



## **CPS Series Photovoltaic Grid Connection**

### **Inverter CPS SC100KT**

## **Installation and Operation Manual**



**Shanghai CHINT Power Systems Co., Ltd.**

## Table of Contents

Chapter 1 Safety Instructions.....	1
Chapter 2 Overview .....	3
2.1 Photovoltaic system for grid connection .....	3
2.2 Inverter circuit structure .....	4
2.3 Illustration for front and top views .....	5
Chapter 3 Installation.....	6
3.1 Basic requirements.....	6
3.2 Mechanical installation .....	6
3.3 Electrical installation .....	9
3.3.1 DC connection.....	10
3.3.2 AC connection .....	12
3.3.3 Communication connection .....	13
Chapter 4 Operation .....	15
4.1 Start-up and shut-down .....	15
4.1.1 Start-up.....	15
4.1.2 Shutdown .....	15
4.2 Operation mode.....	16
4.3 Grid connection and power generation.....	18
4.4 Fault shutdown .....	19

Chapter 5 Human Machine Interface .....	28
5.1 Description of LCD display .....	28
5.2 Operation State .....	29
5.3 Interface and menu functions .....	30
5.3.1 Interface types .....	30
5.3.2 Main operation interface.....	32
5.3.3 Operation information.....	33
5.3.4 Present fault.....	34
5.3.5 History.....	34
5.3.6 System setup .....	36
5.3.7 System protection parameter setup .....	37
Chapter 6 Technical Data .....	40
Chapter 7 Quality Assurance .....	42
7.1 Warranty.....	42
7.2 Disclaimer .....	42
7.3 Quality clause (Warranty clause).....	42

## Chapter 1 Safety Instructions

Please read this manual carefully before installation. CPS reserves have the right not to guarantee the quality for equipment damage if the user fails to install the equipment as per the instructions in this manual.



### **Electric shock hazard:**

Make sure that all DC and AC are isolated from the equipment to prevent electric shock hazard during equipment maintenance or installation. At the same time, make sure that equipment is grounded properly.



### **Warning:**

All operations and wiring should be performed by qualified technical personnel.

When the connected solar cell panel is exposed to the sunlight, it generates DC voltage and charges the DC bus capacitors of the inverter. Electric charges are still stored in the capacitors even the input of the photovoltaic inverter is

switched off. Therefore, equipment shall not be serviced or operated until 60 minutes after all inputs are switched off.

For grid connection only!

This inverter is specially designed for directly connecting AC power to public power grid. Do not connect the AC output of this equipment directly to private AC power equipment.



**High temperature:**

This product complies with the international safety standard, but the inverter would generate heat during operation. So do not touch the metal surfaces of the radiator and inverter during the operation of the inverter.

## Chapter 2 Overview

### 2.1 Photovoltaic system for grid connection

CPS SC100KT grid connection photovoltaic inverter applies to all kinds of commercial roof grid connected system or grid connected power station system. Normally, the system consists of solar cell modules, DC power distribution unit, grid connection inverter and AC power distribution unit (Figure 2-1). Solar energy is converted to direct current through solar cells. The direct current is then converted to alternative current with the same frequency and phase as the grid through grid connection inverter. All or part of the alternative current is supplied to the local load. The remaining or all electricity is fed to the grid.

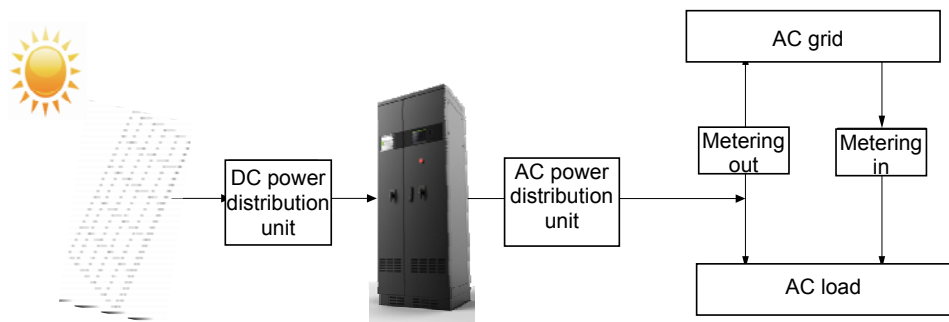


Figure 2-1 Grid connection photovoltaic power generation system

## 2.2 Inverter circuit structure

The basic schematic diagram of CPS SC100KT inverter is shown in Figure 2-2. The output of solar cells first passes through DC switch and DC EMI wave filter circuit. The inverter then converts DC voltage to 3-phase AC voltage. The output wave filter will remove high frequency component, and is connected to LV grid through industrial frequency transformer step-up and isolation, AC contactor, AC EMI wave filter and circuit breaker.

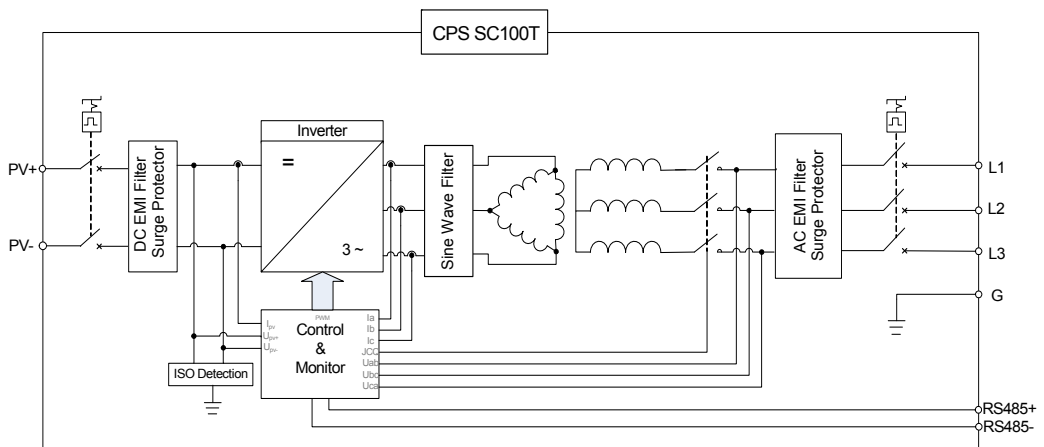


Figure 2-2 Schematic diagram

## 2.3 Illustration for front and top views

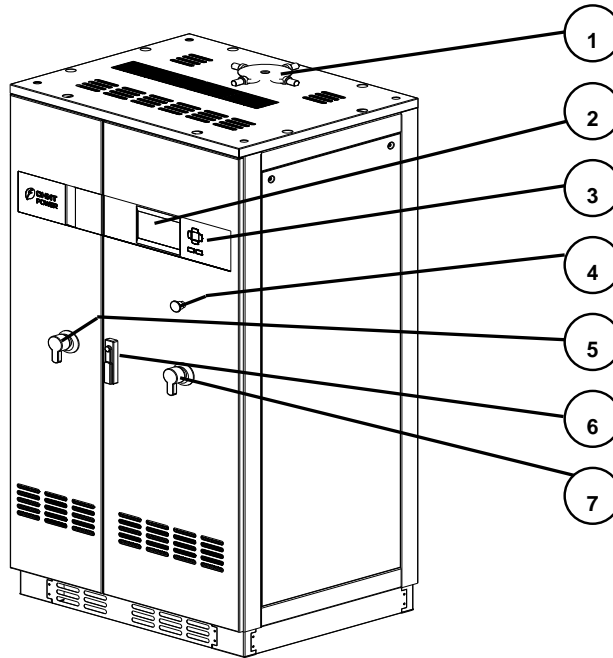


Figure 2-3 Appearance sketch

### **Description of main items (shown in Figure 2-3):**

- 1、 Mounting plate for lifting ring
- 2、 Display panel (with LED indication and LCD Display)
- 3、 Operation keys (Up, Down, Left, Right, ESC, ENT)
- 4、 Emergency switch button
- 5、 Switch on DC side
- 6、 Lock
- 7、 Switch on AC side



## Chapter 3 Installation

### 3.1 Basic requirements

The protection level of CPS SC100KT photovoltaic inverter is IP20. Do not install it in a humid environment.

- ✓ Check and make sure that the ambient temperature of the installation location is  $-20\text{ }^{\circ}\text{C} \sim +65\text{ }^{\circ}\text{C}$ ;
- ✓ Make sure that the commercial power grid voltage is  $320\sim 460\text{Vac}$ , 50Hz;
- ✓ Grid connection permit has been obtained from the power authority;
- ✓ Installation personnel must be qualified electricians or have undergone professional trainings;
- ✓ Sufficient convection space;
- ✓ Away from flammable and explosive substances

### 3.2 Mechanical installation

#### (1) Dimensions

Dimensions of CPS SC100KT photovoltaic inverter are shown in Figure 3-1. The dimensions of foundation installation are shown in Figure 3-2.

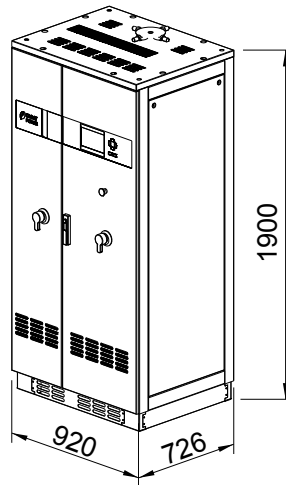


Figure 3-1 Sketch of dimensions

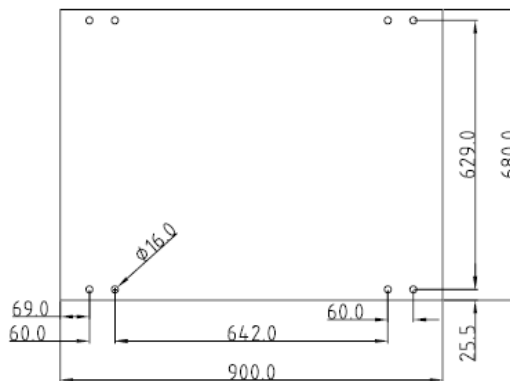


Figure 3-2 Sketch of foundation installation dimensions

(2) Requirements on inverter installation:

Front door: A 560mm space should be reserved to ensure that the front door can be opened and closed freely.

Back: A 600mm space should be reserved to allow for maintenance.

Top: A 600mm space should be reserved for heat dissipation.

The weight of the inverter is approximately 900kg. Make sure that the mounting place can bear the weight. Two approaches are recommended to lift the machine, i.e. lifting with a crane and lifting with a hydraulic forklift:

Lifting with a crane :

Bolt the 4 lifting lugs at the 4 corners of the top the machine. Lift the machine to the appropriate location for installation with the crane (shown in Figure 3-3).

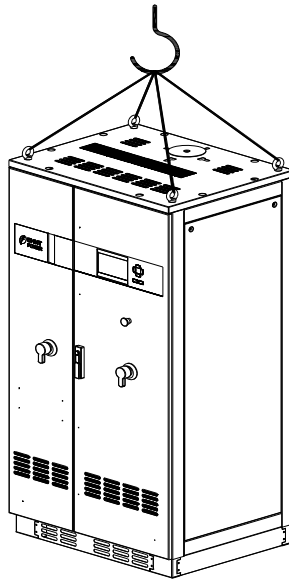


Figure 3-3 Sketch of handling by crane

Lifting with a hydraulic forklift:

Remove the front and back baffles at the bottom of the machine. Insert the fork into the bottom of the machine and lift it to the appropriate location for installation (shown in Figure 3-4).

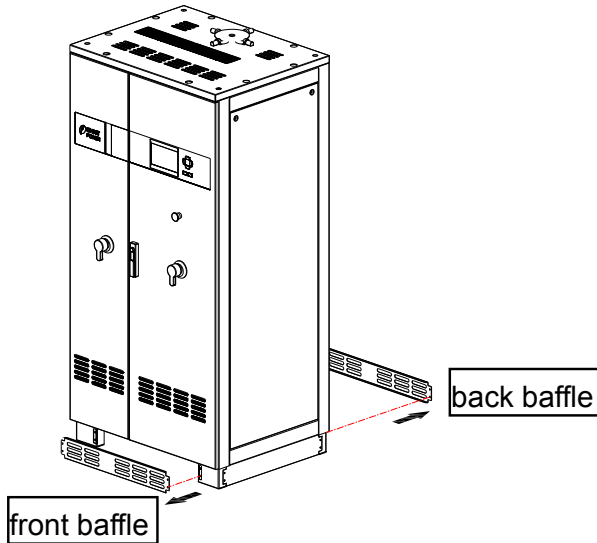


Figure 3-4 Sketch of handling by forklift

### 3.3 Electrical installation

Open the front door of the machine. Proceed as shown in Figure 3-5.

- 1、 Turn the handle bar of the latch at DC side to right toward horizontal position.
- 2、 Turn the handle bar of the latch at AC side to right toward horizontal position.
- 3、 Unlock the door with the key. Turn it to the right and horizontal position, then pull outward to open the front door.

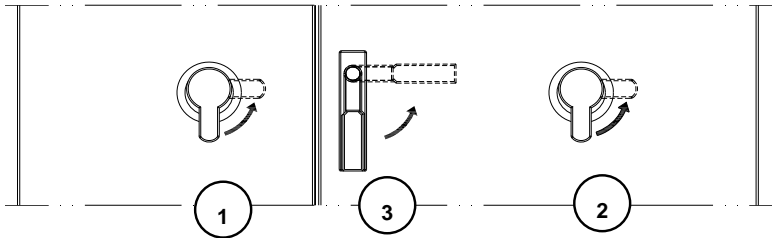


Figure3-5 Sketch of opening front door

4. Remove the transparent Plexiglas cover at the bottom of the machine and install the external wires after the front door is open (as shown in Figure 3-6).

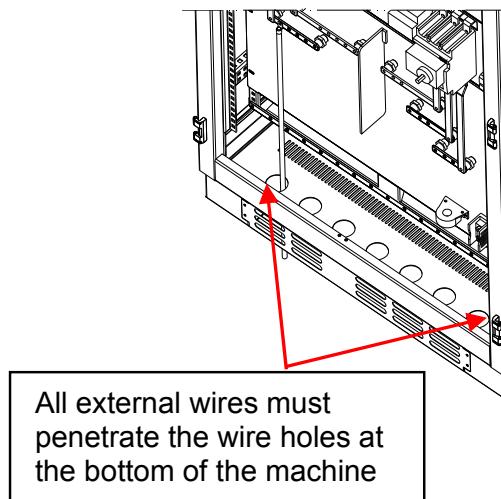


Figure 3-6 Sketch of external wiring

### 3.3.1 DC connection

(1)The following rules must be followed to allow the photovoltaic inverter to operate properly:

- (a) First, ensure that the maximum open circuit voltage of the photovoltaic modules is lower than 880VDC at any conditions;

- (b) Ensure that the polarity of DC input is correct, i.e. the positive pole of photovoltaic module is connected to the positive pole of the inverter DC input, and the negative pole of photovoltaic module is connected to the negative pole of the inverter's DC input;
- (c) 35~70mm<sup>2</sup> copper core cables can be used for inverter's DC input;
- (d) The inverter's maximum DC input current is 250A. Two incoming 70mm<sup>2</sup> copper core cables are recommended as minimum. Three incoming 50mm<sup>2</sup> copper core cables can also be used. Four incoming 35mm<sup>2</sup> copper core cables can be used as maximum;

(2) Confirm that the input photovoltaic modules are of the same specifications and types before connection of DC input;

(3) Compress the positive and negative cable terminals of the DC source and then connect them to the positive and negative buses of the inverter respectively, as shown in Figure 3-7

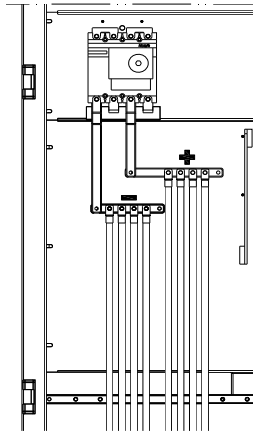


Figure 3-7 DC input wiring

### 3.3.2 AC connection

Connect the AC output of photovoltaic inverter to the AC cabinet or the power grid through AC output cables and grounding wires:

- (1) Use the recommended AC output cables,  
L1 (Line 1)、L2 (Line 2)、L3 (Line 3) :  $70\text{mm}^2$   
Gnd (PE):  $35\text{mm}^2$ ;

- (2) Connect the AC output cables to the terminals shown in Figure 3-8

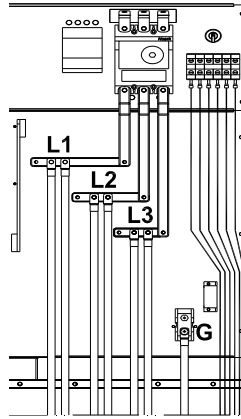


Figure 3-8 AC output wiring

(3) Connect power grid A to terminal L1. Connect power grid B to terminal L2. Connect power grid C to terminal L3. Connect power grid PE cable to terminal G.

(4) Tighten terminals L1, L2, L3 and PE. Make sure that all cables are tightened properly.

### 3.3.3 Communication connection

Functions corresponding to signal wiring terminals are shown in Figure 3-9.

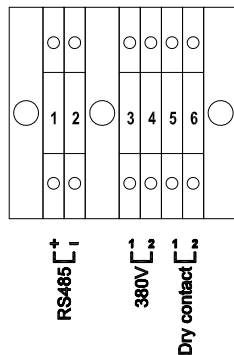


Figure 3-9 Sketch of functions corresponding to the signal wiring terminals



(1) Terminal 1 is connected to RS485+. Terminal 2 is connected to RS485 – . Twisted pair cable is connected to 485 busbar.

(2) Terminal 3 and terminal 4 can be connected to an external 380V power supply and used as power supply of the inverter. The selector on the signal wiring terminal should be turned to “OUTSIDE” if an external power supply is used . as the power supply of the inverter. Normally, the selector is turned to “INSIDE”.

(3) Terminal 5 and terminal 6 are inverter fault alarm (passive).

## Chapter 4 Operation

### 4.1 Start-up and shut-down

#### 4.1.1 Start-up

Check and make sure that input and output cables are connected correctly. Close the DC circuit breaker at PV side then close the AC circuit breaker at power grid side.

**Manual start-up:** Manual start-up is required after initial installation or manual (failure) shut-down.

Move the cursor from the main operation interface to “4 Setting”. Click the ENTER key and enter submenu “1 ON/OFF”. Then move the cursor to “ON” and pressing the ENTER key to start the inverter.

The inverter will enter into normal operation mode if it is ready for startup and will enter into standby mode if it is not ready for startup.

**Automatic start-up:** The inverter will be started automatically when the output voltage and output power of PV panel meet the set points, AC power grid is normal, and the ambient temperature is within allowable operating range.

#### 4.1.2 Shutdown

**Manual shut-down:** Normally, manual shutdown is not required. It can be shut down by manual if repair

or shutdown by human is required.

(1) Move the cursor from the main operation interface to “4 Setting”. Click the ENTER key and enter submenu “1 ON/OFF”. The inverter is shut down after moving the cursor to “OFF” and pressing the ENTER key.

(2) Press the emergency button on the panel to shut down the inverter in case of emergencies.

Automatic shut-down: The inverter will be shut down automatically when the output voltage and output power of PV panel are lower than the set points, or AC power grid fails; or the ambient temperature exceeds the normal range.

## 4.2 Operation mode

There are 4 operation modes. Appropriate indications are shown for each mode.

(1) Self test for startup, as shown in Figure 4-1:



Figure 4-1 Self-Checking for inverter

This mode indicates that the inverter is checking itself whether it is ready during the startup of the inverter.

(2) Normal operation, as shown in Figure 4-2:

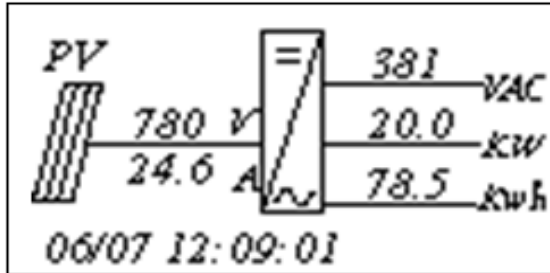


Figure 4-2 Default indication interface for normal operation

In this mode, the inverter converts the power generated by solar cell panels to AC continuously and feeds in the power grid.

(3) Standby mode, as shown in Figure 4-3:

The inverter will enter standby mode when the voltage of PV panel is too low or output power cannot meet the startup condition. The inverter will check automatically whether it meets the startup conditions in this mode until it enters normal mode. The inverter will change from standby mode to failure mode if it fails.

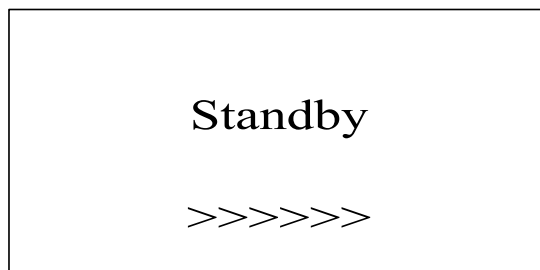
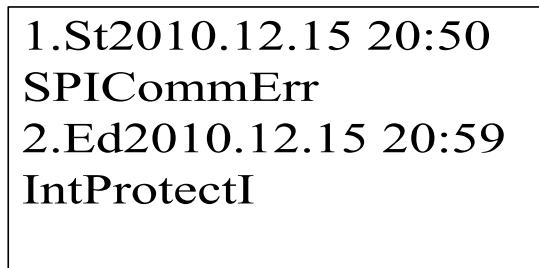


Figure 4-3 Inverter system in standby mode

(4) Failure mode, as shown in Figure 4-4:

The inverter will disconnect from the power grid and enter failure mode when photovoltaic power generation system fails. Check the specific cause through LCD “Troubleshooting” and eliminate the failure with the instructions.



```
1.St2010.12.15 20:50
SPICommErr
2.Ed2010.12.15 20:59
IntProtectI
```

Figure 4-4 Fault indication interface

### Warning

**Disconnect the AC circuit breaker at the power grid side then disconnect the DC circuit breaker at PV side before opening and doing maintenance of the inverter. Work on the inverter only after confirming that it has no more electric charge left.**

### 4.3 Grid connection and power generation

The grid connection and power generation process of CPS SC100KT grid connection inverter are automatic. It will check automatically whether AC power grid meets the grid connection and power generation conditions. At the same

time, it will also check whether photovoltaic array has sufficient energy. The inverter will enter grid connection and power generation mode when everything is ready. The inverter will maximize the photovoltaic array output power in MPPT (Maximum Power Point Tracking) during the grid connection and power generation. Meanwhile, the inverter will check the power grid at any time. It will enter protection sequence in the event of abnormal conditions. The inverter will enter standby mode when the sunlight is weak and power generation is insufficient. It will disconnect from the power grid when the sunlight is very weak. The inverter will try to connect to the grid and generate power again when the photovoltaic array voltage is stably and higher than 470V.

#### **4.4 Fault shutdown**

The inverter will be shut down automatically when the photovoltaic power generation system fails, such as output short circuit, grid overvoltage/undervoltage, grid overfrequency/underfrequency, high ambient temperature or internal failure of the machine.

The causes of fault can be identified based on the faults listed in Table 4-1. Proper treatment is recommended before contacting after-sales service. There are mainly 3 types of faults: alarm, protection and hard failure.

**Table 4-1 Troubleshooting Table**

	Alarm/Protection/Failure	Definition	Possible causes	Recommended solutions
Alarm	1、PV BrkerOpen	Indicate that PV switch is in disconnection state	1、 Forget to close PV switch; 2、 PV is connected reversely; 3、 Input current is excessively high; 4、 PV switch is damaged;	1、 Check status of PV switch; 2、 Check whether PV cabling is correct; 3、 Check whether sunlight is too strong or PV panel configuration is correct; 4、 Contact after-sales service personnel
	2、SPIComm-Err	Communication inside inverter fails	1、 Circuit problem inside inverter; 2、 Software problem of LCD monitor; 3、 Software problem of Inverter	1、 Observe for 5 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Switch off 3-phase work power supply and then reboot the system; 3、 Contact after-sales service personnel
	3、IntFanErr	Fan (invisible from outside) inside inverter is working abnormally	1、 Fan is blocked; 2、 Power supply circuit of the fan has problem; 3、 Fan state test circuit has problem; 4、 Fan service life expires; 5、 Inverter software problem	1、 Observe for 5 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Switch off 3-phase work power supply and then reboot the system; 3、 Contact after-sales service personnel

	4、 ExtFanErr	The visible fan from outside is working abnormally	1、 Fan is blocked; 2、 Power supply circuit of the fan has problem; 3、 Fan state test circuit has problem; 4、 Fan service life expires; 5、 Inverter software problem	1、 Observe for 5 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Check for foreign matters on fan blades in the field; 3、 Switch off 3-phase work power supply and then reboot the system; 4、 Contact after-sales service personnel
	5、 EepromErr	Internal alarm	Internal memory has a certain problem	1、 Observe for 5 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Contact after-sales service personnel
Protection	1、 TempOver	Ambient temperature or temperature inside inverter is too high	1、 Ambient temperature outside the inverter is too high; 2、 Fan is blocked;	1、 Confirm that external ambient temperature is within the specified range of operating temperature; 2、 Check whether radiation air inlet is blocked; 3、 Whether radiation fan is blocked; 4、 Observe for 30 minutes and see whether the inverter can eliminate this alarm automatically; 5、 Contact after-sales service personnel



	2、 GridV.OutLim	Grid voltage exceeds the specified range, or grid is not detected	1、 Grid voltage is abnormal; Power grid outage 2、 Connecting cable between the inverter and the grid is disconnected 3、 Failure inside the inverter	1、 Observe for 10 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Check whether the grid voltage is within the specified range; 3、 Check whether the connecting cable of the grid is disconnected or has abnormalities; 4、 Contact after-sales service personnel
	3、 GridF.OutLim	Grid voltage frequency is abnormal, or grid is not detected	1、 Grid frequency has abnormalities; 2、 Power outage of the grid; 3、 Connecting cable between the inverter and the grid is disconnected 4、 Inverter itself has problem	1、 Observe for 10 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Check whether the grid voltage is within the specified range; 3、 Check whether the connecting cable of the grid is disconnected or has abnormalities; 4、 Contact after-sales service personnel
	4、 PV.VoltOver	PV voltage exceeds the specified value	1、 PV over-voltage 2、 Failure inside the inverter	1、 Observe for 30 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Check whether PV voltage exceeds the specified range; 3、 Switch off the PV input switch, wait for 5 minutes, turn on the switch again; 4、 Contact after-sales service personnel

	5、PV.Reverse	PV panel is connected reversely	1、PV positive pole and negative pole are connected reversely; 2、Failure inside the inverter	1、 Check whether positive pole and negative pole are connected reversely; 2、 Contact after-sales service personnel
	6、GFCI.Err	System leakage current is too high	1、 Excessive parasitic capacitance on PV panel due to environmental factor; 2、 Grounding is abnormal; 3、 Failure inside the inverter	1、 Observe for 10 minutes and see whether the inverter can eliminate this alarm automatically; Detect whether the electrical connection is abnormal 2、 Contact after-sales service personnel
	7、IsolationErr	Insulation impedance of PV positive to ground or PV negative to ground exceeds the specified range	Air humidity is high	1、 Observe for 10 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Check insulation of PV system; 3、 Contact after-sales service personnel
	8、IntProtectA~T	Protection occurs inside the inverter	Protection occurs inside the inverter	1、 Observe for 10 minutes and see whether the inverter can eliminate this alarm automatically; 2、 Contact after-sales service personnel
	9、AC.ContErr	AC contactor has abnormalities	1、 AC contactor is damaged 2、 Failure inside the inverter	1、 Contact after-sales service personnel

	10、 EmergencyST P	Emergency button is closed	1、Emergency button is pressed 2、Failure inside the inverter	1、 Check whether emergency button is pressed. Reset the emergency button if it is pressed. 2、 Contact after-sales service personnel if the problem persists after the emergency button is reset
Failure	IntFaultA~M	Failure inside the inverter	Serious failure occurs inside the inverter	1、 The inverter can be forced restarted only once if it is required by operation and if it is confirmed that there is no other problem; 2、 Contact after-sales service personnel

## Chapter 5 Human Machine Interface

### 5.1 Description of LCD display

CPS SC100KT display mainly consists of LCD screen, LED indicator lights, buzzer and 6 keys. Meanings of indicator lights are shown in Table 5-1 and functions of the keys are shown in Table 5-2.

Table 5-1 LED Indication

LED Sign	Description	State	Meaning
POWER	Work power supply indicator light	Light up	Energized(control panel starts to work)
		Light off	No working power supply
RUN	Grid connection operation indicator light	Light up	In grid connection and power generation state
		Blink	Rundown state (light up 0.5s, Light off 1.6s)
		Light off	In other operation state or no working power supply
GRID	Grid state indicator light	Light up	Grid is normal
		Blink	Grid abnormal (light up 0.5s, Light off 1.6s)
		Light off	No working power supply
FAULT	Failure state indicator light	Light up	Failure occurs
		Slow blink	Alarm occurs (light up 0.5s, Light off 2s)
		Quick blink	Protective action (light up 0.5s, Light off 0.5s)
		Light off	No failure or no working power supply

Table 5-2 Definitions of the keys

Key	Description	Definition of function
ESC(←)	Escape key	Back/end/mute
ENTER (↵)	Enter key	Confirm entering the menu/confirm set point
PAGEUP (▲)	Up	Page up in selection menu
PAGEDOWN (▼)	Down	Page down in selection menu
ADD (◀)	Left	+1 when setting parameters
DEC (▶)	Right	-1 when setting parameters

## 5.2 Operation State

Table 5-1 indicates the definitions of LED, i.e. indicates the information of the inverter’s operation state. It indicates that the system is energized and enters DSP control when “POWER” lights up.

“RUN” will light up when the inverter detects that the grid connection conditions meet the requirements and power is fed to the grid. “RUN” will blink if the grid is in rundown mode during the feed.

“GRID” will light up when the grid is normal during the operation of the inverter. Otherwise, “GRID” will blink until the grid restores to normal and “GRID” will light up again.

“FAULT” will blink quickly if a failure or protective action (except grid abnormality) occurs. “FAULT” will not be off until the failure is eliminated. The light will blink slowly when an alarm sounds. “FAULT” will light up when an internal failure

occurs. “FAULT” will not light up if the grid is normal.

The buzzer will sound alarms if a failure (including power grid abnormality) occurs.

### 5.3 Interface and menu functions

Users may can perform the corresponding operations of the 6 function keys witch the indications of the LCD display.

#### 5.3.1 Interface types

(1) The system starts with the company logo as in Figure 5-1 once the system is energized. Then the system shows the inverter is running self-test interface as in Figure 5-2 six seconds later.



Figure 5-1 LOGO interface

(2) Indication of inverter operation mode



Figure 5-2 Inverter self-test ongoing

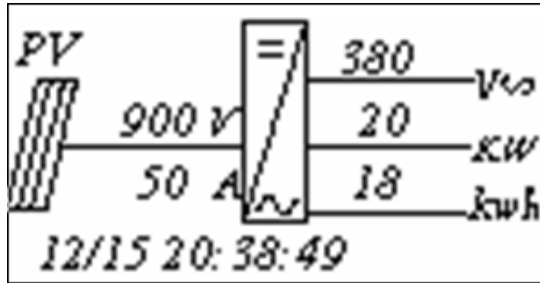


Figure 5-3 Default display interface for normal operation

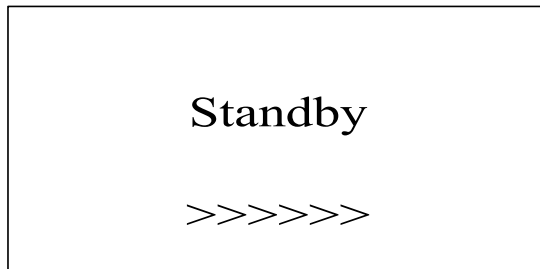


Figure 5-4 Inverter system in standby mode

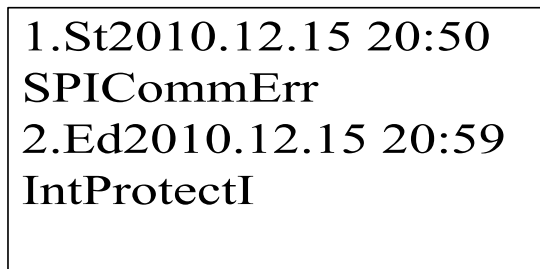


Figure 5-5 Failure indication interface

LCD screen will display different mode interfaces based on the operation modes of the inverter. There are four operation modes: startup self-checking mode (as shown in Figure 5-2), normal operation mode (as shown in Figure 5-3), stand-by mode (as shown in Figure 5-4) and fault mode (as shown in Figure 5-5).

The default indication interface mainly indicates PV voltage, PV current, grid voltage, generation power and time information under normal operation.

LCD screen jumps to failure indication interface and display the present failure information automatically when the inverter is in fault mode.

### 5.3.2 Main operation interface

LCD screen will indicate “default indication interface” when the inverter is in operation mode. Press the ESC key in this interface to escape the default interface and enter the main operation interface. The main operation interface is shown in Figure 5-6.

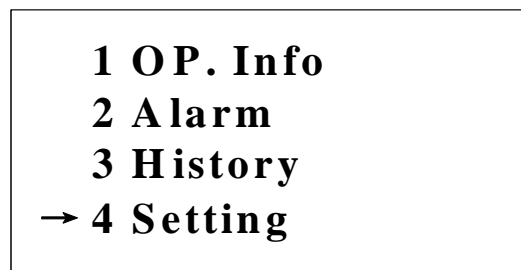


Figure 5-6 Contents indicated on the main operation interface

The main operation interface of LCD screen has 4 Level-1 “entrees”, i.e. “1 OP. Info”, “2 Alarm”, “3 History” and “4 Setting”. The users may select any “entree” with PAGEUP and PAGEDOWN, and then press ENTER to enter the menu. The users can enter the default indication interface by pressing the ESC key.



### 5.3.3 Operation information

When the cursor moves to “1 OP. Info” in the main interface, press ENTER to enter the operation information menu as shown in Figure 5-7. Check the information by pressing PAGEUP and PAGEDOWN. Return to the previous menu and enter the main operation interface by pressing ESC.

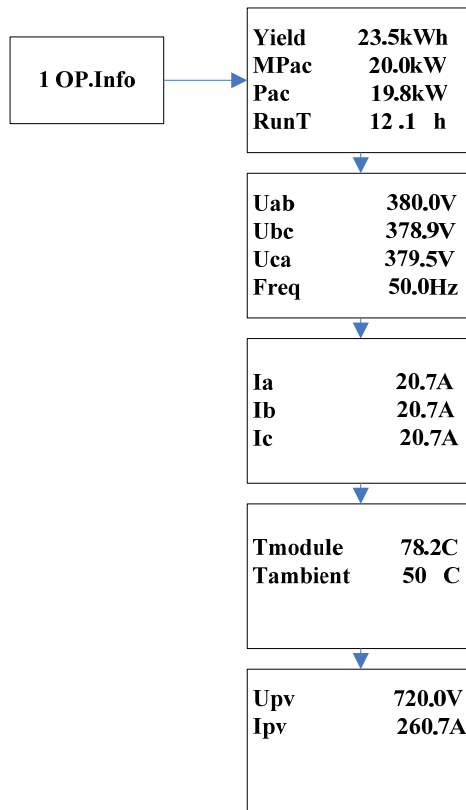


Figure 5-7 Operation information indication

### 5.3.4 Present fault

As described above, fault currently occur which have not recovered are indicated under this menu during the operation of the inverter apart from sound and light alarms. In the main interface, move the cursor to “2 Alarm” and press ENTER to enter the present fault menu and check the present failure information, as shown in Figure 5-8. 50 pieces of failure information can be indicated on the present fault interface at the same time.

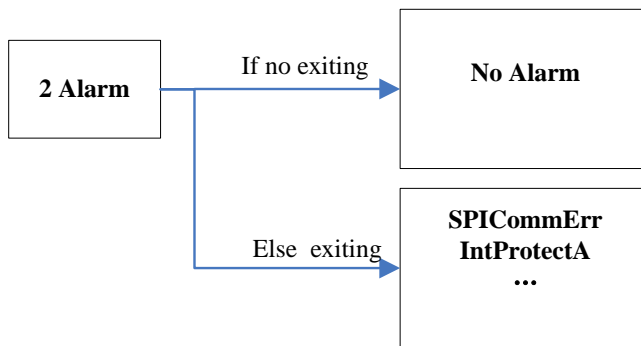


Figure 5-8 Present failure information

### 5.3.5 History

Move the cursor to “3 History” in the main interface. Press ENTER to enter the History menu and check the history information, as shown in Figure 5-9. There are 4 submenus under History menu: “1 ErrRecd”, “2 OP. Recd”, “3 Version” and “4 Total Yield”.

(1) UP to 100 pieces of latest failures can be recorded and found in “1 ErrRecd” menu.

(2) In “2 OP. Recd” menu, check the history of operation data of the latest 21 days. Data include all variables in “1 OP. Info” under the main interface menu. The users can select and enter the “Operation record” menu and enter the retracable days (For example, enter 21, if the current date is December 15th , then it will indicate the operation information of 21 days before that date ,that is, November 24th).

(3) Software version, hardware version and serial number of the product are available in “3 Version” menu.

(4) Accumulative power generated since the first day of operation of the inverter can be checked in “4 Total Yield”.

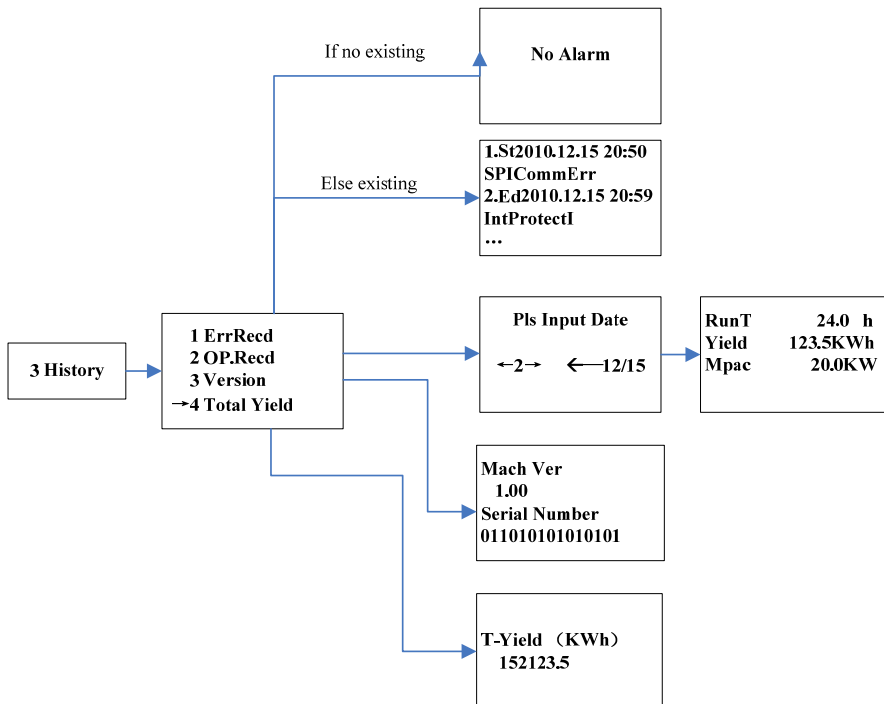


Figure 5-9 History menu and submenu

### 5.3.6 System setup

Move the cursor to “4 Setting” in the main interface. Press ENTER to enter the setup menu of the current system parameters and set up the relevant parameters, as shown in Figure 5-10. There are 5 submenus in the system setup menu: “1 ON/OFF”, “2 Language”, “3 Buzzer”, “4 Time” and “5 CommPara”.

(1) The inverter can be started and shut down with “1 ON/OFF” menu. Move the cursor to “ON” and press ENTER, then “ON mode” will be indicated at the bottom of LCD screen; move the cursor to “OFF” and press ENTER, then “OFF mode” will be indicated at the bottom of LCD screen. The inverter will enter standby mode instead of power generation operation mode even “ON” is selected but the inverter is not ready for startup. The inverter will be shut down immediately if OFF is selected in all cases.

(2) Two languages, i.e. English and Chinese are available in “2 Language” menu.

(3) Unmute or mute of keyboard tone and failure tone can be set up with “3 Buzzer” menu. Shift between “Key beep tone” and “Alarm beep” by pressing PAGEUP and PAGEDOWN. Shift between “Enable” and “Disable” by pressing Left and Right if the cursor is on the keyboard tone. Complete the setup by pressing ENTER. Similarly, the functions of failure tone can be set up.

(4) Set up the system date and time with “4 Time” menu

(These parameters are important and will be used in history information).

(5) Set up 485 communication parameters with “5 ComPara” menu.

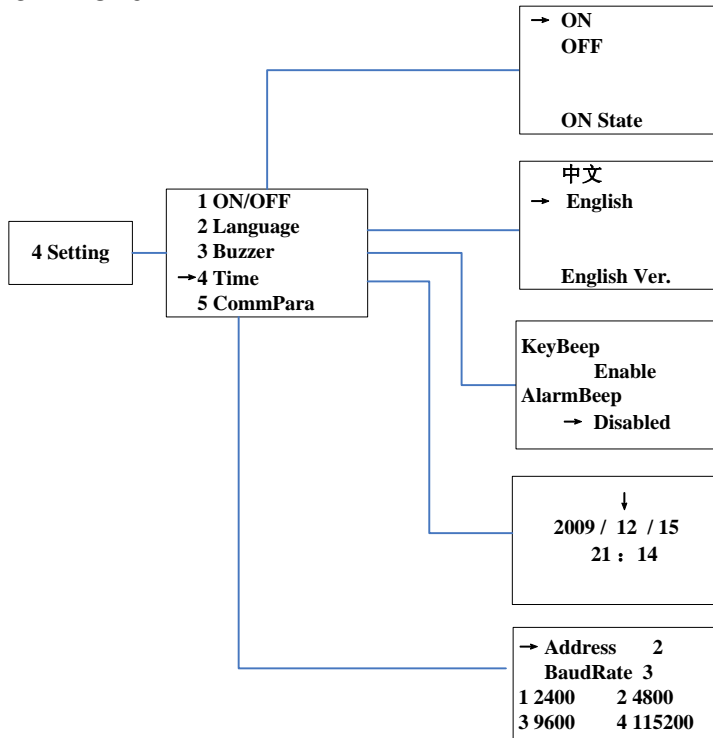


Figure 5-10 System setup menu and submenu

### 5.3.7 System protection parameter setup

By pressing PAGEDOWN and ENTER at the same time in the main interface and entering the password (PAGEUP->PAGEDOWN->RIGHT->LEFT), the system parameter setup menu is entered. This menu includes 4 submenus: “1 SysPara”, “2 Restart”, “3 Recover” and “4 ClrErrRecd”.

(1) Set up the system protection parameters with “1 SysPara” menu. The types of protection parameters are shown in Table 5-3.

(2) “2 Restart” menu. If an internal failure shutdown indicates that a hard failure has occurred inside the inverter, the user may perform a force restart once under this the menu if the user needs to restart the inverter. Note that this function is effective only when a hard failure occurs. The inverter may restore its normal operation automatically if alarm or protection faults occur. This function will not respond when the inverter is in operation mode and a “Fault Operating” alarm interface will be popped up.

(3) “3 Recover” menu, the manufacturer’s parameter default value can be restored when the inverter is not in operation mode. Other wise a “Fault Operating” will be reminded.

(4) In “4 ClrErrRecd” menu, history information of the failures can be cleared. A confirmation is required to clear the records.

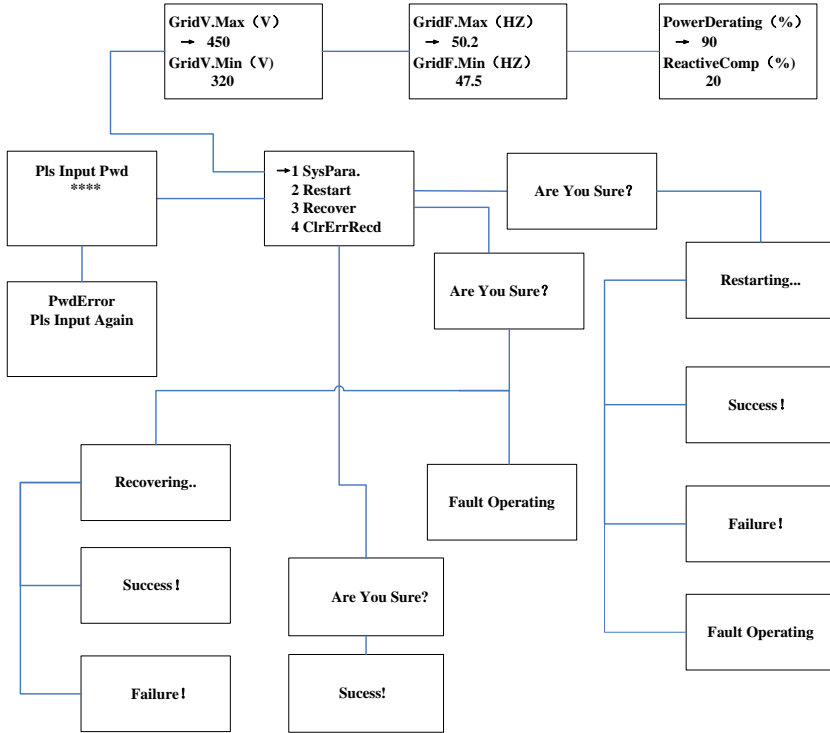


Figure 5-11 System parameter setup

Table 5-3 Protection Parameters Table

No.	Description of parameter	Setup range (lower limit, default & upper limit)
1	Grid line voltage upper limit	(200,418,520V)
2	Grid line voltage lower limit	(0,323,400V)
3	Grid frequency upper limit	(50,50.5,65Hz)
4	Grid frequency lower limit	(45,49.5,60Hz)
5	Insulation impedance lower limit	(500,1100,1210KΩ)
6	Reactive power rundown	(80%, 100%, 100%)
7	Passive compensation	(-60%, 0%, 60%)
8	PV startup voltage	(430, 540, 600)

## Chapter 6 Technical Data

CPS SC100KT	
<b>DC Input</b>	
Max. DC Voltage*	880Vdc
MPPT Voltage Range	430~820Vdc
Max. DC Power	110KWp
Max. Input Current	240A
Max. DC Short Circuit	300A
Max. Number of Strings	4
<b>AC Output</b>	
Output Power	100KW
Norminal Output Voltage	400Vac 3 phase
Grid Voltage	320~460Vac
Norminal grid frequency	50Hz
Current THD	<3%
Power Factor	~1
<b>System</b>	
Max. Efficiency	97.2%
Euro Efficiency	96.7%
Protection Degree	IP20
Operating Temperature Range	-20°C ~ +60°C
Altitude	4000m
Humidity	0~95%, no-condensation



Cooling	Forced cooling/RPM regulated fan
Stand by consumption	<50W
<b>Display and communication</b>	
Communication	RS485
Display	LCD
<b>Mechanical parameters</b>	
WxDxH(mm)	920x725x1900
Weight (kg)	880

\*Note: Exceeding the rated voltage value shown in “Max. DC voltage” may cause permanent damage to the equipment.

## **Chapter 7 Quality Assurance**

### **7.1 Warranty**

The warranty policy of this product is specified in a contract; otherwise the warranty period is 24 month after the date of installation.

### **7.2 Disclaimer**

- 1、 Damages caused during transportation;
- 2 、 Operating in an environment that is out the specification of the product;
- 3、 Products not used correctly or properly (including installation and use);
- 4、 Products or software changed without authorization;
- 5、 Negligence of safety warning and relevant mandatory safety specifications on the product and in its related document;
- 6、 Unexpected disaster or force majeure

### **7.3 Quality clause (Warranty clause)**

- 1、 CPS will repair or replace with new products for products with malfunctions during the warranty period.
- 2、 The replaced non-conformance products should be returned to CPS.
- 3、 Reasonable time should be provided to CPS for repair work.

**Please do not hesitate to contact us if you have any questions regarding CPS SC100KT photovoltaic grid connection inverter. CPS is glad to provide service the best for you at any time.**