EDECOA®

Index

Installation

DESCRIPTION

ALL IN ONE

- Inverter 3800w
- Battery charger 60A
- MPPT 80A

A pure sine wave inverter includes a configurable input voltage range through its LCD screen or its Wi-Fi module, in addition to being able to configure the battery charging current or the priority of the solar/AC charger. Includes a multiple protection system with automatic restart during AC recovery to optimize battery performance and includes a cold start function

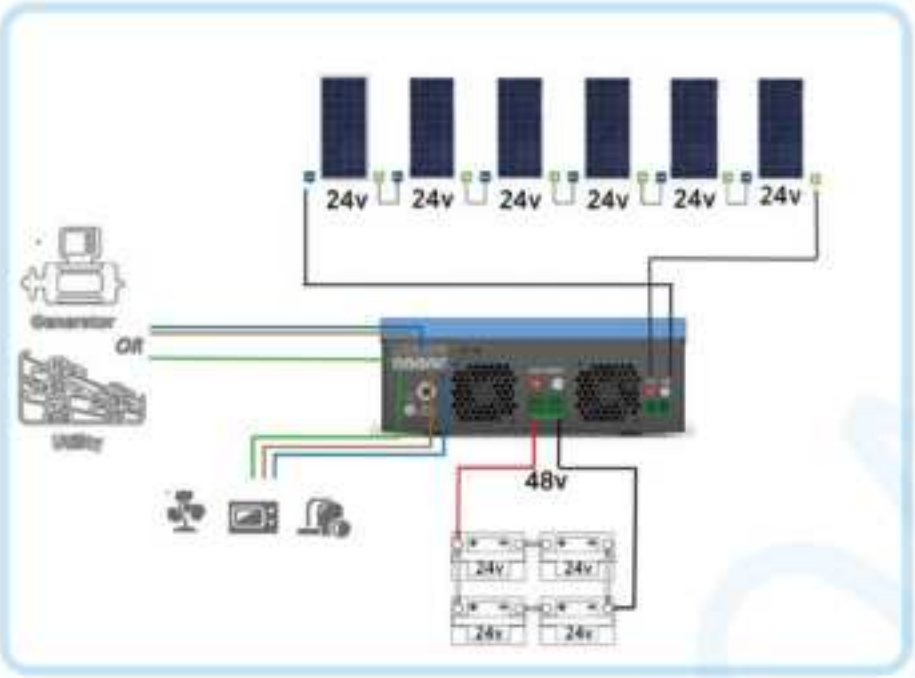
DIFFERENT MODES

- **Can I compensate my electric company for the excess energy generated?**

No, this is an off-grid inverter, it can only accumulate the excess energy generated by the solar panels in your batteries

- **Can I install the hybrid inverter if I don't have the electricity grid?**

Yes, you just need to always have a battery connected.



This inverter has a voltage range of 55-450Vdc, i.e. if a voltage lower than 55Vdc is connected, the inverter will not detect your installation.
To calculate the number of panels needed in the installation, pay attention to the maximum supply voltage (Vmp).
For example:
34.89(Vmp) * 2= 69.78Vdc.
We recommend installing one more solar panel due to the voltage loss between the solar panels and the hybrid inverter.

ACCESSORIES

INCLUDED IN THE BOX

- 1m x 25mm2 positive
- 1m x 25mm2 negative

All inverters are delivered with the button in OFF mode. Be sure to turn the inverter ON when you finish your installation, as at the moment the inverter detects PV load the LCD display will light up regardless of whether the button is in ON/OFF mode and may create confusion.

Description

LCD Screen

PROGRAMMABLE

Through the LCD screen, you can control and configure your hybrid inverter. You only have to choose the type of program you want according to the needs of your installation.

- When the icon ✹ AC / INV is **on**, your devices are being powered by the network. If it is **flashing**, it is powered by the battery or solar panels (PV).
- When the icon ✹ CHG is **on**, the battery is fully charged. If it is **flashing**, the battery is charging.
- When the icon ⚠ FAULT is **red**, there is a fault. If it is **flashing**, the inverter is warning of a possible fault in the installation.

Input Source Information	
AC	Indicates the AC input
PV	Indicates the PV input
INPUT/BATT 8.8.8 kW V Hz A	Indicate input voltage, input frequency, PV voltage, battery voltage, and charger current.
Configuration Program and Fault Information	
88	Indicates the setting programs.
88 ⚠	Indicates the warning and fault codes. Warning: 88 ⚠ flashing with warning code. Error: 88 flashing with error code
Battery information	
CHARGING	Indicates battery level by 0-24%, 25-49%, 50-74%, and 75-100% in battery mode and charging status in line mode.

Load Information				
OVER LOAD	Indicates overload			
	Indicates the load level as below			
	0%~25%	25%~50%	50%~75%	75%~100%
				
Mode Operation Information				
	Unit connected to the grid			
	Unit connected to the PV panel.			
BYPASS	Load is supplied by utility power			
	Utility charger circuit is working.			
	DC/AC inverter circuit is working			
Mute Operation				
	Unit alarm is disabled			

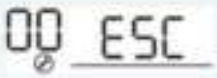
CONFIGURATION LCD

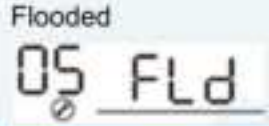
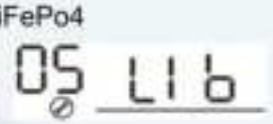
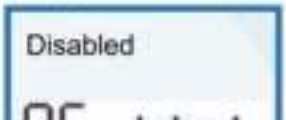
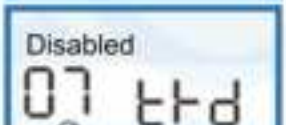
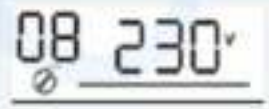
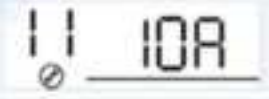
Press the ENTER button for 3 seconds to start the configuration. Then press the "UP" or "DOWN" button to select the configuration programs. To confirm the program press the "ENTER" button or the ESC button to exit.

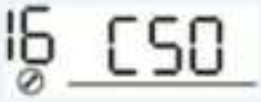
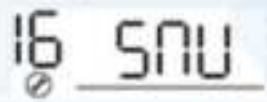
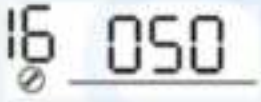
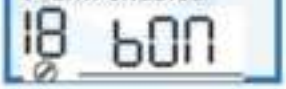
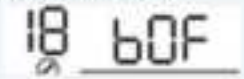
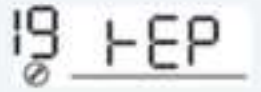
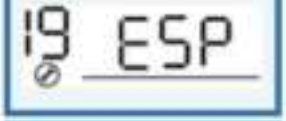
Configuration

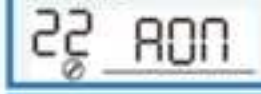
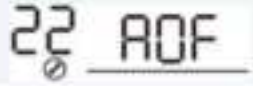
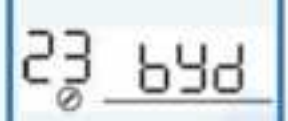
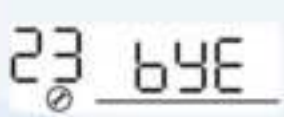
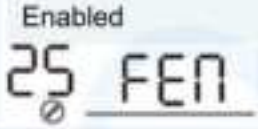
- Choose the charging mode according to your installation

- Choose your battery charging mode according to your installation

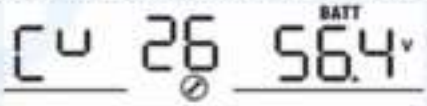
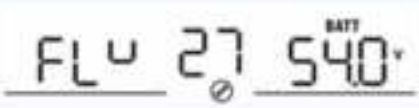
Installation configuration			
00	Press ESC 3 seconds	To start the configuration	
01	Choose the output charging mode. **Solar + Battery + Utility** If the inverter is not connected to the grid, you should also choose this mode		Firstly, solar power will supply power to the load, if it is not enough, battery power will supply power to the loads. The grid will supply power when the battery voltage drops to a low level.
	Choose the output charging mode. **Solar + Utility + Battery**		Solar energy provides power to the loads as a priority. If solar energy is not sufficient to power all connected loads; utility energy will be supplemented.
02	Choose the type of charge that your **solar panels** will charge your battery. By default, 50A is selected, but if you need to charge your battery faster you can choose 80A.	50A (Default) 	60A 
		70A 	80A 
03	The speed with which it cuts from Solar to Battery to Utility. We recommend choosing **APL**, only choose UPS when connecting devices that are very sensitive to interruptions.		It is 0.01 seconds, and there must be an input voltage between 90 and 280 VAC.
			It is less than 0.01 seconds, but you must ensure that there is an input voltage of 170 and 280 VAC.
04	Power saving mode		**Disabled** mode, no matter the connected load the ON/OFF status of the inverter output will not be affected.
			In the **activated** mode, the inverter will shut down when it does not detect any connected load.

Installation configuration			
05	Battery Type If you select the USE option you must define the voltage parameters in the following programs 26/27/29	AGM 	Gel or special batteries 
		Flooded 	LiFePo4 
06	Auto restart when overload occurs	Disabled 	Enabled 
07	Auto restart when over temperature occurs	Disabled 	Enabled 
08	Output voltage		Standard in Europe
09	Output frequency		Standard in Europe
11	Choose the type of load that the **grid** will charge your battery. If you do not connect the inverter to the grid, this parameter has no effect. If you want to avoid the expense of charging the battery from the grid, choose the minimum.	  	  
12	Set your battery voltage so that the inverter switches to the utility grid.		
13	Set the voltage that your battery must have in order for the battery to become the power source again.	Battery charged 	

Installation configuration			
16	Charging mode priority	Solar first 	**Solar energy** will charge the battery **first**. The utility will charge the battery only when solar power is not available.
		Solar energy and utilities 	Solar power and the utility will charge the battery **at the same time.**
		Only Solar 	**Solar energy** will be the **only** supplying source of energy disregard utility is available or not
• If the ECO mode option has been selected in program 07, the battery will only be charged by solar energy, regardless of the charging mode selected.			
18	Alarm control	Alarm enabled 	Alarm disabled 
19	Automatically return to the default display screen	Stay at the previous screen 	If selected, no matter how users change the display screen, it will automatically return to the default display screen (input voltage/output voltage) after no button is pressed for 1 minute.
		Return to default display screen 	If selected, the display screen will remain on the previous screen that the user eventually switches to.
20	Lighting control	Light on 	Light off 

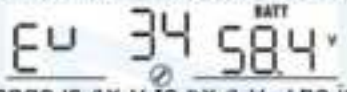
Installation configuration			
22	Beeps while primary source is interrupted	Enabled 	Disabled 
23	Overload bypass: When enabled, the unit will transfer to line mode if an overload occurs in battery mode	Disabled 	Enabled 
25	Record error code	Enabled 	Disabled 

- Continue with the configuration if in program 05 (Battery type) the option USE has been selected, otherwise press ESC.

26	Charging voltage (CV Voltage)	Default setting: 56,4 V Check your battery information to configure 
27	Floating charging voltage	Default setting: 54 V Check your battery information to configure 
29	Low DC cut-off voltage	Default setting: 42 V Check your battery information to configure 

- Continue with the configuration if you need to adjust the equalization of your battery, otherwise press ESC.

31	When enabled, the solar input power will be automatically adjusted according to the connected loads.		The solar input power will be automatically adjusted according to the connected loads using the following formula: Max. solar input power = max. battery charging power + connected load power.

Installation configuration			
33	Battery equalization		
		This program is available if "FLD" or "USE" has been selected in program 05.	
34	Battery equalization voltage	Default setting for 3.8 kW models: 58,4 V.  The setting range is 48 V to 58,4 V. The increment of each click is 0.1 V.	
35	Battery equalization time	60 minutes 	The setting range is from 5 min to 900 min. The increment of each click is 5 minutes.
36	Battery equalization timeout	120 minutes 	The setting range is from 5 min to 900 min. The increment of each click is 5 minutes.
37	Equalization range	30 days 	The configuration range is from 0 to 90 days. The increment of each click is 1 day
39	Equalization activated immediately	Enabled 	Disabled 
		Only when the equalization function is enabled in program 33 , this program will be available. If "Enable" is selected in this program, it is to activate the battery equalization immediately and the main page of the LCD will show " ". If "Disable" is selected, it will cancel the equalization function until the next activated equalization time arrives according to the setting of program 35 . At this time, " " will not be displayed on the LCD main page.	

LCD SCREEN

DESCRIPTION, POSSIBLE SCENARIOS

230Vdc INPUT

Input voltage PV solar panels, the range is 55-450Vdc

230v OUTPUT

Output voltage

Description of the installation

According to the LCD display, the boards are charging their batteries and at the same time, they are powering the connected devices.

The **battery is fully charged** because all four cells are full.

25% of the load used

Percentage of charge being used by the devices, i.e. 75% more charge can still be connected.

Light Flashing
Solar energy is charging your devices

Steady light
Battery is charged

Light Off
There is no error.

DESCRIPTION OF THE LCD DISPLAY

Top part

Input frequency 50Hz

MPPT charging current

Load current ≥ 10A

Load current < 10A

MPPT = 500W

DESCRIPTION OF THE LCD DISPLAY

Top part

Battery voltage
DC discharge current

Battery voltage = 25.5 A,
discharging current = 1A

Output frequency

Output frequency = 50 Hz

Percentage of load

Percentage of load=70%.

Load in VA

The connected load is less than
1 K VA.

The connected load is higher
than 1 K VA.

Load in watts

The connected load is less than 1
kW.

The connected load is higher
than 1 Kw

DESCRIPTION OF THE LCD DISPLAY

Bottom part

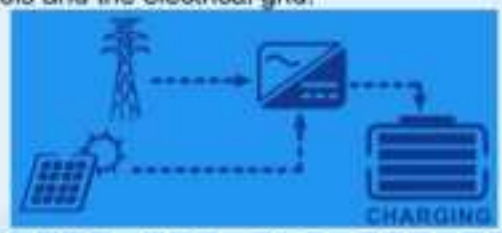
No load connected

Inverter is in standby mode / power saving mode

Standby mode: The inverter is not switched on (ON/OFF button), but as soon as the inverter detects solar panels and the battery is connected, the inverter will charge the batteries through the solar panels or the grid.

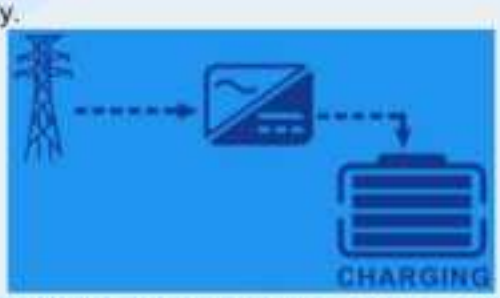
Power saving mode: This function has been activated and the inverter is not detecting load, it will turn on when the inverter detects the connected load again.

The batteries are being charged through solar panels and the electrical grid.



The batteries are being charged by the solar panels.

The batteries are being charged through the utility.

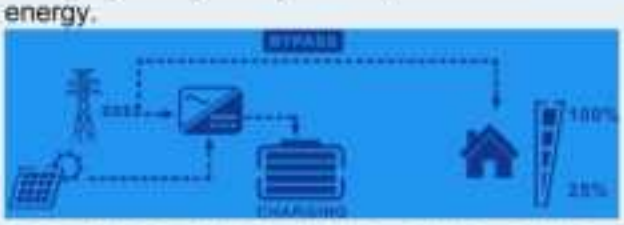


The batteries are not charging.

Line Mode

Charging the battery and connected devices via grid and photovoltaic energy.

Charging through the grid and photovoltaic energy.



Charging the battery and connected devices by the utility.

Charging by the utility

DESCRIPTION OF THE LCD DISPLAY

Bottom part

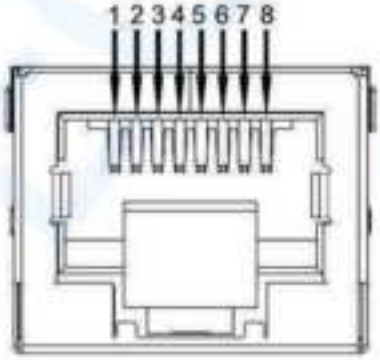
Battery Mode

The inverter provides power to the battery through the solar panels, and also to the connected devices.

The battery is charging the connected devices.

BATTERY SETTINGS

Pin number	Port definitions
1	TX
2	RX
3	VCC
4	VCC
5	RS485A
6	RS485B
7	GND
8	GND



Communication Port Pin DEFINITION

1 **Long press the ENTER** button to enter the setting and go to item 05 – lithium battery mode (as shown below)

2 **Long press the ESC** button to enter the lithium battery interface (as shown below). The initial interface indicates battery voltage and battery level. Press the DOWN button to see more information.

- Battery voltage (**50,5 V**)
- Battery level (**4%**)

- Charging current (**0A**)
- Discharge current (**21A**)

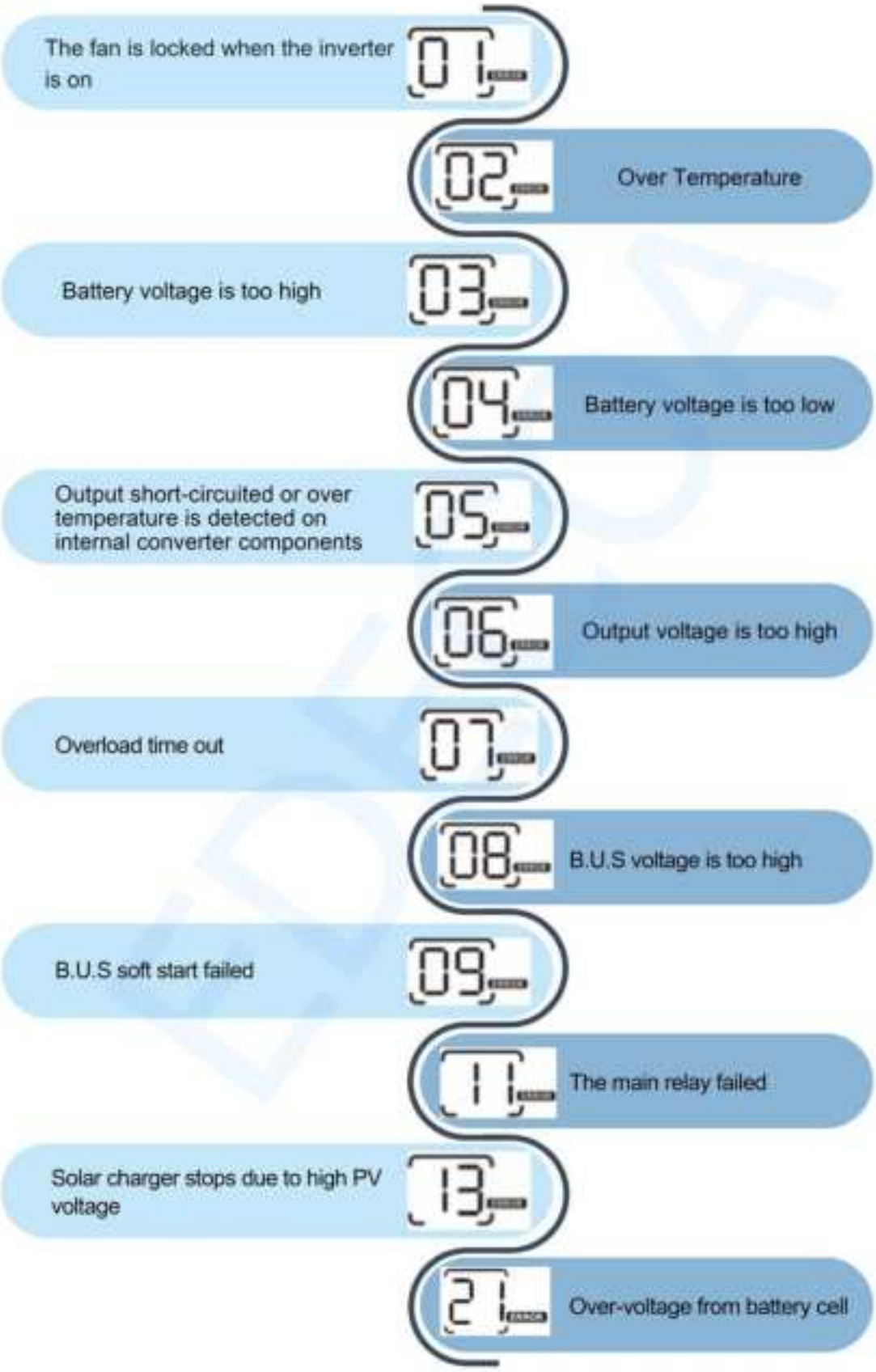
- Battery capacity (**100 AH**)
- Battery level (**4%**)

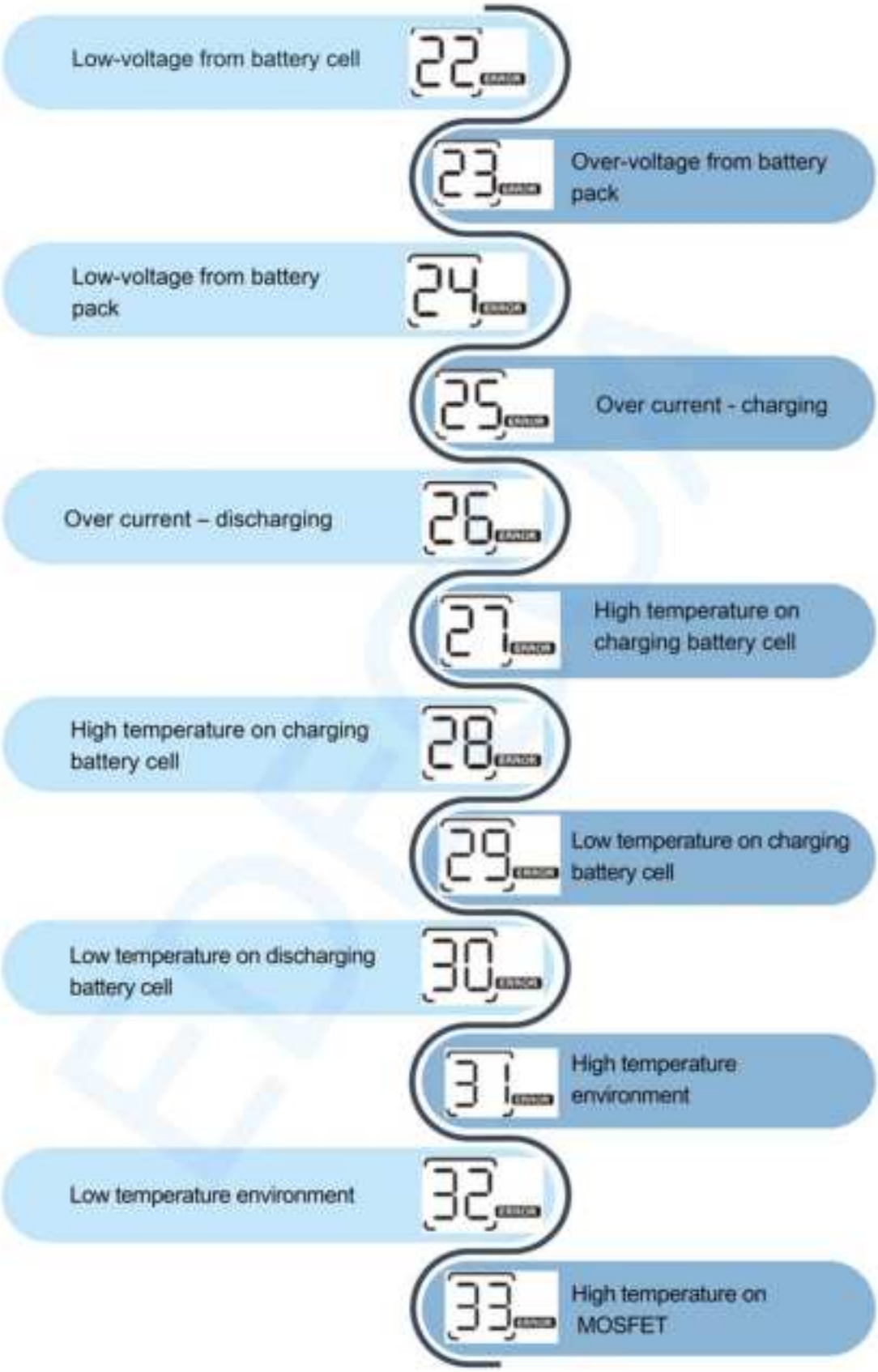
- Temperature of BMS board (**25.9 ℃**)
- Temperature of MOSFET on BMS board (**25.7 ℃**)

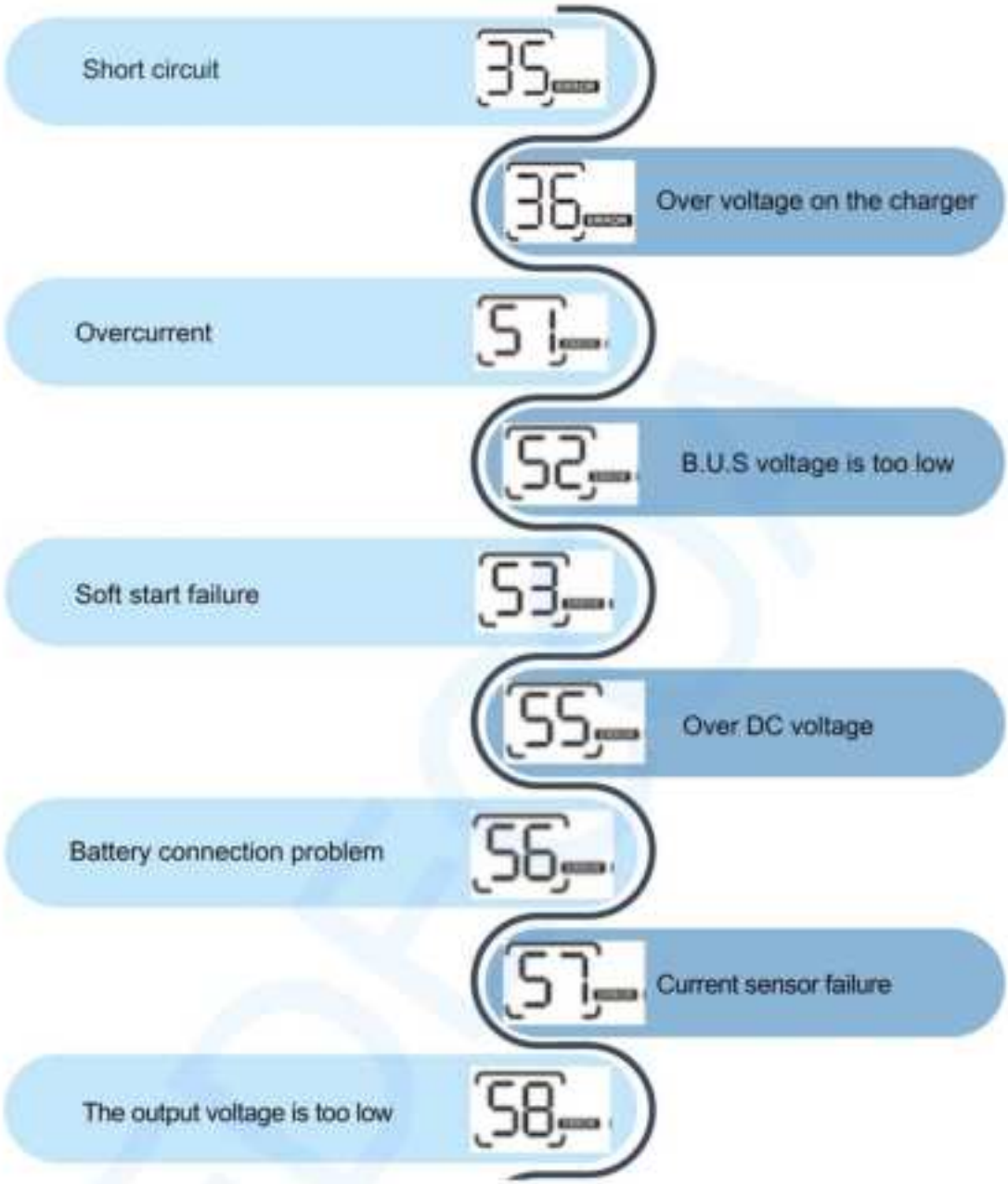
- Maximum voltage of one battery cell (**3.2 V**)
- Minimum voltage of one battery cell (**3.1 V**)

- Highest temperature of the batteries (**25.0 ℃**)
- Lowest temperature of the batteries (**24.2 ℃**)

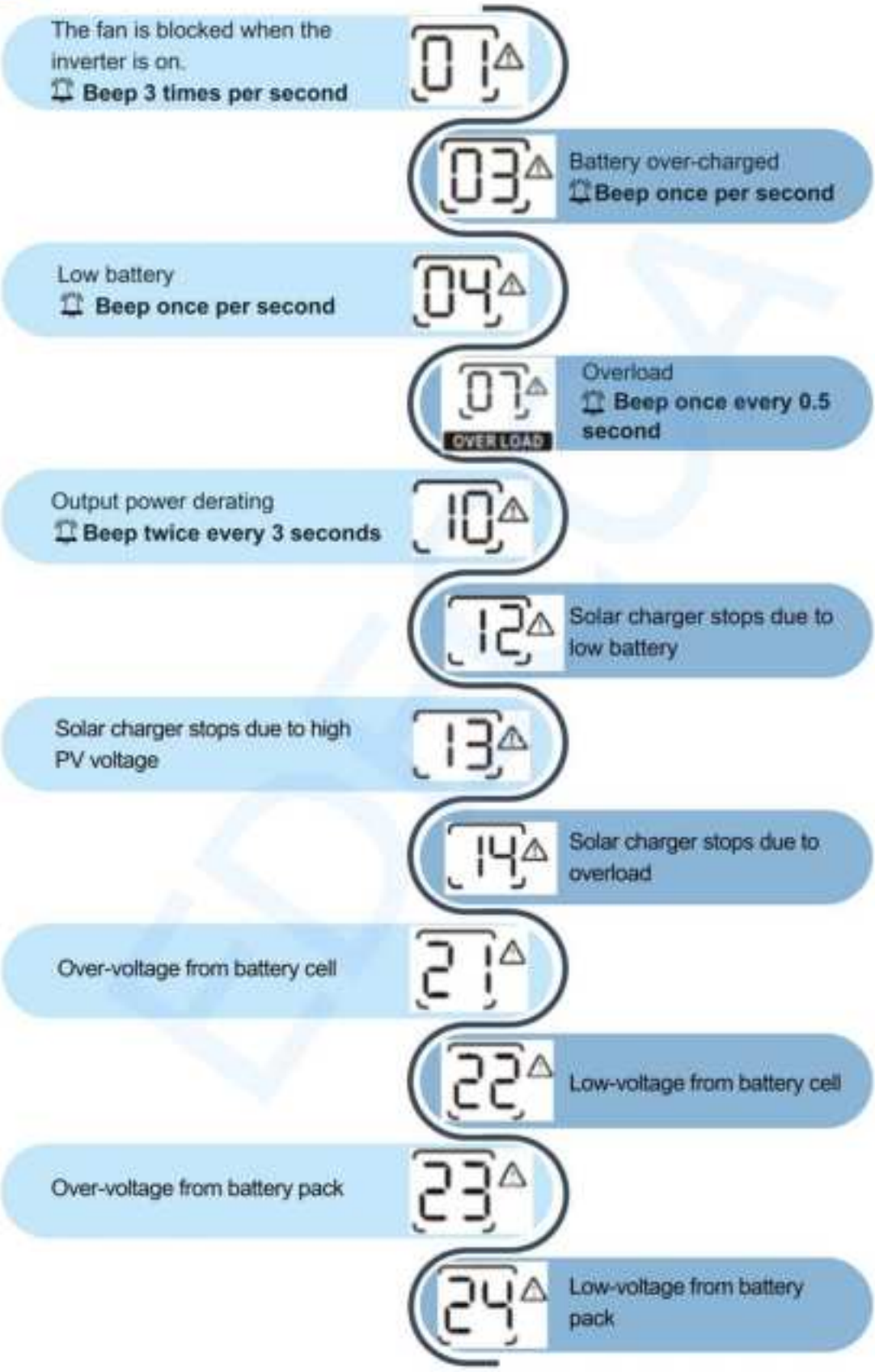
Types of errors

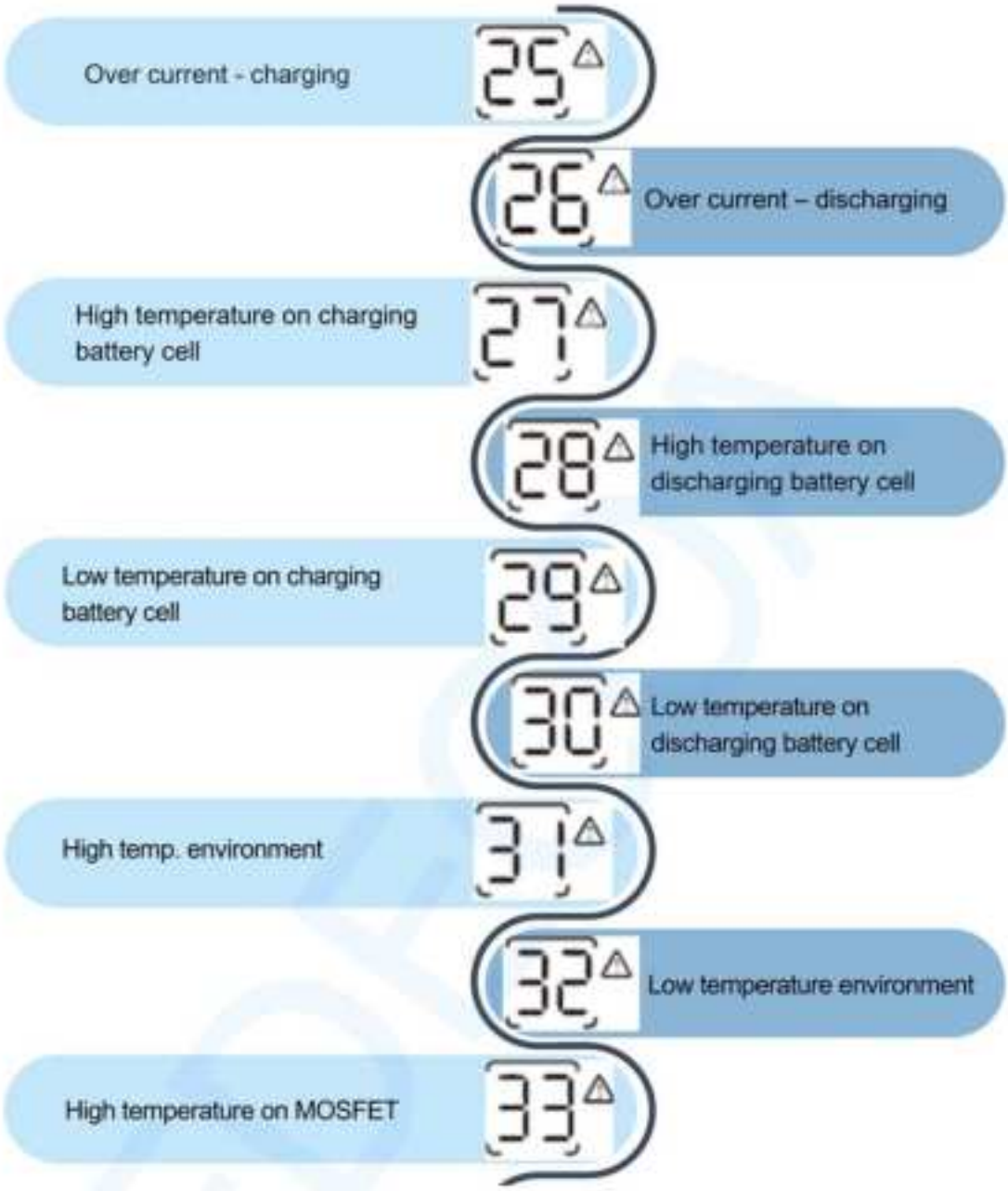



Low-voltage from battery cell
22
23
Over-voltage from battery pack
Low-voltage from battery pack
24
25
Over current - charging
Over current – discharging
26
27
High temperature on charging battery cell
High temperature on charging battery cell
28
29
Low temperature on charging battery cell
Low temperature on discharging battery cell
30
31
High temperature environment
Low temperature environment
32
33
High temperature on MOSFET


Short circuit
35
36
Over voltage on the charger
Overcurrent
51
52
B.U.S voltage is too low
Soft start failure
53
55
Over DC voltage
Battery connection problem
56
57
Current sensor failure
The output voltage is too low
58

Warning types




Over current - charging
25
26
Over current – discharging
High temperature on charging battery cell
27
28
High temperature on discharging battery cell
Low temperature on charging battery cell
29
30
Low temperature on discharging battery cell
High temp. environment
31
32
Low temperature environment
High temperature on MOSFET
33

TROUBLE SHOOTING

Shuts down automatically during startup process

AC / INV
3s and shuts down

→ **The battery voltage is too low (<1.91V/Cell)** →

1. Re-charge battery.
2. Replace battery

No response after power on.

No indication

→ 1. **The battery voltage is far too low (<1.4V/Cell)**
2. **Battery polarity is connected reversed** →

1. Check if the batteries and the wiring are connected firmly.
2. Replacing the fuse.
3. Re-charge battery.
4. Replace battery

Mains exist but the unit works in battery mode

Input 0.0
AC / INV
(Flashing)

→ **Input protector is tripped.** →

Check if AC breaker is tripped and AC wiring is connected well.

AC / INV
(Flashing)

Insufficient quality of AC power. (Shore or Generator) →

1. Check if AC wires are too thin and/or too long.
2. Check if the generator (if applied) is working well or if the input voltage range setting is correct. (UPS→Appliance)

AC / INV
(Flashing)

→ **"Solar First" is selected** →

Change output source priority to utility

When the unit is turned on, the internal relay keeps ON and OFF repeatedly

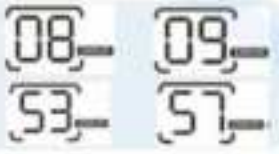
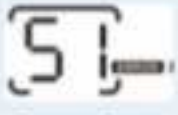
CHG
(Flashing)

→ **Battery is disconnected** →

Check if battery wires are connected well.

TROUBLE SHOOTING

The alarm sounds continuously and the red LED ⚠ FAULT is on

	**Fan fault**	1. Replace the fan
	**Internal temperature of inverter component is over 100°C**	1. Check if the fans are covered or if the ambient temperature is too high.
	1. **Battery is overcharged** 2. **Battery voltage is too high**	1. Verify that the specifications and number of batteries are as recommended.
	1. **Short-circuit output** 2. **Internal temperature is higher than 100 °C**	1. Check if the fans are covered or if the ambient temperature is too high.
	**Abnormal output (inverter voltage below 190 VAC or above 260 VAC)**	1. Reduce the load connected 2. Contact the customer service
	**The inverter has an overload of 110%.**	1. Reduce the load connected
	**Internal components failed**	1. Contact the customer service
	**Overvoltage**	1. Reset the inverter 2. Contact the customer service

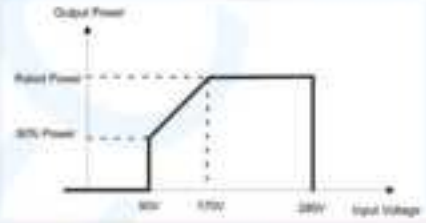
TROUBLE SHOOTING

The alarm sounds continuously and the red LED ⚠ FAULT is on

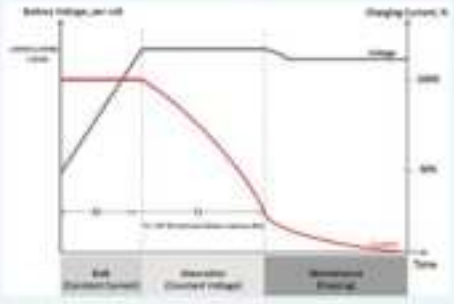
	**B.U.S voltage is too low**	1. Reset the inverter 2. Contact the customer service
	**Output voltage imbalance**	1. Reset the inverter 2. Contact the customer service
	**Battery connection issue or fuse burnt**	1. Check the battery connection

Technical Features

Line Mode Specifications	
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230 VCA
Low Loss Voltage	170 VCA± 7 V (UPS) 90 Vac ± 7V (Electrodomésticos)
Low Loss Return Voltage	180 VCA ± 7 V (UPS) 100 VAC ± 7V (Electrodomésticos)
High Loss Voltage	280 VCA ± 7 V
High Loss Return Voltage	270 VCA ± 7 V

Modo de línea	
Max AC Input Voltage	300VCA
Frequency	50 Hz / 60 Hz (Auto detection)
Cut-off Low Frequency	40±1Hz
Recovery (Low) Frequency	42±1Hz
Cut-off High Frequency	65±1Hz
Recovery (High) Frequency	63±1Hz
Short-circuit protection	Circuit breaker
Efficiency	>95 % (nominal load R, fully charged battery)
Transfer time	10ms typical (UPS); 20ms typical (Appliances)
Output power reduction: When the AC input voltage drops to 170 V, the output power will be reduced.	

Inverter Mode Specifications	
Rated Output	4200VA/3800W
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230VCA ±5%
Output Frequency	50Hz
Peak Efficiency	94%
Overload Protection	5s@≥150% load; 10s@≥ 110% ~ 150% load
Surge Capacity	2 * rated power for 5 seconds
Nominal DC Input Voltage	48 VCC
Cold Start Voltage	46,0 VCC

Modo Inversor		
Low DC Warning Voltage	@ load < 2 0%	44,0 VCC
	@ 20 % ≤ load < 50 %	42,8 VCC
	@ load ≥ 50%	40,4 VCC
Low DC Warning Return Voltage	@ load < 2 0%	44,0 VCC
	@ 20 % ≤ load < 50 %	42,8 VCC
	@ load ≥ 50%	40,4 VCC
Low DC Cut-off Voltage	@ load < 2 0%	42,0 VCC
	@ 20 % ≤ load < 50 %	40,8 VCC
	@ load ≥ 50 %	38,4 VCC
High DC Recovery Voltage	58 VCC	
High DC Cut-off Voltage	62 VCC	
No-Load Power Consumption	<40W	
ECO Power Consumption	< 10W	
Utility Charging Mode		
Charging Algorithm	3-Step	
Charging Current (UPS)	60A	
AC Charging Current	10/20 Amp	
Bulk Charging Voltage (V)	Flooded Battery	58,4
	AGM / Gel Battery	56,4
Charging Curve		

Solar Charging Mode (MPPT)	
Rated Out Power	6000W
PV charging current	80A
Efficiency	98,0% máx.
Max. PV array open circuit voltage	450 VCC
PV array MPPT voltage range	55-450 VCC
Standby energy consumption	2W
Battery voltage accuracy	+/- 0,3%
PV voltage accuracy	+/- 2V
General Information	
Safety certification	CE/UKCA
Operating temperature range	0~55℃
Storage temperature	- 15~60 ℃
Dimension (mm)	423*300*120
Net weight (kg)	7.6