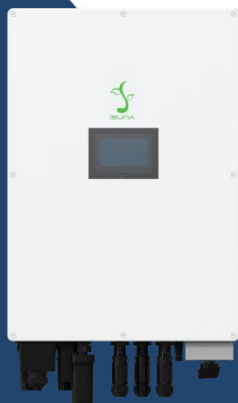


# User Manual

Three phase LV Hybrid Inverter with TouchScreen

**Isuna D6~D12K-TL-S-AU**



Shenzhen Sinexcel Isuna  
Energy Technology Co.,LTD

## Catalogue

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## 1. Overview

This document describes the product information, installation, electrical connection, configuration and commissioning, troubleshooting and maintenance, and technical specifications of the hybrid inverter. Before installing and using the product, read this manual carefully to familiarize yourself with the safety information and functions and features of the product. Manuals may be updated from time to time, please obtain the latest version from the official website for more product information.

### 1.1 Scope of Application

This manual is applicable to the following inverters:

| Model               | Rate output power | Rated output voltage               |
|---------------------|-------------------|------------------------------------|
| Isuna D6K-TL-S-AU   | 6000W             | 3L/N/PE, 220/380Vac,<br>230/400Vac |
| Isuna D8K-TL-S-AU   | 8000W             |                                    |
| Isuna D9.9K-TL-S-AU | 9900W             |                                    |
| Isuna D10K-TL-S-AU  | 10000W            |                                    |
| Isuna D12K-TL-S-AU  | 12000W            |                                    |

**Note:** Since the product will be overload protected at an ambient temperature above 40 °C, the high temperature mode test in the Italian Grid Specification certification will be carried out at an ambient temperature of 40 °C.

### 1.2 Applicable Personnel

This document is intended for only professional and technical personnel who are familiar with local regulations, standards, and electrical systems, and have professional training and knowledge about this product.

### 1.3 Symbol Definition

In order to ensure the personal and property safety of users when using hybrid inverters, as well as the efficient use of this product, the manual provides relevant safe operation information and uses corresponding symbols to highlight. To avoid personal injury and property damage, please fully understand and absolutely comply with these stressed information. The symbols used in this manual are listed below.

## Isuna D6~12K-TL-S-AU

|                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------|
|  <b>Danger</b>                   |
| Indicates a highly hazardous situation which, if not avoided, will result in death or serious injury.             |
|  <b>Warning</b>                  |
| Indicates a hazard with a medium level of risk that could result in death or serious injury if not avoided.       |
|  <b>Caution</b>                  |
| Indicates a hazard with a low level of potential that, if not avoided, could result in moderate or minor injury.  |
|  <b>Attention</b>                |
| Indicates a potentially hazardous situation that, if not avoided, may cause equipment failure or property damage. |

## 2. Safety Precautions

The safety precautions contained in this document must be followed when operating the device.

|                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Attention</b>                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"><li>➤ The inverter has been designed in strict accordance with safety regulations and has passed the tests. However, as an electrical device, you must comply with relevant safety instructions before performing any operation on the device. Improper operation may result in serious injury or property damage.</li></ul> |

### 2.1 Operation Safety

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Attention</b>                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"><li>➤ Read this manual carefully before installing the device to understand the products and precautions.</li><li>➤ All operations on the equipment must be carried out by professional electrical technicians who are familiar with the local standards and safety regulations.</li><li>➤ When operating inverters, use insulation tools and wear personal protective equipment. Wear ESD gloves, an ESD wrist strap, and an ESD suit when touching electronic</li></ul> |

components to prevent damage caused by static electricity.

- The manufacturer shall not be liable for inverter damage or personal injury caused by failure to install, use, or configure the equipment in accordance with the requirements of this manual.

### 2.2 PV String Safety



- Use the DC wiring terminal delivered with the chassis to connect the DC cables of the inverter. Use of other types of DC terminals may cause serious consequences. Therefore, the manufacturer is not responsible for the damage to the device.



- Ensure that the assembly frame is properly grounded to the support system.
- After connecting DC cables, ensure that the cables are securely connected.
- Use a multimeter to check whether the positive and negative DC wiring terminals of the battery are connected correctly and the voltage is within the allowable range.
- Do not connect the same PV series to multiple inverters; otherwise, the inverters will be damaged.

### 2.3 Battery Safety



- Read the battery safety contents in the user manual carefully before installing the device, and strictly follow the instructions in the user manual.
- The battery current may be affected by external environment, such as temperature and humidity, which may cause battery current limiting and affect battery on-load performance.
- If the battery does not start, contact the after-sales service center as soon as possible. Otherwise, the battery may be permanently damaged.
- Use a multimeter to check whether the positive and negative DC wiring terminals of the battery are connected properly and the voltage is within the allowable range.
- Do not connect the same battery string to multiple inverters. Otherwise, the inverters may be damaged.

### 2.4 Inverter Safety



#### Warning

- Ensure that the voltage and frequency of the grid-connected access point comply with the inverter grid-connected specifications.
- A protection device, such as a circuit breaker or fuse, is recommended for the AC side of the inverter. Ensure that the protection device is greater than 1.25 times the maximum AC output current of the inverter.
- The GND cable for the inverters must be securely connected. When multiple inverters are combined, ensure that the protection ground points on all inverters' chassis shells are equipotential connected.
- If the battery is not configured in the photovoltaic system, it is not recommended to use the off-grid function, and the resulting system electricity risk will not be covered by the equipment manufacturer's warranty. (Whether to connect the battery is optional by the user. Without the battery, the inverter can be used normally)

### 2.5 Personnel Requirements



#### Attention

- When the inverter is running, some components may be charged or hot. Improper use, incorrect installation, or operation may result in serious injury to person or property. Transportation, loading, unloading, installation, starting and maintenance operations must be performed by qualified electrical engineers.

### 2.6 Description of Symbols

There are some safety-related labels on the hybrid inverter. Please read and fully understand these labels before installing the product.

| Symbol                                                                              | Symbol name                                                  | Symbol meaning                                                                                                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | It indicates the danger of residual voltage in the inverter. | Please wait for 5 minutes until the capacitor is completely discharged after the DC side of the inverter has been disconnected with power for a period of time. |
|    | It indicates the danger of high voltage.                     | High voltage exists during inverter operation. If you need to operate the inverter, please make sure the inverter is disconnected.                              |
|   | It indicates to be careful of high temperature surface.      | The temperature of inverter housing is high during operation, so do not touch it, otherwise it may cause burns.                                                 |
|  | It indicates grounding terminal.                             | Connect the inverter to ground for grounding protection purpose.                                                                                                |
|  | It indicates reading the manual.                             | Please read and understand this manual carefully before installing the inverter.                                                                                |

## 3.Equipment Inspection and Storage

### 3.1 Pre-signing Inspection

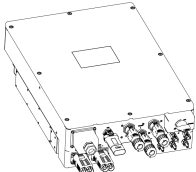
Before signing for the product, please check the following:

- Check the outer packing for holes, distortions, cracks, or other signs that may cause damage to the equipment in the packing case. If so, do not open the packing and contact your distributor.
- Check whether the inverter type is correct. If not, do not open the package and contact your dealer.
- Check whether the type and quantity of the delivered package are correct and whether the appearance is damaged. If damaged, please contact your dealer.

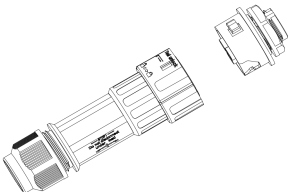
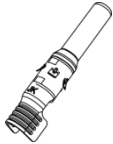
### 3.2 Packing List

After the inverter is unpacked, check whether the delivered package are complete. If any components are found missing or incomplete, contact the dealer in time.

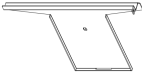
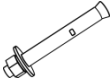
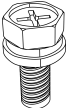
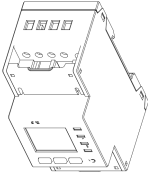
**Table 3-1 Components and mechanical parts to be delivered**

| No. | photos                                                                              | descriptions                           | quantity |
|-----|-------------------------------------------------------------------------------------|----------------------------------------|----------|
| 1   |    | Inverter                               | 1 PCS    |
| 2   |  | WIFI dongle<br>(optional)              | 1 PCS    |
| 3   |  | e-user manual                          | 1 PCS    |
| 4   |  | Certificate, Quality<br>assurance card | 1 PCS    |
| 5   |  | Delivery inspection<br>report          | 1 PCS    |

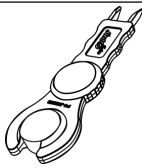
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|    |                                                                                     |                                                                              |        |
|----|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------|
| 6  |    | AC load terminal<br>AC grid terminal<br>AC generator terminal                | 3 PCS  |
| 7  |    | Black 6.0mm <sup>2</sup> cable lugs<br>(for load/grid/generator side wiring) | 15 PCS |
| 8  |    | BAT input terminal protective cover                                          | 2 PCS  |
| 9  |    | PV+ wire end input terminal plastic case                                     | 3 PCS  |
| 10 |   | PV- wire end input terminal plastic case                                     | 3 PCS  |
| 11 |  | PV-&BAT-wire end input terminal metal core                                   | 3 PCS  |

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|    |                                                                                     |                                                              |       |
|----|-------------------------------------------------------------------------------------|--------------------------------------------------------------|-------|
| 12 |    | PV+ & BAT+ wire end<br>input terminal metal<br>core          | 3 PCS |
| 13 |    | Wall-mounted rear<br>cover                                   | 1 PCS |
| 14 |    | M8*80 expansion bolt                                         | 3 PCS |
| 15 |    | Waterproof cover                                             | 1 PCS |
| 16 |    | Cross recessed<br>hexagon head<br>combination screw<br>M6*12 | 1 PCS |
| 17 |    | Cross recessed<br>hexagon head<br>combination screw<br>M6*10 | 2 PCS |
| 18 |  | Smart meter                                                  | 1PCS  |
| 19 |  | CT<br>(used with the meter)                                  | 3PCS  |

## Isuna D6~12K-TL-S-AU

|    |                                                                                   |                          |       |
|----|-----------------------------------------------------------------------------------|--------------------------|-------|
| 20 |  | Meter communication line | 1 PCS |
| 21 |  | BMS communication line   | 2 PCS |
| 22 |  | PV Disassembly wrench    | 1 PCS |
| 23 |  | Desiccant                | 1 PCS |

### 3.3 Equipment Storage

If the inverter is not put into use immediately, store it according to the following requirements:

- Ensure that the outer packing case is not removed and the desiccant is not lost.
- Ensure that the storage environment is clean and within appropriate temperature and humidity ranges.
- Ensure that inverters are placed in the height and direction according to the labels on the packing cases.
- Ensure that there is no tilt and fall risk after inverters are stacked.
- After the inverter is stored for a long time, check and confirm the inverter before it can be used.

## 4.Product Description

### 4.1 Product Overview

Hybrid inverter is a photovoltaic grid-connected inverter and battery energy storage as one, with a variety of built-in working modes to suit the diversified needs of users. In the period of rising energy costs such as oil and coal, the continuous decline of energy subsidies for

photovoltaic grid-connected systems, mountain areas or base stations without grid, uninterrupted power supply and emergency power supply needs, hybrid inverters can provide a complete solution.

### 4.2 Application Scenarios & Important Limitations



#### Warning

- **Critical Load Restrictions:** This photovoltaic system is **not suitable** for powering life-sustaining medical devices or any equipment that requires a guaranteed stable power supply. Ensure system power-off does not lead to personal injury.
- **High Inrush Current Loads:** Do not connect loads with a high starting current (e.g., large motors). The excessive instantaneous power demand may cause the off-grid output to fail.
- **Off-Grid Overload:** If the load exceeds the inverter's rated power during a grid outage, the off-grid function will shut down automatically. Restart by turning off large loads to ensure the total load power is less than the inverter's rated capacity.

#### OPERATIONAL NOTES:

- **Off-Grid Performance:** In off-grid mode, the inverter reliably powers standard household loads.
- **Inductive Loads:** Supports 1.5HP non-inverter air conditioners. Operation may become unstable if two or more such units are connected simultaneously.
- **Capacitive Loads:** The total power of capacitive loads must be  $\leq 0.7 \times$  the inverter's rated output power.
- **Overload Protection:** A single overload event will trigger an automatic restart. Repeated occurrences will cause the inverter to stop and require a manual restart via the App after the fault is resolved.

## Isuna D6~12K-TL-S-AU

### 4.3 Appearance Description

#### 4.3.1 Appearance Description

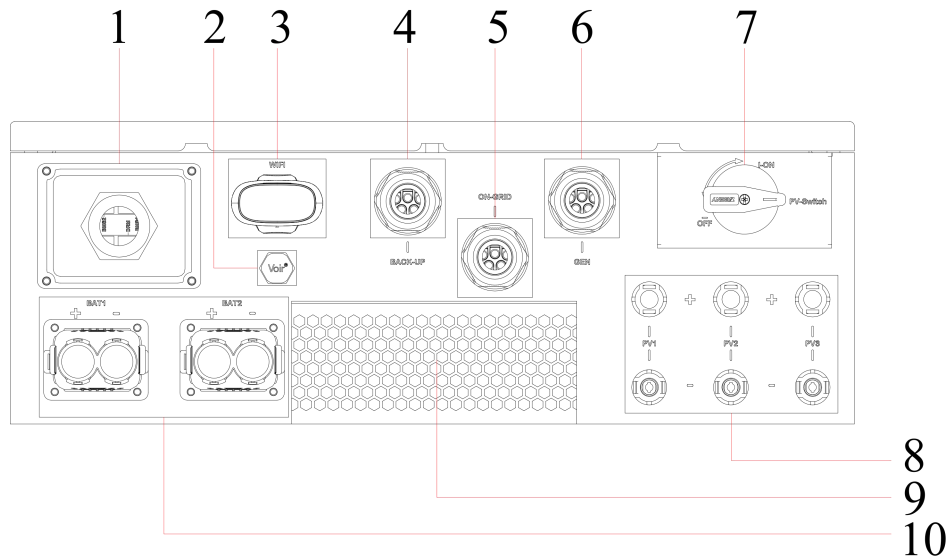


Figure 4.1 Illustration of the appearance of the inverter

## Isuna D6~12K-TL-S-AU

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**Table 4-1 Appearance of the inverter**

|   |                                |    |                                    |
|---|--------------------------------|----|------------------------------------|
| 1 | Communication module interface | 2  | Waterproof and breathable device   |
| 3 | WiFi/4G interface              | 4  | Off-grid AC wiring port            |
| 5 | Grid-connected AC wiring port  | 6  | Generator-connected AC wiring port |
| 7 | PV DC input switch             | 8  | PV DC input port (PV+/-)           |
| 9 | Fan assembly                   | 10 | Battery DC input port (BAT+/-)     |

4.3.2 Size Description

Figure 4.2 Overall size of inverter

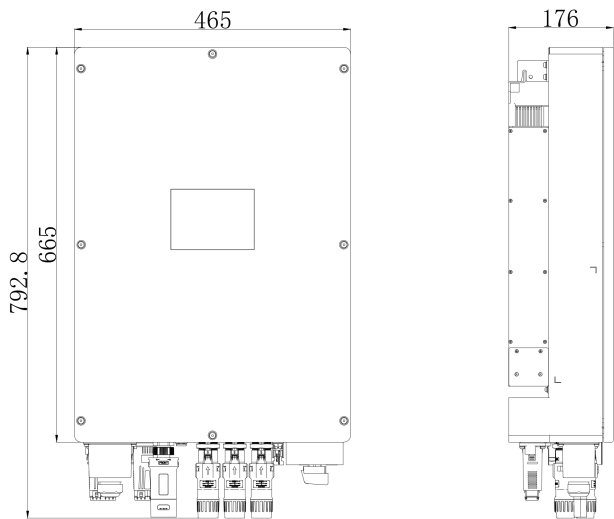


Figure 4.3 Dimensions of wall mount

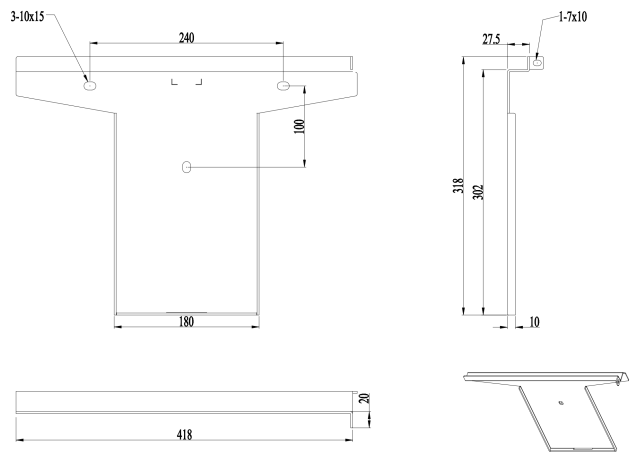


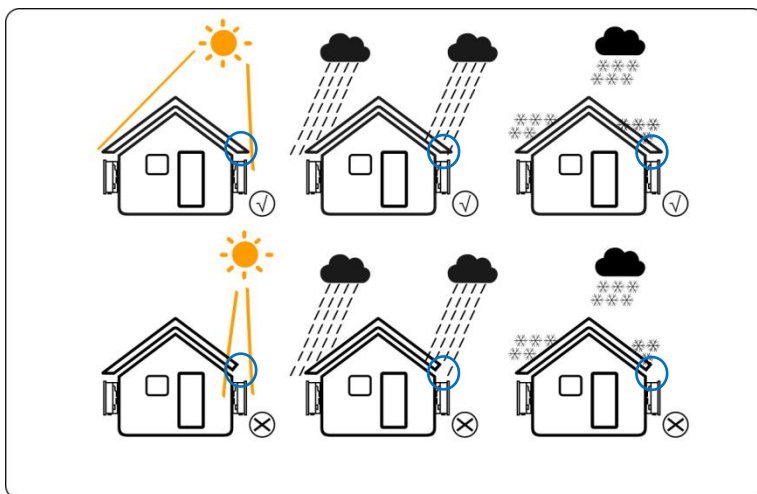
Figure 4.3 Dimensions of wall mount

## 5 Installation

### 5.1 Installation Requirements

#### 5.1.1 Installation Environment Requirements

- 1) The equipment must not be installed in flammable, explosive, corrosive and other environments.
- 2) The installation position should be away from water pipes and cables in the wall to avoid danger during drilling.
- 3) The installation position should be out of the reach of children, and avoid installation in a position that is easy to touch. There may be high temperature on the surface of the equipment during operation to prevent burns.
- 4) The inverter should avoid the installation environment such as sun, rain, snow, etc. It is recommended to install it in a sheltered installation position. If necessary, an awning can be built.
- 5) The installation space must meet the requirements of ventilation, heat dissipation and operation space.
- 6) The protection level of the equipment complies with the requirements for indoor and outdoor installation, and the installation environment temperature and humidity must be within the appropriate range.
- 7) Make sure that the inverter indicator light and all labels are easy to view and that the terminal is easy to operate.
- 8) The inverter installation altitude should lower than the maximum working altitude 4000m.
- 9) Stay away from strong magnetic field environment to avoid electromagnetic interference. If a radio station or a wireless communication device below 30MHz is located near the installation location, install the device according to the following requirements:
  - Add a ferrite core with multi-turn winding at the inverter DC input line or AC output line, or add a low-pass EMI filter.
  - The distance between the inverter and the wireless electromagnetic interference device exceeds 30m.



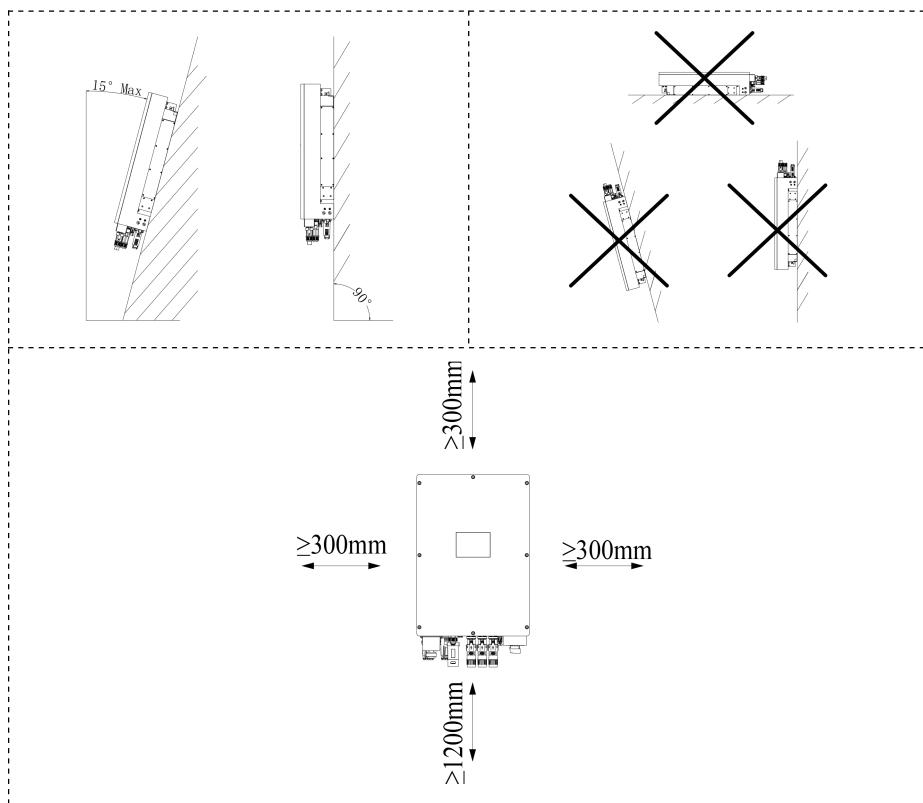
### 5.1.2 Mounting Carrier Requirements

- 1) The installation carrier must not be flammable material and must have fire resistance.
- 2) Please ensure that the installation carrier is solid and reliable, and can carry the weight of the inverter.
- 3) When the equipment is running, it will make noise. Do not install it on the carrier with poor sound insulation, so as to avoid the noise emitted by the equipment when it is working, which will cause trouble to residents in the living area.

### 5.1.3 Mounting Angle Requirements

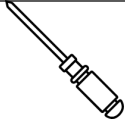
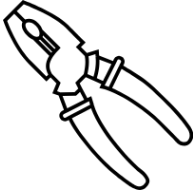
- 1) Recommended inverter installation Angle: vertical or backward  $\leq 15^\circ$ .
- 2) Do not invert, tilt forward, tilt back beyond the Angle, horizontal installation.
- 3) At least 1.2m from the ground below the inverter, about at least 300mm.

## Isuna D6~12K-TL-S-AU

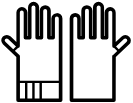


## 5.2 Mounting Tools

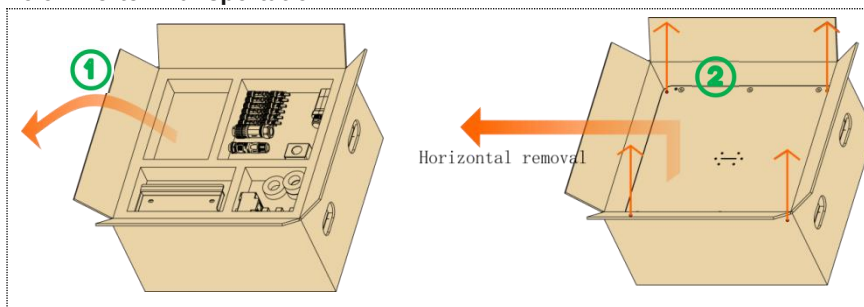
Table 5-1 List of installation tools

| Series No. | Tools                                                                               | Description                                   | Function                                        |
|------------|-------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|
| 1          |    | Percussion drill<br>Recommended<br>10mm drill | Wall drilling                                   |
| 2          |    | 6mm crosshead<br>screwdriver                  | Removing, installing<br>screws and wiring       |
| 3          |    | 4mm crosshead<br>screwdriver                  | Removing and installing<br>load terminal screws |
| 4          |    | Removal tool                                  | PV Disassembly wrench                           |
| 5          |   | Wire strippers                                | Stripping wire                                  |
| 6          |  | Crimping pliers                               | Crimping PV and BAT<br>cables                   |

## Isuna D6~12K-TL-S-AU

|    |                                                                                     |                   |                                                                                                                                                            |
|----|-------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7  |    | Crimping pliers   | Pressure welding grid,<br>load end cable                                                                                                                   |
| 8  |    | 6mm hex wrench    | Fasten the grid terminal to<br>the cable                                                                                                                   |
| 9  |    | Multimeter        | Check whether the cable<br>wiring is correct, the<br>positive and negative<br>battery terminals are<br>correct and voltage, and<br>grounding is dependable |
| 10 |    | Marking pen       | Drilling mark                                                                                                                                              |
| 11 |    | Tape              | Measurement distance                                                                                                                                       |
| 12 |   | Protective gloves | Wear when setting up the<br>inverter                                                                                                                       |
| 13 |  | Goggles           | Wear when drilling holes                                                                                                                                   |
| 14 |  | Dust mask         | Wear when drilling holes                                                                                                                                   |

### 5.3 Inverter Transportation



#### Caution

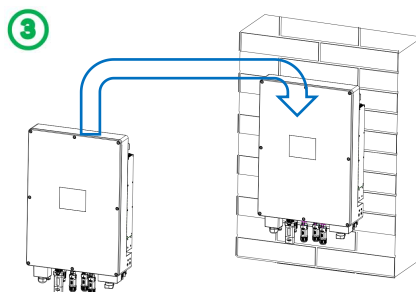
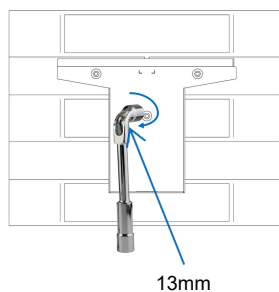
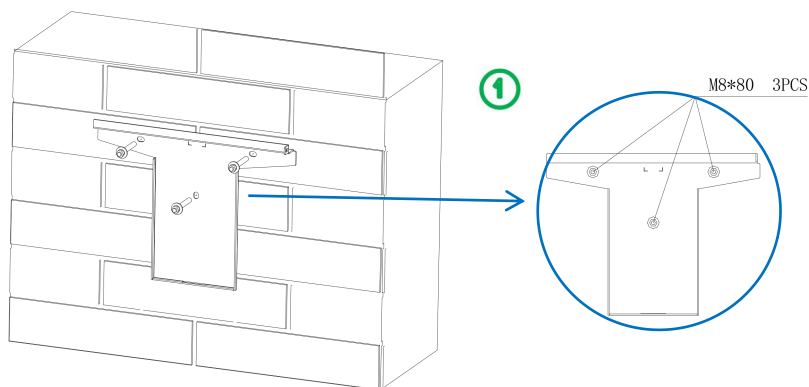
- When transporting, turning around, installing and other operations, it must comply with the laws and regulations and relevant standards of the country or region where it is located.
- The inverter is heavy. Please keep it balanced during handling to prevent the inverter from falling and injuring the operator.
- The power cable and signal cable ports at the bottom of the inverter cannot bear any weight. Do not touch wiring terminals directly. Place the inverter horizontally.
- When the inverter is placed on the ground, put foam or paper under it to avoid damage to the shell.

### 5.4 Wall Mounted

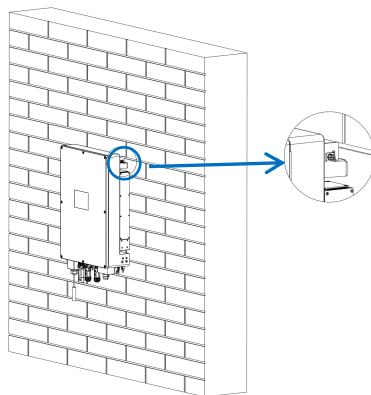


#### Attention

- When drilling holes, ensure that the holes are drilled away from water pipes and cables in the wall to avoid dangers.
- When drilling holes, wear goggles and a dust mask to prevent dust from inhaling into the respiratory tract or falling into the eyes.



④



Fix the screw torque at 5N.m

## 6. Electrical Connection

This chapter provides comprehensive instructions for the safe and correct electrical installation of your Isuna hybrid inverter. All electrical work must be performed by a qualified electrician in accordance with local wiring rules and regulations. Failure to follow these instructions can result in severe injury, equipment damage, or fire.



- **Power Off Before Working:** Before commencing any installation or maintenance, ensure the inverter is completely disconnected from all power sources, including AC grid, AC load, generator, PV arrays, and batteries.
- **Capacitor Discharge:** Internal capacitors retain a dangerous charge after power-off. Wait at least **5 minutes** to ensure they are fully discharged before touching any terminals.
- **Qualified Person Only:** All electrical work **must be performed by qualified personnel**. Incorrect connections can cause severe equipment damage, fire, or electric shock.

### 6.1 Electrical System Connection Diagram

This section provides the standard electrical diagram for the hybrid inverter energy storage system.



#### Attention

- **Neutral (N) and Earth (PE) Wiring:** The connection of N and PE wires must comply with local regulations (AS/NZS 3000 in Australia).
- **Back-up Port Hazard:** The BACK-UP port may be live during operation. To avoid electric shock, power down the inverter before working on backup load wiring.
- **Internal Relays:** The inverter manages grid connection via internal relays. The ON-GRID relay is open in off-grid mode and closed in on-grid mode.

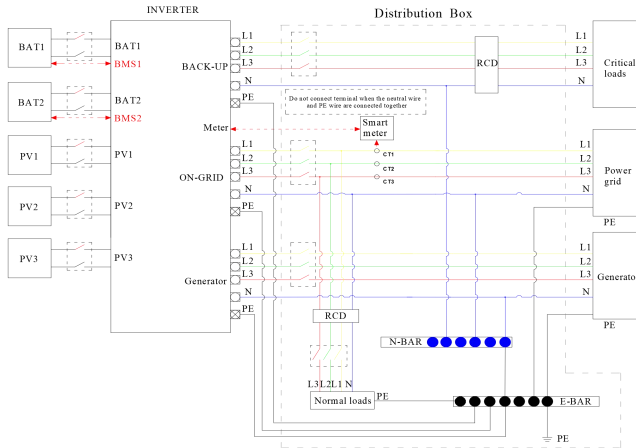
#### Recommended External Protection Device Parameters:

- **Battery Side DC Breaker:** Rated voltage  $\geq 100\text{V}$ , Rated current  $\geq 150\text{A}$ .
- **Grid Side AC Breaker:** Rated voltage  $\geq \text{AC } 230/400\text{V}$ , Rated current  $\geq 50\text{A}$ ,
- **Load Side AC Breaker:** Rated voltage  $\geq \text{AC } 230/400\text{V}$ , Rated current  $\geq 25\text{A}$ ,
- **Generator Side AC Breaker:** Rated voltage  $\geq \text{AC } 230/400\text{V}$ , Rated current  $\geq 50\text{A}$ ,

#### RCD Compatibility and Requirements

- **RCD Type:** Use Type A or Type B RCDs, as appropriate to ensure protection against pulsating DC residual current. RCD selection and installation shall comply with AS/NZS 3000. RCDs shall be certified to the applicable product standard(s): AS/NZS 3190, AS/NZS 61008.1, AS/NZS 61009.1 or IEC 62423, as appropriate.
- **Rated Parameters:**
  - Load Port:** Minimum 30mA leakage current, 20A rated current.
  - Grid Port:** Minimum 30mA leakage current, 36.4A rated current.
  - Generator Port:** Minimum 30mA leakage current, 36.4A rated current.
- **Installation Location:** Install RCDs at the grid connection point and load side as shown in Figure 6.1.

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**Figure 6.1 Electrical connection diagram**

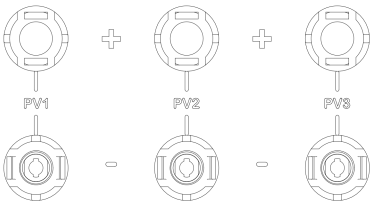
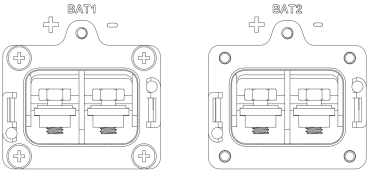
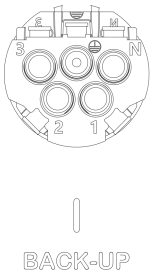
**Note:** During final installation, circuit breakers for external connections to the inverter shall comply with IEC 60947-1 and IEC 60947-2 certification requirements.

### Neutral Continuity Requirement

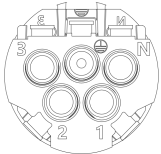
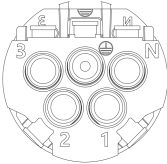
- For multi-inverter parallel systems or hybrid configurations, the neutral line (N) must be continuously connected and not switched by any internal relay. This ensures compliance with AS/NZS 3000 standards.
- In the electrical diagram (Figure 6.1), the neutral line from the grid, load, and generator ports should be directly interconnected without interruption. If using external switches or breakers, ensure they do not disconnect the neutral line.
- Verification: After installation, use a multimeter to confirm neutral continuity between all AC ports.

6.2 External Port Wiring Instructions

Table 6-1 Cable Model and Specification Descriptions

| Port                                                                                | Definition                          |    | Cable type                      | Cable specification                                                                                                        |
|-------------------------------------------------------------------------------------|-------------------------------------|----|---------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|    | +: Connect to PV positive pole      |    | Outdoor Multi-Core              | Recommended 6mm <sup>2</sup> cross-sectional area of conductor, maximum current through the wire is 30A                    |
|                                                                                     | -: Connect to PV negative pole      |    | Copper Cable                    |                                                                                                                            |
|    | +: Connect to battery positive pole |    | Outdoor Multi-Core              | Recommended 35mm <sup>2</sup> cross-sectional area of conductor, the maximum current through the wire shall be 150A        |
|                                                                                     | -: Connect to battery negative pole |    | Copper Cable                    |                                                                                                                            |
|  | AC load port                        | L1 | Outdoor Multi-Core Copper Cable | Recommended 6mm <sup>2</sup> cross-sectional area of conductor, maximum current through the leading wire is 30A, grounding |
|                                                                                     |                                     | L2 |                                 |                                                                                                                            |
|                                                                                     |                                     | L3 |                                 |                                                                                                                            |
|                                                                                     |                                     | N  |                                 |                                                                                                                            |
|                                                                                     |                                     | PE |                                 |                                                                                                                            |

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|                                                                                                                 |                    |    |                                          |                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------|--------------------|----|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                 |                    |    |                                          | cable specifications are the same as the phase conductor                                                                                                                           |
| <div>ON-GRID</div> <div></div> | AC<br>grid<br>port | L1 | Outdoor<br>Multi-Core<br>Copper<br>Cable | Recommended 8mm <sup>2</sup><br><br>cross-sectional area of conductor, maximum current through the wire is 50A, grounding cable specifications are the same as the phase conductor |
|                                                                                                                 |                    | L2 |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | L3 |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | N  |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | PE |                                          |                                                                                                                                                                                    |
| <div></div> <div>GEN</div>    | GEN<br>port        | L1 | Outdoor<br>Multi-Core<br>Copper<br>Cable | Recommended 8mm <sup>2</sup><br><br>cross-sectional area of conductor, maximum current through the wire is 50A, grounding cable specifications are the same as                     |
|                                                                                                                 |                    | L2 |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | L3 |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | N  |                                          |                                                                                                                                                                                    |
|                                                                                                                 |                    | PE |                                          |                                                                                                                                                                                    |

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|  |  |  |  |                        |
|--|--|--|--|------------------------|
|  |  |  |  | the phase<br>conductor |
|--|--|--|--|------------------------|

6.3 Connecting the Ground Cable (PE)

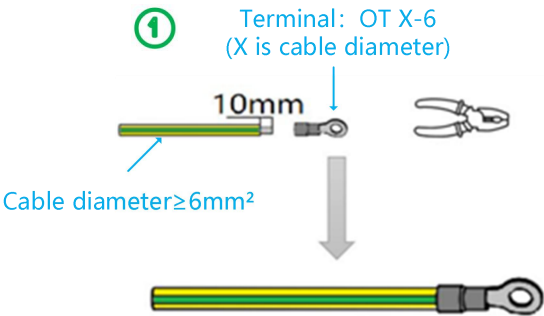


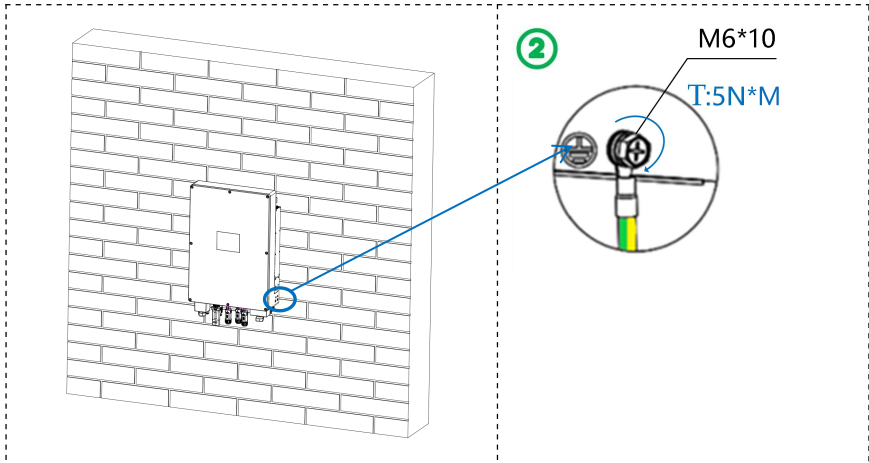
Attention

- Since the inverter is a transformer-less type, it is required that the positive and negative electrodes of the photovoltaic array cannot be grounded, otherwise the inverter will fail. In the photovoltaic power system, all non-current-carrying metal components (such as brackets, distribution cabinet enclosures, inverter enclosures, etc.) should be connected to the ground.

Figure 6.2 Schematic diagram of protection grounding

For yellow-green outdoor cables, use a wire stripper to strip the insulation layer of the ground cable to an appropriate length. Insert the wire core stripped of the insulation layer into the conductor crimping area of the OT terminal, and press it tightly with wire crimping pliers.





### 6.4 Connecting the PV Cable and the Battery Cable



#### PV series connection:

- Do not connect the same PV series to multiple inverters. Otherwise, the inverters may be damaged.
- Before connecting the PV series to the inverter, confirm the following information. Otherwise, the inverter may be permanently damaged or fire may occur, which may cause personal and property loss.
- Ensure that the maximum short circuit current and maximum input voltage of each PV are within the allowable range of the inverter.
- Ensure that the positive terminal of the PV string is connected to the PV+ of the inverter, and the negative terminal of the PV string is connected to the PV- of the inverter.



#### PV series connection:

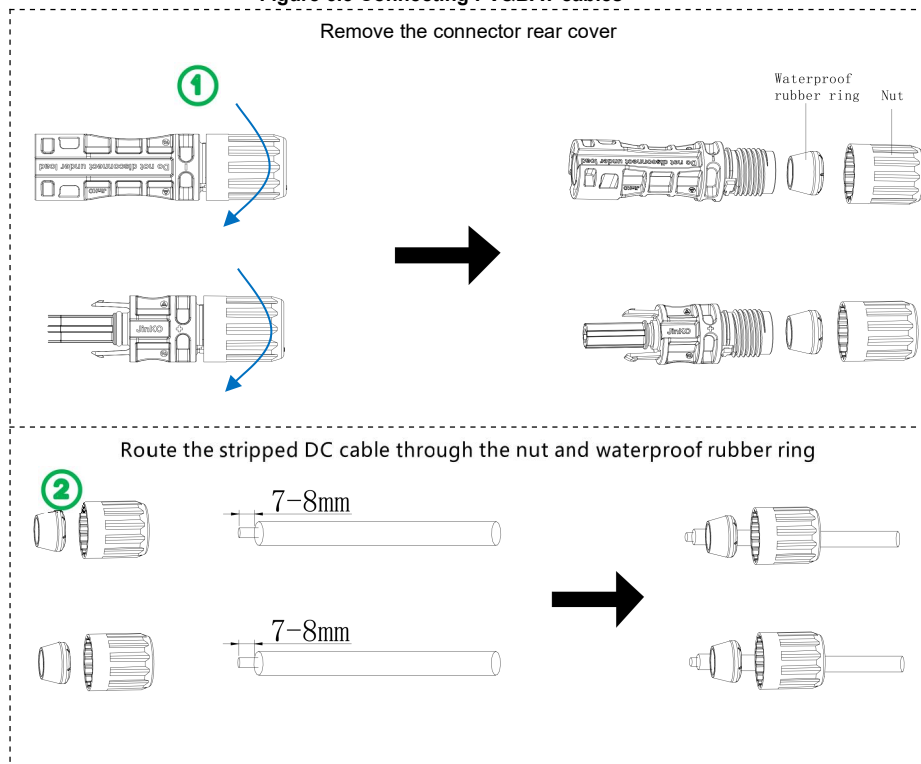
- The PV string output does not allow for grounding. Before connecting the PV string to the inverter, ensure that the minimum insulation resistance to the ground of the PV string

meets the minimum insulation impedance requirement..

### NOTE:

- 1.Before crimping the PV cables, ensure that the PV knob switch is set to OFF and the battery is powered off.
- 2.The photovoltaic module used to connect to the inverter should meet the IEC 61730 certification of grade A standard requirements, each photovoltaic series and battery input from the external circuit breaker allowed through the maximum current should be more than or equal to 30A.

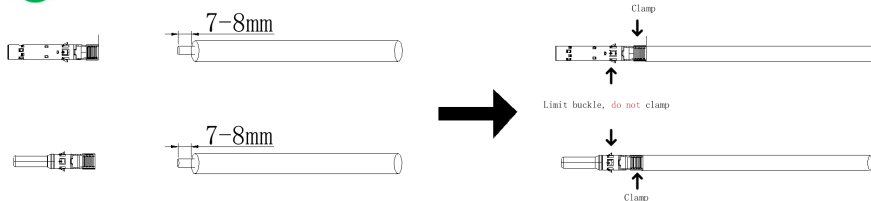
**Figure 6.3 Connecting PV&BAT cables**



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Part of the DC cable conductor is connected to the metal DC terminal and pressed by crimping pliers

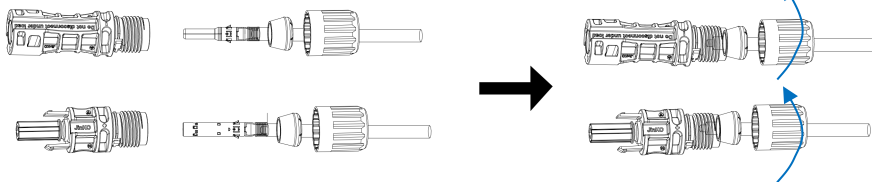
③



Insert the DC cable into the DC terminal, insert the waterproof rubber ring into the DC terminal, and

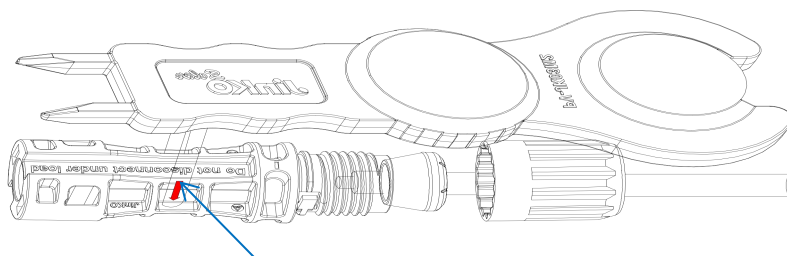
④

tighten the nut



After hearing a click sound, gently pull the cable to check whether it is fastened

Remove Terminal



### 6.5 Connect battery cable



#### Battery cable connection:

- A battery short circuit may cause personal injury. However, a short circuit may release a large amount of energy, which may cause fire.
- Before connecting the battery cable, ensure that the inverter and battery are powered off, and the front and rear switches of the device are off.
- Do not connect or disconnect battery cables when the inverter is running. Improper operations may result in electric shock.
- Do not connect the same battery string to multiple inverters. Otherwise, the inverters may be damaged.
- Do not connect loads between the inverter and the battery.
- When connecting battery cables, use insulation tools to prevent accidental electric shock or battery short circuit.
- Ensure that the open circuit battery voltage is within the allowable range of the inverter.



#### Battery cable connection:

- When connecting cables, the battery cable matches BAT+ and BAT- on the battery terminal.
- Ensure that the cable core is fully connected into the wiring hole of the terminal.
- Ensure that the cables are securely connected. Otherwise, the terminal may overheat and damage the device.

#### Connection Procedure:

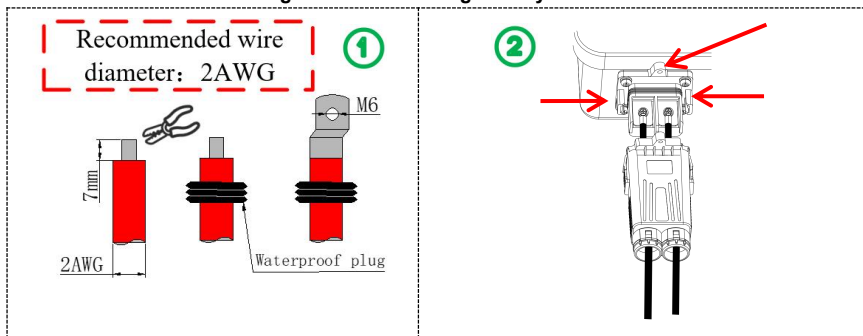
1. **Correct Polarity is Critical:** Connect BAT+ to BAT+ and BAT- to BAT-.
2. **Secure Connection:** Fully insert the cable core into the terminal and tighten firmly. The torque for the cover screw is 5 N.m
3. **Verification:** Gently pull the cable to confirm it is securely fastened.
4. **Protective Shield:** After connecting the cables, secure the port protective cover onto the battery terminal by snapping it into place. The cover features snap tabs on

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both sides and a locking screw at the top, with a torque requirement of 0.65 N.m

5. **Dismantling Method:** First remove the locking screw, then press down on the two side buckles to remove it

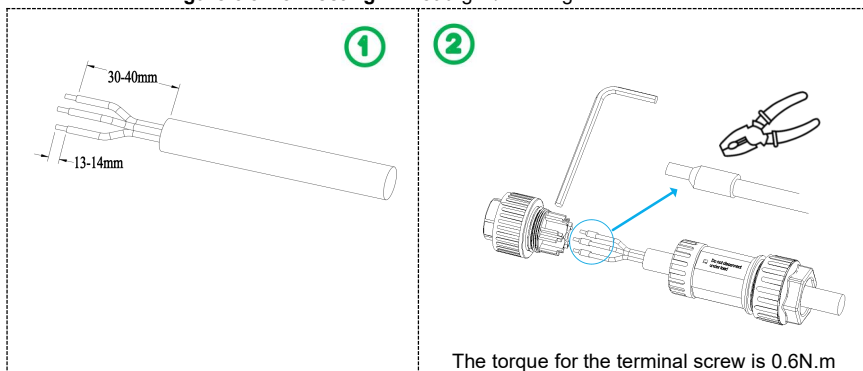
Figure 6.4 Connecting Battery cables



The maximum current allowed to pass through the circuit breaker used for external connection of batteries should be greater than or equal to 150A

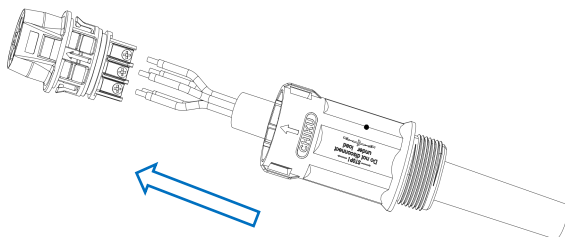
### 6.6 Connect AC Load/grid/Diesel generator Cable

Figure 6.5 Connecting AC load/grid/Diesel generator cables

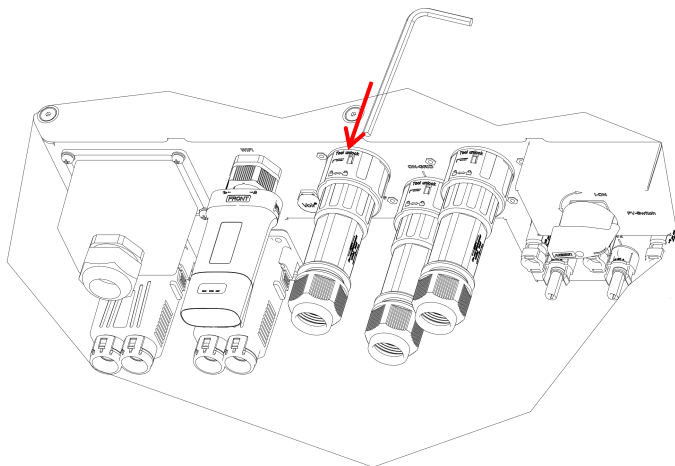


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③



④



means for disconnecting AC terminal: Press the buckle at the notch with a tool and apply outward force to remove the cable terminal

The maximum current allowed through the circuit breaker for off-grid load to the external connection should be greater than or equal to 30A.

The maximum current allowed through the circuit breaker for grid or Diesel generator to the external connection should be greater than or equal to 50A.

### 6.7 Installation of Communication Dongle

The communication collector is an external component that you need to select by

yourself.

The collector is connected. The default WIFI/ Bluetooth module is used for remote monitoring and control of the inverter.

Figure 6.6 Communication interface and installation and disassembly diagram

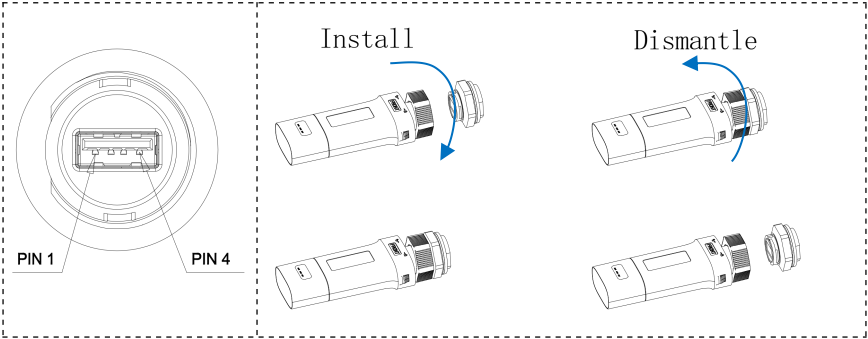


Table 6-2 Indicators on the AGN8 WIFI Dongle

| LED         | state                                                                         | Specific meanings                                               |
|-------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------|
| RUN&COM&NET | Alternating flashing (cycle 1500ms, each light flashes for 500ms in sequence) | Self test mode                                                  |
|             | Flashing together (cycle 1 second, off 900ms, on 100ms)                       | Dongle is currently upgrading (including Bluetooth App upgrade) |
|             | Illuminate together for 5 seconds                                             | Dongle upgrade failed                                           |
| RUN         | Slow flashing (on for 1 second and off for 1 second)                          | Dongle is running normally                                      |
|             | Light off                                                                     | Dongle running abnormally                                       |
|             | Twice flashing (on (off) 100ms, off (on) 100ms, twice)                        | Dongle sends Bluetooth data to the app                          |
| COM         | Flash (on for 200ms, off for 200ms)                                           | Dongle time not synchronized (scanning                          |

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|     |                                                      |                                        |
|-----|------------------------------------------------------|----------------------------------------|
|     |                                                      | will not start)                        |
|     | Light off                                            | Abnormal southbound communication      |
|     | Flashing once (on (off) 100ms, off (on) 100ms, once) | Normal southbound communication        |
| NET | Flash                                                | Connecting to WiFi                     |
|     | Light off                                            | Connecting to MQTT                     |
|     | Slow flashing                                        | Connecting to platform                 |
|     | Always on                                            | Successfully connected to the platform |
|     | Twice flashing                                       | Dongle sends platform data             |

**Table 6-3 Meaning of AGN9 4G Dongle indicator light**

| LED         | state                                                  | Specific meanings                                        |
|-------------|--------------------------------------------------------|----------------------------------------------------------|
| RUN&COM&NET | /                                                      | /                                                        |
| RUN         | Always on                                              | The process from power on to initialization              |
|             | Flash (with an interval of 100ms)                      | Gateway initialization completed, flashing for 5 seconds |
|             | Twice flashing (on (off) 100ms, off (on) 100ms, twice) | Slow flashing (with an interval of 1 second)             |
| COM         | /                                                      | /                                                        |
| NET         | Always on                                              | Looking for the internet or on a call                    |
|             | Flash (interval 200ms)                                 | Data connection established or network registered        |

|  |                                           |                             |
|--|-------------------------------------------|-----------------------------|
|  | Slow flashing (with an interval of 800ms) | 2G/3G network<br>registered |
|  | Light off                                 | Shutdown or module<br>sleep |

6.8 Connecting the Communication Port

Multifunctional communication port, including meter communication, BMS communication, DRMS and external dry contact signal.

**Step 1:** Route the communication cables through the waterproof cover and waterproof plug of the signal port, and connect the cables to the communication port on the corresponding device.

**Step 2:** Fasten the waterproof cover with screws and tighten the waterproof nut.

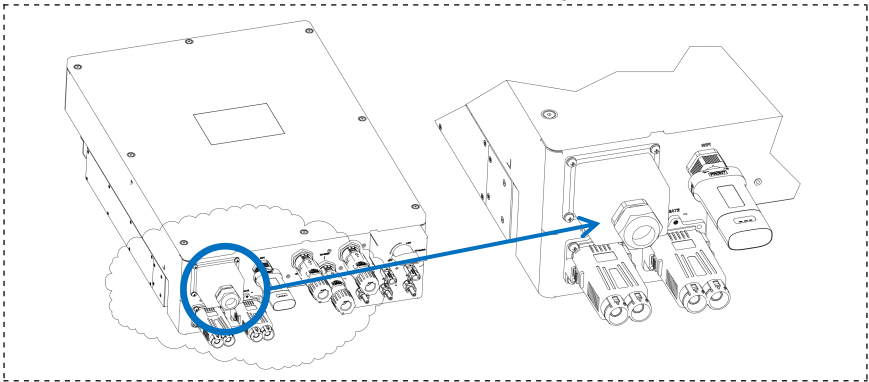
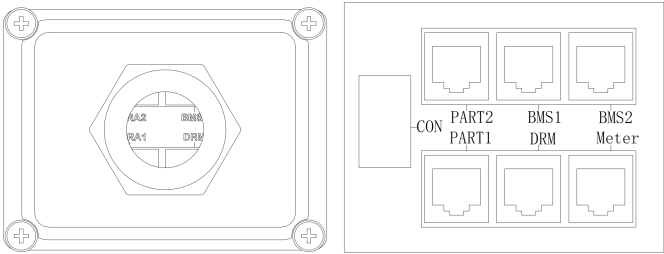


Figure 6.7 Interface diagram



Communication cover screw torque: 1.6 N · m

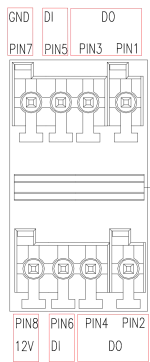


Table 6-4 Port description

| PIN   | Definition                                                         |
|-------|--------------------------------------------------------------------|
| CON   | Function of heat pump/diesel generator multiplexed DO&DI interface |
| METER | Electric meter communication interface                             |
| BMS1  | BMS1 CAN port &EMS RS485 multiplex port                            |
| BMS2  | BMS2 CAN port &EMS RS485 multiplex port                            |
| DRM   | DRMs function                                                      |

Figure 6.8 Sequence of RJ45 crystal terminals

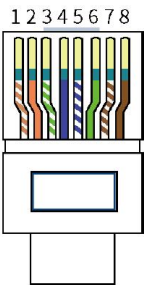


Table 6-5 RJ45 cable sequence colors

| 1      | 2      | 3      | 4    | 5     | 6     | 7      | 8     |
|--------|--------|--------|------|-------|-------|--------|-------|
| Orange | Orange | Green& | Blue | Blue& | Green | Brown& | Brown |

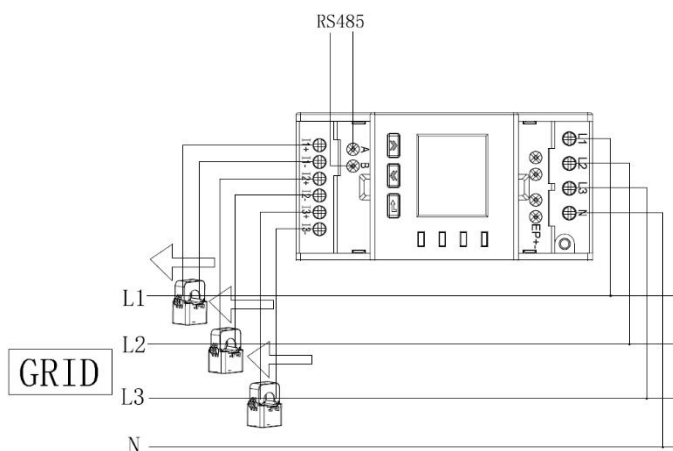
|        |  |       |  |       |  |       |  |
|--------|--|-------|--|-------|--|-------|--|
| &White |  | White |  | White |  | White |  |
|--------|--|-------|--|-------|--|-------|--|

## 6.8.1 Smart Meter Connection

On the smart electricity meter, L and N are respectively connected to the L and N lines of the power grid.

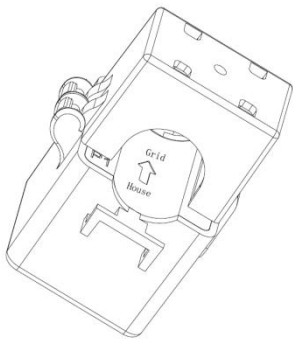
Current measurement requires connection through an current transformer. The I+ and I- on the electricity meter are respectively connected to the positive and negative leads of the current transformer, and then the current transformer is inserted into the L phase of the power grid. EP+ and EP- are the calibration ports for the mechanism. Users do not need to connect to this port. The detailed wiring diagram is shown in Figure 6.9.

**Figure 6.8 Smart meter terminal wiring diagram**



The grooves of the current transformer have arrows for current flow, as shown in Figure 6.8. The tip of the arrows points to the power grid.

**Figure 6.9. Direction of current transformer cable**



According to Table 6-6, connect ports 8 and 7 of the RJ45 cable terminals on the METER corresponding to RS485-A and RS485-B on the meter corresponding to Figure 6.10.

Table 6-6 Smart meter interface description

| PIN | Colour          | Definition  | Function                       | Note                                |
|-----|-----------------|-------------|--------------------------------|-------------------------------------|
| 1-6 | /               | /           | /                              | /                                   |
| 7   | Brown&<br>White | RS485_B-EEM | RS485 differential<br>signal B | Smart meter<br>485<br>communication |
| 8   | Brown           | RS485_A-EEM | RS485 differential<br>signal A |                                     |

6.8.2 BMS Communication Connection

Table 6-7 Description of BMS1 ports

| PIN | Color             | Definition   | Function                        | Note                                          |
|-----|-------------------|--------------|---------------------------------|-----------------------------------------------|
| 1   | Orange &<br>White | RS485-A1-BMS | RS485 differential<br>signal A1 | BMS1 CAN port<br>&EMS RS485<br>multiplex port |
| 2   | Orange            | RS485-B1-BMS | RS485 differential<br>signal B1 |                                               |

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|     |                |             |                     |     |
|-----|----------------|-------------|---------------------|-----|
| 3   | /              | /           | /                   |     |
| 4   | Blue           | CANA-H1-BMS | CAN high level data |     |
| 5   | Blue&<br>White | CANA-L1-BMS | CAN low level data  |     |
| 6   | Green          | GND         | GND                 | GND |
| 7~8 | /              | /           | /                   |     |

**Table 6-8 Description of BMS2 ports**

| PIN | Color             | Definition   | Function                        | Note                                          |
|-----|-------------------|--------------|---------------------------------|-----------------------------------------------|
| 1   | Orange &<br>White | RS485-A2-BMS | RS485 differential<br>signal A2 | BMS1 CAN port<br>&EMS RS485<br>multiplex port |
| 2   | Orange            | RS485-B2-BMS | RS485 differential<br>signal B2 |                                               |
| 3   | /                 | /            | /                               |                                               |
| 4   | Blue              | CANA-H2-BMS  | CAN high level data             |                                               |
| 5   | Blue&<br>White    | CANA-L2-BMS  | CAN low level data              |                                               |
| 6   | Green             | GND          | GND                             | GND                                           |
| 7~8 | /                 | /            | /                               |                                               |

**Note:** Communication with lithium batteries requires attention to the battery's communication port sequence and pin definition.

### 6.8.3 DRMS/DI Connection

**Table 6-9 Description of DRM ports**

| PIN | Color | Definition | Function | Note |
|-----|-------|------------|----------|------|
|-----|-------|------------|----------|------|

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|   |                   |          |                                                                                                               |               |
|---|-------------------|----------|---------------------------------------------------------------------------------------------------------------|---------------|
| 1 | Orange<br>& White | DRM1/5   | The DRMS interface is applicable to the Australian AS-NZS-4777.2 (some European requirements) safety standard | DRMs function |
| 2 | Orange            | DRM2/6   |                                                                                                               |               |
| 3 | Green & White     | DRM3/7   |                                                                                                               |               |
| 4 | Blue              | DRM4/8   |                                                                                                               |               |
| 5 | Blue & White      | REF GEN  |                                                                                                               |               |
| 6 | Green             | COM LOAD |                                                                                                               |               |
| 7 | Brown & White     | /        | /                                                                                                             | /             |
| 8 | Brown             | /        | /                                                                                                             | /             |

**Table 6-10 Description of dry contact ports**

|      | PIN | Definition | Note                      |
|------|-----|------------|---------------------------|
| DO 1 | 2   | OP1_NO     | External dry contact port |
|      | 4   | OP1_COM    |                           |
| DO 2 | 1   | OP2_NO     |                           |
|      | 3   | OP2_COM    |                           |
| /    | 5-6 | /          | /                         |

## 7 Inverter Operation

This chapter provides comprehensive instructions for operating your Isuna D6~12K-TL-AU hybrid inverter system. It covers pre-operation checks, startup/shutdown procedures, working mode configurations, and status indicator interpretations. Always follow these guidelines to ensure safe and efficient system operation.

### 7.1 Pre-power-on Inspection

**Table 7-1: Pre-Operation Checklist**

| Serial | Inspection Item | Check the entry |
|--------|-----------------|-----------------|
|--------|-----------------|-----------------|

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|   |                                   |                                                                                                                                                                               |
|---|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Mounting Security                 | Inverter securely mounted to wall bracket                                                                                                                                     |
| 2 | Cable Management                  | All cables properly routed, bundled, and undamaged                                                                                                                            |
| 3 | DC Connections                    | PV/Battery cables connected with correct polarity; voltages within specified range                                                                                            |
| 4 | DC Switch State                   | DC switch (The inverter-integrated PV switch or external circuit breaker for connecting the battery, or the switch built into the battery) properly installed in OFF position |
| 5 | Grid Connection                   | AC circuit breaker between inverter and grid properly installed and DISCONNECTED                                                                                              |
| 6 | Load Connection                   | AC circuit breaker between inverter and load properly installed and DISCONNECTED                                                                                              |
| 7 | BMS Communication (if applicable) | Lithium battery communication cables properly connected (if applicable)                                                                                                       |
| 8 | Generator Connection              | AC circuit breaker between inverter and generator properly installed and DISCONNECTED (if applicable)                                                                         |

### 7.2 Startup Procedure

Follow these steps in sequence to safely power on the inverter:

#### Startup Steps:

1. **Confirm State:** Ensure the inverter is in a complete shutdown state (no LEDs illuminated).
2. **Enable Grid Connection:** Close the AC circuit breaker connecting the inverter's **ON-GRID** port to the public grid.
3. **Enable PV Input (if applicable):** Turn the **PV DC switch** on the inverter to the **ON** position.
4. **Enable Battery:** Power on the battery system and close the **DC switch** between the battery and the inverter.
5. **Inverter Startup:** The inverter will perform an automatic self-test. Upon success, it will begin normal operation.

6. **Enable Backup Load:** Close the AC circuit breaker connecting the inverter's **BACK-UP** port to the backup loads.

### 7.3 Shutdown Procedure

Follow these steps in sequence to safely power off the inverter.

#### Shutdown Steps:

1. **Disconnect Grid:** Open the AC circuit breaker between the inverter's **ON-GRID** port and the public grid.
2. **Disable PV Input:** Turn the **PV DC switch** on the inverter to the **OFF** position.
3. **Disable Battery:** Power off the battery and open the **DC switch** between the battery and the inverter.
4. **Disconnect Loads:** Open the AC circuit breaker between the inverter's **BACK-UP** port and the backup loads.

### 7.4 Working Mode

The inverter supports multiple operating modes to optimize energy usage based on your needs. Configure these via the monitoring App.

#### 7.4.1 Self-use Mode (default mode)

**Mode Function:** Maximizes self-consumption of solar energy, minimizing grid usage

**Energy Priority:** Solar → Battery → Grid

**Usage scenarios:** Indoor and outdoor unconditioned

(The indoor environment needs to ensure air circulation, with no corrosive gases, conductive dust, or oil mist in the air. The intake and exhaust channels should be kept unobstructed, and the ambient temperature should meet the rated working conditions of the equipment.)

#### Temperature sensor (Battery Inverters-Lead Acid Batteries):

The product does not support remote battery temperature monitoring.

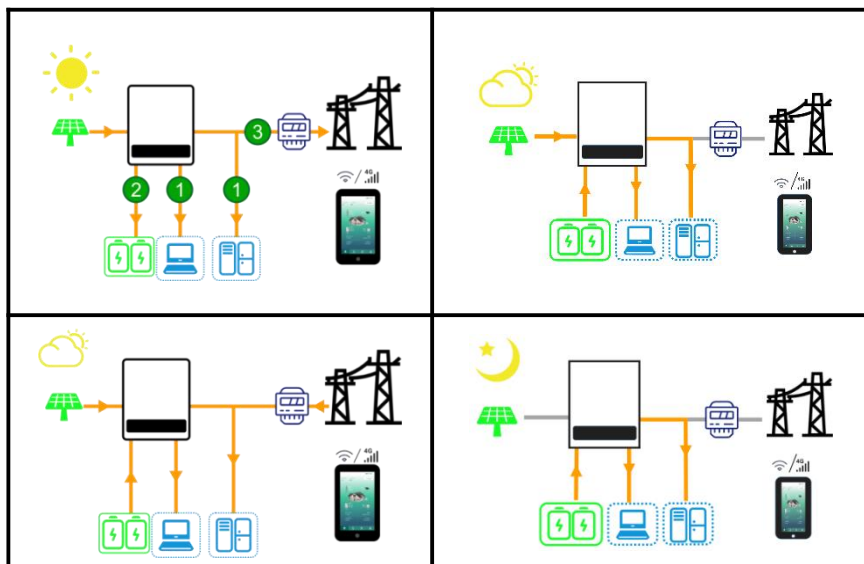
An inverter with storage connections will need to provide a means for temperature compensation of the battery charge voltages. This is particularly important for use with lead acid batteries in warm climates, to avoid damage to battery banks by overcharging in hot weather, and related hazards due to release of hydrogen gas and cell rupture. Most stand-alone inverters control this function via a remote temperature sensor which is attached to the battery bank. The Isuna D6~12K-TL-S-AU does not include a connection terminal for a

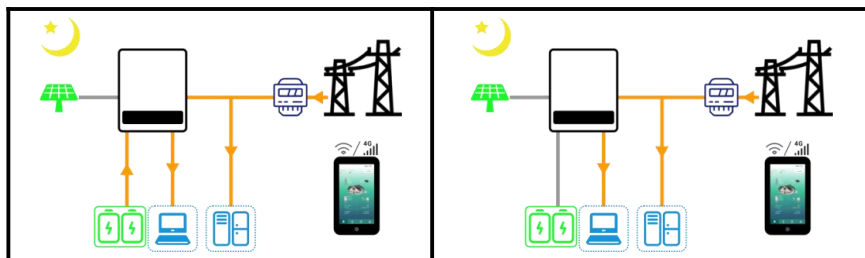
## Isuna D6~12K-TL-S-AU

remote battery temperature sensor. If installing Isuna D6~12K-TL-S-AU with lead acid batteries please check with Shenzhen Sinexcel Isuna Energy Technology Co., Ltd for advice regarding charge settings.

### Operational Behavior:

- *Sufficient Solar:* Powers loads → charges battery → exports to grid
- *Insufficient Solar:* Solar + battery power loads
- *Low Solar/Battery:* Solar + battery + grid power loads
- *No Solar:* Battery powers loads (if sufficient)
- *Grid Outage:* Solar + battery power loads independently.





### 7.4.2 Timed Charge/Discharge Mode

**Mode Function:** Scheduled battery operations based on time-of-use rates

#### Charge Period (Typically Night):

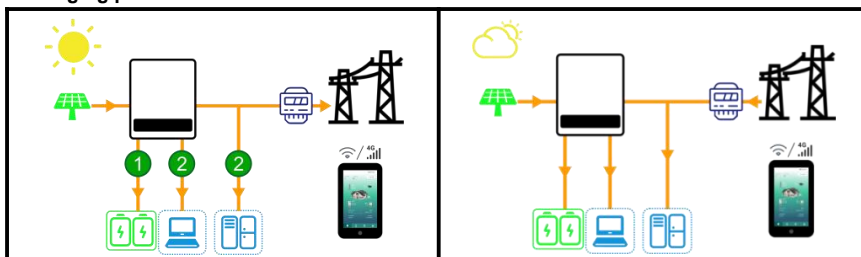
- Solar → battery charging → load powering
- Grid → battery charging → load powering.

#### Discharge Period (Typically Day):

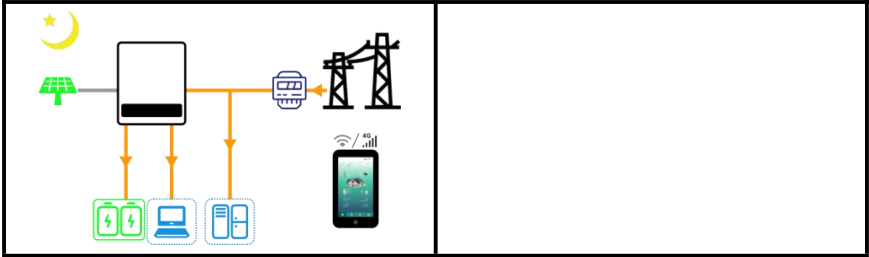
- Solar → load powering
- Solar + battery → load powering
- Battery → load powering (if no solar)

*Note: Charging/Discharging power and periods are user-defined via the App.*

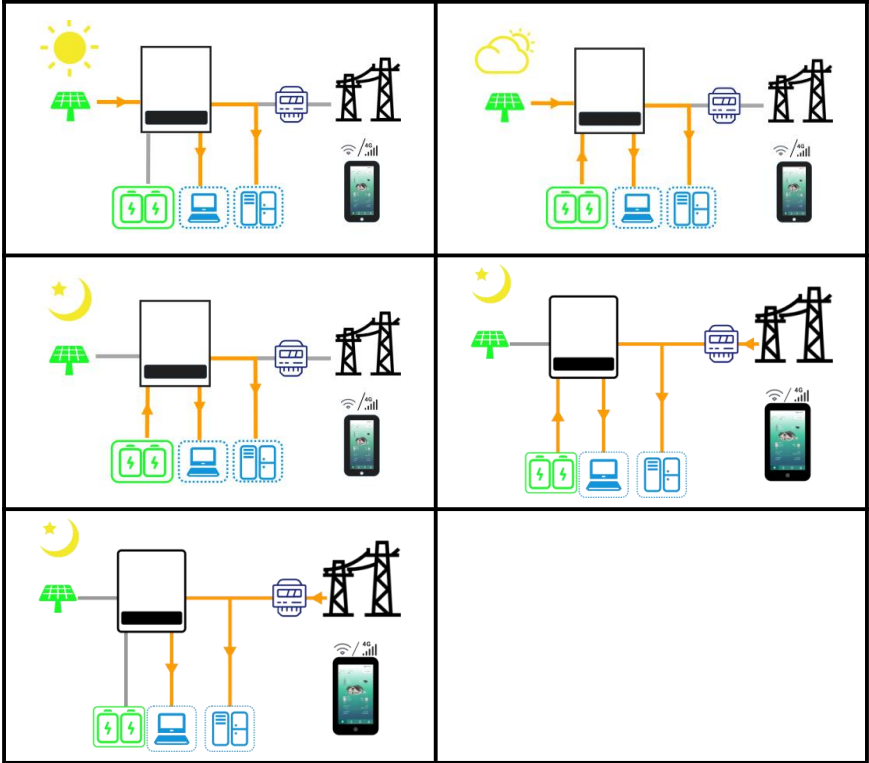
#### Charging period:



Isuna D6~12K-TL-S-AU



Discharge period:



7.4.3 Backup Mode/Disaster Recovery Mode

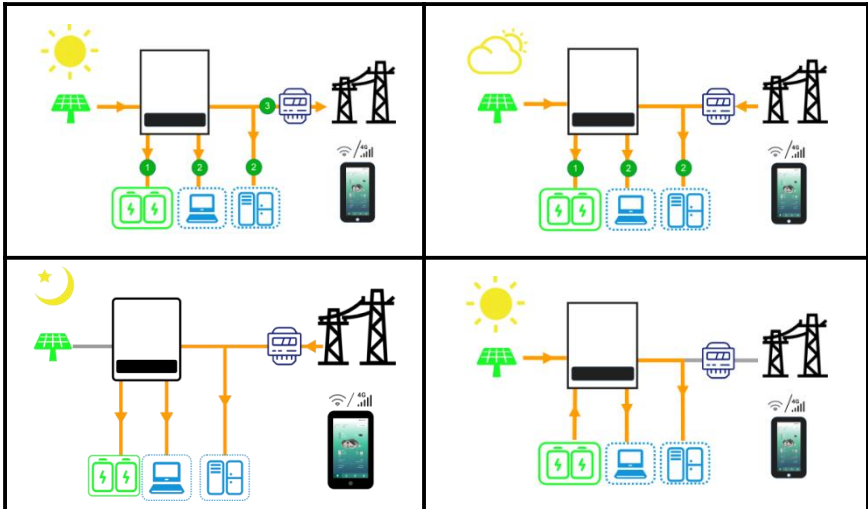
**Mode Function:** Maintains battery at full charge for emergency backup during grid outages

## Isuna D6~12K-TL-S-AU

**Energy Priority:** Grid/Solar → Battery → Loads → Grid

**Operational Behavior:**

- *Grid Available:* Priority battery charging → then load powering
- *Grid Outage:* Solar + battery power backup loads



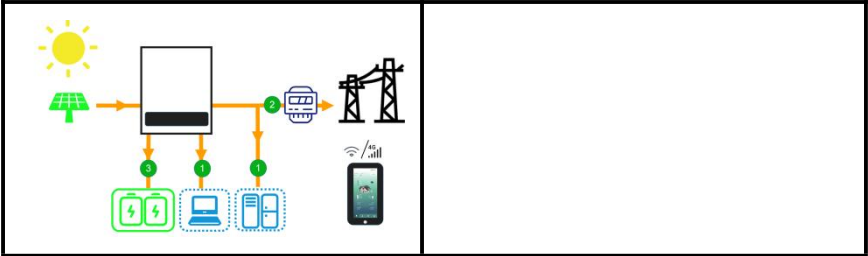
### 7.4.4 Priority Feed to Grid Mode

**Mode Function:** Maximizes solar energy export to grid for feed-in tariff revenue

**Energy Priority:** Loads → Grid → Battery

**Operational Behavior:**

- *Excess Solar:* Powers loads → exports to grid → charges battery
- *Other Conditions:* Operates in Self-Use mode



7.5 Operation Status and Indicators

7.5.1 Inverter Operation Mode Description

Table 7-1 Inverter operating modes

| Series No. | Mode            | Description                                                                               |
|------------|-----------------|-------------------------------------------------------------------------------------------|
| 1          | Standby         | Initial state after power is applied. Waits for conditions to be met to begin self-check. |
| 2          | Self-check mode | Performs internal diagnostics and initialization.                                         |
| 3          | On-grid mode    | Normal operation, connected to and exchanging power with the grid.                        |
| 4          | Off-grid mode   | Powers the load independently when the grid is unavailable.                               |
| 5          | Fault mode      | Operation halted due to a detected error. Requires intervention.                          |

8 Screen Usage Instructions

8.1 Introduction to Screen Functions

This screen is a capacitive touch screen, which controls the display content and data transmission by establishing serial communication with the inverter.Its functions include:

- Monitor the system data, alarm information, software version, etc. of the inverter

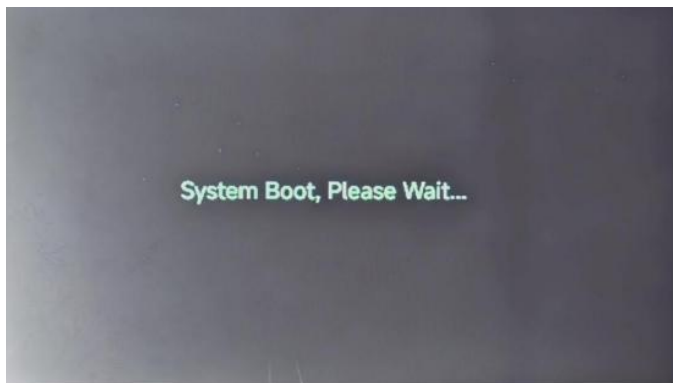
- Set the parameters of the inverter
- Maintain the inverter

## 8.2 Screen Operation Instructions

### 8.2.1 Inverter data viewing

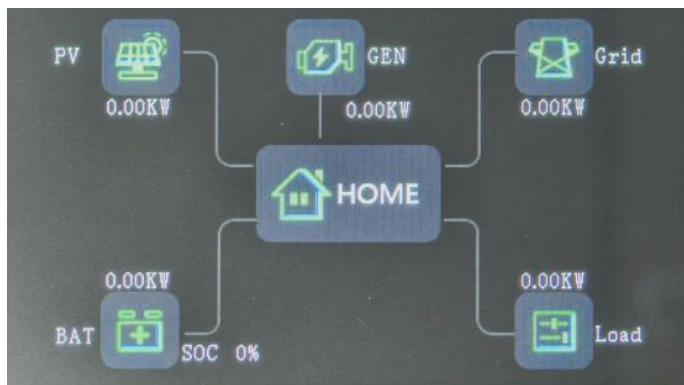
- **Screen home page**

After the inverter is powered on, the screen enters the initialization interface and then switches to the main interface after 15 seconds.

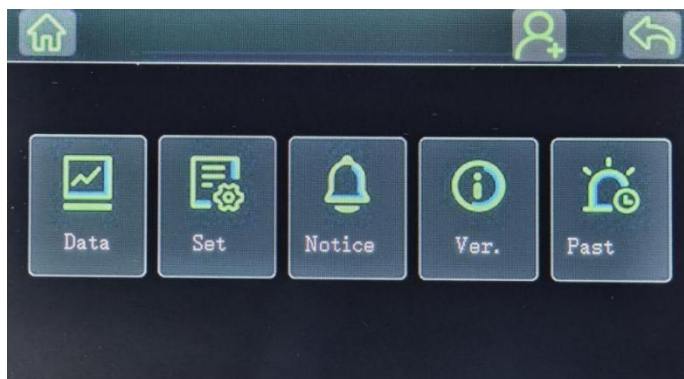


The main interface allows you to directly view the operating power and flow of the main units: PV, Grid, Bat, and Load.

**Note:** The generator unit can only display when the generator function is activated.



The components of the HOME page are: measurement data, parameter settings, notification information, version information, historical events, return to the main interface (upper left), and return to the parent level (upper right).

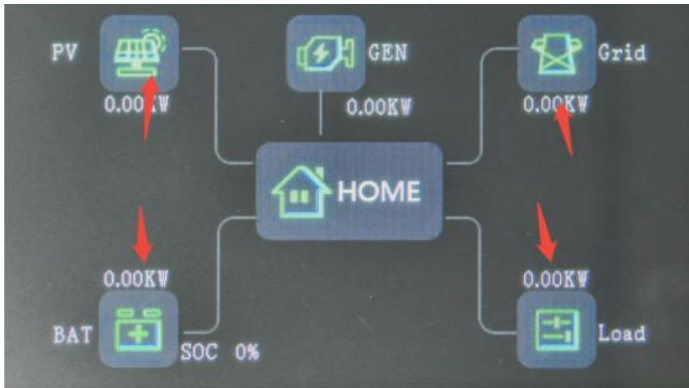


- **Data viewing**

Data viewing includes measurement data for each unit, current alarm information of the inverter, inverter version information, and historical events of the inverter.

1. The data of the four units -PV, Grid, BAT and Load - can be directly accessed by clicking on the unit charts on the main interface for viewing.

## Isuna D6~12K-TL-S-AU

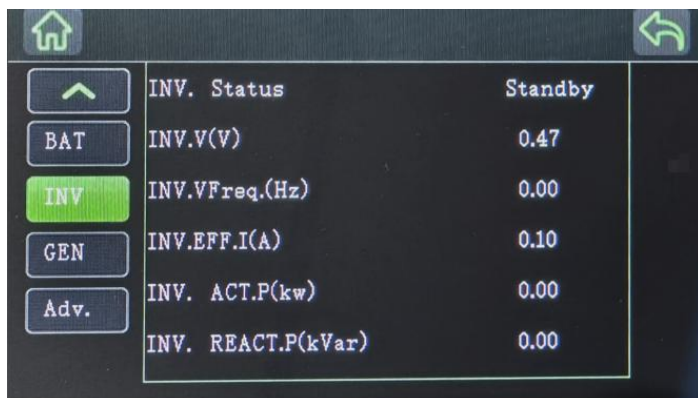


The screenshot shows the 'HOME' menu with a list of measurement data. The 'Grid' button is highlighted. The data is as follows:

| Unit | Measurement          | Value |
|------|----------------------|-------|
| Grid | PurchasedE(kWh)      | 0.00  |
|      | FeedInE(kWh)         | 0.00  |
|      | DailyPurchasedE(kWh) | 0.00  |
|      | DailyFeedInE(kWh)    | 0.00  |
|      | GridV(V)             | 0.36  |
|      | GridVFreq(Hz)        | 0.00  |

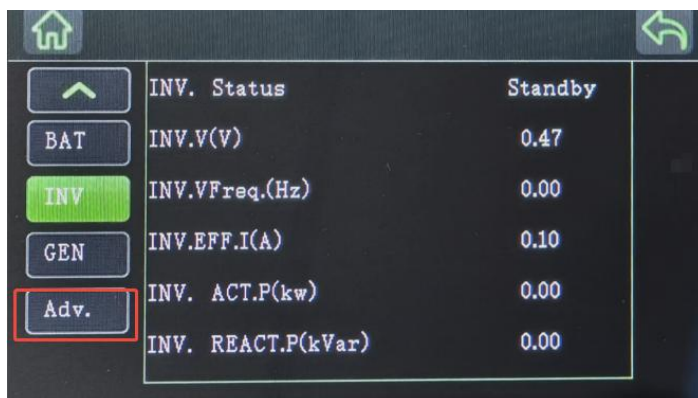
2. Other units: Electricity meter, Inverter, Generator. Click on the data. Go to "HOME" > Click on "Measurement Data" to enter and view.

## Isuna D6~12K-TL-S-AU



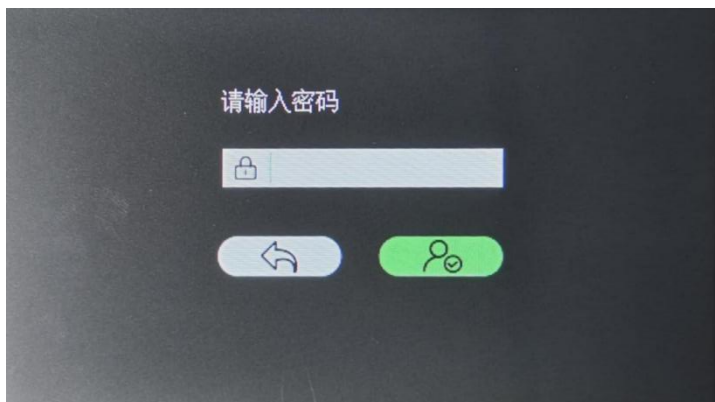
|                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |
|  | INV. Status Standby                                                               |
| BAT                                                                               | INV.V(V) 0.47                                                                     |
| INV                                                                               | INV.VFreq.(Hz) 0.00                                                               |
| GEN                                                                               | INV.EFF.I(A) 0.10                                                                 |
| Adv.                                                                              | INV. ACT.P(kw) 0.00                                                               |
|                                                                                   | INV. REACT.P(kVar) 0.00                                                           |

3.For more advanced measurement data, please contact the manufacturer to obtain the password for viewing.



|                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |
|  | INV. Status Standby                                                               |
| BAT                                                                               | INV.V(V) 0.47                                                                     |
| INV                                                                               | INV.VFreq.(Hz) 0.00                                                               |
| GEN                                                                               | INV.EFF.I(A) 0.10                                                                 |
| Adv.                                                                              | INV. ACT.P(kw) 0.00                                                               |
|                                                                                   | INV. REACT.P(kVar) 0.00                                                           |

## Isuna D6~12K-TL-S-AU

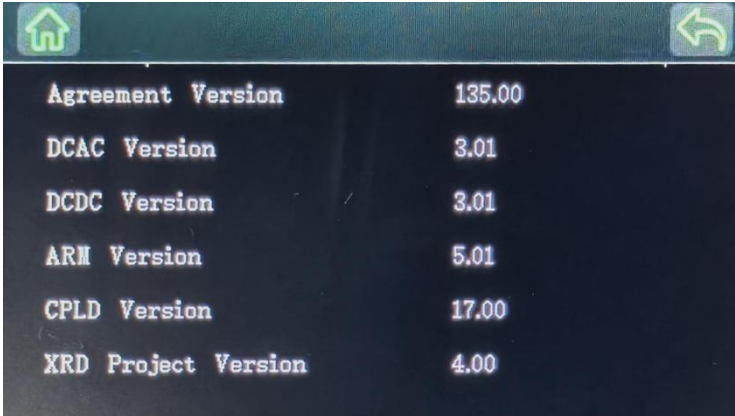


4..Click on "HOME", then click on "Notice" to access and view the current alarm information of the inverter.

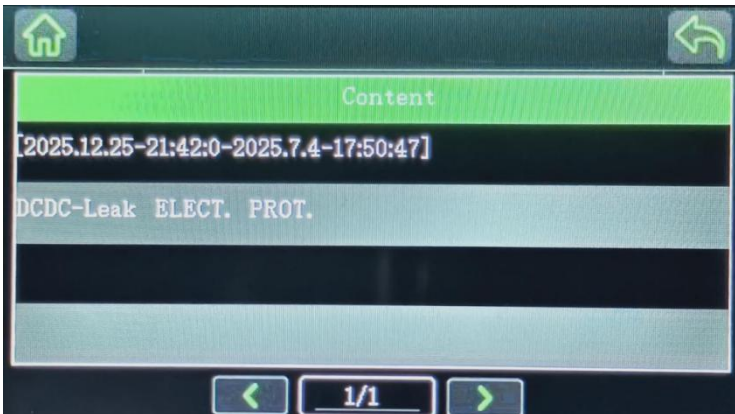
A screenshot of the Isuna D6~12K-TL-S-AU interface showing alarm information. The screen has a dark background with a green header bar. The header bar contains a home icon on the left and a back arrow icon on the right. Below the header bar is a table with two columns: "Time" and "Content". The table has five rows of data. At the bottom of the screen, there are three buttons: a green left arrow, a button with "1/2", and a green right arrow.

| Time            | Content                |
|-----------------|------------------------|
| 25.7.14-9:47:40 | DCDC-Leak ELECT. PROT. |
| 25.7.14-9:47:40 | DCDC-Model CAP. Fault  |
| 25.7.14-9:47:43 | DCAC-Grid V. Error     |
| 25.7.14-9:47:43 | DCAC-Leak ELECT. PROT. |
| 25.7.14-9:47:43 | DCAC-Fan Fault         |

5.Click on "HOME", then click on "Ver" to access and view the inverter version information.



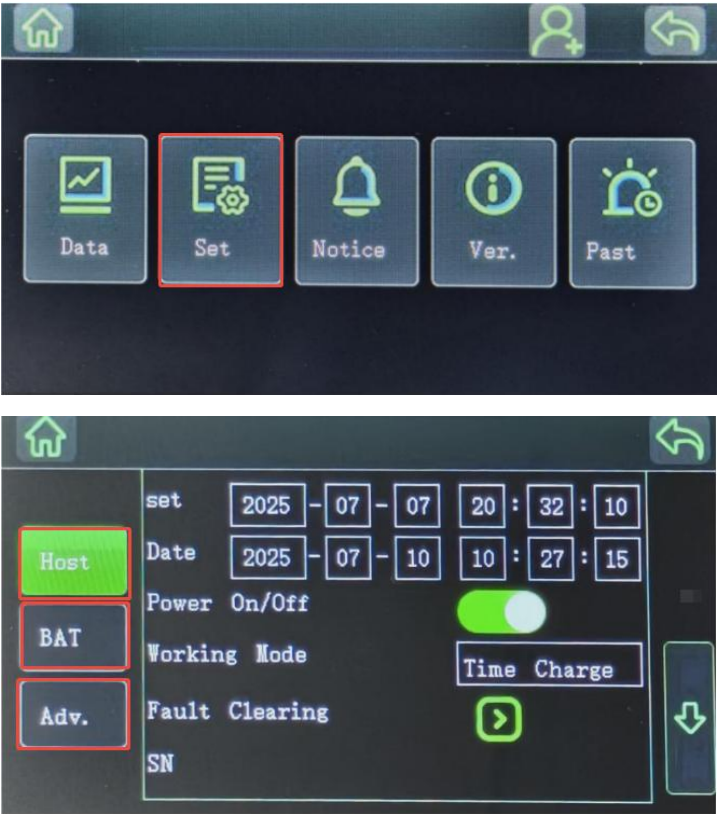
6. Click on "HOME", then click on "History Events" to access and view the historical alarm information of the inverter.



### 8.2.2 Inverter parameter settings

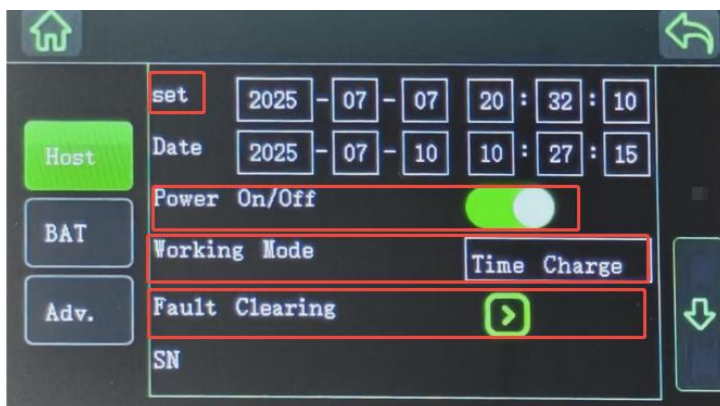
Click on "HOME", then click on "Set" to enter the settings page. The main sections include:

Host Settings, Battery Settings, and Advanced Settings.



1.The host settings include: power-on/off instructions, date setting, working mode setting, and fault clearing.

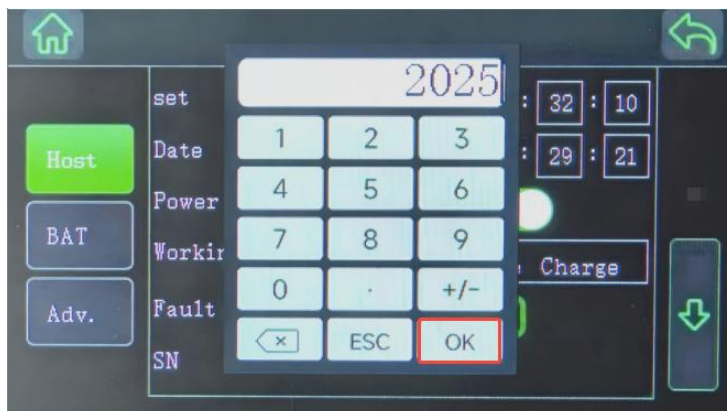
## Isuna D6~12K-TL-S-AU



### 1.1.Date setting

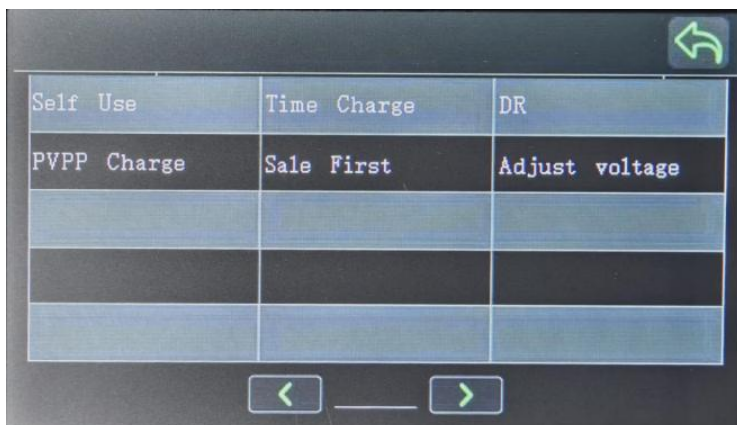
Click on each of the time setting boxes in the "set" row, and set the parameters of year, month, day, hour, minute and second respectively.

After inputting, click "ok" to confirm the settings.

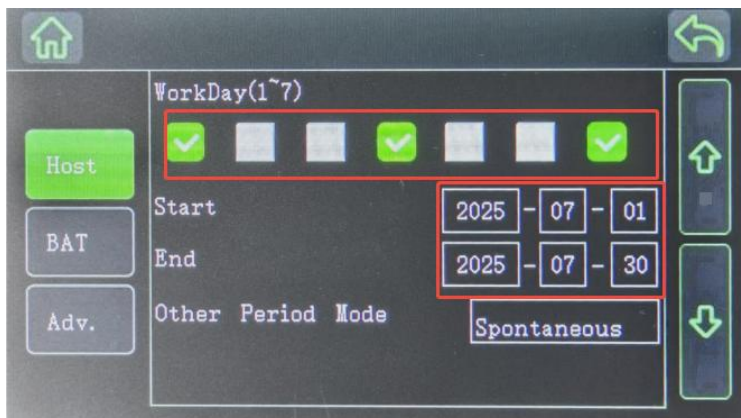


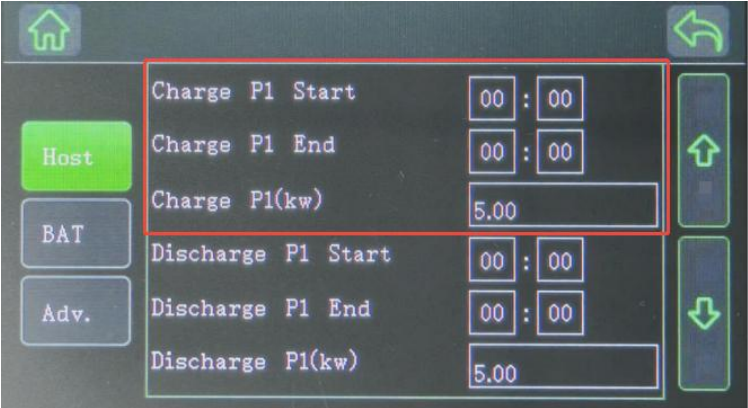
**1.2 The work mode settings include:** self-generation and self-consumption, timed charging and discharging, backup, priority charging of photovoltaic power, priority selling of electricity, and voltage regulation.

## Isuna D6~12K-TL-S-AU

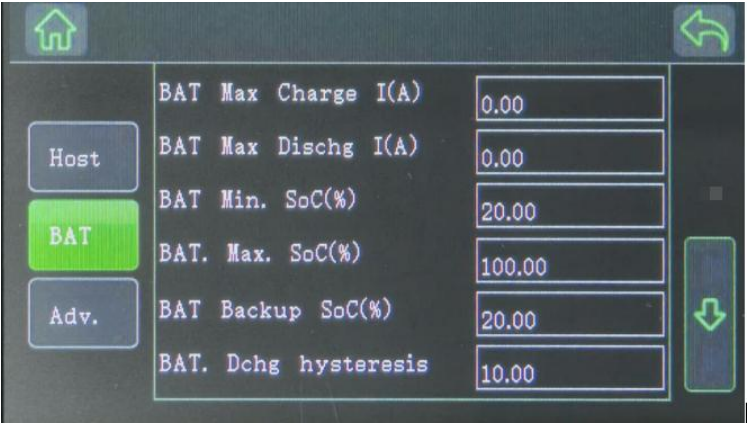


**Note:** If you set the timed charging and discharging mode, please click  to the next page, set the effective time periods for charging and discharging as needed (at least set one charging and discharging period, and ensure that the charging and discharging periods do not overlap or intersect.)





2. **Battery settings include:** battery charging and discharging current settings, and battery SOC settings.



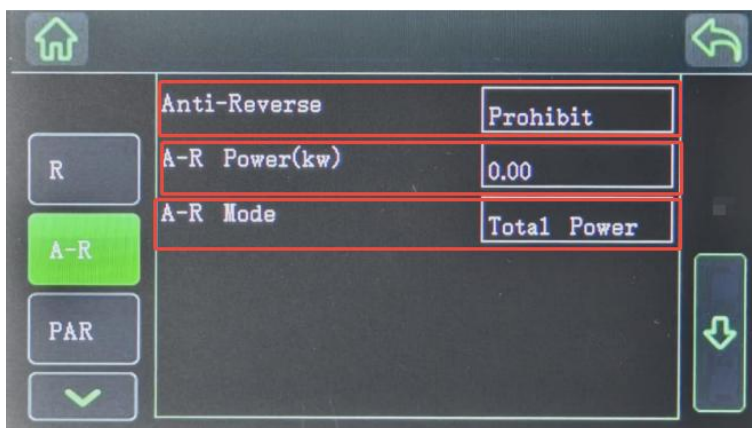
3. Advanced Settings

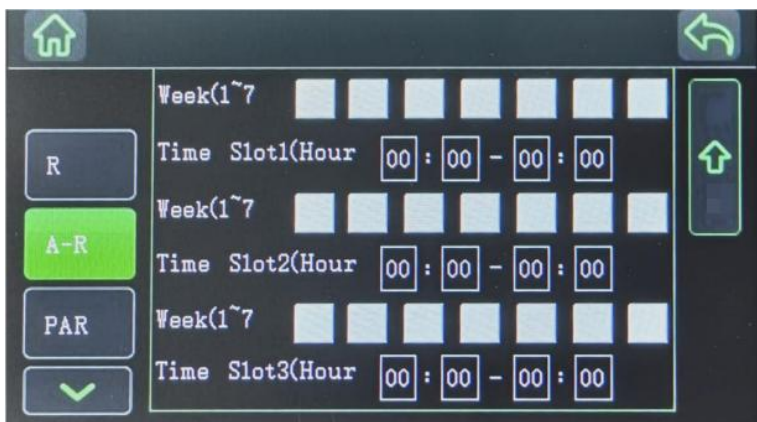
**Note:** For advanced settings parameters, please contact the manufacturer to obtain the password settings.

3.1 Anti-Reverse setting

Click on HOME > Set > Advanced > Enter Password > R > Anti-Reverse. Set the anti-reverse period, power and mode as needed.

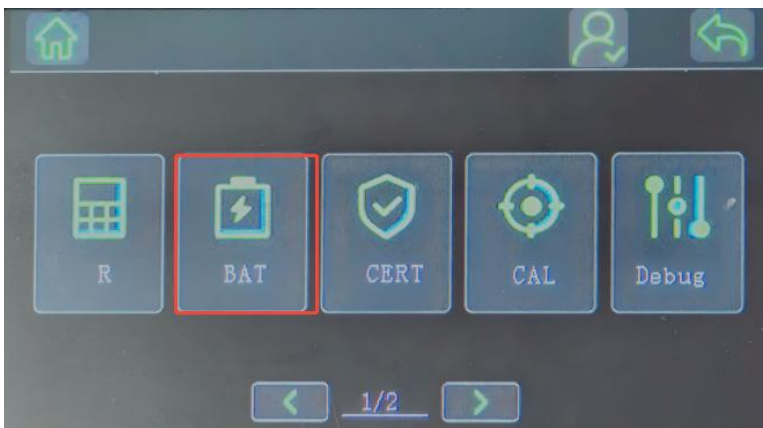
## Isuna D6~12K-TL-S-AU



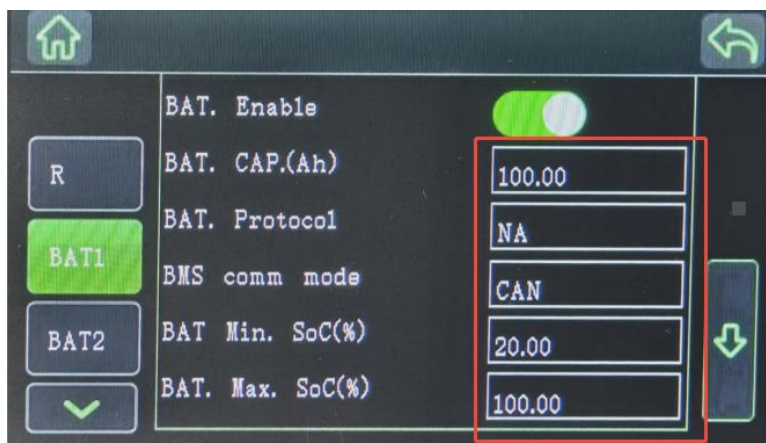
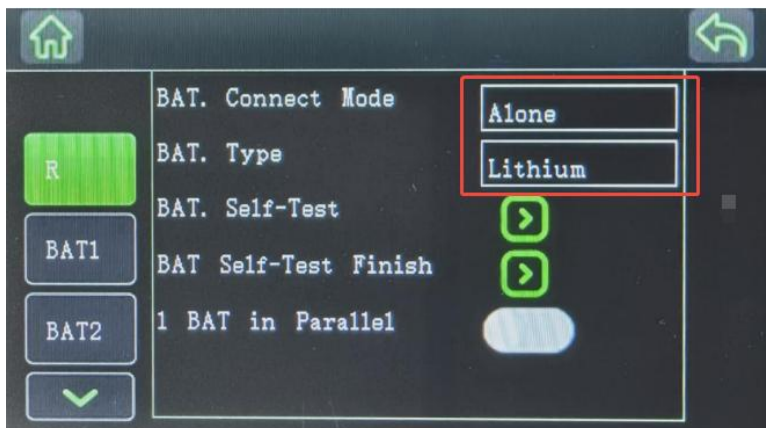


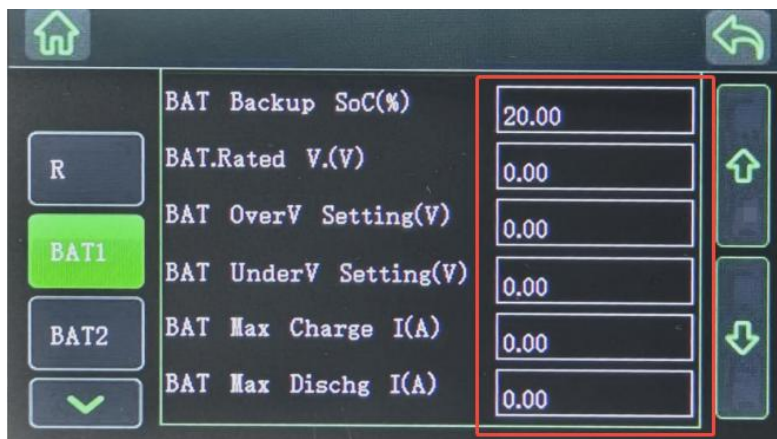
### 3.2 Battery settings

Click on HOME > Set > Advanced > Enter Password > BAT, and set the battery connection method, battery type, battery overvoltage and undervoltage values, battery protocol, and communication method as needed.



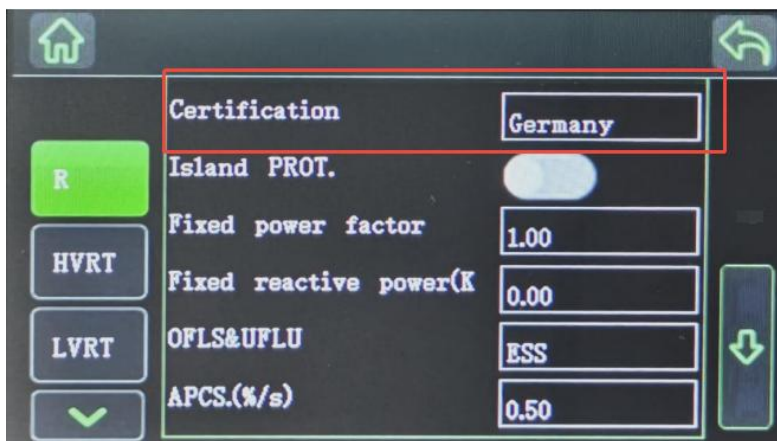
## Isuna D6~12K-TL-S-AU





### 3.3 Certification settings

Click on HOME > Set > Advanced > Enter Password > Certification > R. Set the authentication country according to the actual situation.



## Isuna D6~12K-TL-S-AU

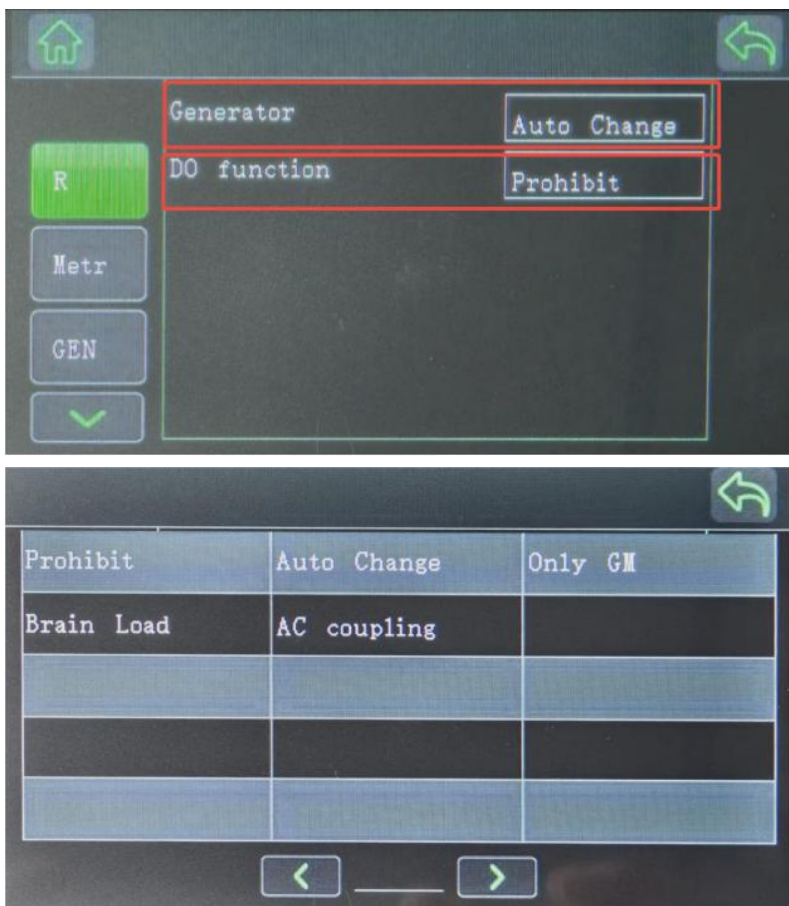


### 3.4 Generator activated.

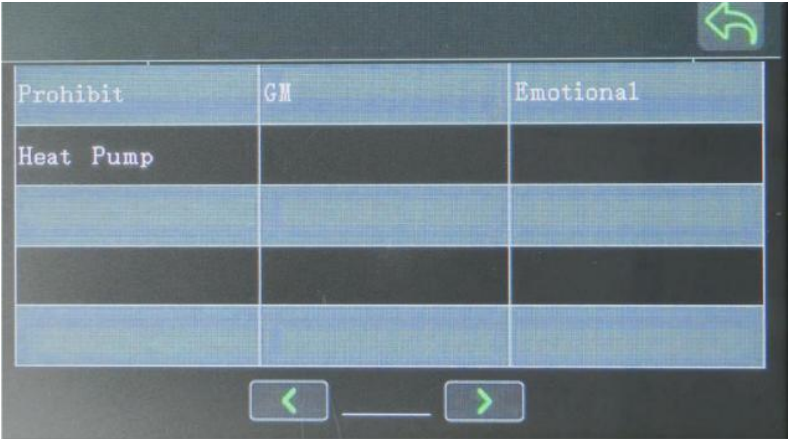
Click HOME > Set > Advanced > Enter Password > Periphery, and set the generator mode and Do function as needed.



## Isuna D6~12K-TL-S-AU



# Isuna D6~12K-TL-S-AU



| Prohibit  | GM | Emotional |
|-----------|----|-----------|
| Heat Pump |    |           |
|           |    |           |
|           |    |           |
|           |    |           |

**Note:** For other advanced parameter settings, please contact the manufacturer for guidance.  
Do not set them by yourself.

### 8 App Introduction

#### 8.1 APP Download

Users need to choose WiFi dongle or 4G dongle.

ESS LINK Operation and use Please contact the manufacturer and check the ESS LINK operation and use manual.

Android version: Please scan the QR code below to obtain.

IOS version: Please scan the QR code below to obtain or go to the App Store search ESS LINK to download.



Android apk



Google play



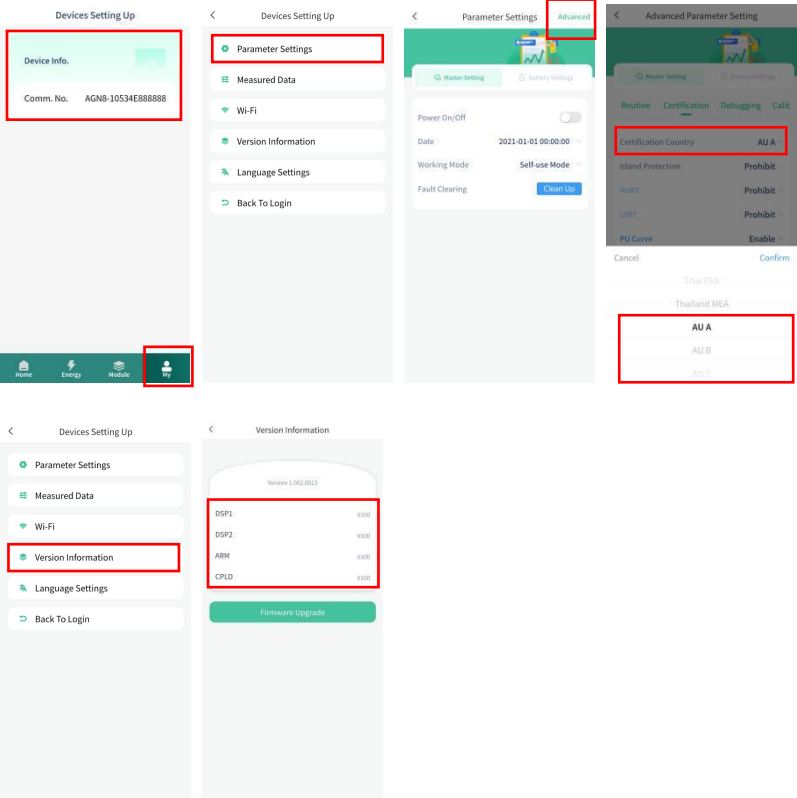
iOS

#### 8.2 APP debugging (Parameter Settings[Advanced])

The monitoring and debugging interface (Advanced) is open only to inverter manufacturers, operation and maintenance providers. The inverter parameters have been set before delivery. End-User(People who buy inverters) cannot perform operations on the inverter. ( )

8.3 Commissioning inverter

My->Parameter Settings/Version Information->Advanced->Certification->Certification Country/PU Curve/QU Curve/OVVol/UVol Protection



# Isuna D6~12K-TL-S-AU

Advanced Parameter Setting

Master Setting

Battery Settings

Routine

Certification

Debugging

Calit

Certification Country

AU A

Island Protection

Prohibit

HVRT

Prohibit

LVRT

Prohibit

PU Curve

Enable

PU Coordinate Point 1 Voltage

90%

PU Coordinate Point 1 Active Power

20%

PU Coordinate Point 2 Voltage

93.48%

PU Coordinate Point 2 Active Power

100%

PU Coordinate Point 3 Voltage

110%

PU Coordinate Point 3 Active Power

100%

PU Coordinate Point 4 Voltage

113.04%

PU Coordinate Point 4 Active Power

20%

Active Current Response Time

5tau

QU Curve

Prohibit

Cosφ(P) Curve

Prohibit

Fixed Power Factor

1

Fixed Reactive Power

0%Sn

Overfrequency And Load Reduction

Prohibit

Click To Load More

Advanced Parameter Setting

Master Setting

Battery Settings

Routine

Certification

Debugging

Calit

Certification Country

AU A

Island Protection

Prohibit

HVRT

Prohibit

LVRT

Prohibit

PU Curve

Prohibit

QU Curve

Enable

QU Coordinate Point 1 Voltage

90%

QU Coordinate Point 1 Reactive Power

44%

QU Coordinate Point 2 Voltage

95.65%

QU Coordinate Point 2 Reactive Power

0%

QU Coordinate Point 3 Voltage

104.34%

QU Coordinate Point 3 Reactive Power

0%

QU Coordinate Point 4 Voltage

112.17%

QU Coordinate Point 4 Reactive Power

-60%

Reactive Current Response Time

5tau

Cosφ(P) Curve

Prohibit

Fixed Power Factor

1

Fixed Reactive Power

0%Sn

Overfrequency And Load Reduction

Prohibit

Click To Load More

Advanced Parameter Setting

Master Setting

Battery Settings

Routine

Certification

Debugging

Calit

OVol/UVol Protection

S1 Of Overvoltage

120%

S1 Overvolt. Triggere d Time

0.2s

S2 Of Overvoltage

115%

S2 Overvolt. Triggere d Time

2s

S3 Of Overvoltage

115%

S3 Overvolt. Triggere d Time

2s

10 Minute Overvolt. Protection Value

112.1%

S1 Of Undervoltage

30%

S1 Undervolt. Triggere d Time

2s

S2 Of Undervoltage

78%

S2 Undervolt. Triggere d Time

11s

S3 Of Undervoltage

78%

S3 Undervolt. Triggere d Time

11s

S1 Of Overfrequncy

104%

S1 Overfreq. Triggere d Time

0.2s

S2 Of Overfrequncy

104%

S2 Overfreq. Triggere d Time

0.2s

S1 Of Underfrequen cy

94%

S1 Underfreq. Triggere d Time

2s

S2 Of Underfrequen cy

94%

S2 Underfreq. Triggere d Time

2s

Upper Limit Of Con nection Voltage

110%

Lower Limit Of Con nection Voltage

85%

Upper Limit Of Con nection Frequency

100.2%

Lower Limit Of Con nection Frequency

99%

Slope Of Active Power Ch ange

0.5%/s

Protection Reconnection Rate

100%/s

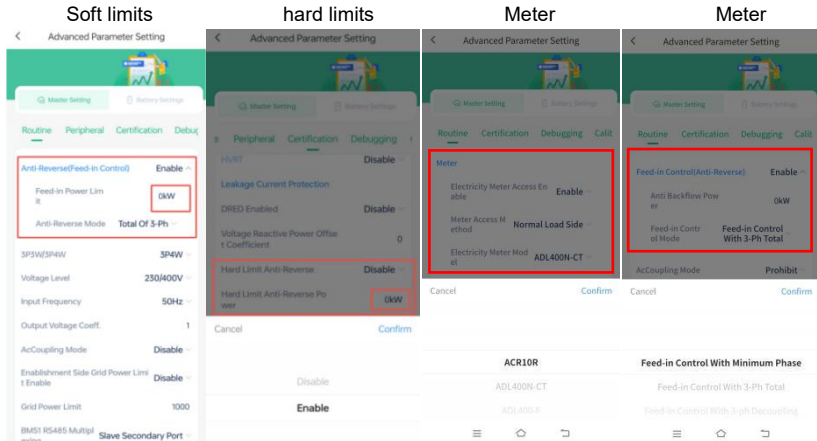
Connection Waiting Time

60s

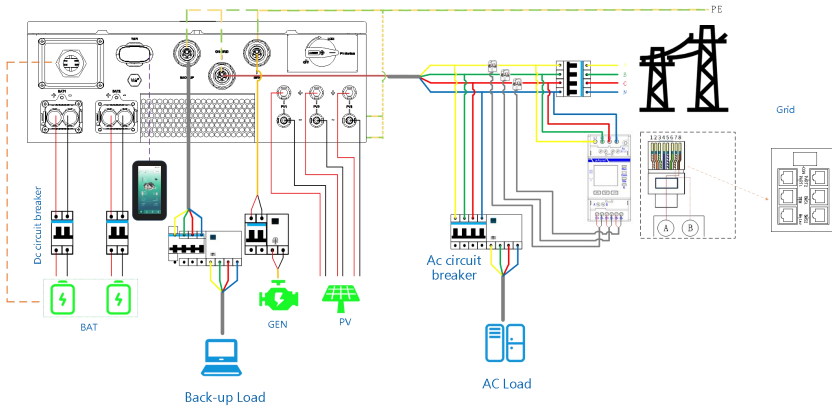
Leakage Current Protection

## 8.4 Generation Limit and Export Limit Control settings

My->Parameter Settings->Advanced->Routine/Certification

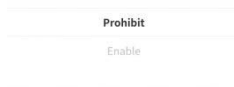
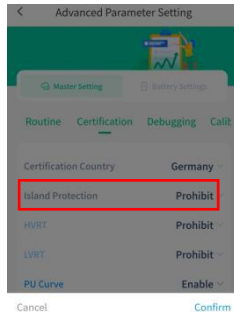


Meter installation diagram (Model: ADL200N-CT)



## 8.5 Anti-islanding

My->Parameter Settings->Advanced->Certification



## 8.6 Insulation Fault

Continuously active ground fault monitoring insulation resistance threshold per AS/NZS 5033. Preset and non-modifiable.

**Navigation Path:** Message

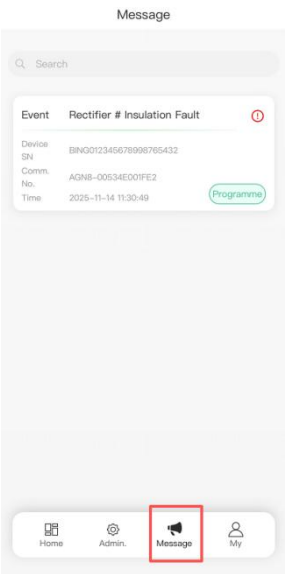
**Alarm Indication:**

- **Auditory indication:** The buzzer sound from the inverter
- **App Notification:** Push notification via ESS LINK App

**Reset Procedure:**

- 1、 Identify and resolve the cause of the insulation fault (e.g., check for damaged PV cables).
- 2、 Once the insulation resistance recovers to a value above 33 kΩ, the alarm condition can be manually cleared. This can be done via the ESS LINK App under the Alarm History or Fault Status menu.
- 3、 The system can then be restarted. The fault history remains accessible in the App for

review.



## 9. Troubleshooting and Maintenance

This chapter provides guidance for diagnosing and resolving common system issues. Follow the instructions carefully. For faults not listed here, or if problems persist after troubleshooting, contact your dealer or after-sales service center.

### 9.1 Alarm Diagnosis and Processing

**Table 9-1 Alarm list and troubleshooting measures.**

| Sequence number | Fault name                  | Note   | Solutions                                                                                                                                                                                                                                                                                                         |
|-----------------|-----------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PV              |                             |        |                                                                                                                                                                                                                                                                                                                   |
| 1               | PV 1/2/3 is not connected   | Remind | <ul style="list-style-type: none"> <li>➤ <b>Cause:</b> PV string disconnected or DC breaker open.</li> <li>➤ <b>Solution:</b> Check PV cable connections and ensure the inverter's PV DC breaker is closed.</li> </ul>                                                                                            |
| 2               | PV 1/2/3 overvoltage        | Fault  | <ul style="list-style-type: none"> <li>➤ <b>Cause:</b> PV string voltage exceeds inverter's maximum input voltage.</li> <li>➤ <b>Solution:</b> Reduce the number of series-connected PV modules to lower the string voltage within the allowable range. The system will auto-recover after correction.</li> </ul> |
| 3               | PV 1/2/3 overload time out  | Alarm  | <ul style="list-style-type: none"> <li>➤ <b>Cause:</b> Inverter is in an overload state.</li> <li>➤ <b>Solution:</b> Check the load. The alarm will automatically clear 10 minutes after the inverter returns to normal operation or after a fault reset command.</li> </ul>                                      |
| 4               | PV 1/2/3 reverse connection | Fault  | <ul style="list-style-type: none"> <li>➤ <b>Cause:</b> PV positive and negative</li> </ul>                                                                                                                                                                                                                        |

## Isuna D6~12K-TL-S-AU

|         |                                   |        |                                                                                                                                                                                                        |
|---------|-----------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                                   |        | terminals are reversed.<br>➤ <b>Solution:</b> Check and correct the PV polarity, then restart the inverter.                                                                                            |
| 5       | PV connection mode is incorrect   | Alarm  | ➤ <b>Cause:</b> PV connection mode set in the APP does not match the actual hardware setup.<br>➤ <b>Solution:</b> Log into the APP and ensure the configured PV connection matches the physical setup. |
| 6       | PV1/2/3 power tube is faulty      | Fault  | ➤ <b>Solution:</b> 1. Disconnect all AC and DC breakers. 2. Wait at least 5 minutes. 3. Reclose the breakers. If the fault persists, contact technical support.                                        |
| 7       | PV 1/2/3 soft start failure       | Alarm  |                                                                                                                                                                                                        |
| Battery |                                   |        |                                                                                                                                                                                                        |
| 8       | Battery 1/2 is not connected      | Remind | ➤ <b>Solution:</b> Check if the battery specifications match, connections are correct, and voltage is normal. The alarm clears automatically when the issue is resolved.                               |
| 9       | Battery 1/2 overvoltage           | Remind |                                                                                                                                                                                                        |
| 10      | Battery 1/2 undervoltage          | Remind |                                                                                                                                                                                                        |
| 11      | Battery 1/2 power is insufficient | Remind | ➤ <b>Cause:</b> Battery State of Charge (SOC) is too high or too low.<br>➤ <b>Solution:</b> Discharge or charge the battery. The fault auto-clears when SOC returns to normal range.                   |
| 12      | Battery 1/2 do not charge         | Alarm  |                                                                                                                                                                                                        |
| 13      | Do not discharge battery 1/2      | Alarm  |                                                                                                                                                                                                        |
| 14      | Battery 1/2 discharge stops       | Alarm  |                                                                                                                                                                                                        |
| 15      | Battery is 1/2 full               | Remind |                                                                                                                                                                                                        |
| 16      | Battery 1/2 reverse connection    | Fault  | ➤ <b>Solution:</b> Immediately check and correct the battery cable polarity.                                                                                                                           |

## Isuna D6~12K-TL-S-AU

|        |                                                  |       |                                                                                                                                                                                                                                                                                                        |
|--------|--------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17     | Temperature of the lead-acid battery is abnormal | Alarm | ➤ <b>Solution:</b> 1. Use a thermal camera to check if battery temperature is too high; wait for it to cool.                                                                                                                                                                                           |
| 18     | Battery connection mode is incorrect             | Alarm | ➤ <b>Solution:</b> Log into the APP and ensure the configured battery connection mode matches the physical setup.                                                                                                                                                                                      |
| 19     | Battery 1/2 overload timeout                     | Alarm | ➤ <b>Solution:</b> Check the maximum charge/discharge current settings in the APP's battery settings menu and reduce them if necessary.                                                                                                                                                                |
| 20     | Battery 1/2 power tube is faulty                 | Fault | ➤ <b>Solution:</b> 1. Disconnect all AC and DC breakers. 2. Wait at least 5 minutes. 3. Reclose the breakers. If the fault persists, contact technical support.                                                                                                                                        |
| 21     | Battery 1/2 soft startup fails. Procedure        | Alarm |                                                                                                                                                                                                                                                                                                        |
| Others |                                                  |       |                                                                                                                                                                                                                                                                                                        |
| 22     | Grid voltage anomaly                             | Alarm | ➤ <b>Solution:</b> Occasional alarms may show temporary grid issues; the inverter will auto-sync when grid stabilizes. Frequent alarms require checking grid quality, AC breaker, and cable connections. If connections are correct but alarms persist, contact support to adjust protection settings. |
| 23     | Network frequency anomaly                        | Alarm |                                                                                                                                                                                                                                                                                                        |
| 24     | Reverse connection of L and N                    | Alarm | ➤ <b>Solution:</b> Check and correct the phase sequence of L and N lines from the grid                                                                                                                                                                                                                 |

## Isuna D6~12K-TL-S-AU

|    |                                                                                                     |       |                                                                                                                                                                                                                                               |
|----|-----------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25 | Heat sink is too high                                                                               | Fault | ➤ <b>Solution:</b> Ensure the inverter is installed away from direct sunlight. Restart after the heatsink cools below 60°C and a 5-minute wait. If the fault persists, contact support.                                                       |
| 26 | Ambient temperature is too high                                                                     | Alarm |                                                                                                                                                                                                                                               |
| 27 | The inverter is overheated.                                                                         | Alarm |                                                                                                                                                                                                                                               |
| 28 | Insulation fault                                                                                    | Fault | ➤ <b>Solution:</b> Check PV string insulation resistance to ground. If resistance is < 33 KΩ, locate and fix the short circuit. Check inverter PGND connection. The impedance protection point can be reset in persistently humid conditions. |
| 29 | Leakage protection failure/ Fan failure/ DC Bus Undervoltage                                        | Fault | ➤ <b>Solution:</b> 1. Disconnect all AC and DC breakers. 2. Wait at least 5 minutes. 3. Reclose the breakers. If the fault persists,                                                                                                          |
| 30 | Model Capacity Fault / DSP Parameter Error / Version Incompatibility / DSP-CPLD Communication Fault | Fault | ➤ <b>Solution:</b> Contact your distributor or service center to check APP parameter settings or perform a software upgrade.                                                                                                                  |
| 31 | Islanding protection                                                                                | Alarm | ➤ <b>Solution:</b> Check for poor or unstable grid quality. Follow the general restart procedure. If the fault persists, contact support.                                                                                                     |
| 32 | Meter Reversed / Communication Abnormal                                                             | Alarm | ➤ <b>Solution:</b> Check the meter wiring connections.                                                                                                                                                                                        |

Faults not mentioned in the following table still exist after being powered on. Contact your dealer or after-sales service center.

### 9.2 Regular maintenance

Regular maintenance is crucial for long-term system reliability and safety. **Always adhere to the following safety precautions before performing any maintenance.**



#### Warning

- **Power Off:** Ensure the inverter is completely powered down and disconnected from all power sources (AC and DC) before performing any maintenance.
- **Use PPE:** Always wear proper Personal Protective Equipment (PPE). Contact your dealer or after-sales service center.
- **Qualified Personnel:** If you are not a qualified technician, **contact your dealer or service center** for maintenance.

**Table 9-2 Maintenance Instructions**

| Maintenance content   | Maintenance methods                                                                                                | Maintenance period | Authorized Personnel  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------|
| System cleaning       | Inspect the heatsink, air inlet, and outlet for obstructions and dust accumulation. Clean if necessary.            | Every 6-12 Months  | Qualified Electrician |
| DC Switch             | Operate the DC switch ON and OFF 10 times continuously to ensure proper mechanical function and contact integrity. | Annually           | Qualified Electrician |
| Electrical connection | Check all electrical terminals for tightness.<br>Inspect cables for damage, wear, or exposed copper.               | Every 6-12 Months  | Qualified Electrician |

## Isuna D6~12K-TL-S-AU

### 10. Technical Parameters

| 10. Product model                      | Isuna D6K-TL-S-AU                | Isuna D8K-TL-S-AU | Isuna D9.9K-T-SL-AU | Isuna D10K-TL-S-AU | Isuna D12K-TL-S-AU |
|----------------------------------------|----------------------------------|-------------------|---------------------|--------------------|--------------------|
| Battery parameter                      |                                  |                   |                     |                    |                    |
| Number of battery input channels       | 2                                |                   |                     |                    |                    |
| Battery type                           | Lithium-ion/Lead-acid/Sodium-ion |                   |                     |                    |                    |
| Maximum input voltage                  | 60V                              |                   |                     |                    |                    |
| Battery voltage range                  | 30~60V                           |                   |                     |                    |                    |
| Full load battery voltage range        | 30~60V                           | 32~60V            | 40V~60V             | 40V~60V            | 48V~60V            |
| Maximum charge and discharge current   | 125A/125A                        |                   |                     |                    |                    |
| Peak charge/discharge current&duration | 130A/130A（60s）                   |                   |                     |                    |                    |
| Nominal charge/discharge power         | 6kW                              | 8kW               | 9.9kW               | 10kW               | 12kW               |
| Communication Interface                | RS485/CAN                        |                   |                     |                    |                    |
| Overvoltage Category                   | II                               |                   |                     |                    |                    |
| PV input parameters                    |                                  |                   |                     |                    |                    |
| Number of PV input channels            | 3                                |                   |                     |                    |                    |

## Isuna D6~12K-TL-S-AU

|                                        |                                    |                                    |                                   |                                   |                                   |
|----------------------------------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Maximum input power                    | 12000 Wp<br>(4000Wp/4000Wp/4000Wp) | 16000 Wp<br>(5333Wp/5333Wp/5333Wp) | 18000Wp<br>(6000Wp/6000Wp/6000Wp) | 18000Wp<br>(6000Wp/6000Wp/6000Wp) | 18000Wp<br>(6000Wp/6000Wp/6000Wp) |
| Maximum input voltage                  | 800V                               |                                    |                                   |                                   |                                   |
| MPPT voltage range                     | 130~800V                           |                                    |                                   |                                   |                                   |
| MPPT full load voltage range           | 130V~800V                          | 160V~800V                          | 180~800V                          | 180~800V                          | 240~800V                          |
| Starting voltage                       | 140V                               |                                    |                                   |                                   |                                   |
| Rated input voltage                    | 600V                               |                                    |                                   |                                   |                                   |
| Maximum input current per MPPT         | 20A/20A/20A                        |                                    |                                   |                                   |                                   |
| Maximum short-circuit current per MPPT | 24A/24A/24A                        |                                    |                                   |                                   |                                   |
| MPPT quantity                          | 3                                  |                                    |                                   |                                   |                                   |
| Maximum input strings per MPPT         | 3                                  |                                    |                                   |                                   |                                   |
| Backfeed current                       | 0A                                 |                                    |                                   |                                   |                                   |
| Overvoltage Category                   | II                                 |                                    |                                   |                                   |                                   |
| AC output/input Data (On-Grid)         |                                    |                                    |                                   |                                   |                                   |
| Nominal output power                   | 6kW                                | 8kW                                | 9.9kW                             | 10kW                              | 12kW                              |

## Isuna D6~12K-TL-S-AU

|                                   |                                          |           |           |             |             |
|-----------------------------------|------------------------------------------|-----------|-----------|-------------|-------------|
| Nominal output Apparent power     | 6kVA                                     | 8kVA      | 9.9kVA    | 10kVA       | 12kVA       |
| Maximum output Power              | 6.6kW                                    | 8.8kW     | 10.9kW    | 11kW        | 13.2kW      |
| Maximum output Apparent Power     | 6.6kVA                                   | 8.8kVA    | 10.9kVA   | 11kVA       | 13.2kVA     |
| Nominal grid input power          | 12kW                                     | 16kW      | 19.8kW    | 20kW        | 24kW        |
| Nominal grid input Apparent power | 12kVA                                    | 16kVA     | 19.8kVA   | 20kVA       | 24kVA       |
| Maximum grid input Apparent power | 12kVA                                    | 16kVA     | 19.8kVA   | 20kVA       | 24kVA       |
| Nominal grid input current        | 18.2A                                    | 24.3A     | 30A       | 30.3A       | 36.4A       |
| Maximum grid input current        | 18.2A                                    | 24.3A     | 30A       | 30.3A       | 36.4A       |
| Maximum current output            | 10A                                      | 13.3A     | 16.5A     | 16.7A       | 20A         |
| Nominal output current            | 9A/8.6A                                  | 12A/11.5A | 15A/14.3A | 15.1A/14.4A | 18.2A/17.3A |
| Max. Output fault Current         | L1-L2(91.25A/4.4ms)/L1-N(153.75A/17.3ms) |           |           |             |             |
| Nominal voltage                   | 3L/N/PE, 220V/380Vac, 230V/400Vac        |           |           |             |             |
| Grid voltage range                | 185~276V                                 |           |           |             |             |
| Rated grid frequency              | 50/60Hz                                  |           |           |             |             |
| Grid frequency range              | 45Hz~55Hz/55Hz~65Hz                      |           |           |             |             |
| Power factor                      | -0.8~0.8                                 |           |           |             |             |

## Isuna D6~12K-TL-S-AU

|                               |                                           |           |           |             |             |
|-------------------------------|-------------------------------------------|-----------|-----------|-------------|-------------|
| THdI(@ Nominal power)         | <3%                                       |           |           |             |             |
| Overvoltage Category          | III                                       |           |           |             |             |
| AC Output Data (Backup)       |                                           |           |           |             |             |
| Nominal output power          | 6kW                                       | 8kW       | 9.9kW     | 10kW        | 12kW        |
| Nominal output Apparent power | 6kVA                                      | 8kVA      | 9.9kVA    | 10kVA       | 12kVA       |
| Maximum output apparent power | 6.6kVA                                    | 8.8kVA    | 10.9kVA   | 11kVA       | 13.2kVA     |
| Maximum output power          | 20kVA~10s                                 |           |           |             |             |
| Nominal output current        | 9A/8.6A                                   | 12A/11.5A | 15A/14.3A | 15.1A/14.4A | 18.2A/17.3A |
| Max. Output fault Current     | L1-L2(311.85A/1.025s)/L1-N(253.0A/1.016s) |           |           |             |             |
| Nominal output voltage        | 3L/N/PE, 220V/380Vac, 230/400Vac          |           |           |             |             |
| Nominal output frequency      | 50/60Hz                                   |           |           |             |             |
| Thdu(@ linear load)           | <3%                                       |           |           |             |             |
| On/off-grid switch-over time  | <10ms                                     |           |           |             |             |
| Diesel generator interface    |                                           |           |           |             |             |
| Maximum input apparent power  | 12kVA                                     | 16kVA     | 19.8kVA   | 20kVA       | 24kVA       |
| Maximum input current         | 18.2A                                     | 24.3A     | 30A       | 30.3A       | 36.4A       |
| Nominal voltage               | 3L/N/PE, 220V/380Vac, 230/400Vac          |           |           |             |             |
| Efficiency                    |                                           |           |           |             |             |

## Isuna D6~12K-TL-S-AU

|                                                   |                                  |
|---------------------------------------------------|----------------------------------|
| European efficiency                               | 97.70%                           |
| Maximum efficiency                                | 98.20%                           |
| Maximum battery<br>charge/discharge efficiency    | 97.80%                           |
| Protection                                        |                                  |
| DC Switch                                         | Available                        |
| Input reverse                                     | Available                        |
| Output overvoltage,<br>overcurrent, short circuit | Available                        |
| Anti-islanding                                    | Available(Frequency disturbance) |
| Residual current detection                        | Available                        |
| Insulation resistance detection                   | Available                        |
| Overvoltage Category                              | DC:II ; AC:III                   |
| Surge protection level                            | DC:II ; AC:III                   |
| Routine parameters                                |                                  |
| Weight                                            | 36kg                             |
| Noise                                             | <45dB                            |
| Topology                                          | No isolation                     |

## Isuna D6~12K-TL-S-AU

|                                 |                              |
|---------------------------------|------------------------------|
| Working altitude                | <4000m                       |
| Derating Temperature            | >40°C                        |
| Ambient Temperature             | -25°C~60°C                   |
| Ambient Humidity                | 5%~95%                       |
| Topolpgy                        | Non-isolated                 |
| Cooling method                  | Air cooling                  |
| IP Degrees                      | IP65                         |
| Dimensions                      | 465*665*165mm                |
| Standby loss                    | <15W                         |
| Features                        |                              |
| DC terminal                     | MC4                          |
| AC output terminal              | 5P connector                 |
| interface                       | RS485/CAN/DRED/DO            |
| Human-computer interaction mode | H5/LED/APP/WIFI/4G/Bluetooth |
| Standard Warranty               | 5 years                      |
| Certification                   |                              |

## Isuna D6~12K-TL-S-AU

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Safety regulations            | IEC 62109-1, IEC 62109-2, EN 62109-1, EN 62109-2, IEC62477-1, AS 60947-3      |
| EMC                           | EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4,EN62920                    |
| Grid                          | VDE-AR-N 4105, EN50549, AS4777.2:2020+Amd 1:2021, IEC 61727, IEC62116, NC RfG |
| States country of manufacture |                                                                               |
| China                         | Shenzhen Sinexcel Isuna Energy Technology Co., Ltd.                           |