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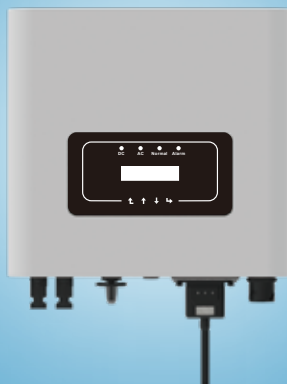
Grid-tied PV String Inverter

SUN-3.6K-G   SUN-5K-G   SUN-6K-G
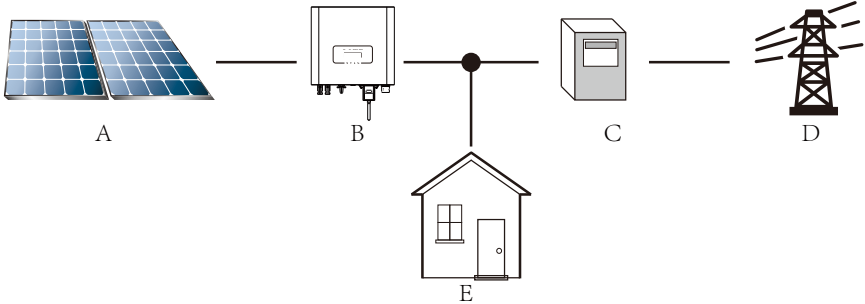
SUN-7.5K-G   SUN-8K-G

User Manual

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Photovoltaic Grid-connected System

A   B   C   D

E

Application of inverter in photovoltaic power system

Serial number	Description
A	PV strings
B	Inverter
C	Metering device
D	Power grid
E	Family load

1. Introduction

1.1 Appearance Introduction

Single Phase String Power Inverter can convert solar panel DC power into AC power which can directly input to the grid. Its appearance is shown below.These models contain SUN-3.6K-G、 SUN-5K-G、 SUN-6K-G、 SUN-7.5K-G and SUN-8K-G . The following is collectively referred to as 'inverter'.

Pic1.1 Front view   Pic1.2 Bottom view

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1.2 Parts list

Please check the following table, to see whether all the parts are included in the package：

1   2   3   4   5

6   7   8   9   10

Pic1.3 Accessories drawing

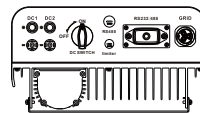| No	Description	Qty
1	Grid-tied PV String Inverter	1
2	Wall mounting bracket	1
3	Mounting stainless steel screws M4×12	4
4	AC power connectors	1
5	DC power connectors（including Inserted spring）	2pairs
6	Stainless steel Collision bolt M6×80	4
7	User manual	1
8	Wifi-Plug（optional）	1
9	Square hole sealing plate（Wi-Fi Function selection）	1
10	Sensor Clamp（optional）	1

1.1 Parts list

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2. Safety warnings and instructions

Improper use of the inverter will cause electric shock and burn. During installation and maintenance. Please strictly follow the instructions on this manual. Please read the user manual carefully before using the inverter. And please keep the instructions properly for afterwards use.

2.1 Safety signs

Safety signs are used to emphasize potential safety risk and important safety information. The manual includes below signs:

Warning：

Safety warning——Indifference of the signs in the manual may cause injury or even death.

Shock Hazard：

Shock warning sign——Incorrect follow of this sign may get shocked.

Safety Hint：

Prudent operation——Incorrect follow of the safety operation hints in this manual may cause inverter defect.

High Temperature Hazard：

Inverter's local temperature may exceed 80 ℃ while under operating. Please do not touch the inverter's surface.

2.2 Safety instructions

Warning：

Electrical installation of the inverter must conform to the safety operation rules of the country or local area.

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Warning：

Inverter is non-isolated topology structure, hence must insure DC input and AC output are electrical isolated before operating the inverter. Strictly prohibit grounding the positive and negative poles of the PV string. Otherwise it will damage the inverter.

Shock Hazard：

Prohibit disassembling inverter case. There existing shock hazard, may cause serious injury or death, please ask qualified person to maintenance.

Shock Hazard：

When PV module is exposed to sunlight, the output will generate DC voltage.Prohibit touching to avoid shock hazard.

Shock Hazard：

After disconnecting the input and output of the inverter, it takes at least 5 minutes for the inverter to completely release the residual energy and waits for at least 5 minutes before it can be overhauled.

High Temperature Hazard：

Inverter's local temperature may exceed 80℃ while under operating. Please do not touch the inverter's surface.

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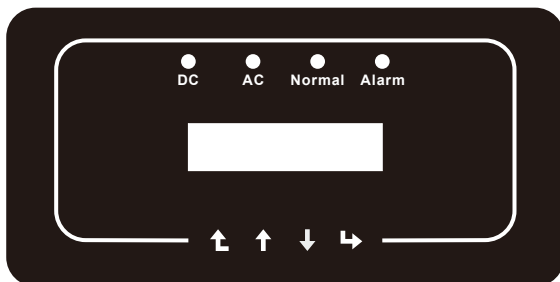www.wccsolar.net   EMAIL: Alex@wccsolar.es

2.3 Notes for using

The single phase string power inverter is designed and tested under related safety regulations. It can ensure the personal safety of the user. But as a electric device,it may cause shock or injury by incorrect operation. Please operate the unit under below requirements:

1. Inverter should be installed and maintained by qualified person under local standard regulations.

2. It must disconnect the AC side first, then disconnect DC side before doing installation and maintenance, after disconnecting, please wait at least 5 mins to avoid getting shocked.

3. Local temperature of the inverter may exceed 80 ℃ while under operating.Do not touch to avoid getting injured.

4. All electrical installation must accord with local electrical standards, and after obtaining the permission of the local power supply department, the professionals can connect the inverter to the grid.

5. Please take appropriate anti-static measure.

6. Please install where children can not touch.

7. When starting the inverter, first close the circuit breaker at the grid side,then close the DC side when closing the inverter, disconnect the grid-side switch first and then disconnect the DC-side switch.

8. Don't insert and remove AC and DC terminals when the inverter is in normal operation.

9. The DC input voltage of the inverter must not exceed the maximum input voltage of the model.

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3. Operation Interface

3.1Interface View

Pic 3.1 Panel

3.2 Status Indicator

The inverter panel has 4 indicators, the left one is DC output indicator(green), indicates normal DC input power status. Beside is the AC indic ator(green),indicates normal AC connecting status. Next is the operating in dicator(green) indicates normal output. The right indicator is alarm(red), indicates alarming.

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Indicator	status	Explanation
●DC	on	Inverter detects DC input
	off	Low DC input voltage
●AC	on	Grid Connected
	off	Grid Unavailable
● NORMAL	on	Under normal operating
	off	Stop operating
● ALARM	on	Detected faults or report faults
	off	Under normal operating

3.3 Buttons

There are four buttons on the inverter panel：above is up and increase button (UP), below is down and decrease button (DOWN)，left is ESC button (ESC)，right is Enter button (ENTER). The following functions can be achieved by the four buttons：

● Page turning (use UP and DOWN button）

● Modify adjustable parameters (use ESC and ENTER button）

3.4 LCD Display

The Single-phase string inverters use a dot matrix display，mainly contains the following：

● Inverter operation status and information;

● Operating information;

● Warning message and malfunction display.

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4. Product installation

4.1 Select installation location

When you receive the inverter and prepare to install it, please select a suitable location, should consider below factors:

● Ventilation—Must insure the air ventilation of the installation location,improper installation may cause overheating and effect the working efficiency and lifespan.

● Sun-shade—Expose the inverter to sunshine will cause overheating and effect the working efficiency.

● Avoid rain and snow—Even if the inverter has IP65 protection. We still recommend installing the inverter at the ventilate place where can avoid rain and snow. It can help extend the lifespan of the inverter.

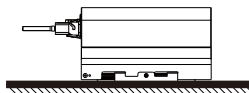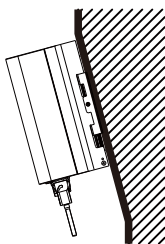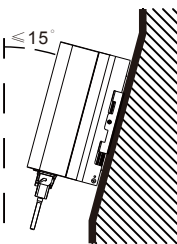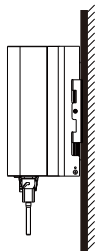Pic4.1 Recommended installation place

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● Please select the wall with certain bearing capacity.

● When doing the installation, vertical slope cannot exceed +/-15° .Make sure no lateral tilt. Otherwise it will affect the function of the heat sink. Cause the output power lower than expected.

● If install more than one inverter, must leave at least 500mm gap between each inverter. And each inverter must be at least 500mm above and below. And must install the inverter at the place where children cannot to uch. Please see pic 4.3

● Consider whether the installation environment is helpful to see the inverter LCD display and indicator status clearly.

● Must offer a ventilate environment if inverter is installed in the airtight house.

Safety Hints :

Do not place or store any items next to the inverter.

Pic4.2 Installation Angle

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Pic4.3 Installation Gap

4.2 Inverter Installation

The inverter is designed according to the wall mounted type installation, please use the wall mounted (the brick wall of the expansion bolt) when installing.

Pic4.4 Inverter Installation

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Inverter should be vertically installed, as shown in pic 4.5，installation procedure shows below:
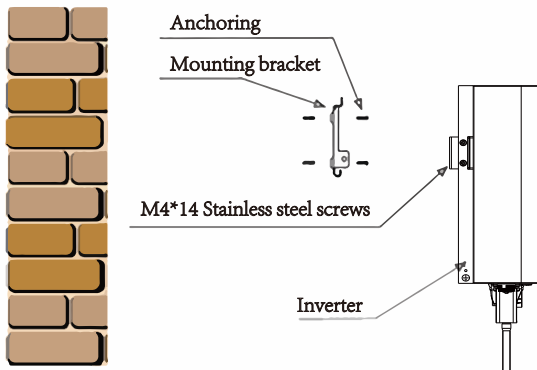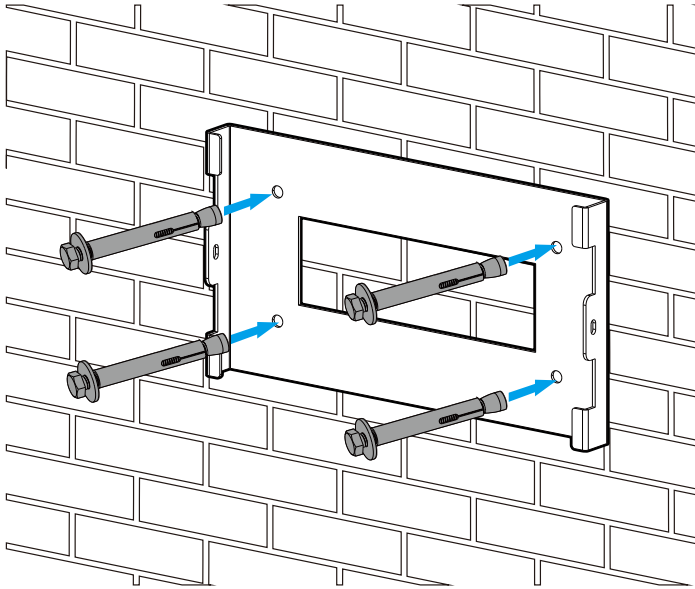
 1. Position the bolts on the appropriate wall according to the bolt positions on the mounting shelves and mark the holes. On the brick wall, the installation must be suitable for the expansion bolt installation.

Pic4.5 Inverter hanging plate installation

2.Ensure that the position of the installation holes on the wall (A, B, C, D) are the same position of themountingplate (picture 4.5), and the mounting level is guaranteed.

3. Hang the inverter to the top of the mounting rack and then use the M4 screw in the accessory to lock E and F (picture 4.6) to ensure that the inverter does not move.

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Pic4.6 Mounting of inverter

5 Electrical Connection

The inverter has considered the convenience of the electrical connection while designing. we design fast connection for both DC and AC,all electrical connections conform to related standards of the country .

5.1 DC input terminal connection

In order to safe connection, the electrical connection must follow below steps：

1. Switch AC off

2. Switch DC off

3. Connect the inverter to solar panels

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a). Make sure that the polarity of the output voltage of the solar panel is consistent with the polarity identified by the inverter

b). Connect DC positive and negative to the inverter input terminal. (see picture 5.1 and picture 5.2)

5.1 DC "+" connector (MC4)   5.2 DC "-" connector (MC4)

c).Making DC connection line Strip off the DC wire about 7mm, disassemble the connector cap nut(see picture 5.3)

7mm

7mm

5.3 Disassemble the connector cap nut

1). Crimping metal terminals with crimping pliers as shown in picture 5.4

Crimping plier ———

5.4Crimp the contact pin to the wire

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2). Insert the contact pin into the connector housing until it locks in place. Screw the cap nut onto the connector housing. Torque to 2.5-3Nm(as shown in picture 5.5)

Pic 5.5 connector with cap nut screwed on

Cable type	Traverse area （mm²）		Outside diameter of cable （mm)
	Range	Recommended size	
Industry generic PV cable （model;PV1-F)	4.0-6.0 (12-10AWG)	4.0(12AWG)	5.5-9.0

Sheet 5.1 Specs of AC cable

3).Finally insert the DC connector into the positive and negative input of the inverter，shown as picture 5.6.

Pic5.6 DC input connection

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NOTE :

Sunlight shines on the panels will generate voltage, high voltage in series may cause danger to life. Therefore, before connecting the DC input line, the solar panel needs to be blocked by the opaque material and ensure that the DC switch is 'OFF', otherwise, the high voltage of the inverter may lead to life-threatening conditions

.

5.2 DC input terminal connection

Do not close the DC switch after the DC terminal is connected.Connect the AC terminal to the AC side of the inverter, the AC side is equipped with single-phase AC terminals that can be conveniently connected. Flexible cords are recommended for easy installation. The specifications are as shown in sheet 5.2.

Warning :

Prohibit using a single circuit breaker for multiple inverters, prohibit the connection of load between inverter circuit breakers.

Cable item	Dia	Cable CSA	Cable outer dia	AWG	Dia	Cable CSA	Cable outer dia	AWG
Specification	2.5mm	6mm^2	15~18mm	10	2.5mm	6mm^2	15~18mm	8
Model	SUN-3.6K-G				SUN-5K/6K/7.5K/8K-G			
Breaker	30A/400V				40A/400V			
Max cable length	Outside cable(2+PE)20m				Outside cable(2+PE)20m			

Sheet 5.2 Cable information

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1. Matching socket   2.Sleeve   3.Sealing core   4.Sealing nut

5.7 AC connector structure

The AC output connector is divided into three parts: matching socket, sleeve and sealing sleeve, as shown in Picture 5.7, the steps are as follows:

Step 1 Remove the cable sealing ring and sleeve in sequence from the AC connector.

Step 2 Separate the sleeve from the matching socket,as shown in figure 5.7,the connector body has two locking holes, and press the locking valve in the hole inward to separate the matching socket from the sleeve.

Step 3 use strippers to strip the protective sheath and insulation layer of the ac cable to the right length, as shown in Picture 5.8.

5.8 Strip AC cable

 Warning :
Be careful to distinguish the L, N and PE of the AC cables.

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Step 4 connect the cable (L, N, PE) into the sealing sleeve and sleeve.

Step 5 use the hexagon screwdriver, loosen the bolts of the socket in turn, and insert each cable core into the corresponding jack,and set each screw. The connection hole of AC connection terminal labeling is shown in Picture 5.9.

5.9 AC Connector Hole Pattern

Step 6 Secure the sleeve and seal to their respective positions.

Step 7 Connect the terminals to the inverter as shown in picture 5.10

5.10 AC input connection

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5.3 The connection of the ground line

Good grounding is good for resisting surge voltage surge and improving EMI performance. Therefore, before connecting AC, DC, and communication cables, you need to ground the cable firstly. For a single system , just ground the PE cable; For multiple machine systems, all PE cables of the inverter need to be connected to the same grounding copper platoon to ensure the equipotential connection. The installation of the shell ground wire is shown as picture 5.11.

5.11 The installation of the shell ground wire

Warning：

Inverter has built-in leakage current detection circuit, If an external leakage current protection device is connected,its operating current must be greater than 300mA or higher,otherwise inverter may not work properly.
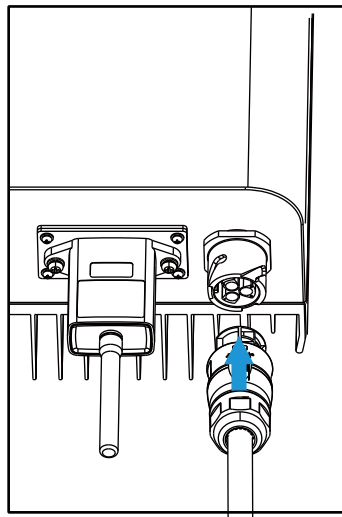
5.4 Inverter monitoring connection

Inverter has the function of wireless remote monitoring. The inverter with Wifi function is equipped with Wifi Plug to connect the inverter and network. Wifi Plug's operation, installation, Internet access, APP downloading and other processes are detailed in the instructions. Picture 5.12 is the Internet monitoring solution.

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Phone

GPRS

WIFI   Router   Web Server

PC

5.12 Internet monitoring solution

5.4.1 Installation of Wi-Fi Plug

When the inverter is out of the factory, the installationlocation of Wifi plug is sealed by a sealed plate as shown in picture 5.13.When installing the Wifi Plug, remove the sealing plate, replace it with the sealing plate with square hole in the accessories, and tighten the screws. Insert the Wifi Plug into the interface and fix it with a screw. The configuration of the WiFi Plug needs to be performed after various electrical connections have been completed and the inverter DC power on.When the inverter is on the DC power, it is determined whether the WiFi Plug is normally electrified (The LED light shines out of the shell).

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5.13 Wifi Plug installation diagram

5.4.2 Configuration of Wi-Fi Plug

For the configuration of Wi-Fi Plug, please refer to illustrations of the Wi-Fi Plug.

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6. Startup and Shutdown

Before starting the inverter, make sure that the inverter can meet the following conditions, otherwise it may result in fire or damage to the inverter. In this case, we do not undertake any responsibility. At the same time, to optimize the system configuration, it is recommended that the two inputs be connected to the same number of photovoltaic modules.

a). The maximum open voltage of each set of photovoltaic modules shall not exceed 600VDC under any conditions.

b). Each input of the inverter must use the same type of photovoltaic module in series.

c). Total output power of pv shall not exceed the maximum input power of inverter, each photovoltaic modules shall not exceed the rated power of each channel.

d). The short circuit current of each series of photovoltaic modules cannot be greater than 10A at any time.

6.1 Start up the inverter

When start up the single phase string inverter, should fellow below steps：

1. First switch on the AC breaker.

2. Turn on the DC switch of the photovoltaic module,and if the panel provides sufficient starting voltage and power, the inverter will start.

3. When the ac voltage and DC voltage are normal, the inverter start-up is ready to begin. The inverter will first check the internal parameters and the grid parameters, while the liquid crystal will show that the inverter is self-checking.

4. If the parameter is within acceptable range, the inverter will generate the normal grid. NORMAL indicator light is on.

6.2 Inverter Shutdown

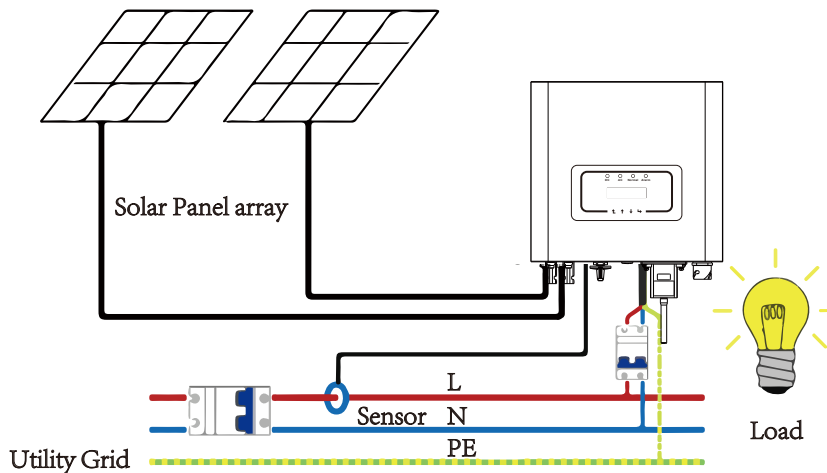Must follow below steps while shutting down the inverter:

1. Switch off the AC breaker.

2. Wait for 30 seconds, turn off the DC switch (if any), or simply disconnect the DC input connector. The inverter will close the LCD and all LED within two minutes.

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7. Limiter function

The inverter has integrated export limitation function. The function is to adjust the output of inverter quickly according to the power of the user and solar panels, prevent the output of the inverter from being fed to the power grid. This limiter function is optional. If you buy the inverter with limiter, a current sensor will be included in the package which is necessary for limiter function.

7.1 Limiter function wiring diagram

When you are reading this, we believe that you have completed the connection according to the requirements of chapter 5, if you has been running your inverter at this time, and you want to use the limiter function, please turn off AC and DC switch of the inverter, and wait for 5 minutes until the inverter completely discharged. Then connect the current sensor to the inverter limiter interface.Make sure they are reliably connected, and the current sensor should clamp to the live wire of the incoming line.In order to make it easier for you to use the built-in limiter function of the inverter, we have specifically given the wiring diagram,as shown in Picture 7.1, the red lines connected to the utility grid said wire (L), blue line shows the zero line (N), yellow green line shows the ground wire (PE). We recommend installing a AC switch between the inverter outlet and the utility grid, the specs of the AC switch is determined according to the load capacity. The AC switch we recommend to connect to the inverter output can refer to Table 5.1.If there is no integrated DC switch inside the inverter you purchased, were commend you to connect the DC switch. The voltage and current of the switch depends on the PV array you access.

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Solar Panel array

L
Sensor   N
PE

Utility Grid

Load

Pic 7.1 Connection diagram of limiter

7.2 Use of anti-backflow function

When the connection is completed, the following steps should be referenced to use this function:

　　1.Turn on the AC switch

　　2. Turn on the DC switch , Waiting inverter LCD lighting up

　　3.Press Enter button on the LCD panel in the main interface into the menu options, select [parameter setting] to Enter setup submenu, and then select [running parameters] as shown in figure 7.2,at this time please Input the default password 1234 through pressing the button [up down, confirm], enter the operation parameter setting interface, Shown as figure:

```
System Param    <<
Run     Param
```

Pic 7.2 parameter setting

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```
Fun_GFDI    OFF
Limiter     OFF  <<
```

Pic 7.3 Limit switch

4. Operate the button [up down], move setting cursor to limit function and press the button [enter] .At this time you can turn on or turn off the limit function by choosing [up down] button, please press [enter] button to confirm when setting done.

5. Move the cursor to [confirm] , press ENTER to save the settings and exit the running parameters page, otherwise the settings are invalid.

6. If set up successfully, you can return to the menu interface, and display the LCD to [output data] by press the [up down] button. If the display of [grid power], the limit function settings will be completed. Shown as figure 7.4

```
Utility Power:
           0W
```

7.Need to understand that [grid power] shows positive means grid power is consuming energy, and there is no backflow.If [grid power] is negative, it means backflowr to the grid or current transformer direction error has occurred.Please read more on chapter 7.3.

8. After properly connection is done, wait for inverter starting, If the power of the PV array meets the current power consumption, the inverter will maintain a certain output to counteract the power of the grid without backflow .

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7.3 Notes while using limit function

For your safety and the operation of limiter function of the inverter, we put forward the following Suggestions and precautions:

Warning：

In limit function we strongly recommend that the two photovoltaic arrays are formed by the same number of photovoltaic panels of the same size, which will make the inverter more responsive to limit the power.

Warning：

When using limit function, you need to ensure that the opening voltage of PV input is no more than 480V, Otherwise may cause inverter malfunction. Do not have this limitation if not working under limit function.

Warning：

While the grid power is negative and inverter has no output power, That means the orientation of the current sensor is wrong,pls turn off the inverter and change orientation of the current sensor.

Warning：

The current sensor of limit function needs to be clamped on the fire line of the grid connected to the inverter., otherwise inverter cannot able to normal operate

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Warning :

Do not change the operating parameters if non-professional when setting the limit function switch, otherwise inverter cannot able to normal operate.

8. General Operation

During normal operation, the LCD shows the current status of the inverter, including the current power, total generation, a bar chart of power operation and inverter ID,etc. Press the Up key and the Down key to see the current DC voltage, DC current, AC voltage, AC current, inverter radiator temperature,software version number and Wifi connection state of the inverter.

Pic8.1 LCD operation flow chart

8.1 The initial interface

From the initial interface, you can check power, day power, total power,inverter ID , model and time.

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```
Power:        108W
State:        Normal
```

8.2 The initial interface

Press UP or Down you can check inverter DC voltage, DC current, AC voltage, AC current, inverter temperature, software version information.

```
PV1:276.2V  0.6A
```

8.3 PV input and DC current information

You can check the PV information, the number of strings input, MPPT voltage and MPPT current.

```
Grid:240V      0.5A
Freq:    50.03Hz
```

8.4 AC running state information

You can check the single phase voltage, current, and grid currency.

```
Temp:35.3      °C
```

8.5 Temperature and software version

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You can check the inverter inside temp, LCD software Ver137 and inverter software Ver1400. There are two black spot in the bottom right corner. The first flash means inverter is communicating with LCD. The second flash means LCD is communicating with Wifi plug.There are four submenu in the Main Menu.

```
ON/OFF
Setup          {{
```

8.6 Main Menu

8.2 Device information

```
Device  Info. {{
Fault Record
```

```
GL1030     SN-01
ID:1707010001
```

```
ID:1707010001
Ver0201    Ver5102
```

Pic8.7 Device information

You can see the LCD software Ver0201 and inverter software Ver5102. In this interface, there are parameters such as rated power communication addresses.

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8.3 Fault Record

Only can keep four fault record in the menu include time, customer can deal with it depends on the error code

```
1 F19 181017 07
2 F35 181015 08
```

8.11 Fault Record

8.4 ON/OFF setting

```
Turn ON        <<
Turn OFF
```

8.13 ON/OFF setting

8.5 Parameter setting

Setting includes system param, run param, protect param, comm：param. All of these information for maintenance reference.

8.5.1 System Param

```
System Param <<
Run    Param
```

8.12 Setting

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8.5.1.2 Language set

Pic8.13 Language set

8.5.2 Running Param

Note：
Password required-restricted access-authorized engineer only.
Un-authorized access may avoid the warranty. The initial password
is 1234

Pic8.14 Password

Pic8.15 Running Param

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8.5.3 Protect Param

Note：

Engineer Only.
We will set the param depends on the safety requirements, so customers don't need to reset it. The password is same as 8.5.2 Running param.

```
oo CHINA        {{
oo BRAZIL
```

```
00 EN50549
00 CUSTOM       {{
```

Pic8.16 Protect Param

Note：

Engineer only.

```
AC OverVoltage  {{
265.0V
```

```
AC LowVoltage   {{
185.0V
```

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```
AC OverFreq      <<
51.50Hz
```

```
AC LowFreq       <<
47.50Hz
```

Pic8.17 "CUSTOM"

9. Repair and Maintenance

String type inverter doesn't need regular maintenance. However, debris or dust will affect heat sink's thermal performance. It is better to clean it with a soft brush. If the surface is too dirty and affect the reading of LCD and LED lamp, you can use wet cloth to clean it up.

Warning：

When the device is running, the local temperature is too high and the touch can cause burns. Turn off the inverter and wait for it cooling, then you can clean and maintain.

Warning:

When cleaning any part of the inverter, no solvent, abrasive materials or corrosive materials shall be used for cleaning.

10.Error information and processing

Single-phase string inverters are designed according to grid-connected operating standards. It meets safety requirements and electromagnetic compatibility.

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requirements. Before leaving the factory, the inverter has undergone several rigorous tests to ensure that it can be operated reliably and permanently.

10.1 Error code

In the case of failure the LCD screen will display an alarm message. In this case the inverter may stop feeding energy into the grid. The alarm description and their corresponding alarm messages are listed Table 10.1

Error code	Description	Solutions
F14	DC firmware over current	1. Turn off DC/AC switch, and turn on DC/AC switch 3mins later; 2. If the fault still exists, please contact us for help.
F15	AC firmware over current	1. Restart inverter and check whether it is in normal; 2. Seek help from us, if can't go back to normal state.
F16	GFCI(RCD) Ac leakage current fault	1. Check PV module connection; 2. Turn off the DC/AC switch and then wait 1~2 minute, then turn on the DC/AC switch again; 3. Seek help from us, if can't go back to normal state.
F19	All hardware failure synthesis	1. Restart inverter and check whether it is in normal; 2. Seek help from us, if can't go back to normal state.
F23	AC leakage current is transient over current	1. Please wait for a while and check whether it is normal; 2. If still same, and turn off the DC switch and AC switch and wait for one minute and then turn on the DC/AC switch; 3. Seek help from us, if can't go back to normal state.
F24	DC insulation impedance failure	1. Check PV panels connection and restart inverter. This problem is caused by the PV side usually; 2. If the fault still exists, please contact us for help.
F30	AC main contactor failure	1. Turn off the DC/AC switch and then wait 1~2 minutes, then turn on the DC/AC switch again; 2. If the fault still exists, please contact us for help.
F35	No AC grid	1. Check AC grid voltage; 2. Check whether the AC output connection is in good condition; 3. If the fault still exists, please contact us for help.
F39	AC over current (one cycle) Grid voltage fault	1. Wait for inverter to return to normal; 2. Disconnect DC switch and AC switch, and reconnect DC switch and AC switch 10min later to restart the inverter; 3. If the fault still exists, please contact us for help.

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Error code	Description	Solutions
F41	AC Line L, N over voltage Generally, the inverter will reconnect to grid after grid returns to normal. If this fault occurs repeatedly then check as follow:	1. Measure the actual grid voltage and compare with inverter set value. if the grid voltage measured is higher than set value, and then ask help from local electrically company for solution; 2. Check whether voltage protection parameters are appropriate via LCD or monitoring platform; 3. Check whether the cross-sectional area of AC cable meets the requirements; 4. If the fault is not caused by foregoing reasons and still exists, please contact us for help.
F42	AC Line L, N low voltage Generally, the inverter will reconnect to grid after grid returns to normal. If this fault occurs repeatedly then check as follow:	1. Measure the actual grid voltage and compare with inverter set value. if the grid voltage measured is lower than set value, and then ask help from local electrically company for solution; 2. Check whether voltage protection parameters are appropriate via LCD or monitoring platform; 3. If the fault is not caused by foregoing reasons and still exists, please contact us for help.
F47	AC Over frequency Generally, the inverter will reconnect to grid after grid returns to normal. If this fault occurs repeatedly then check as follow:	1. Measure the actual grid frequency and compare with inverter set value. if the grid frequency measured is higher than set value, and then ask help from local electrically company for solution; 2. Check whether frequency protection parameters are appropriate via LCD or monitoring platform; 3. If the fault is not caused by foregoing reasons and still exists, please contact us for help
F48	AC lower frequency Generally, the inverter will reconnect to grid after grid returns to normal. If this fault occurs repeatedly then check as follow:	1. Measure the actual grid frequency and compare with inverter set value. if the grid frequency measured is lower than set value, and then ask help from local electrically company for solution; 2. Check whether frequency protection parameters are appropriate via LCD or monitoring platform; 3. If the fault is not caused by foregoing reasons and still exists, please contact us for help.
F55	DC busbar voltage is too high	1. Check PV input voltage and Ubus voltage via LCD or monitoring platform; 2. Disconnect DC switch and AC switch, and reconnect DC switch and AC switch 10min later to restart the inverter; 3. If the fault still exists, please contact us for help.
F56	DC busbar voltage is too low	1. Check PV input voltage and Ubus voltage via LCD or monitoring platform; 2. Disconnect DC switch and AC switch, and reconnect DC switch and AC switch 10min later to restart the inverter; 3. If the fault still exists, please contact us for help.
F64	IGBT heat sink high temperature Heat sink temperature is too high	1. Check whether the work environment temperature is too high; 2. Turn off the inverter for 10mins and restart; 3. Seek help from us, if can't go back to normal state.

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Note:

If your SUN-3.6/5/6/7.5K/8K-G string inverter has any of the fault information shown in Table 10-1,and when you reset the machine and still don't solve the problem,please contact our distributor and provide the below details:

1、 Serial number of the inverter;

2、 The distributor/dealer of the inverter(if acailable);

3、 Installation date;

4、 The descruotion of problem(include LCD'error code and LED starus indicator lights);

5、 Your contact details.

11.Specification

Model	SUN-3.6K-G	SUN-5K-G	SUN-6K-G	SUN-7.5K-G	SUN-8K-G
Energy source	Grid-connected PV				
Input Side					
Max.DC Power(kW)	4.68	6.5	6.6	8.25	8.8
Max.DC Input Voltage(V)	500				
Start-up DC Input Voltage(V)	120				
MPPT Operating Range(V)	100~500				
Max.DC Input Current(A)	10+10	10+10	10+10	10+20	10+20
Number of MPPT/ Strings per MPPT	2/1	2/1	2/1	2/1+2	2/1+2
Output Side					
Rated Output Power(kW)	3.6	5	6	7.5	8
Max.Active Power(kW)	4	5.5	6.6	8.25	8.8
Rated AC Grid Voltage(V)	230				
AC Grid Voltage Range(V)	180~300				
Rated Grid Frequency(Hz)	50/60(Optional)				
Operating Phase	Single phase				
Rated AC Grid Output Current(A)	16	22	26	33	35
Max.AC Output Current(A)	18	24	29	36	39
Output Power Factor	>0.99				
Grid Current THD	<3%				

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DC Injection Current(mA)	<0.5%				
Grid Frequency Range	47-52 or 57-62（optional）				
Efficiency					
Max.Efficiency	97.3%	97.5%	97.5%	97.7%	97.7%
Euro Efficiency	97.1%	97.3%	97.3%	97.5%	97.5%
MPPT Efficiency	>99%				
Protection	DC reverse-polarity protection；AC short circuit protection；AC output overcurrent protection;Output over-voltage protection;Insulation resistance protection;Ground fault monitoring;Surge protection;Islanding protection；Temperature protection；Integrated DC Switch (Optional)；				
General Data					
Size(mm)	330W×310H×172D				
Weight(kg)	11				
Topology	Transformerless				
Internal consumption	<1W(Night)				
Operating temperature	-25 ~ 60℃				
Ingress protection	IP65				
Noise Emission(Typical)	<30dB				
Cooling Concept	Intelligent cooling				
Max.Operating Altitude Without Derating	2000m				
Designed Lifetime	>20Years				
Grid Connection Standard	EN50438;IEC61727;VDE4105;NB/T32004(CQC);IEC62109-1-2				
Operation surrounding humidity	0~100%				
Stafty EMC / Standard	IEC62109-1/-2,EN61000-6-1,EN61000-6-3				
Features					
DC Connection	MC-4 mateable				
AC Connection	IP65 rated plug				
Display	LCD1602				
Interface	RS485/RS232				

Table11.1 Specification