PV Grid-Connected Inverter
Product Model: SOFAR 3K-6KTLMG2 (2017.10.28)

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Notice

This manual contains important safety instructions that must be followed during installation and maintenance of the equipment.

Save these instructions!

This manual must be considered as an integral part of the equipment, and must be available at all times to everyone who interacts with the equipment. The manual must always accompany the equipment, even when it is transferred to another user or field.

Copyright Declaration

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Preface

Please read the product manual carefully before installation, operation or maintenance. This manual contains important safety instructions and installation instructions that must be followed during installation and maintenance of the equipment.

Outline

Please read the product manual carefully before installation, operation or maintenance. This manual contains important safety instructions and installation instructions that must be followed during installation and maintenance of the equipment.

• Scope

This product manual describes the installation, electrical connections, commissioning, maintenance and troubleshooting of SOFAR 3K~6KTLM-G2 inverters: 3KTLM-G2  3.6KTLM-G2  4KTLM-G2  4.6KTLM-G2  5KTLM-G2  6KTLM-G2

Keep this manual where it will be accessible at all times.

• Target Group

This manual is intended for qualified electrical technical personnel who are responsible for inverter installation and commissioning in the PV power system and the PV plant operator.

• Symbols Used

This manual provides safety operation information and uses the symbol in order to ensure personal and property security and use the inverter efficiently when operating the inverter. You must understand these emphasized information to avoid the personal injury and property loss. Please read the following symbols used in this manual carefully.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️ Danger</td>
<td>Indicates a hazardous situation which, if not avoided, will result in death or serious injury.</td>
</tr>
<tr>
<td>⚠️ Warning</td>
<td>Indicates a hazardous situation which, if not avoided, could result in death or serious injury.</td>
</tr>
<tr>
<td>⚠️ Caution</td>
<td>Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</td>
</tr>
<tr>
<td>⚠️ Attention</td>
<td>Indicates potential risks which, if not avoided, may lead to equipment fault or property damage.</td>
</tr>
<tr>
<td>📖 Note</td>
<td>Provides tips that are valuable for the optimal operation of the product.</td>
</tr>
</tbody>
</table>
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1 Basic safety information

Outlines of this chapter
Safety instruction
It mainly introduce the safety instruction when install and operate the equipment.
Symbols and signs
It mainly introduce the safety symbols on the inverter.

1.1 Safety instructions

- Read and understand the instructions of this manual, and be familiar with relevant safety symbols in this chapter, then start to install and troubleshoot the equipment.
- According to the national and state requirements, before connecting to the electrical grid, you must get permission from the local electrical grid operator, and the operation can only be performed by qualified electrical engineer.
- Please contact the nearest authorized service center if any maintenance or repair is needed. Contact your distributor for the information of the nearest authorized service center. Do NOT repair it by yourself, it may cause injury or property damage.
- Before installing and maintaining the equipment, you should turn the DC switch OFF to cut off the high voltage DC of the PV array. You can also turn the switch in the PV combiner box OFF to cut off the high voltage DC. Otherwise, serious injury may be caused.

Qualified persons
The customer must make sure the operator has the necessary skill and training to do his/her job. Staff in charge of using and maintaining the equipment must be skilled, aware and mature for the described tasks and must have the reliability to correctly interpret what is described in the manual. For safety reason only a qualified electrician, who has received training and / or has demonstrated skills and knowledge in construction and in operation of this unit, can install this inverter. Shenzhen SOFAR SOLAR Co., Ltd does not take any responsibility for the property destruction and personal injury because of any incorrect use.

Installation requirements
Please install inverter according to the following section. Fix the inverter on an appropriate objects with enough load bearing capacity (such as walls, PV racks etc.), and ensure that inverter is vertical placed. Choose a place suitable for installing electrical devices. And assure there is enough fire exit space, convenient for maintenance. Maintain proper ventilation to ensure enough air cycle to cool the inverter.

Transport requirements
If you find packing problems that may cause the damage of the inverter, or find any visible damage, please immediately notice the responsible transportation company. You can ask solar equipment installation contractor or Shenzhen SOFAR SOLAR Co.Ltd for help if necessary. Transport of the equipment, especially by road, must be carried out with by suitable ways and means for protecting the components (in particular, the electronic components) from violent shocks, humidity, vibration, etc.

Electric connection
Please comply with all the current electrical regulations about accident prevention in dealing with the solar inverter.

Before the electrical connection, make sure to use opaque material to cover the PV modules or to disconnect PV array DC switch. Exposure to the sun, PV array will produce a dangerous voltage!

All installation accomplished only by professional electrical engineer!

* must be trained;

* Completely read the manual operation and understand relevant matters.

Get permission from the local electrical grid operator, complete all electrical connections by professional electrical engineer, then connect inverter to electrical grid.

It's forbidden to remove the tamper evident label, or open the inverter. Otherwise Sofarsolar will not provide warranty or maintenance!
Operation

<table>
<thead>
<tr>
<th>Danger</th>
<th>Attention</th>
</tr>
</thead>
</table>
| Touching the electrical grid or the terminal of the equipment may lead to electrocution or fire!  
  - Don’t touch the terminal or conductor connected to the electrical grid.  
  - Pay attention to any instructions or safety documents related to grid connection. |
| Some internal components will be very hot when inverter is working. Please wear protective gloves! |

Maintenance and repair

<table>
<thead>
<tr>
<th>Danger</th>
</tr>
</thead>
</table>
| · Before any repair work, turn OFF the AC circuit breaker between the inverter and electrical grid first, then turn OFF the DC switch.  
  · After turning OFF the AC circuit breaker and DC switch, wait for 5 minutes at least before carrying out any maintenance or repair work. |

<table>
<thead>
<tr>
<th>Attention</th>
</tr>
</thead>
</table>
| · Inverter should work again after removing any faults. If you need any repair work, please contact with the local authorized service center;  
  · Can’t open the internal components of inverter without authorized. Shenzhen SOFARSOLAR Co., Ltd. does not take any responsibility for the losses from that. |

EMC / noise level of inverter

Electromagnetic compatibility (EMC) refers to that one electrical equipment functions in a given electromagnetic environment without any trouble or error, and impose no unacceptable effect upon the environment. Therefore, EMC represents the quality characters of an electrical equipment.

- The inherent noise-immune character: immunity to internal electrical noise.
- External noise immunity: immunity to electromagnetic noise of external system.
- Noise emission level: influence of electromagnetic emission upon environment.

<table>
<thead>
<tr>
<th>Danger</th>
</tr>
</thead>
</table>
| Electromagnetic radiation from inverter may be harmful to health!  
  · Please do not continue to stay around the inverter in less than 20 cm when inverter is working. |

1.2 Symbols and signs

Safety symbols

<table>
<thead>
<tr>
<th>Caution</th>
</tr>
</thead>
</table>
| Caution of burn injuries due to hot enclosure!  
  · You can only touch the screen and pressing key of the inverter while it’s working. |

PV array should be grounded in accordance to the requirements of the local electrical grid operator!

We suggest that all PV module frames and inverter are reliably grounded to protect the PV system and personnel security.

Ensure input DC voltage < Max. DC voltage. Over voltage may cause permanent damage to inverter or other losses, which will not be included in warranty!

Electromagnetic radiation from inverter may be harmful to health!

PV array should be grounded in accordance to the requirements of the local electrical grid operator!

Ensure input DC voltage < Max. DC voltage. Over voltage may cause permanent damage to inverter or other losses, which will not be included in warranty!

There is a residual voltage in the inverter! Before opening the equipment, operator should wait for five minutes to ensure the capacitor is discharged completely.

Caution, risk of electric shock.

Caution, hot surface.

Comply with the Conformite Europeenne (CE) certification.

Grounding point.

Please read this manul before install SOFAR 3K–6KTLM-G2.

This indicates the degree of protection of the equipment according to IEC standard 70-1 (EN 60529 June 1997).

Positive pole and negative pole of the input voltage (DC).
2 Product characteristics

Outlines of this chapter

Product dimensions
It introduces the field of use, and the overall dimensions of SOFAR 3K~6KTL-G2 inverters.

Function description
It introduces how SOFAR 3K~6KTL-G2 inverters work and the function modules inside.

Efficiency curves
It introduces the efficiency curves of in the inverter.

2.1 Product dimensions

Field of use
SOFAR 3K~6KTL-G2 is a Dual MPPT grid-tied PV inverter which converts the DC power generated by PV arrays into sine wave single-phase AC power and feeds it to the public electrical grid, AC circuit breaker (refer to Section 4.4) and DC switch used as disconnect device, and the disconnect device shall be easily accessible.

The choice of optional parts of inverter should be made by a qualified technician who knows the installation conditions clearly.

Overall dimensions: L×W×H=437mm×324mm×130mm

SOFAR 3K~6KTL-G2 inverters can only be used with photovoltaic modules that do not require one of the poles to be grounded. The operating current during normal operation must not exceed the limits specified in the technical specifications. Only the photovoltaic modules can be connected to the input of the inverter (do not connect batteries or other sources of power supply).
2.2 Function description

DC power generated by PV array is filtered through Input Board before entering into Power Board. Input Board also offer functions such as insulation impedance detection and input DC voltage / current detection. DC power is converted to AC power by Power Board. AC power is filtered through Output Board then AC power is fed into the grid. Output Board also offer functions such as grid voltage / output current detection, GFCI and output isolation relay. Control Board provides the auxiliary power, controls the operation state of inverter and shows the operation status by Display Board. Display Board displays fault code when inverter is in abnormal operation conditions. At the same time, Control Board can trigger the relay so as to protect the internal components.

- Function module
  
  A. Energy management unit
  This control can be used to switch the inverter on/off through an external (remote) control.

  B. Feeding reactive power into the grid
  The inverter is able to produce reactive power and can therefore feed it into the grid through the setting of the phase shift factor. Feed-in management can be controlled directly by the grid company through a dedicated RS485 serial interface.

  C. Limiting the active power fed into the grid
  The inverter, if enabled can limit the amount of active power fed into the grid by the inverter to the desired value (Expressed as a percentage).

  D. Self power reduction when grid is over frequency
  When the grid frequency is higher than the limited value, inverter will reduce output power which is necessary for the grid stability.

  E. Data transmission
  The inverter or a group of inverters may be monitored remotely through an advanced communication system based on RS-485 serial interface, or remotely via the WIFI.

  F. Software update
  SD card is used for updating the firmware.

2.3 Efficiency curve
3 Installation

Outlines of this chapter
This topic describes how to install the SOFAR 3K~6KTLM-G2 inverter.

Installation notes

- Do NOT install the SOFAR 3K-6KTLM-G2 on flammable material.
- Do NOT install the SOFAR 3K-6KTLM-G2 in an area used to store flammable or explosive materials.

Caution
- The enclosure and heat sink are very hot while the inverter is working, therefore do NOT install the SOFAR 3K-6KTLM-G2 in places where you might touch them inadvertently.
- Consider the weight of SOFAR 3K-6KTLM-G2 when transporting and moving the inverters.
- Choose an appropriate mounting position and surface.
- Assign at least two persons to install the inverter.

3.1 Installation Process

Figure 3-1 Installation flowchart

Start

Check before installation

Prepare installation tools

Determine the installation position

End

Install the Inverter

Install the rear panel

Moving the Inverter

3.2 Checking Before Installation

Checking Outer Packing Materials
Packing materials and components may be damaged during transportation. Therefore, check the outer packing materials before installing the inverter. Check the outer packing materials for damage, such as holes and cracks. If any damage is found, do not unpack the SOFAR 3K~6KTLM-G2 and contact the dealer as soon as possible. You are advised to remove the packing materials within 24 hours before installing the SOFAR 3K~6KTLM-G2 inverter.

Checking Deliverables
After unpacking the inverter, check whether deliverables are intact and complete. If any damage is found or any component is missing, contact the dealer.

Table 3-1 shows the components and mechanical parts that should be delivered

<table>
<thead>
<tr>
<th>No.</th>
<th>Pictures</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>SOFAR 3K-6KTLM-G2</td>
<td>1 pcs</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Rear panel</td>
<td>1 pcs</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>PV+ input terminal</td>
<td>2 pcs</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>PV-input terminal</td>
<td>2 pcs</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Metal terminals secured to PV+ input power cables</td>
<td>2 pcs</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Metal terminals secured to PV- input power cables</td>
<td>2 pcs</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>M5 Hexagon screws</td>
<td>2 pcs</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>M6 flat washer</td>
<td>7 pcs</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Expansion bolts</td>
<td>7 pcs</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Self-tapping screw</td>
<td>5 pcs</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Manual</td>
<td>1 pcs</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>The warranty card</td>
<td>1 pcs</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Registration Form</td>
<td>1 pcs</td>
</tr>
</tbody>
</table>
### 3.3 Tools

Prepare tools required for installation and electrical connections. Table 3-2 shows the tools required for installation and electrical connections.

<table>
<thead>
<tr>
<th>No.</th>
<th>Tool</th>
<th>Model</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hammer drill</td>
<td></td>
<td>Used to drill holes on the wall</td>
</tr>
<tr>
<td></td>
<td>Recommend drill dia.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Screwdriver</td>
<td></td>
<td>Wiring</td>
</tr>
<tr>
<td>3</td>
<td>Removal tool</td>
<td>Remove PV terminal</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Wire stripper</td>
<td>Strip wire</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4mm Allen Wrench</td>
<td>Turn the screw to connect rear panel</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>with inverter</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Crimping tools</td>
<td>Used to crimp power cables</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3-2** shows the tools required for installation and electrical connections.

### 3.4 Determining the Installation Position

Determine an appropriate position for installing the SOFAR 3K~6KTLM-G2 inverter. Comply with the following requirements when determining the installation position:

- Ensure that the rear panel is properly installed.
- Operators wear suitable personal protective equipment.
- Ensure that the rear panel is mounted securely.

![Diagram showing installation requirements](image)

**Figure 3-2** Installation Requirements
3.5 Moving the SOFAR 3K~6KTLM-G2 inverter

This topic describes how to move the SOFAR 3K~6KTLM-G2 to the installation position horizontally.

**Step 1**
Open the packaging, insert hands into the slots on both sides of the inverter and hold the handles, as shown in Figure 3-3 and Figure 3-4.

Figure 3-3 Moving the inverter (1)

Figure 3-4 Moving the SOFAR 3K~6KTLM-G2 (2)

**Step 2**
Lift the inverter from the packing case and move it to the installation position.

**Attention**
- To prevent device damage and personal injury, keep balance when moving the inverter because the inverter is heavy.
- Do not put the inverter with its wiring terminals contacting the floor because the power ports and signal ports are not designed to support the weight of the inverter. Place the inverter horizontally.
- When placing the inverter on the floor, put foam or paper under the inverter to protect its shell.

--- End
3.6 Installing SOFAR 3K~6KTLM-G2 inverter

**Step 1** Determine the positions for drilling holes, ensure the hole positions are level, then mark the hole positions using a marker pen, use the hammer drill to drill holes on the wall. Keep the hammer drill perpendicular to the wall, do not shake when drilling, so as not to damage the wall. If the error of the hole positions is too big, you need to reposition.

**Step 2** Insert the expansion bolt vertically into the hole, pay attention to the insertion depth of the expanding bolt (should be deep enough).

**Step 3** Align the rear panel with hole positions, fix the rear panel on the wall by tightening the expansion bolt with the nuts.

**Step 4** Hook the inverter to the rear panel. Using an M5 screw to secure the inverter to the rear panel to ensure safety.

**Step 5** You can secure the inverter to the rear panel and protect if from stealing by installing an anti-theft lock (this action is optional).

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**4 Electrical Connections**

**Outlines of this chapter**

This topic describes the SOFAR 3K~6KTLM-G2 inverter electrical connections. Read this part carefully before connecting cables.

**NOTE:**

Before performing electrical connections, ensure that the DC switch is OFF. Since the stored electrical charge remains in a capacitor after the DC switch is turned OFF. So it’s necessary to wait for at least 5 minutes for the capacitor to be electrically discharged.

---

**4.1 Electrical connection**

[Flowchart showing the connection process]

**Start** -> **Connect PGND Cables** -> **Connect DC Input power Cables**

**End** <- **Connect Communication Cables (not mandatory)** <- **Connect AC Output power Cables**
4.2 Connecting PGND Cables

Connect the inverter to the grounding electrode using protection ground (PGND) cables for grounding purposes.

Prerequisites:
The PGND cables are prepared (>5mm² outdoor power cables are recommended for grounding purposes), the color of cable should be yellow-green.

Procedure:
Step 1 Remove the insulation layer with an appropriate length using a wire stripper, as shown in Figure 4-2.

Step 2 Insert the exposed core wires into the OT terminal and crimp them by using a crimping tool, as shown in Figure 4-3.

Step 3 Install the crimped OT terminal, flat washer using M5 screw, and tighten the screw to a torque of 3 N.m using an Allen wrench.

4.3 Connecting DC Input Power Cables

The inverter is transformer-less, requires the positive pole and negative pole of the PV array are NOT grounded. Otherwise it will cause inverter failure. In the PV power system, all non current carrying metal parts (such as: PV module frame, PV rack, combiner box enclosure, inverter enclosure) should be connected to earth.

Prerequisites:
The PGND cables are prepared (>5mm² outdoor power cables are recommended for grounding purposes), the color of cable should be yellow-green.

Procedure:
Step 1 Remove cable glands from the positive and negative connectors.

Step 2 Remove the insulation layer with an appropriate length from the positive and negative power cables by using a wire stripper as show in Figure 4-5.

Table 4-1 Recommended DC input cable specifications

<table>
<thead>
<tr>
<th>Cross-Sectional Area (mm²)</th>
<th>External Cable Diameter(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0, 6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4.5, 7.8</td>
<td>4.5, 7.8</td>
</tr>
</tbody>
</table>

Note 1: L3 is the length between the insulation layer of the ground cable and the crimped part. L4 is the distance between the crimped part and core wires protruding from the crimped part.

Note 2: The cavity formed after crimping the conductor crimp strip shall wrap the core wires completely. The core wires shall contact the terminal closely.

Step 3 Connect the crimped OT terminal, flat washer using M5 screw, and tighten the screw to a torque of 3 N.m using an Allen wrench.
Step 3 Insert the positive and negative power cables into corresponding cable glands.

Step 4 Insert the stripped positive and negative power cables into the positive and negative metal terminals respectively and crimp them using a clamping tool. Ensure that the cables are crimped until they cannot be pulled out by force less than 400 N, as shown in Figure 4-6.

Step 5 Insert crimped power cables into corresponding housings until you hear a "click" sound. The power cables snap into place.

Step 6 Reinstall cable glands on positive and negative connectors and rotate them against the insulation covers.

Step 7 Insert the positive and negative connectors into corresponding DC input terminals of the inverter until you hear a "click" sound, as shown in Figure 4-7.

Follow-up Procedure
To remove the positive and negative connectors from the inverter, insert a removal wrench into the bayonet and press the wrench with an appropriate strength, as shown in Figure 4-8.

Caution
Before removing the positive and negative connectors, ensure that the DC SWITCH is OFF.

Figure 4-6 Connecting DC input power cables

Figure 4-7 Connecting DC input power cables

Figure 4-8 Removing a DC input connector

4.4 Connecting AC Output Power Cables
Connect the SOFAR 3K~6KTLM-G2 to the AC power distribution frame (PDF) or power grid using AC output power cables.

Caution
- It is not allowed for several inverters to use the same circuit breaker.
- It is not allowed to connect loads between inverter and circuit breaker.
- AC breaker used as disconnect device, and the disconnect device shall remain readily operable.
- In Italy, any solar system bigger than 6kW should be connected to grid via a external SPI.

Context
All the AC output cables used for the inverters are outdoor three-core cables. To facilitate the installation, use flexible cables. Table 4-2 lists the recommended specifications for the cables.

Figure 4-9 NOT allowed: connect loads between inverter and circuit breaker
AC cable should be correctly sized to ensure the power loss in AC cable is less than 1% of the rated power. If the resistance of the AC cable is too high, it will cause a huge increase in the AC voltage, which may lead to a disconnection of the inverter from the electrical grid. The relationship between power loss in AC cable and wire length, wire cross sectional area is shown in the following figure:

![Multi core copper wire](image)

Multi core copper wire

AC cable should be correctly sized to ensure the power loss in AC cable is less than 1% of the rated power. If the resistance of the AC cable is too high, it will cause a huge increase in the AC voltage, which may lead to a disconnection of the inverter from the electrical grid. The relationship between power loss in AC cable and wire length, wire cross sectional area is shown in the following figure:

![Figure 4-10 wire length, wire cross sectional area and wire power loss](image)

AC wire connections procedure:

**Step 1** Select appropriate cables according to Table 4-2, Remove the insulation layer of the AC output cable using a wire stripper according to the figure shown below: A: 30~50mm B: 6~8mm;

![Figure 4-12](image)

**Step 2** Disassemble the AC connector according to the figure shown below: insert the AC output cable (with its insulation layer stripped according to step 1) through the waterproof locking cable gland;

![Figure 4-13](image)

**Step 3** Connect AC output cable as per the following requirements:

- Connect the yellow-green wire to the hole labeled ‘PE’, fasten the wire using an Allen wrench;
- Connect the brown wire to the hole labeled ‘L’, fasten the wire using an Allen wrench;
- Connect the blue wire to the hole labeled ‘N’, fasten the wire using an Allen wrench;

![Figure 4-14](image)

L—brown, N—blue, PE—yellow/green
4.5 Connecting Communications Cables

The wiring methods are the same for RS485, DRM0, and CT, this part describes their wiring methods all together:

Table 4-3 Recommended communication cable sizes are shown below:

<table>
<thead>
<tr>
<th>Communication function</th>
<th>RS485</th>
<th>DRM0</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable size</td>
<td>0.5~1.5mm²</td>
<td>0.5~1.5mm²</td>
<td>0.5~1.5mm²</td>
</tr>
<tr>
<td>Outside diameter</td>
<td>2.5~6mm</td>
<td>2.5~6mm</td>
<td>2.5~6mm</td>
</tr>
</tbody>
</table>

Step 1 Remove the communication waterproof cover using a screwdriver;

Figure 4-17

Step 4 Secure the locking cable gland clockwise, shown as below: make sure that all the wires are securely connected;

Step 5 Connect the AC output connector to the output wiring terminal of inverter, rotate the AC connector clockwise until the fastener reaches its designated position, as shown below:

Figure 4-15

Figure 4-16

Note:

The waterproof connectors correspond to I/O, dry contact, RS485 from left to right. Unlock the waterproof connectors according to the communication functions you are using. Do NOT unlock the unused connectors.

Step 2 Unlock the waterproof cable gland, remove the stopper in the waterproof connector;

Figure 4-18

Note:

A1 : Waterproof stopper

Step 3 Select appropriate cable according to Table 4-2, remove the insulation layer using a wire stripper, the length of the wire core is about 6mm, insert the cable through the cable gland and waterproof cover, as shown in the figure below:

Figure 4-19

Step 4 Choose the terminal according to Table 4-4, connect the wires as per the labels, and secure the wires using a slotted screwdriver.

Note:

keep the unused terminals for future use.
Table 4-4 functional description of the communication terminals

<table>
<thead>
<tr>
<th>RS485</th>
<th>DRM0</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX−</td>
<td>TX+</td>
<td>DIO00</td>
</tr>
</tbody>
</table>

Step 5: Insert the terminal as per the printed label, and then tighten the screws to fix the waterproof cover, rotate the cable gland clockwise to fasten it securely.

If users need to connect multiple inverters via RS485 wires, refer to the figure shown below:

- RS485 wires are connected in parallel, so 4 wires may be required. First connect the two 485+ (TX+) wires in parallel, then connect the two 485- (TX-) wires in parallel, then insert them into the terminal and tighten the screws using a slotted screwdriver.

Note:
We recommend using two different colors of wires to connect TX-(485-) and TX+ (485+). Wires of the same color are connected together to avoid wrong wire connections.

4.6 WIFI/GPRS module installation procedure:
step 1: remove WIFI/GPRS waterproof cover using screw driver.
step 2: install WIFI/GPRS module
4.6 Communication method

SOFAR 3K-6KTL G2 grid-connected inverters offer RS485 (standard) and Wi-Fi (optional) communication modes:

A. Communication between one inverter and one PC:
   1. RS485  
      Refer to the figure shown below, connect the TX+ and TX- of the inverter to the TX+ and TX- of the RS485→RS485/USB adapter, and connect the USB port of the adapter to the computer.(NOTE1)  
      Figure 4-25
   2. WI-FI  
      Refer to the figure shown below: (wireless function required for the PC).(NOTE4)  
      Figure 4-26

The operation information (generated energy, alert, operation status) of the inverter can be transferred to PC or uploaded to the server via Wi-Fi. You can register on the website:  

Using the Wi-Fi S/N number(NOTE3), then you can login the website:  
http://www.solarmanpv.com/portal/LoginPage.aspx to remote monitors the inverter.

B. Communication between multiple inverters and one PC:
   1. RS485  
      Refer to the following figure: RS485 wires are connected in parallel between inverters, refer to section 4.5 of this manual for wire connection methods. Connect the TX+ and TX- of the inverter to the TX+ and TX- of the RS485→RS485/USB adapter; connect the USB port of the adapter to the computer. A maximum of 31 inverters can be connected in one daisy chain.(NOTE2)

2. WI-FI  
   Refer to the figure shown below: (wireless function required for the PC).(NOTE4)  
   Figure 4-28

The operation information (generated energy, alert, operation status) of the inverter can be transferred to PC or uploaded to the server via Wi-Fi. You can register on the website:  

Using the Wi-Fi S/N number(NOTE3), then you can login the website:  
http://www.solarmanpv.com/portal/LoginPage.aspx to remote monitors the inverter.

- **Note1:** The length of the RS485 communication cable should be less than 1000 m.
- **Note2:** When multiple inverters are connected via RS485 wires, set mod-bus address to differentiate the inverters.
- **Note3:** S/N number of the Wi-Fi module is located on the side.
5 Commissioning of inverter

5.1 Safety inspection before commissioning

Attention

Ensure that DC and AC voltages are within the acceptable range of the inverter.

5.2 Start inverter

Step 1: Turn ON the DC switch.(optional)
Step 2: Turn ON the AC circuit breaker.
When the DC power generated by the solar array is adequate, the SOFAR 3K~6KTLM-G2 inverter will start automatically. Screen showing “normal” indicates correct operation.

Step 3: Choose the correct country code. (refer to section 6.3 of this manual)
Notice: Different distribution network operators in different countries have different requirements regarding grid connections of PV grid connected inverters.
Therefore, it’s very important to make sure that you have selected the correct country code according to requirements of local authority.
Please consult qualified electrical engineer or personnel from electrical safety authorities about this.

Shenzhen SOFAR SOLAR Co., Ltd. is not responsible for any consequences arising out of incorrect country code selection.

If the inverter indicates any fault, please refer to Section 7.1 of this manual —— trouble shooting for help.

6 Operation interface

Outlines of this chapter

This section introduces the display, operation, buttons and LED indicator lights of SOFAR 3K~6KTLM-G2 Inverter.

6.1 Operation and Display Panel

- Buttons and Indicator lights

Key-button:
- Back: to return to previous menu or enter into main menu from the standard interface.
- Up: to move up or increase value
- Down: to move down or decrease value
- OK: to confirm selection

Indicator Lights:
- Inverter States Light(GREEN)
  Flashing: ‘Wait’ or ‘Check’ state
  ON: ‘Normal’ state
  OFF: ‘Fault’ or ‘Permanent’ state
- Warning Light (RED)
  ON: ‘Fault’ or ‘Permanent’ state
  OFF: ‘Normal’ state
- GFCI Warning Light (RED)
  ON: ‘ID12: GFCIFault’ or ‘ID20: GFCIdeviceFault’
  OFF: GFCI normal
6.2 Standard Interface

When power-on, LCD interface displays INITIALIZING, refer below picture. When control board successfully connected with communication board, the LCD display the current state of the inverter, display as shown in the figure below.

- Initializing...
- Waiting States, Countdown 10S (depends country code, some are 60s)
- Check
- Normal
- Fault
- Permanent
- Normal Power Generation
- Regular error state
- Unrecoverable error state
Inverter states includes: wait, check, normal, fault and permanent
Wait: Inverter is waiting to Check State at the end of reconnection time. In this state, grid voltage value is between the max and min limits and so on; If not, Inverter will go to Fault State or Permanent State.
Check: Inverter is checking isolation resistor, relays, and other safety requirements. It also does self-test to ensure inverter software and hardware are functional. Inverter will go to Fault State or Permanent State if any error or fault occurs.
Normal: Inverter enter to Normal State, it is feeding power to the grid; Inverter will go to Fault State or Permanent state if any error or fault occurs.
Fault: Fault State: Inverter has encountered recoverable error. It should recover if the errors disappear. If Fault State continues; please check the inverter according error code.
Permanent: Inverter has encountered unrecoverable error, we need maintainer debug this kind of error according to error code.

When the control board and communication board connection fails, the LCD display interface as shown in the figure below.

DSP communicate fail

6.3 Main Interface

Press “Back” button under standard interface to enter into main interface, including:

<table>
<thead>
<tr>
<th>Normal</th>
<th>Press “Back”</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enter Setting</td>
<td></td>
</tr>
<tr>
<td>2. EventList</td>
<td></td>
</tr>
<tr>
<td>3. SystemInfo</td>
<td></td>
</tr>
<tr>
<td>4. Display Time</td>
<td></td>
</tr>
<tr>
<td>5. Software Update</td>
<td></td>
</tr>
</tbody>
</table>

(A) “Enter Setting” Interface as below:

1. Enter Setting

| 1. Set Time | 13. Safety Voltage |
| 3. Clear Events | 15. Insulation Resistance |
| 4. Set Country | 16. Relay Test |
| 5. Remote Control | 17. Reactive Power |
| 7. Enable Set Country | 19. Reflux Power |
| 10. Set Inputmode | 22. Set P(f) |
| 11. Set Language | 23. Set Q(v) |
| 12. Start Parameter | 24. Control 81.S1 |

1. Set Time

Users press “Back” button to enter “1.Enter Setting” interface, Press “OK” button to enter main setting interface. Enter “1. Set Time” by pressing “Up” button or “Down” button, then press “OK” button and start to set up time. Time set from year, month, day, minutes, and seconds in turns, “Up” button or “Down” button to choose different value to set each date. Set each value is need to press “OK” button to confirm setting. “success” is displayed if the setting time is correct, “fail” means failure settings.

2. Clear Energy

Users press “Back” button to enter “1.Enter Setting” interface, Press OK button to enter main setting interface. Then Enter “2.Clear Produce” by pressing “Up” button or “Down” button, press “OK” to enter password 001 by pressing “UP” and “DOWN” button and then press “ENTER” to start to clear produce. “success” is displayed after settings.

3. Clear Events

Users press “Back” button to enter “1.Enter Setting” interface, Press “OK” button to enter main setting interface. Enter “3. Clear Events” by pressing “Up” button or “Down” button. Press “OK” button and start to clear events. “success” is displayed after settings.
4. Set Country

Users press "Back" button to enter "1. Enter setting" interface, Press OK button to enter main setting interface. Enter "4. Set Country Code" by pressing "Up" button or "Down" button, press "OK" button and enter "Input Password" Setting interface. If it's shown "set disable" on the screen, then you can NOT choose the operating country, you should enable country setting through "7. Enable Set Country" interface. If it's shown "set Country code?" on the screen, then press Confirm button to start country setting. "Success" will be shown on the screen after a successful country setting.

Table 6-1 country code setting

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Germany VDE AR-N4105</td>
<td>12</td>
<td>Poland</td>
<td>24</td>
<td>Cyprus</td>
</tr>
<tr>
<td>01</td>
<td>CEI0-21 Internal</td>
<td>13</td>
<td>Germany BDEW</td>
<td>25</td>
<td>India</td>
</tr>
<tr>
<td>02</td>
<td>Australia</td>
<td>14</td>
<td>Germany VDE 0126</td>
<td>26</td>
<td>Philippines</td>
</tr>
<tr>
<td>03</td>
<td>Spain RD1699</td>
<td>15</td>
<td>Italy CEI0-16</td>
<td>27</td>
<td>New Zealand</td>
</tr>
<tr>
<td>04</td>
<td>Turkey</td>
<td>16</td>
<td>UK-G83</td>
<td>28</td>
<td>Brazil</td>
</tr>
<tr>
<td>05</td>
<td>Denmark</td>
<td>17</td>
<td>Greece island</td>
<td>29</td>
<td>Slovakia VSD</td>
</tr>
<tr>
<td>06</td>
<td>Greece Continent</td>
<td>18</td>
<td>EU EN50438</td>
<td>30</td>
<td>Slovakia SSE</td>
</tr>
<tr>
<td>07</td>
<td>Netherlands</td>
<td>19</td>
<td>IEC EN61727</td>
<td>31</td>
<td>Slovakia ZSD</td>
</tr>
<tr>
<td>08</td>
<td>Belgium</td>
<td>20</td>
<td>Korea</td>
<td>32</td>
<td>CEI0-21 In Areti</td>
</tr>
<tr>
<td>09</td>
<td>UK-G59t</td>
<td>21</td>
<td>Sweden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>China</td>
<td>22</td>
<td>Europe General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>France</td>
<td>23</td>
<td>CEI0-21 External</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Remote Control

Users press "Back" button to enter "1. Enter setting" interface, Press OK button to enter main setting interface. Enter "5. Remote Control" by pressing "Up" button or "Down" button, press "OK" button and enter Remote Control Switch on & off interface. Choose "1.Enable" or "2.Disable" by pressing "Up" button or "Down" button, press "OK" button, then communication board start to transmit control signals to control board. "Success" is displayed after setting success; otherwise it will show "fail".

6. Relay Command

Users press "Back" button to enter "1. Enter setting" interface, Press "OK" button to enter main setting interface. Enter "6. Relay Command" by pressing "Up" button or "Down" button, press "OK" button and enter "Relay Command setting" interface. Choose corresponded setting items by pressing "Up" button or "Down" button, then press "OK" button. "Success" or "Fail" is displayed after setting.

Relay Command Definition:

**Production**
the relay switches whenever a connection to (and therefore a disconnection from) the grid occurs. If the relay contractor is in normally open (close) mode, the contact will stay open (or closed) until the inverter is connected to the grid; once the inverter con-nects to the grid and starts to export power, the relay switches state and therefore closes (or opens). When the inverter disconnects from the grid, the relay contact returns to its position of rest, namely open (or closed).

**Alarm**
the relay switches whenever there is an alarm on the inverter (Error). No switching occurs when there is a Warning. If the relay contractor is in normally open (close) mode, the contact will stay open (or closed) until the inverter reports an error; once the inverter reports an error, the relay switches state and therefore closes (or opens). The contact remains switched from its rest condition until normal opera-tion is restored.

**Alarm (alarmconfig)**
the relay switches whenever there is an alarm (Error) or a Warning, which have been previously selected by the user through the PC. The contact will stay open (or closed) until the inverter reports an error or a warning out of those selected from the menu; once the inverter displays an error or a warning out of those selected, the relay switches state and therefore closes (or opens) the contact. The relay remains switched from its rest condition until the alarm or warning has disappeared.

**Relay Disable**
Control function is forbidden
7. Enable Set Country
Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “7. Enable Set Country” by pressing “Up” button Or “Down” button, press “OK” button and enter “Input Password” Setting interface. Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “Success” will be displayed if setting successfully.

Attention: when inverter working for power generation over 24h, country setting is forbidden, it can only be set after LCD setting. Key in passwords for country setting through LCD (default: 0001), country setting can be set in 24h after keying in the correct passwords, over 24h, set through LCD again.

8. Set Energy
Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “8. Set Total Energy” by pressing “Up” button or “Down” button, then press “OK” button and enter “Input Password” Setting interface. Press “OK” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to confirm the value and to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords then set total energy. “Success” or “fail” is displayed after setting.

9. Set Mod-Bus address
Users press “Back” button to enter “1. Enter setting” interface, Press “OK” button to enter main setting interface. Enter “9. Set mod-bus address” by pressing “Up” button or “Down” button. Press “OK” button and enter setting interface. Choose corresponded setting items by pressing “Up” button or “Down” button, then press “OK” button. “Success” or “fail” is displayed after setting.

10. Set Inputmode
Input mode selection: SOFAR 3K~6KTLM-G2 inverter has 2 MPPT channels, the 2 MPPT can operate independently, also can operate in parallel. If the PV strings are connected in parallel outside the inverter, you should choose the “in parallel mode”, otherwise use the default setting. Press “Back” button to enter “1. Enter setting” interface, press “OK” button to enter main setting interface. Enter “10. Set inputmode” by pressing “Up” or “Down” buttons. Press “OK” button to enter setting interface. Choose “In parallel Mode?” or “Independent Mode?” by pressing “Up” or “Down” buttons, then press “OK” button. “Success” or “fail” is displayed after setting.

11. Set Language
Users press “Back” button to enter “1. Enter setting” interface, Press “OK” button to enter main setting interface. Enter “11. Set Language” by pressing “Up” button or “Down” button. Press “OK” button and enter setting interface. Choose corresponded setting items by pressing “Up” button or “Down” button, then press “OK” button. “Success” or “fail” is displayed after setting.

12. Start Parameter
User can change the start parameter by the LCD. First the User need to copy the. TXT file which is used to change the start parameter to the SD card.

Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “12. Set StartPara” by pressing “Up” button Or “Down” button, press “OK” button and enter “Input Password” Setting interface. Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “Success” will be displayed if setting successfully.

13. Safety Voltage
User can change the Voltage protection point by the LCD. First the User need to copy the. TXT file which is used to change the Voltage protection point to the SD card.

Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “13. Set SafetyVolt” by pressing “Up” button Or “Down” button, press “OK” button and enter “Input Password” Setting interface. Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “Success” will be displayed if setting successfully.

14. Safety Frequency
User can change the Frequency protection point by the LCD. First the User need to copy the. TXT file which is used to change the Frequency protection point to the SD card.

Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “14. Set SafetyFreq” by pressing “Up” button Or “Down” button, press “OK” button and enter “Input Password” Setting interface. Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “Success” will be displayed if setting successfully.

15. Insulation Resistance
User can change the insulation protection point by the LCD. First the User need to copy the. TXT file which is used to change the Insulation protection point to the SD card.

Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “15. Set Insulation” by pressing “Up” button Or “Down” button, press “OK” button and enter “Input Password” Setting interface. Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error!” Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “Success” will be displayed if setting successfully.

16. Relay Test
Users press Back button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “16. Relay Test” by pressing “Up” button Or “Down” button, then press “OK” button and start test relay. “Success” will be displayed if setting successfully.
17. Reactive Power
Users press “Back” button to enter “1. Enter Setting” interface, Press “OK” button to enter main setting interface. Enter “17. Set Reactive” by pressing “Up” button or “Down” button, press “OK” button and enter “Input Password” Setting interface.
Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error! Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “success” will be displayed if setting successfully.

18. Power Derate
Press “Back” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error! Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “success” will be displayed if setting successfully.

19. Reflux Power
Press “OK” button to set passwords (default: 0001), increase or decrease value though pressing “Up” button or “Down” button, press “OK” button to next value setting. “Error! Try again” will be displayed for wrong passwords. Press “Back” button and rekey in the correct passwords. “success” will be displayed if setting successfully.

“Note: From item 20 to item24, they are only used in Italy”

20. Autotest Fast
Step 1: During the normal operation of our SofarSolar inverters, press “back” button (the leftmost button) to enter the main menu interface.
Step 2: Press “Confirm” button (the rightmost button) to enter the “Enter Setting” menu interface.
Step 3: Press “Down” button several times until “Autotest Fast” is shown on the screen.

Step 4: Press “Confirm” button to start Auto Test:

Step 5: Then the Auto Test will start automatically, Press “down” to see the test results

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing 59.S1...</td>
<td>Wait</td>
</tr>
<tr>
<td>Test 59.S1 OK!</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>59.S1:253V 183ms</td>
<td>Wait for another test</td>
</tr>
<tr>
<td>Testing 59.S2...</td>
<td></td>
</tr>
<tr>
<td>Test 59.S2 OK!</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>59.S2:264.5V 100ms</td>
<td>Wait for another test</td>
</tr>
<tr>
<td>Testing 27.S1...</td>
<td></td>
</tr>
<tr>
<td>Test 27.S1 OK!</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>27.S1:195.5V 384ms</td>
<td>Wait for another test</td>
</tr>
<tr>
<td>Testing 27.S2...</td>
<td></td>
</tr>
<tr>
<td>Test 27.S2 OK!</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>27.S2:92V 188ms</td>
<td>Wait for another test</td>
</tr>
<tr>
<td>Testing 81&gt;S1...</td>
<td></td>
</tr>
<tr>
<td>81&gt;S1:50.5Hz 83ms</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>Testing 81&gt;S2...</td>
<td></td>
</tr>
<tr>
<td>81&gt;S2:92V 188ms</td>
<td>Press “Down” button to see the test results</td>
</tr>
<tr>
<td>Test 81&gt;S2 OK!</td>
<td>Wait for another test</td>
</tr>
</tbody>
</table>
Press “Down” button to see the test results

81>S2:51.5Hz 89ms

Wait for another test

Testing 81>S1...

Wait

Test 81>S1 OK!

Press “Down” button to see the test results

81>S1:49.5Hz 85ms

Wait for another test

Testing 81>S2...

Wait

Test 81>S2 OK!

Press “Down” button to see the test results

81>S2:47.5Hz 82ms

Auto Test OK!

21. Autotest STD

Step 1: during the normal operation of our Sofarsolar inverters, press “back” button (the leftmost button) to enter the main menu interface

Step 2: Press “Confirm” button (the rightmost button) to enter the “setting” menu interface.

Step 3: Press “Down” button several times until “Autotest slow” is shown on the screen

1. Enter Setting

   1. Set Time

   21. Autotest STD

Step 4: Press “Confirm” button to start Auto Test:

21. Autotest STD

Step 5: Then the Auto Test will start automatically, Press “down” to see the test results

Testing 81>S1...

Wait

Test 59.S1 OK!

Press “Down” button to see the test results

59.S1:253V 183ms

Wait for another test

Testing 59.S2...

Wait

Test 59.S2 OK!

Press “Down” button to see the test results

59.S2:264.5V 100ms

Wait for another test

Testing 27.S1...

Wait

Test 27.S1 OK!

Press “Down” button to see the test results

27.S1:195.5V 384ms

Wait for another test

Testing 27.S2...

Wait

Test 27.S2 OK!

Press “Down” button to see the test results

27.S2:92V 188ms

Wait for another test

Testing 81>S1...

Press “Down” button to see the test results

81>S1:50.5Hz 83ms

Wait for another test

Testing 81>S2...

Wait

Test 81>S2 OK!

Press “Down” button to see the test results

81>S2:51.5Hz 89ms

Wait for another test

Testing 81>S1...

Wait
1. Inverter Type
Users press “Back” button and “Up” button or “Down” button enter “3. SystemInfo” interface, Press “OK” button to enter system information checking interface, then press “Up” button or “Down” button enter into “1. Inverter Type”; then press “OK” button, the Inverter Type will be displayed.

2. Serial Number
Users press “Back” button and “Up” button or “Down” button to enter “3. SystemInfo” interface, Press “OK” button to enter system information checking interface, then press “Up” button or “Down” button enter into “2. Serial Number”; then press “OK” button, the serial number will be displayed.

3. SoftVersion
Users press “Back” button and “Up” button or “Down” button to enter “3. SystemInfo” interface, then Press “OK” button to enter system information checking interface, then press “Up” button or “Down” button enter into “3. SoftVersion”, then press “OK” button, the SoftVersion will be displayed.

4. HardVersion
Users press “Back” button and “Up” button or “Down” button to enter “3. SystemInfo” interface, then Press “OK” button to enter system information checking interface, then press “Up” button or “Down” button enter into “4. HardVersion”, then press “OK” button, the HardVersion will be displayed.

5. Country
Users press “Back” button and “Up” button or “Down” button to enter “3. SystemInfo” interface, then Press “OK” button to enter system information checking interface, then press “Up” button or “Down” button enter into “5. Country”, then press “OK” button, the Country will be displayed.

22. Set P(f)
Users press “Back” button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “22. Setting P(f)” by pressing “Up” button or “Down” button, then press “OK” button and enter “Setting P(f)” interface. Then press Confirm button to start to Set P(f), “Success” will be shown on the screen after a successful P(f) setting.

23. Set Q(v)
Users press “Back” button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “23. Setting Q(v)” by pressing “Up” button or “Down” button, then press “OK” button. Then press Confirm button to start to set Q(v). “Success” will be shown on the screen after a successful Q(v) setting.

24. Control 81.S1
Users press “Back” button to enter “1. Enter setting” interface, Press OK button to enter main setting interface. Enter “24. Control 81.S1” by pressing “Up” button or “Down” button, then press “OK” button. Then press Confirm button to start Control 81.S1.

(B) “Event List” Interface as below:
Event List is used to display the real-time event records, including the total number of events and each specific ID No. and happening time. User can enter Event List interface through main interface to check details of real-time event records, Event will be listed by the happening time, and recent events will be listed in the front. Please refer to below picture: Users press “Back” button and “Down” button in standard interface, then enter into 2. EventList interface.

2. EventList
Press “OK” button to see the test results

Auto Test OK!
6. Input Mode
Press “Back” button and “Up” or “Down” button to enter “3. System Info” interface, then Press “OK” button to enter into system information checking interface, then press “Up” or “Down” button enter into “6. Input Mode”, then press “OK” button, the Input Mode will be displayed.

7. Relay Command
Users press “Back” button and “Up” button or “Down” button to enter “3. System Info” interface, then Press “OK” button to enter into system information checking interface, then press “Up” or “Down” button enter into “7. Relay Command”, then press “OK” button, the Relay Command Mode will be displayed.

8. Power Factor
Users press “Back” button and “Up” button or “Down” button to enter “3. System Info” interface, then Press “OK” button to enter into system information checking interface, then press “Up” or “Down” button enter into “8. Power Factor”, then press “OK” button, the Power Factor will be displayed.

9. Reflux Power
Users press “Back” button and “Up” button or “Down” button to enter “3. System Info” interface, then Press “OK” button to enter into system information checking interface, then press “Up” or “Down” button enter into “9. Reflux Power”, then press “OK” button, the Reflux Power will be displayed.

10. P(f)
Users press “Back” button and “Up” button or “Down” button to enter “3. System Info” interface, then Press “OK” button to enter into system information checking interface, then press “Up” or “Down” button enter into “10. P(f)”, then press “OK” button, the P(f) will be displayed.

(D) Display Time
Press the “Back” button and “Up” button or “Down” button key in the standard user interface to enter into “4. Display Time”, then press “OK” button to display the current system time.

(E) Software Update
Press the “Back” button and “Up” button or “Down” button in the standard user interface to enter into “5. Software Update”, then press “OK” button to enter into the “input password” interface, now press the “OK” button to input the password (initial passwords is 0715), then press the “Up” and “Down” button to change the value, then press “OK” button to confirm the current value of input and enter the next set of value. When set over, if the password is wrong, the LCD will display “Error! Try again”, at this time, you should re-enter your password. If the password is correct, then begin the update process.

6.4 Update Software online
SOFAR 3K~6KTLMG2 inverters offer software upgrade via SD card to maximize inverter performance and avoid inverter operation error caused by software bugs.

Procedure:
Step 1 first, turn off the DC and AC breaker, and then remove the communication waterproof cover as the following picture. If the communication lines (RS485, Relays, I/O) has been connected, Be sure to release the waterproof nut, Make sure the communication line is no longer the force. Then remove the waterproof cover, in order to avoid loosening the communication plug which has been connected.

Figure 6-1

Step 2 Remove the waterproof cover, Press SD card inside in the position marked SD card. Then the SD card will automatically pop up.

Figure 6-2
Step 3 The SD card reader must be ready by the users, so that SD card so easy to establish the connection with the computer.

Step 4 SOLAR will send the Software code to the user who needs to update. After user receive the file, please decompressing file and cover the original file in SD card.

Step 5 Insert the SD card into the SD card slot, there will be a faint clicking sound typically, indicating that has stuck.

Step 6 Then turn on DC switch and enter into the online upgrade to the main menu “5. Software Update” in the LCD display program[6.3(E)]. The method to enter the menu can refer to operation interface of LCD.

Step 7 Input the password, if password is correct, and then begin the update process, the original password is 0715.

Step 8 System update main DSP, slave DSP and ARM in turns. If main DSP update success, the LCD will display “Update DSP1 Success”, otherwise display “Update DSP1 Fail”; If slave DSP update success, the LCD will display “Update DSP2 Success”, otherwise display “Update DSP2 Fail”.

Step 9 If Fail, please turn off the DC breaker, wait for the LCD screen extinguish, then turn on the DC breaker again, then Continue to update from step 6.

Step 10 After the update is completed, turn off the DC breaker, wait for the LCD screen extinguish, then recover the communication waterproof and then turn on the DC breaker and AC breaker again, the inverter will enters the running state.
7 Trouble shooting and maintenance

Outlines of this chapter
This topic describes how to perform daily maintenance and troubleshooting to ensure long term proper operation of the inverter.

7.1 Trouble shooting
This section contains information and procedures for solving possible problems with the inverter.

* This section help users to identify the inverter fault. Please read the following procedures carefully:

- Check the warning, fault messages or fault codes shown on the inverter screen, record all the fault information.
- If there is no fault information shown on the screen, check whether the following requirements are met:
  - Is the inverter mounted in a clean, dry place with good ventilation?
  - Is the DC switch turned ON?
  - Are the cables adequately sized and short enough?
  - Are the input and output connections and wiring in good condition?
  - Are the configuration settings correct for the particular installation?
  - Are the display panel and the communication cables properly connected and undamaged?

Follow the steps below to view recorded problems:
Press “back” to enter the main menu from the standard interface. Select “2. Event List”, then press “OK” to enter event list.

* EventList information

Table 7-1 Eventlist

<table>
<thead>
<tr>
<th>EventList NO.</th>
<th>EventList Name</th>
<th>EventList description</th>
<th>solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID01</td>
<td>GridUVP</td>
<td>The power grid voltage is too high</td>
<td>If the alarm occurs occasionally, the possible cause is that the grid is abnormal. Occasionally, inverter automatically returns to normal operating status when the alarm occurs. If the alarm occurs frequently, check whether the grid voltage is in the acceptable range. If no, check the AC circuit breaker and AC wiring of the inverter. If the grid voltage is in the acceptable range, the alarm occurs. Check whether the grid voltage is too high. If yes, check the AC circuit breaker and AC wiring of the inverter.</td>
</tr>
<tr>
<td>ID02</td>
<td>GridUFP</td>
<td>The power grid frequency is too high</td>
<td>If the alarm occurs occasionally, the possible cause is that the grid is abnormal. Occasionally, inverter automatically returns to normal operating status when the alarm occurs. If the alarm occurs frequently, check whether the grid voltage is in the acceptable range. If no, check the AC circuit breaker and AC wiring of the inverter. If the grid voltage is in the acceptable range, the alarm occurs. Check whether the grid frequency is too high. If yes, check the AC circuit breaker and AC wiring of the inverter.</td>
</tr>
<tr>
<td>ID03</td>
<td>GridOVP</td>
<td>The power grid voltage is too low</td>
<td>If the alarm occurs occasionally, the possible cause is that the grid is abnormal. Occasionally, inverter automatically returns to normal operating status when the alarm occurs. If the alarm occurs frequently, check whether the grid voltage is in the acceptable range. If no, check the AC circuit breaker and AC wiring of the inverter. If the grid voltage is in the acceptable range, the alarm occurs. Check whether the grid voltage is too low. If yes, check the AC circuit breaker and AC wiring of the inverter.</td>
</tr>
<tr>
<td>ID04</td>
<td>GridOFP</td>
<td>The power grid frequency is too low</td>
<td>If the alarm occurs occasionally, the possible cause is that the grid is abnormal. Occasionally, inverter automatically returns to normal operating status when the alarm occurs. If the alarm occurs frequently, check whether the grid voltage is in the acceptable range. If no, check the AC circuit breaker and AC wiring of the inverter. If the grid voltage is in the acceptable range, the alarm occurs. Check whether the grid frequency is too low. If yes, check the AC circuit breaker and AC wiring of the inverter.</td>
</tr>
</tbody>
</table>

Table 7-1 Eventlist

- Check whether the input current is too high, and has happened hardware protection.
- Check whether the input current is too low, and has happened hardware protection.
- Check whether the grid current is too high, and has happened hardware protection.
- Check whether the grid current is too low, and has happened hardware protection.
- Check whether the grid voltage is too high, and has happened hardware protection.
- Check whether the grid voltage is too low, and has happened hardware protection.
- Check whether the DC current is too high, and has happened hardware protection.
- Check whether the DC current is too low, and has happened hardware protection.

If the grid voltage is too high, and has happened hardware protection, check whether the grid voltage is too high, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid voltage is too low, and has happened hardware protection, check whether the grid voltage is too low, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid current is too high, and has happened hardware protection, check whether the grid current is too high, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid current is too low, and has happened hardware protection, check whether the grid current is too low, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid voltage is too high, and has happened hardware protection, check whether the grid voltage is too high, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid voltage is too low, and has happened hardware protection, check whether the grid voltage is too low, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.

If the grid current is too high, and has happened hardware protection, check whether the grid current is too high, and has happened hardware protection. If yes, check the AC circuit breaker and AC wiring of the inverter. If no, check the AC circuit breaker and AC wiring of the inverter.
<table>
<thead>
<tr>
<th>ID26</th>
<th>BusOVP</th>
<th>The bus voltage is too high</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID27</td>
<td>VbusUnbalance</td>
<td>The bus voltage is not balanced</td>
</tr>
<tr>
<td>ID28</td>
<td>DcDCP</td>
<td>The DC current is too high</td>
</tr>
<tr>
<td>ID29</td>
<td>SwDCPInstant</td>
<td>The grid current is too high</td>
</tr>
<tr>
<td>ID30</td>
<td>SwBOCPInstant</td>
<td>The input current is too high</td>
</tr>
<tr>
<td>ID49</td>
<td>ConsistentFault_VGrid</td>
<td>The grid voltage sampling value between the master DSP and slave DSP is not consistent</td>
</tr>
<tr>
<td>ID50</td>
<td>ConsistentFault_FGrid</td>
<td>The grid frequency sampling value between the master DSP and slave DSP is not consistent</td>
</tr>
<tr>
<td>ID51</td>
<td>ConsistentFault_DCI</td>
<td>The DCI sampling value between the master DSP and slave DSP is not consistent</td>
</tr>
<tr>
<td>ID52</td>
<td>ConsistentFault_GFCI</td>
<td>The GFCI sampling value between the master DSP and slave DSP is not consistent</td>
</tr>
<tr>
<td>ID53</td>
<td>SpiCommLose</td>
<td>The SPI communication between the master DSP and slave DSP is fault</td>
</tr>
<tr>
<td>ID54</td>
<td>SciCommLose</td>
<td>The SCI communication between the control board communication board is fault</td>
</tr>
<tr>
<td>ID55</td>
<td>RelayTestFail</td>
<td>The relay fault</td>
</tr>
<tr>
<td>ID56</td>
<td>PvsInsFault</td>
<td>The insulation resistance is too low</td>
</tr>
<tr>
<td>ID57</td>
<td>OverTempFault_Inv</td>
<td>The inverter temp is too high</td>
</tr>
<tr>
<td>ID58</td>
<td>OverTempFault_Boost</td>
<td>The Boost temp is too high</td>
</tr>
<tr>
<td>ID59</td>
<td>OverTempFault_Env</td>
<td>The environment temp is too high</td>
</tr>
<tr>
<td>ID65</td>
<td>UnrecoverableAcOCP</td>
<td>The grid current is too high and has cause unrecoverable hardware fault</td>
</tr>
<tr>
<td>ID66</td>
<td>UnrecoverableBusOVP</td>
<td>The bus voltage is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID67</td>
<td>UnrecoverableRmsUnbalance</td>
<td>The grid current is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID68</td>
<td>UnrecoverableRmsUnbalance</td>
<td>The input current is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID69</td>
<td>UnrecoverableVbusUnbalance</td>
<td>The grid current is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID70</td>
<td>UnrecoverableOCPIstant</td>
<td>The bus voltage is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID71</td>
<td>UnrecoverablePVConfigSetWrong</td>
<td>Incorrect input mode</td>
</tr>
<tr>
<td>ID74</td>
<td>UnrecoverablePVInstant</td>
<td>The input current is too high and has cause unrecoverable fault</td>
</tr>
<tr>
<td>ID75</td>
<td>UnrecoverableWRITEEEPROM</td>
<td>The EEPROM is unrecoverable</td>
</tr>
<tr>
<td>ID76</td>
<td>UnrecoverableREADEEPROM</td>
<td>The EEPROM is unrecoverable</td>
</tr>
<tr>
<td>ID77</td>
<td>UnrecoverableRelayFail</td>
<td>Relay has happen permanent fault</td>
</tr>
<tr>
<td>ID81</td>
<td>OverTempDerating</td>
<td>The inverter has derated because of the frequency too high</td>
</tr>
<tr>
<td>ID82</td>
<td>OverFreqDerating</td>
<td>The inverter has derated because of the grid frequency too high</td>
</tr>
<tr>
<td>ID83</td>
<td>RemoteDerating</td>
<td>The inverter has derated by the Remote control</td>
</tr>
<tr>
<td>ID84</td>
<td>RemoteOff</td>
<td>The inverter has shut down because by the Remote control</td>
</tr>
<tr>
<td>ID94</td>
<td>SoftwareVersionIsNotCorrect</td>
<td>The Software version is not consistent</td>
</tr>
<tr>
<td>ID95</td>
<td>CommunicationBoardEEPromFault</td>
<td>The Communication board EEPROM is fault</td>
</tr>
<tr>
<td>ID96</td>
<td>RTCclockChipAnomaly</td>
<td>The RTC clock chip is anomaly</td>
</tr>
<tr>
<td>ID97</td>
<td>InvalidCountry</td>
<td>The Country is Invalid</td>
</tr>
<tr>
<td>ID98</td>
<td>SDFault</td>
<td>The SD card is fault</td>
</tr>
</tbody>
</table>
### 7.2 Maintenance

Inverters generally do not need any daily or routine maintenance. Heat sink should not be blocked by dust, dirt or any other items.

Before the cleaning, make sure that the DC SWITCH is turned OFF and the circuit breaker between inverter and electrical grid is turned OFF. Wait at least for 5 minutes before the cleaning.

- **Inverter cleaning**
  
  Please clean the inverter with an air blower, a dry & soft cloth or a soft bristle brush. Do NOT clean the inverter with water, corrosive chemicals, detergent, etc.

- **Heat sink cleaning**
  
  For the long-term proper operation of inverters, ensure there is enough space around the heat sink for ventilation, check the heat sink for blockage (dust, snow, etc.) and clean them if they exist. Please clean the heat sink with an air blower, a dry & soft cloth or a soft bristle brush. Do NOT clean the heat sink with water, corrosive chemicals, detergent, etc.

### 8 Technical data

#### Outlines of this chapter

This topic lists the technical specifications for all SOFAR 3K~6KTLM-G2 inverters.

#### 8.1 Input parameters (DC)

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>3KTLM-G2</th>
<th>3.6KTLM-G2</th>
<th>4KTLM-G2</th>
<th>4.6KTLM-G2</th>
<th>5KTLM-G2</th>
<th>6KTLM-G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. input power</td>
<td>3500W</td>
<td>4000W</td>
<td>4400W</td>
<td>5000W</td>
<td>5500W</td>
<td>6600W</td>
</tr>
<tr>
<td>Number of independent MPPT</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of DC inputs</td>
<td>1 for each MPPT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max input voltage</td>
<td>600V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start-up input voltage</td>
<td>120V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated input voltage</td>
<td>360V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating input voltage range</td>
<td>90V-580V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full power MPPT voltage range</td>
<td>160V-520V</td>
<td>180V-520V</td>
<td>200V-520V</td>
<td>230V-520V</td>
<td>250V-520V</td>
<td>300V-520V</td>
</tr>
<tr>
<td>Max input MPPT current</td>
<td>11A/11A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 8.2 Output parameters (AC)

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>3KTLM-G2</th>
<th>3.6KTLM-G2</th>
<th>4KTLM-G2</th>
<th>4.6KTLM-G2</th>
<th>5KTLM-G2</th>
<th>6KTLM-G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power (at 230V, 50Hz)</td>
<td>3000W</td>
<td>3600W</td>
<td>4000W</td>
<td>4600W</td>
<td>5000W</td>
<td>6000W</td>
</tr>
<tr>
<td>Max AC power</td>
<td>3000VA</td>
<td>3600VA</td>
<td>4000VA</td>
<td>4600VA</td>
<td>5000VA</td>
<td>6000VA</td>
</tr>
<tr>
<td>Nominal Grid voltage</td>
<td>230V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid voltage range</td>
<td>180V-276V (According to local standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid frequency range</td>
<td>44-55Hz / 54-66Hz (According to local standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active power adjustable range</td>
<td>0%~100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max output current</td>
<td>13.7A</td>
<td>16.8A</td>
<td>18.2A</td>
<td>21A</td>
<td>22.8A</td>
<td>27.3A</td>
</tr>
<tr>
<td>THD</td>
<td>&lt;3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power factor</td>
<td>1 (adjustable +/- 0.8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.3 Efficiency, Protection and Communication

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>3KTLG-G2</th>
<th>3.6KTLG-G2</th>
<th>4KTLG-G2</th>
<th>4.6KTLG-G2</th>
<th>5KTLG-G2</th>
<th>6KTLG-G2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max efficiency</td>
<td>97.6%</td>
<td></td>
<td>97.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighted eff. (EU/CEC)</td>
<td>97.2%</td>
<td></td>
<td>97.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-consumption at night</td>
<td>&lt; 1W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed-in start power</td>
<td>50W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPPT efficiency</td>
<td>&gt; 99.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC switch</td>
<td>Optional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety protection</td>
<td>Anti islanding, RCMU, Ground fault monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>CE, CGC, AS4777, AS3100, VDE4105, C10-C11, G93/G59 (more available on request)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Communication Mode</td>
<td>RS485, WiFi, GPRS (optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td>Class I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External environment pollution degree</td>
<td>Degree 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>PV: OVC II, AC mains: OVC III</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max inverter back feed current to the array</td>
<td>0A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output short circuit current and duration</td>
<td>200A/1us</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output inrush current and duration</td>
<td>0.8A/2us</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.4 General Data

<table>
<thead>
<tr>
<th>Technical Data</th>
<th>3KTLG-G2</th>
<th>3.6KTLG-G2</th>
<th>4KTLG-G2</th>
<th>4.6KTLG-G2</th>
<th>5KTLG-G2</th>
<th>6KTLG-G2</th>
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<tbody>
<tr>
<td>Ambient temperature range</td>
<td>-25°C to 60°C (above 45°C derating)</td>
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<tr>
<td>Topology</td>
<td>Transformerless</td>
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<td>Degree of protection</td>
<td>IP65</td>
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<tr>
<td>Allowable relative humidity range</td>
<td>0–100%</td>
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<td>Max operating altitude</td>
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<tr>
<td>Noise</td>
<td>&lt; 25dB</td>
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<tr>
<td>Weight</td>
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<td>Cooling</td>
<td>Nature</td>
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<td>Dimension</td>
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<td>Warranty</td>
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9 Quality Assurance

Shenzhen SOFARSOLAR Co., Ltd offers 5 years product warranty for Sofar 3K~6KTLG-G2 inverters from date of installation. However, the warranty period can’t exceed 66 months from the date of delivery of the inverter. During the warranty period, Shenzhen SOFARSOLAR Co., Ltd guarantees normal operation of the inverter. If during the warranty period, the inverter develops fault, please contact your installation contractor or supplier. In case of faults falling within manufacturers’ responsibility, Shenzhen SOFARSOLAR Co., Ltd will provide service and maintenance free of any charge.

Disclaimer:

- Use of Sofar inverters for any other purpose than it’s intended for;
- Faulty system design or installation;
- Improper operation;
- Wrong protection settings of the inverter;
- Unauthorized modification of the inverter;
- Damage caused by external factors or force majeure (violent or stormy weather, lightning, over-voltage, fire, earthquake, tsunami etc.).