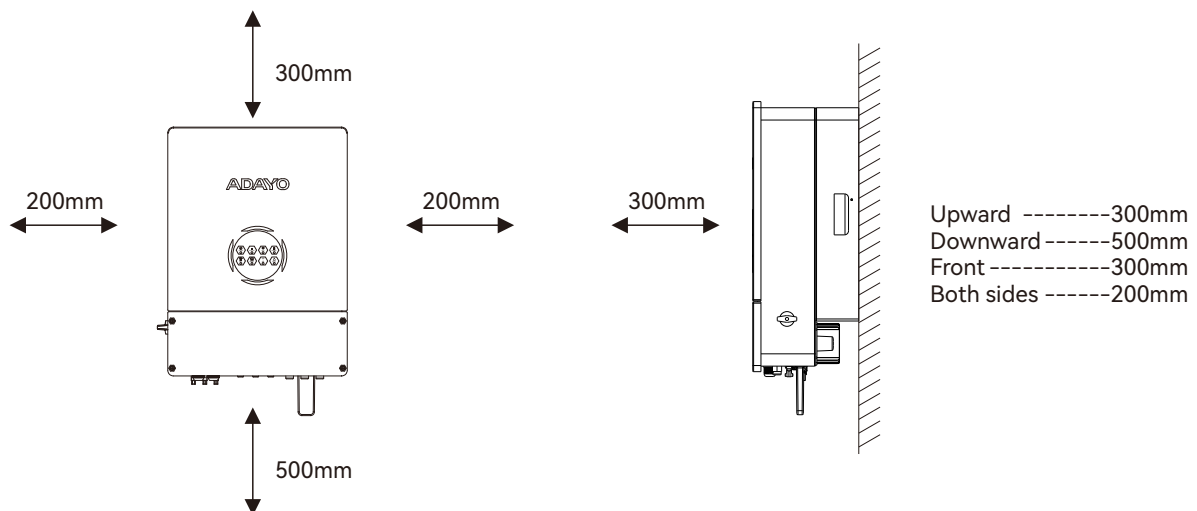
⚠️ Inverter cannot be installed near flammable, explosive or strong electro-magnetic equipment.

2.3.2 Installation

This inverter can only be installed on a flat surface.

Wall bracket Expansion pipe screws	**Step1:** Please use the mounting bracket as a template to drill 2 holes on right positions (10mm in diameter, and 35mm in depth) Use expansion bolts in accessory box and fix the mounting bracket onto the wall tightly. **NOTE:** Bearing capacity of the wall must be higher than 38KG, otherwise may not be able to keep inverter from dropping
	Step2: Carry the inverter by grabbing the radiator on both sides and secure the inverter to the mounting bracket. **NOTE:** Make sure the heat sink on inverter is rightly joint with mounting bracket.
	Step3: Finally, screw fixation, both screws need to be fixed. Add anti-theft locks as needed. **NOTE:** Make sure the screws between the inverter and the fixing plate are tightened to prevent them from falling off.
	Step4: The ground cable should be connected to the ground location on the side.
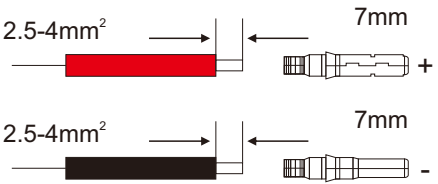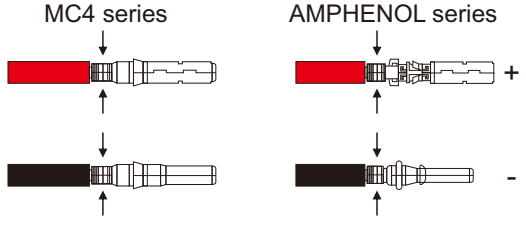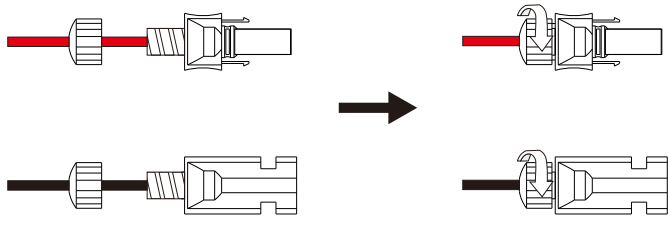
2.4 Electrical Wiring Connection

2.4.1 PV Connection

Before connecting PV panels/strings to inverter, please make sure requirements are followed as below :

- The total short-circuit current of PV string must not exceed inverter's max DC current

- The minimum isolation resistance to ground of the PV string must exceed 18.33kΩ in case of any shock hazard

- PV strings could not connect to earth/grounding conductor

- Use the DC plugs in the accessory box

NOTE: There will be MC4 or Amphenol DC plugs in accessory box, the detailed connection as below:

Step1: Prepare PV cables and DC plugs.	Step2: Connect PV cable to DC connectors.
2.5-4mm² 7mm + 2.5-4mm² 7mm - NOTE: • Please use DC plugs and connectors in accessory box • PV cable should be standard, 2.5-4mm² PV cable	MC4 series AMPHENOL series + - NOTE: • PV cable must be tightly crimped into the Connectors. • For Amphenol connector, the limit buckle cannot be pressed.

Step3: Screw the cap on and plug onto inverter side.

NOTE:
- There will be a click sound if connectors are inset correctly into DC plugs

⚠️ The polarity of the PV string and the inverter cannot be reversed, otherwise the inverter may be damaged.

2.4.2 Battery Connection

For lithium battery (pack) the capacity should be100Ah or larger. Battery cable requirement as below.
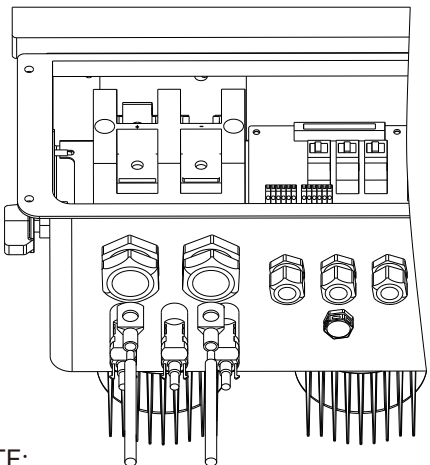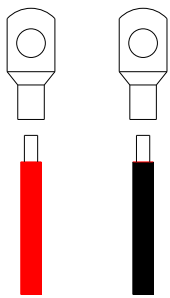
Grade	Description	Value
A	OD	10-12mm
B	Isolation section	
C	Conductor Core	50-75mm2

• Please be careful against any electric shock or chemical hazard

Battery wiring connection steps as below:

⚠	Before connecting the battery to the inverter, ensure that the battery switch is turned off and the battery's nominal voltage reaches the product technical parameters, and ensure that the inverter is completely isolated from PV and AC power sources.

Step1: Prepare battery cables and accessories and put battery power cable through battery cover.	S**tep2:** Make battery terminals.
NOTE: • Please use accessories from box • Battery power cable should be 50~70mm²	NOTE: • Ribbon cable jacket, exposing 10mm long metal core. Use a special crimper to compress the battery terminals.

Step3: Connect battery terminals onto inverter.
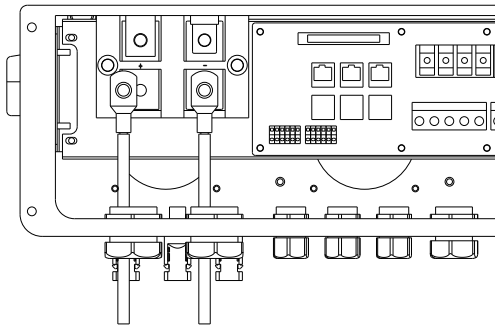
NOTE:

• Please make sure polarity (+/) of battery are not reversed

For Lead-acid Batteries

Lead-Acid and other similar older-technology battery types require experienced and precise design, installation and maintenance to work effectively.

For lead-acid battery bank, the inconformity between battery cells might lead to battery cell over-charge or discharge, and further might damage battery cells and shorten battery bank life.

For this series inverters there is no temperature compensation, thus customers need do battery settings based on the real working temperature of battery.

For lead-acid battery settings on App, please honestly refer to battery specifications and the actually battery work condition like work temperature and battery age. Unsuitable settings will lead to higher SOC deviation, weaker battery lifespan and further battery damage.

For lead-acid batteries, battery SOC calculation might not be so accurate result from like battery inconformity between cells, battery aging or other specifications of lead-acid battery etc.

We will keep the right for explanation on all the settings suggested and all the problems happened on lead-acid batteries or the whole system. And we are not responsible for any damage caused by unsuitable settings, battery beyond warranty or battery quality etc.

Battery Protection Description

Battery will act a protective charge/discharge current limitation under any condition as below:

• Battery SOC is lower than SOC Protection

• Battery voltage lower than discharge Cut-off Voltage

• Battery over temperature protection

• BMS limitation for lithium battery

When charge/discharge current limitation protection happens:

• Under on-grid mode, battery charge/discharge operation could be abnormal

• Under off-grid mode, Back-Up supply will shut down

NOTE:

- Under off-grid mode, if Back-Up supply shuts off because of battery of low battery SOC , PV power will all be used to charge battery till battery SOC reaches 10% more than SOC Protection, then Back-Up supply will be activated up; If Back-Up supply shuts off because of battery of low battery voltage , PV power will all be used to charge battery till battery voltage reaches 52V, then Back-Up supply will be activated up.

- Under on-grid mode , battery is protected from over discharge by 40% more than SOC Protection, resume discharge by 50% more than SOC Protection; Battery is protected from over discharge by Cut-off Voltage, resume discharge by 52V.

2.4.3 On-grid & Back-up Connection

An external AC switch (>32A) is needed for On-Grid connection to isolate from grid when necessary. Below are the requirements on AC switch use:

Ac Switch
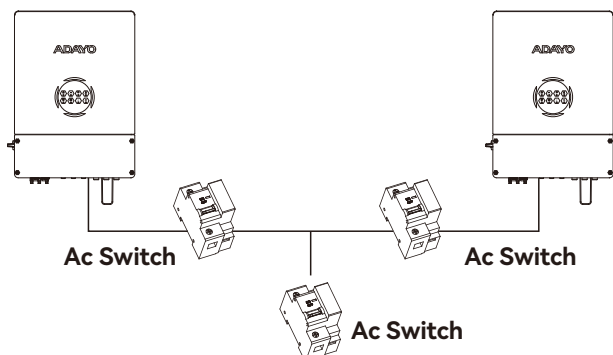
Ac Switch

Ac Switch

1.Use a separate AC switch for individual inverter.
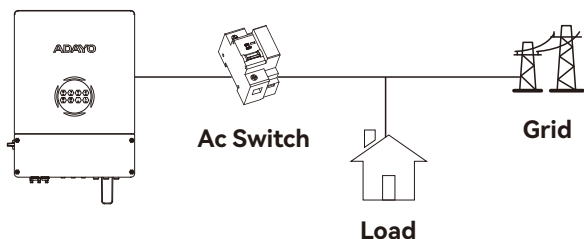
Ac Switch

Grid

Load

2. On AC side, the individual switch should be connected before loads (between inverter and loads).

On-Grid wiring connection process is as below：

⚠️	Make sure inverter is totally isolated from any DC or AC power before connecting AC Cable.

Step1:
1. Prepare the terminals and AC cables.
2. Put AC cable through terminal cover and screw the five cables tightly on the connectors.

NOTE:

- Please use the terminals in components box;
- Make sure cable jacket is not locked with conductor

4mm² Copper Conductor Material

Step2: Lock terminal cover and screw up the terminal cap.
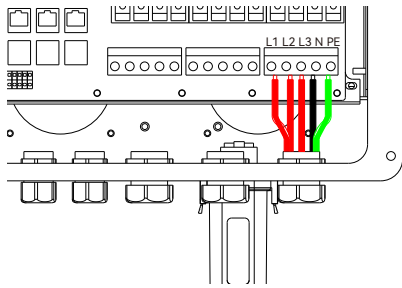
NOTE:

- Make sure the terminal cover is rightly locked onto the terminal

Step3: Connect the assambled AC terminals onto inverter.

NOTE:

- Make sure it is connected to 'On-Grid' side (other side connected to public grid)

Back-Up wiring connection process is as below:

An external AC switch (>32A) is needed for Back-Up connection to be isolated when necessary.

The absence of AC breaker on Back-Up side will lead to inverter damage if only electrical short-circuit happend on Back-Up side. And Back-Up funtion cannot turn off under on-grid condition.

Step1:
1. Prepare the terminals and AC cables.
2. Put AC cable through terminal cover and screw the five cables tightly on the connectors.

NOTE:

- Please use the terminals in components box;

- Make sure cable jacket is not locked with conductor

4mm² Copper Conductor Material

Step2: Lock terminal cover and screw up the terminal cap.
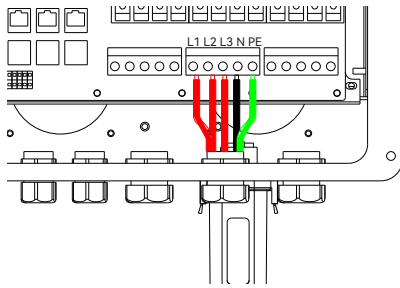
NOTE:

- Make sure the terminal cover is rightly locked onto the terminal

Step3: Connect the assambled AC terminals onto inverter.
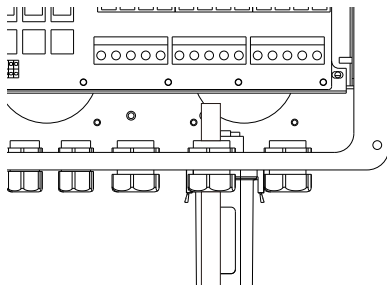
NOTE:

- Make sure it is connected to 'back-up' side (other side connected to public grid)

Declaration For Back-Up Loads

Inverter is able to supply a continuous rated power output or max twice the rated power in less than 15 seconds on Back-Up side to support Back-Up loads. And the inverter has self-protection derating at high ambient temperature.
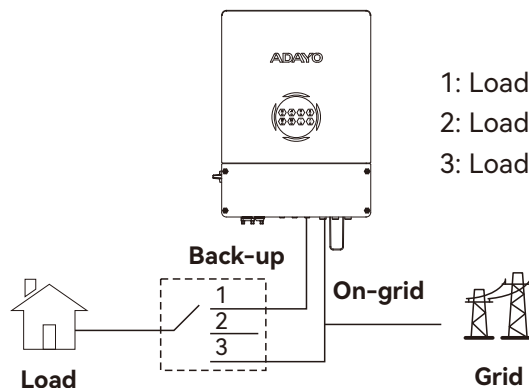
1: Load is supplied from Back-Up side

2: Load is isolated

3: Load is supplied from grid side

Back-up

On-grid

1
2
3

Load

Grid

Declaration For Back-Up Overload Protection

Inverter will stop. you need to reduce the load and then operate the APP to "Overload Reset" to clear the overload fault; or restart after a complete power outage.

CT Indications

⚠️	All work should be performed by trained and qualified operators using safe and suitable tools.

Since this product is a split type transformer, please pay attention to the cleanliness of the magnetic core surface during installation. If there is dirt on the core surface, the accuracy of the product will be deteriorated.

1. Before the transformer is connected to any equipment, please ensure that the circuit is powered off to prevent clicks.

2. Open CT (see figure 1)

3. Clip the CT on the cable under test. Make sure that the maximum current in the wiring does not exceed the maximum input current of the CT; The current flows in the direction of the arrow on the CT housing.

4. Fasten the CT again, the cable under test should be inside the CT window now (see figure 2)

5. Fix the CT on the cable under test with nylon cable ties to prevent the CT from sliding (see figure 3)

6. Connect the CT output white wire to the positive terminal of the measuring device, and the CT output black wire to the negative terminal of the measuring device (see figure 4).

7. After checking that the circuit is correct, turn on the power and the CT starts to mea-sure the current in the circuit.
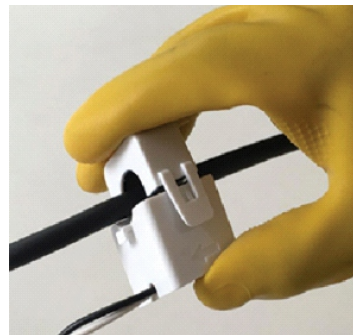
figure 1   figure 2
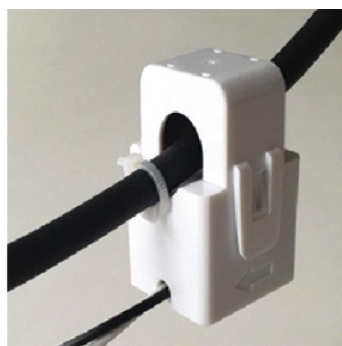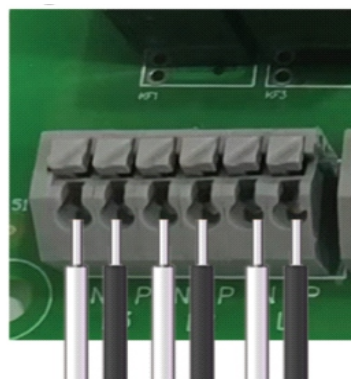
figure 3   figure 4

System Connection Diagrams

- This diagram is an example for grid systems without special requirement on electrical wiring connection.

- This diagram is an example for off-grid system
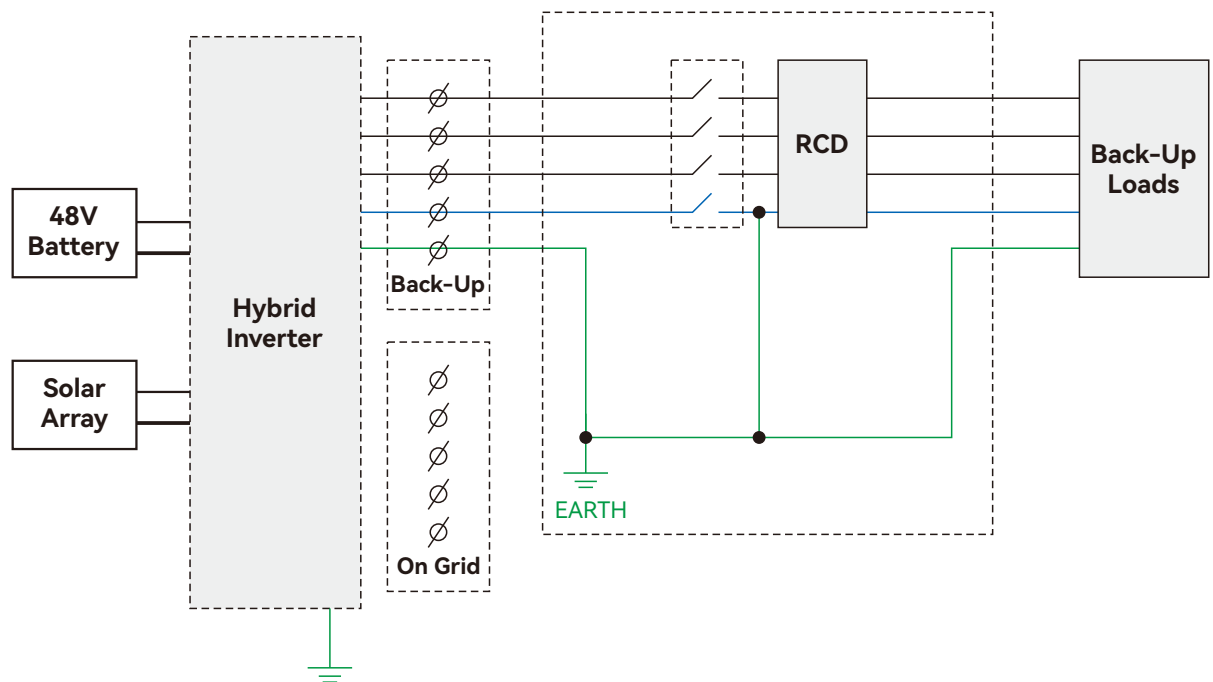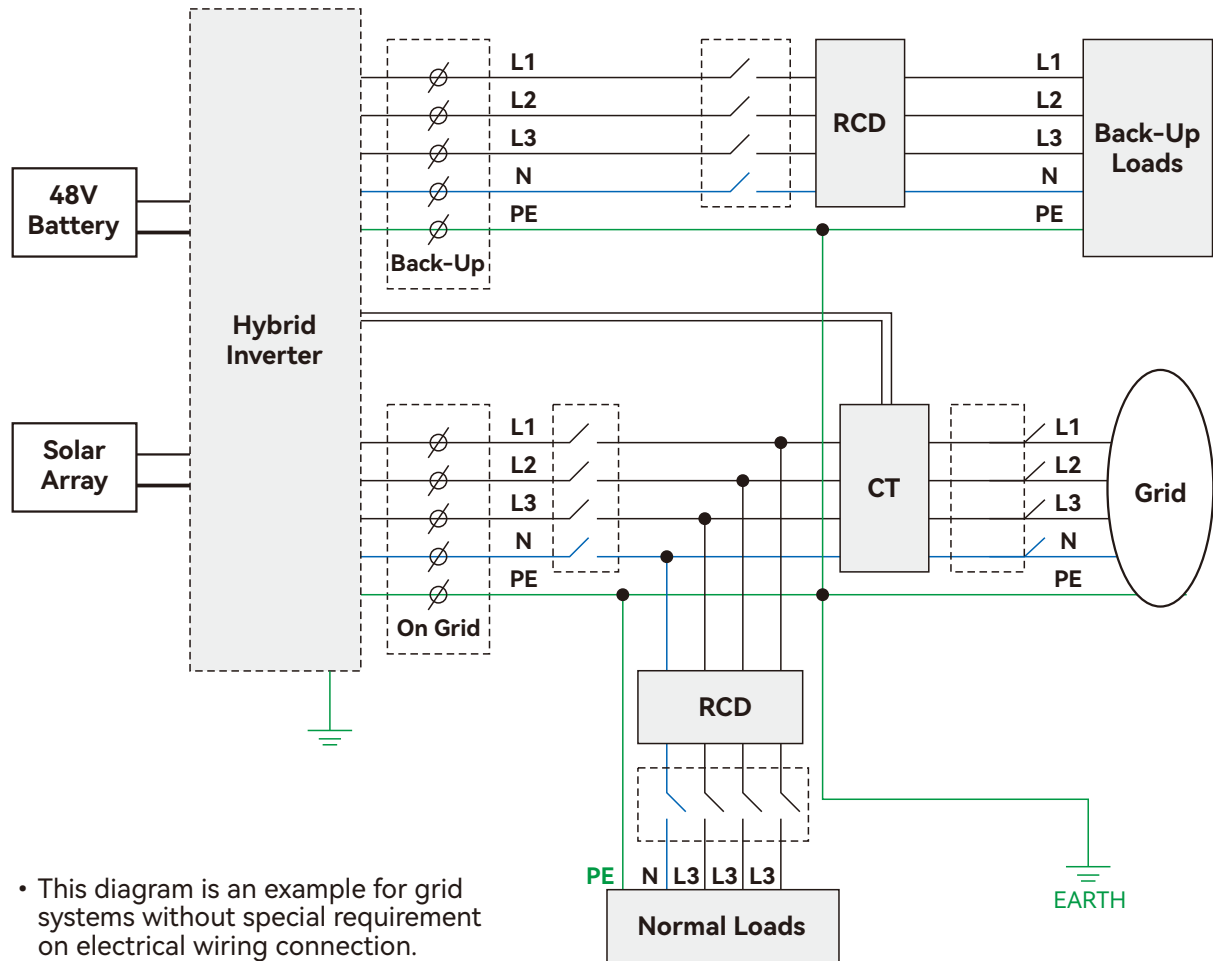
• NOTE: Meter communication cable (RJ45) is attached on the inverter "To Meter" cable, could be extended to max 100m, and must use standard RJ45 cable and plug as below:
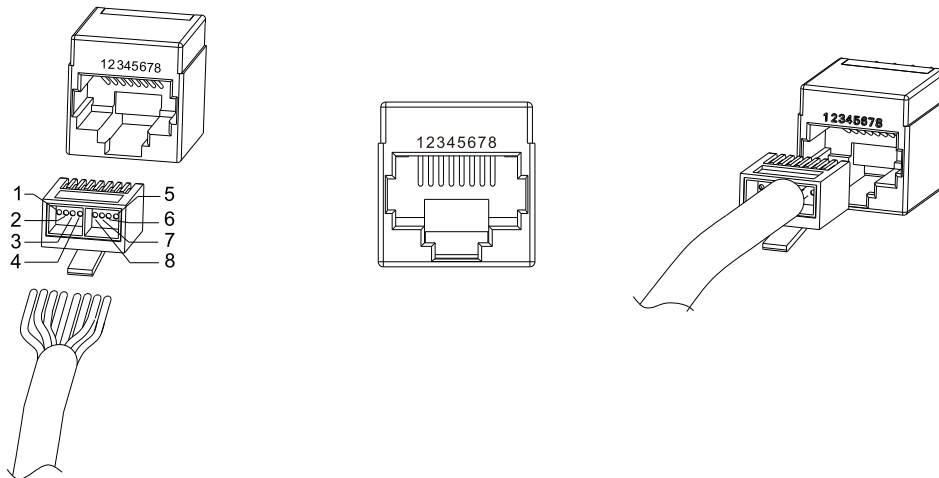
Position	Color	BMS(CAN) Function	BMS(485) Function	Meter Function
1	Orange&white	NC	485_B	NC
2	Orange	NC	485_A	NC
3	Green&white	NC	NC	485_B1
4	Blue	CAN_H	NC	NC
5	Blue&white	CAN_L	NC	NC
6	Green	NC	NC	485_A1
7	Brown&white	NC	485_A	485_B1
8	Brown	NC	485_B	485_A1

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Three phase connection diagram

Legend: CAN · L wire · N wire · PE wire

BMS CAN

Ground

Inverter

① DC Breaker

Battery pack

② AC Breaker

③ AC Breaker

L3
L2
L1
N
PE

① DC Breaker for battery
EA08P3L: 250A DC breaker
EA10P3L: 300A DC breaker
EA12P3L: 300A DC breaker

② AC Breaker for backup load
EA08P3L: 32A AC breaker
EA10P3L: 40A AC breaker
EA12P3L: 40A AC breaker

③ AC Breaker for grid
8K: 32A AC breaker
10K: 40A AC breaker
12K: 40A AC breaker

④ AC Breaker for home load
Depends on household loads

Backup Load

CT1 CT2 CT3

L3 L2 L1 N PE

Grid

④ AC Breaker

L1 L2 L3 N PE

Home Load

CT

Arrow pointing to the grid

2.5 Three Phase Parallel Connection Diagram

CAN — L wire — N wire — PE wire

BMS 485 BMS CAN DRMs

Parallel_1 Parallel_2 RS485

Ground

Inverter

Inverter No.3 (slave)

Inverter No.2 (slave)

Inverter No.1 (Master)

Battery pack

① ② ③ DC Breaker for battery
EA08P3L: 250A DC breaker
EA10P3L: 300A DC breaker
EA12P3L: 300A DC breaker

④ ⑤ ⑥ AC Breaker for backup load
EA08P3L: 32A AC breaker
EA10P3L: 40A AC breaker
EA12P3L: 40A AC breaker

⑦ ⑧ ⑨ AC Breaker for grid
EA08P3L: 32A AC breaker
EA10P3L: 40A AC breaker
EA12P3L: 40A AC breaker

⑩ AC Breaker for home load
Depends on household loads

The first machine and the last machine dial switch to ON, the other machines are not dial

ON
1 2

Backup Load

PE N L1 L2 L3

Home Load

CT

Arrow pointing to the grid

The second side of the CT only needs to connect the master inverter.

Grid

L1
L2
L3
N
PE

18

3. Trouble - Shootings

3.1 Warning List

System Warning Code 1	Warning Event	Description	Solutions
0	Over Ugrid	The Grid Voltage is Higer than the setting value when the inverter is running	1.Check the AC voltage is in the range of standard voltage in specification; 2.Check whether grid AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
1	Under Ugrid	The Grid Voltage is Lower than the setting value when the inverter is running	1.Check the AC voltage is in the range of standard voltage in specification; 2.Check whether grid AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
2	Over Fr	The Grid Frequency is Higer than the setting value when the inverter is running	1.Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
3	Under Fr	The Grid frequency is Lower than the setting value when the inverter is running	1.Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
4	Line Check	The Grid is Loss when the inverter is running	1.Check whether grid AC cables are firmly and correctly connected; 2.Restart the inverter 2-3 times; 3.if the fault still existing, please contact us for help.
5	Under Upv	The PV voltage is lower than 300V when turn on the PV switch	1.Check the PV is in the range of specification or not; 2. Check whether PV cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
6~15	Reserved	/	/

System Warning Code 2	Warning Event	Description	Solutions
0	UBATTERY_LOW	The battery voltage is lower than 44V or lower than the SOC that you setting	1.Check the battery voltage; 2.Check whether Battery cables are firmly and correctly connected; 3.Restart the inverter 2-3 times; 4.if the fault still existing, Please contact your installer.
1	UBATTERY_LOSS	The battery is lower than 25V	1.Check the battery voltage; 2.Check whether Battery cables are firmly and correctly connected; 3.Restart the inverter 2-3 times; 4.if the fault still existing, Please contact your installer.
2	Reserved	/	/
3	Reserved	/	/
4	Fault FAN	The FAN isn't working	1.Restart the inverter 2-3 times; 2.if the fault still existing, Please contact your installer.
5	Reserved	/	/
6	Battery Transient under voltage	The battery voltage is lower than 40V at one moment	1.Check the battery voltage; 2.Check whether Battery cables are firmly and correctly connected; 3.Restart the inverter 2-3 times; 4.if the fault still existing, Please contact your installer.
7	Reserved	/	/
8	Reserved	/	/
9	DC Stop	The DC side isn't working	1, The BUS voltage can't be built from PV or battery. 2.Check whether Battery cables are firmly and correctly connected; 3.Restart the inverter 2-3 times; 4.if the fault still existing, Please contact your installer.
10~15	Reserved	/	/

3.2 Fault Reference Codes

System Fault Code 1	Fault Event	Description	Solutions
0	Under Upv1	The PV voltage is lower than 20V ,and the current is higher than 2A	1.Check the PV is in the range of specification or not; 2. Check whether PV cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
1	Over Ipv1	The PV current is higher than 30A	DC side over current fault 1.Check PV module connect and battery connect; 2.Turn off the DC switch and AC switch and then wait one minute, then turn on the DC/AC switch again; 3. If the error message still remains, please contact your installer.
2	Over Upv1	The PV voltage is higher than 900V	1.Check the PV is in the range of specification or not; 2. Check whether PV cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
3	Over Ipv2	The PV current is higher than 30A	DC side over current fault 1.Check PV module connect and battery connect; 2.Turn off the DC switch and AC switch and then wait one minute, then turn on the DC/AC switch again; 3. If the error message still remains, please contact your installer.
4	Over temp	The temperature is higher than 100oC	1.Check whether the work environment temperature is too high; 2.Turn off the inverter for 10mins and restart; 3. if the fault still existing, please contact us for help.
5	Over Iac	AC over current fault	AC side over current fault 1.Please check whether the backup load power and common load power are within the range; 2.Restart and check whether it is in normal; 3.Check the backup load connected, make sure it is in allowed power range 4.If the fault still exists, please contact us for help5.If the error message still remains, please contact your installer.

6	Over Ugrid	The Grid Voltage is Higer than the setting value when the inverter isn't running	Grid voltage fault 1.Check the AC voltage is in the range of standard voltage inspecification; 2.Check whether grid AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
7	Over Fr	The Grid Frequency is Higer than the setting value when the inverter isn't running	Grid frequency out of range 1.Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
8	Under Backup	The backup is connected with the Grid	1.Check the backup terminal; 2.Detect the backup voltage with the multimeter; 3.Restart the inverter 2-3 times; 4.if the fault still existing, please contact us for help.
9	Over Ubus	The BUS Voltage is Higer than 980V	1. check the total power of the inverter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
10	Over Ileak	AC leakage current fault	Leakage current fault 1. Check the PV side cable ground connection; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
11	Fault Relay	The Relay isn't working	1. Restart the inverter 2-3 times; 2. if the fault still existing, please contact us for help.
12	Fault GFD	DC insulation failure	PV isolation resistance is too low 1.Check the connection of PV panels and inverter is firmly and correctly; 2.Check whether the PE cable of inverter is connected to ground; 3. If the error message still remains, please contact your installer.
13	Over Backup Voltage	The Backup Voltage is high	1.Check the backup terminal; Detect the backup voltage with the multimeter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.

14	XINT lac	The inverter current is high and touch the protection.	1. check the power of the backup load; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
15	Remote Shutdown	Turn off the inverter	1.Check the other fault code of the inverter and according to the solution to solve the problem. 2.Restart the inverter 2-3 times; 3.if the fault still existing, please contact us for help.

System Fault Code 2	Fault Event	Description	Solutions
0	Fault SPI	The upper computer communicates with the lower computer fault	1. Restart the inverter 2-3 times; 2. if the fault still existing, please contact us for help.
1	Under Ugrid	The Grid Voltage is Lower than the setting value when the inverter isn't running	Grid voltage fault 1.Check the AC voltage is in the range of standard voltage in specification; 2.Check whether grid AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
2	Under Fr	The Grid Frequency is Lower than the setting value when the inverter isn't running	Grid frequency out of range 1.Check the frequency is in the range of specification or not; 2. Check whether AC cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
3	Under Upv2	The PV voltage is lower than 20V ,and the current is higher than 2A	1.Check the PV is in the range of specification or not; 2. Check whether PV cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.
4	Over Upv2	The PV voltage is higher than 900V	1.Check the PV is in the range of specification or not; 2. Check whether PV cables are firmly and correctly connected; 3. If the error message still remains, please contact your installer.

5	Reserved	/	/
6	Under Ubus	The BUS Voltage is Lower than 600V	1. check the total power of the inverter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
7	Reserved	/	/
8	Fault Temper	The Temper is fault	1.Check whether the work environment temperature is too high or too low; 2.Turn off the inverter for 10mins and restart; 3. if the fault still existing, please contact us for help.
9	Over Load	/	1. check the total power of the inverter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
10	Reserved	/	/
11	Parallel Data Loss	Parallel Data Loss	1.When in parallel mode, check the parallel communication cable connection and hybrid inverter communication address setting; 2. Restart the inverter 2-3 times; 3. If the fault still exists, please contact us for help.
12	Parallel Phase Loss	Parallel Phase Loss	1.When in parallel mode, check the parallel communication cable connection and hybrid inverter communication address setting; 2.Restart the inverter 2-3 times; 3. If the fault still exists, please contact us for help.
13	Parallel Stop	Parallel system stop	1.Check the hybrid inverter work status. According to the fault code to solve the problem. 2. if the fault still existing, please contact us for help.
14	XINT Ipv	The PV boost current is high and touch the protection.	1. check the PV voltage and the power of the backup load; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
15	Reserved	/	/

System Fault Code 3	Fault Event	Description	Solutions
0	UBUS_OVER	The BUS Voltage is Higer than 980V	1. check the total power of the inverter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
1	UBUS_LOW	The BUS Voltage is Lower than 600V	1. check the total power of the inverter; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
2	UBATTERY_OVER	The Battery Voltage is Higer than 60V	1.Check the battery voltage; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
3	Reserved	/	/
4	ILLC_OVER	The LLC current is high	1. check the total power of the inverter include the charging and the discharging current; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
5	IBuckBoost_OVER	The Buck-boost voltage is high and touch the protection	1. check the total power of the inverter include the charging and the discharging current; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
6	ULLC_OVER	The LLC voltage is high and touch the protection	1.check the total power of the inverter include the charging and the discharging current; 2.Check the battery voltage; 3. Restart the inverter 2-3 times;4. if the fault still existing, please contact us for help.
7	Fault data SPI	The upper computer communicates with the lower computer fault	1. Restart the inverter 2-3 times; 2. if the fault still existing, please contact us for help.

8	Over time SPI	The upper computer communicates with the lower computer fault	1. Restart the inverter 2-3 times; 2. if the fault still existing, please contact us for help.
9	Over Ibat	The battery current is higher than 1.5 multiples of the setting value	1. check the discharging current that you setting; 2. check the total power of the inverter; 3. if the fault still existing, please contact us for help.
10	Reserved	/	/
11	Reserved	/	/
12	Reserved	/	/
13	Reserved	/	/
14	ILLC_XINT	The LLC current is high and touch the protection	1. check the total power of the inverter include the charging and the discharging current; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.
15	IBuckBoost_XINT	The Buck-boost current is high and touch the protection	1. check the total power of the inverter include the charging and the discharging current; 2. Restart the inverter 2-3 times; 3. if the fault still existing, please contact us for help.

3.3 Troubleshootings

• **Troubleshootings**

Checking Before Starting Up

PV Input Connection: Confirm the connection between inverter and PV panels : polarity (+/-)not reversed

Battery Connection: Confirm the connection between inverter and battery : polarities (+/-) not reversed

On-Grid & Back-Up Connection: Confirm On-Grid connected to public grid and Back-Up to loads : polarity (L/N) not reversed

Problems During Operation

Hybrid inverter not Start Up With ONLY Battery	
Solution	Make sure the voltage of battery is higher than 48V, otherwise battery cannot start Hybrid inverter up.

Hybrid inverter not Start Up With ONLY PV	
Solution	Only PV cannot start, so ensure that one of the grid and battery is normal.

No Discharge or Output from Hybrid inverter at Night Without PV or PV Power Lower Than Load Power	
Solution	Refer to "Battery Protection Instructions" in 2.4.2

Battery Not Charge When PV Power Higher Than Load Power	
Solution	1.Check if charge voltage on App (Set Basic Setting) is properly set (for lead-acid battery) as battery cannot charge if battery voltage reaches charge voltage. 2.Check if it is during discharge time set on App. 3.Check if battery is fully charged or not, or battery voltage reach "charge voltage" or not. 4.Check if the SOC is higher than 98%.

High Power Fluctuation Battery Charge or Discharge	
Solution	1.Check if there is a fluctuation on load power; 2.Check if there is a fluctuation on PV power.

Battery Does Not Charge	
Solution	1.Make sure BMS communication is OK on App (for lithium batteries); 2.Check if the total load power is much higher than PV power.

Questions & Answers (Q & A)

About Battery Operation

Q. Why battery switch always trip when starts it up (Lithium battery)?
A. For lithium battery like BYD , normally the switch trips for flowing reason: 1.BMS communication fails, or battery SOC is so low to protect itself. 2.Battery SOC is too low, battery trips to protect itself. 3.An electrical short-cut happened on battery connection side.

Q. How to set the battery charging and discharging current?
A. Inverter factory default battery charging current 10A and discharging current20A.You can adjust it according to the specifications of the battery used.

About Smart APP Operation and Monitoring

Q. Why Cannot save settings on App
A. This could be caused by losing connection to Solar-WiFi. 1.Make sure you connected Solar-WiFi (make sure no other devices connected) or router (if connected Solar-WiFi to router) and on APP home page shows connection well. 2.Make sure Hybrid inverter under waiting mode (on APP) before you change any settings on Smart disconnect grid/load/battery, only leave PV connected and then restart till see work mode as "wait" on APP.

Q. On App, some columns show NA, like battery SOH, etc. why is that?
A. NA means App does not receive data from inverter or server, normally it is because communication problem, such as battery communication, and communication between inverter and the APP.

About Meter and Power Limit Function

Q. How to Act Output Power Limit function?
A. For Hybrid Inverter system, the function could be realized by: 1. Make sure Meter connection and communication well; 2. Turn on Export Power Limit function and Set the max output power to grid on APP

Note:
If Out-put Power Limit set as 0W, then there might still have deviation max 100W exporting to grid.

Q. Why there is still power exporting to grid after I set power limit as 0W?
A. Export limit could theoretically to minimum 0W, but there will have a deviation of around 50-100Wfor Hybrid Inverter system.

4. Others

4.1 Disclaimer

The hybrid inverters are transported, used and operated under environmental and electrical conditions. We have the right not providing after-sales services or assistance under following conditions:

- Inverter is damaged during transferring
- The inverter has expired the warranty year and no extended warranty has been purchased.
- Inverter is installed, refitted or operated in improper ways without authority from us
- Inverter is installed or used under improper environment or technical condition mentioned in this user manual，without authority from us
- Installation or configuration of the inverter does not follow requirements mentioned in this user manual
- The inverter is installed or operated against the requirements or warnings that are mentioned
- Inth is user manual
- inverter is broken or damaged by any force majeure like lightening, earthquake, fire hazard, storm and volcanic eruption etc.
- Inverter is disassembled, changed or updated on software or hardware without authority from us
- Inverter is installed, used or operated against any related items in international or local policies or regulations.
- Any non-compatible batteries, solar panels, loads or other devices connected to Hybrid inverter system

⚠	We will keep right to explain all the contents in this user manual.

* Maintenance

The inverter requires periodically maintenance, details as below:

⚠	Make sure inverter is totally isolated from all DC and AC power for at least 5 mins before maintenance.

Heat sink: please use clean towel to clean up heat sink once a year

Torque: please use torque wrench to tighten AC and battery wiring connection once a year

DC switch: check DC switch regularly, active the DC switch 10 times in a row once a year. Operating DC switch will clean contacts and extend lifespan of DC switch

Appendix: Protection Category Definition
Environment Category Definition

Environment Condition	Ambient Temperature	Relative Humidity	Applied to
Outdoor	–20~+50oC	4%~100%	PD3
Indoor Unconditioned	–20~+50oC	5%~95%	PD3
Indoor Conditioned	0~+40oC	5%~85%	PD2

Pollution Degree Definition

Pollution Degree I	No pollution or only dry, non-conductive pollution occurs. The pollution has no influence
Pollution Degree I	Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.
Pollution Degree II	Conductive pollution occurs, or dry, non-conductive pollution occurs, which becomes conductive due to condensation which is expected.
Pollution Degree IV	Persistent conductive pollution occurs, for example, the pollution caused by conductive dust, rain and snow.

4.2 Technical Parameters

MODEL	EAG08K3L	EAG10K3L	EAG12K3L
PV input			
Vmax PV (Vdc) (absolute Max.)	1000 V		
Isc PV (absolute Max.) (A)	22.5 A/22.5A	45A/22.5A	45A/22.5A
Max. PV input current / strings (A)	18A/18A	36A/18A	36A/18A
Number MPP trackers	2		
MPPT Range (Vdc)	200~800		
Vdc range @ full power (Vdc)	350~800		
P pv Max(kW)	16	20	24
Battery (charge/discharge)			
Battery type	Li-ion/Lead-acid		
Battery Norma Voltage (Range) (Vdc)	48V(44-60V)		
Max charge/discharge Current(A)	190	210	240
Max charge/discharge Power(W)	9100	10000	12000

AC Grid (input and output)			
Normal AC Voltage (VAC)	380/400 (3W+N+PE)		
Frequency (Hz)	50(49-51default) (47-53 adjustable)		
Max. cont output current (A)	13.3	16.7	20
Max. cont output Power (W)	8000	10000	12000
Max. cont. Apparent Power (VA)	8800	11000	13200
Power factor(adjustable)	0.8 leading to 0.8 lagging		
AC Load output (stand alone)			
Normal Voltage (VAC)	380/400(3W+N+PE)		
Frequency (Hz)	50		
Nominal Current(A)	11.6	14.5	17.4
Max. cont. Power (W)	8000	10000	12000
Overload Capability (off grid)	>200% for 15 sec		
Output Power Factor(off grid)	0.8 leading to 0.8 lagging		
Output Current Harmonic Distortion	THD<3%(Nonlinear load); THD<1.5%(Linear load)		
Others			
Ingress protection (IP)	IP66		
Protective class	Class I		
Temperature (oC)	-25oC~+60oC		
Inverter Isolation	Non-isolated PV- AC		
	High frequency isolated(Battery Side)		
Overvoltage category	OVC III (AC Main), OVC II (PV)		
Dimensions,D*W*H(mm)	475*683*256		
Weight(kg)	38		
Altitude	2000m		

ADAYO

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www.adayopower.com