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Ranger 60KR

User Manual

UP33ROP160KRAAZ01B

Manual de utilizare



233.24.23.1

Before using this product, carefully read all product documentation and retain it for future reference.

Thank you for purchasing our products!

Please read this manual before using the product.

nJoy is a brand of power and backup protection products that create solutions for multiple levels of environment complexity, residential to industrial.

This UPS will protect your electronic equipment from physical damage and will provide emergency battery backup power to prevent data loss in the event of power problems.

1 Safety and EMC instructions

All safety instructions in this document must be read, understood and followed.

1.1 Transportation and Storage

⚠ Please transport the UPS system only in the original packaging to protect against shock and damage.

⚠ The UPS must be stored in the room where the temperature is well regulated. Ambient temperature should not exceed 40°C.

1.2 Preparation

⚠ Condensation may form if the UPS system is moved immediately from cold to warm environment. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate the environment.

⚠ Do not install the UPS system near water or in moist environments.

⚠ Do not install the UPS system where it would be exposed to direct sunlight or nearby heat source.

⚠ Do not block ventilation holes on the UPS housing.

1.3 Installation

⚠ Do not connect appliances or devices which would overload the UPS (e.g. big motor-type equipment) to the UPS output terminal.

⚠ Place cables in such a way that no one can step on or trip over them.

⚠ Do not block air vents on the housing of the UPS. Ensure proper unit spacing of ventilation.

⚠ UPS came equipped with grounding terminal, in the final installation phase, connect grounding/earthing wire to the external UPS battery cabinets or appropriate grounding terminals.

⚠ The UPS can be installed only by qualified maintenance personnel.

⚠ An appropriate disconnect device such as short-circuit backup protection should be incorporated during installation.

⚠ An integral emergency shutoff switch which prevents additional load from the UPS in any mode of operation should be implemented during the installation.

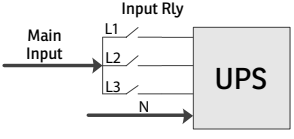
⚠ Secure the grounding/earthing wire before connecting to any live wire terminal.

⚠ Installation and Wiring must be in accordance with the local electrical laws and regulations.

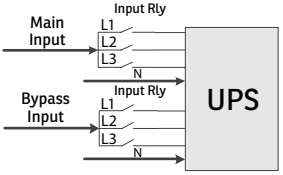
1.4 Connection Warnings

⚠There is no standard backfeed protection inside of the UPS. However, there are relays on the Input to cut off line voltage and while the neutral is still connect to UPS.

- This UPS should be connected with **TN** grounding/earthing system.
- The power input for this unit must be three-phase rated in accordance with the equipment nameplate. It also must be suitably grounded.



Input relay diagram



Input relay diagram for dual-input model

⚠ WARNING

HIGH LEAKAGE CURRENT! EARTH CONNECTION ESSENTIAL BEFORE CONNECTING SUPPLY.

• Use of this equipment in medical instrument of any life-sustaining equipment where failure of this equipment can reasonably be expected to cause the failure of the life-sustaining equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable mixture with air, oxygen or nitrous oxide.

- Connect grounding terminal of UPS to a grounding electrode conductor.

• In accordance with safety standard EN-IEC 62040-1, installation has to be provided with a «Backfeed Protection» system, as for example a contactor, which will prevent the appearance of voltage or dangerous energy in the input mains during a mains fault (respect the wiring diagram of «Backfeed Protection» depending if the equipment is with signal or three phase input).

⚠There can be no derivation in the line that goes from the «Backfeed Protection» to the UPS, as the standard safety would be infringed.

- Warning labels should be placed on all primary power switches installed in places away from the unit to alert the electrical maintenance personnel of the presence of a UPS in the circuit. The label will bear the following or an equivalent text:

⚠ WARNING

Before working on this circuit!

- Isolate Uninterruptible Power Supply (UPS).

- Then check for Hazardous Voltage between all terminals including the protected earth.

⚠Risk of Voltage Backfeed!

1.5 Operation

⚠Do not disconnect the grounding/earthing conductor cable on the UPS or the building wiring terminals under any circumstance.

⚠The UPS system features its own, internal current source (batteries). The UPS output sockets or output terminal blocks may be electrically live even if the UPS system is not connected to the building mains/live wires. (only for standard models)

⚠In order to fully disconnect the UPS system, first press the “OFF” button and then disconnect the mains/live wires.

⚠Ensure that no liquid or other foreign objects can enter into the UPS system.

⚠The UPS can be operated by any individuals with no previous experience.

2 Installation and Operation

These series came with a VAC system: 400V. Please refer to the following table.

VAC System	Model	Type
400V	Ranger 60KR	Long-run model

We also offer optional parallel function for this model upon request. The UPS with parallel function is called the “Parallel model”. We have detail installation and operation procedure of the Parallel Model in the following chapter.

2.1 Unpacking and Inspection

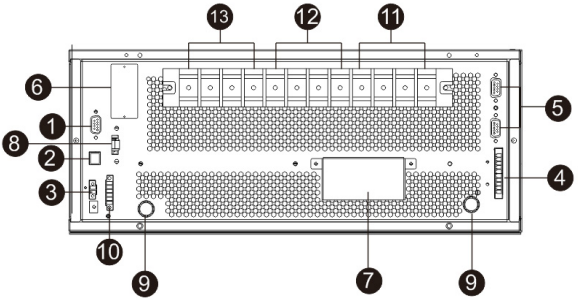
Unpack the package and check the package contents. The shipping package should contain:

- 1 UPS.
- 1 user manual.
- 1 monitoring software CD.
- 1 RS-232 cable (optional).
- 1 USB cable.
- Rack handles.
- Rack mounts.
- 1 UPS to 2 cabinets cable.
- 1 UPS to external cabinet cable.

NOTE!

Before the installation, please inspect the unit. Be sure that there is no physical damage to the unit. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or missing parts and accessories. Please keep the original packaging for future use. It is recommended to keep each equipment and battery set in their original packaging because they have been designed to provide maximum protection during transportation and storage.

2.2 Wiring Terminal View



Ranger 60KR Rear panel

1. RS-232 communication port
2. USB communication port
3. Emergency power off function connector (EPO connector)
4. Share current port (only available for parallel model)
5. Parallel port (only available for parallel model)
6. Intelligent slot
7. External battery connector/terminal
8. External maintenance bypass switch signal port (EMBS)
9. Grounding terminal
10. Dry contact communication port (optional)
11. Line input terminal
12. Bypass input terminal
13. Output terminal

2.3 Single UPS Installation

Installation and wiring must be carried out in accordance with the local electric laws and regulations by trained professionals.

1) Make sure that the mains wire and breakers of the building are rated for the capacity of the UPS to prevent electric shock or risk of fire.

NOTE!

Do not use the wall receptacle as the input power source for the UPS, as its rated current is less than the UPS's maximum input current. The receptacle may be damaged and destroyed.

2) Switch off the mains switch in the building before installation.

3) Turn off all the connected devices before connecting to the UPS.

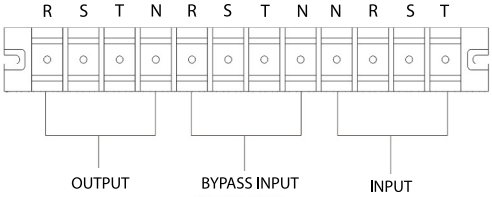
4) Prepare wires based on the following table:

Model	Wiring spec (AWG)				
	Input(Ph)	Output(Ph)	Neutral	Battery	Ground
Ranger 60KR	4	4	1	1	4

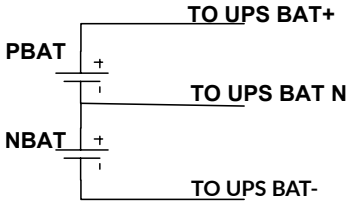
NOTE 1: The cable for Ranger 60KR should be able to withstand over 120A current. It is recommended to use AWG 4 or thicker wire for Phase and AWG 1 or thicker wire for Neutral for safety and efficiency.

NOTE 2: The selections for color of wires should be followed by the local electrical laws and regulations.

5) Remove the terminal block cover at the rear panel of UPS. Then connect the wires according to the following terminal block diagrams: (Connect the grounding/earthing wire first when making other wire connections. Remove the grounding/earthing wire last when connecting the UPS!)



Terminal block wiring diagram for Ranger 60KR



Battery wires connection schematic

NOTE 1: Make sure that the wires are connected securely with the terminals.

NOTE 2: Please install the output breaker between the output terminal and the load, and the breaker should have leakage current protective function if necessary.

6) Put the terminal block cover back at the rear panel of the UPS.

⚠ WARNING

● Make sure a DC breaker or other protective device between UPS and the external battery pack is installed for added safety. If not, please install it carefully. Switch off the battery breaker before installation.

NOTE: Set the battery pack breaker in "OFF" position and then install the battery pack.

● Pay special attention to the rated battery voltage marked on the rear panel. If you want to change the numbers of the battery in a chain, make sure you modify the UPS setting accordingly. Connection with wrong battery voltage may cause irreversible damage of the UPS.

● Pay special attention to the polarity marking on external battery terminal block. Connection with wrong battery voltage may cause irreversible damage of the UPS.

● Make sure the protective grounding/earthing wiring is adequate. The current spec, color, position, connection and conductance reliability of the wire should be verified.

● Make sure the utility input & output wiring is rated correctly. The current spec, color, position, connection 8 and conductance reliability of the wire should be verified. Make sure the L/N side is correct, not reverse or short-circuited.

2.4 UPS Installation for Parallel System

If the UPS is only for single operation, you may skip this section.

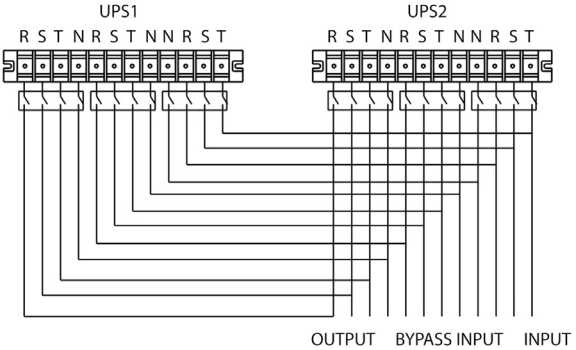
1) Install and wired the UPS according to the section 2-3.

2) Connect the output wires of each UPS to an output breaker.

3) Connect all output breakers to a major breaker. This major output breaker will then connect directly to the loads.

4) Either common battery packs or independent battery packs for each UPS are allowed.

5) Refer to the following wiring diagram:



Wiring diagram of parallel system for Ranger 60KR

2.5 Software Installation

For optimal computer system protection, install UPS monitoring software to configure UPS shutdown operation.

3 Operations

3.1 Button Operation

Button	Function
ON/Enter Button	➢Turn on the UPS: Press and hold the button more than 0.5s to turn on the UPS. ➢Enter Key: Press this button to confirm the selection in the setting menu.
OFF/ESC Button	➢Turn off the UPS: Press and hold the button more than 0.5s to turn off the UPS. ➢Esc key: Press this button to return to last item in the setting menu.
Test/Up Button	➢Battery test: Press and hold the button more than 0.5s to test the battery while in AC mode and CVCF* mode. ➢UP key: Press this button to display next selection in the setting menu.
Mute/Down Button	➢Mute the alarm: Press and hold the button more than 0.5s to mute the buzzer. Please refer to section 3-4-9 for details. ➢Down key: Press this button to display previous selection in the setting menu.
Test/Up + Mute/Down Button	➢Press and hold the two buttons simultaneous more than 1s to enter/escape the setting menu.

* CVCF means Constant Voltage and Constant Frequency.

3.2 LED Indicators and LCD Panel

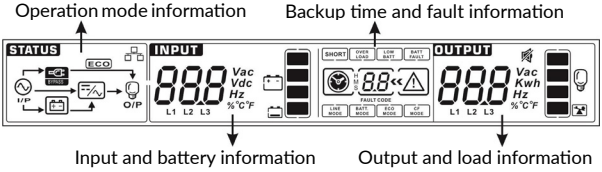
LED Indicators:

There are 4 LEDs on front panel to show the UPS working status:

Mode \ LED	Bypass	Line	Battery	Fault
UPS On	●	●	●	●
No Output mode	o	o	o	o
Bypass mode	●	o	o	o
AC mode	o	●	o	o
Battery mode	o	o	●	o
CVCF mode	o	●	o	o
Battery Test	●	●	●	o
ECO mode	●	●	o	o
Fault	o	o	o	●

Note: "●" means LED is lighting, and "o" means LED is faded.

LCD Panel:



Display	Function
Backup time information	
H M S 8.8	Indicates the battery discharge time in numbers H: hours, M: minutes, S: seconds.
Fault information	
« ⚠	Indicates that the warning and fault occurs.

8.8	Indicates the fault codes, and the codes are listed in details in section 3-9.
Mute operation	
	Indicates that the UPS alarm is disabled.
Output & Battery voltage information	
	Indicates the output voltage, frequency or battery voltage. Vac: output voltage, Vdc: battery voltage, Hz: frequency.
Load information	
	Indicates the load level by 0-25%, 26-50%, 51-75%, and 76-100%.
OVER LOAD	Indicates overload.
SHORT	Indicates the load or the output is short.
Mode operation information	
	Indicates the UPS connects to the mains.
	Indicates the battery is working.
	Indicates the bypass circuit is working.
ECO	Indicates the ECO mode is enabled.
	Indicates the Inverter circuit is working.
	Indicates the output is working.

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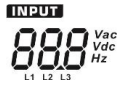
Battery information	
	Indicates the battery capacity by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates the battery is not connected.
	Indicates low battery level and low battery voltage.
Input & Battery voltage information	
	Indicates the input voltage or frequency or battery voltage. Vac: Input voltage, Vdc: battery voltage, Hz: input frequency.

3.3 Audible Alarm

Description	Buzzer status	Muted
UPS status		
Bypass mode	Beeping once every 2 minutes	Yes
Battery mode	Beeping once every 4 seconds	
Fault mode	Beeping continuously	
Warning		
Overload	Beeping twice every second	No
Others	Beeping once every second	
Fault		
All	Beeping continuously	Yes

3.4 Single UPS Operation

1. Turn on the UPS with utility power (in AC mode)

1) After power mains is connected correctly, set the breaker of the battery pack to “ON” position. Then set the line input breaker to “ON” position. At the same time, the fan will start running and the UPS will start initialization. After a few seconds, the UPS will supply power to the loads via the Bypass mode.

NOTE!

When UPS is in Bypass mode, the output voltage will be directed from mains after you switch on the input breaker. In Bypass mode, the load is not protected by the UPS. To protect your precious devices, you should turn on the UPS. Refer to next step.

2) Press and hold the “ON” button for 0.5s to turn on the UPS and the buzzer will sound once.

3) In just a few seconds, the UPS will enter into AC mode. If the mains is abnormal, the UPS will operate in Battery mode without interruption.

NOTE!

When the UPS runs out battery, it will shut down automatically in Battery mode. When the mains is normalized, the UPS will auto restart in AC mode.

2. Turn on the UPS without utility power supply (in Battery mode)

1) Make sure that the two strings of batteries are connected correctly in order of ”+,GND,-” terminals and the breaker of the battery pack is at “ON” position.

2) Press the “ON” button to set up the power supply for the UPS. UPS will enter to power on mode. After initialization, UPS will enter to “No Output mode”, then press and hold the “ON” button for 0.5s to turn on the UPS, and the buzzer will sound once.

3) A few seconds later, the UPS will be turned on and enter to Battery mode.

3. Connect devices to UPS

After the UPS is turned on, you can connect devices to the UPS.

1) Turn on the UPS first and then switch on the devices one by one. The LCD panel will display total load level.

2) If it is necessary to connect the inductive loads such as a printer, the in-rush current of the load should be calculated carefully to see if it meets the overload capability of the UPS. If connected load is more than 150% of designed capacity, the runtime will be less than 60ms.

3) If the UPS is overload, the buzzer will beep twice every second.

4) When the UPS is overload, please remove some loads immediately. It is recommended to have the total loads connected to the UPS less than 80% of its nominal power capacity to prevent overload for system safety.

5) If the overload time is over acceptable time listed in spec in AC mode, the UPS will automatically transfer to Bypass mode. After the overload is resolved, it will return back to AC mode. If the overload time is over acceptable time listed in spec in Battery mode, the UPS will enter fault status. At this time, if bypass is enabled, the UPS will power to the load via bypass. If bypass function is disabled or the input power is not within bypass acceptable range, it will cut off output entirely.

4. Charge the batteries

1) After the UPS is connected to the mains and turned on in AC mode, the charger will charge the batteries automatically except in battery mode, during battery self-test, overload or when battery voltage is high.

2) It's recommended to charge batteries for at least 10 hours before operation. Otherwise, the backup time may be shorter than expectation.

5. Battery mode operation

1) When the UPS is in Battery mode, the buzzer will sound according to different battery capacity. If the battery capacity is more than 25%, the buzzer will beep once every 4 seconds. If the battery voltage drops to the alarm level, the buzzer will beep once every sec to remind users that the battery is at low level and the UPS will shut down immediately. Users could switch off some non-critical loads to disable the shutdown alarm and prolong the backup time. If there is no more load to be switched off, you have to prepare shutdown procedure to protect working data or devices. Otherwise, there is a risk of data loss or load failure.

2) In Battery mode, users can press the Mute button to disable the buzzer.

3) The backup time of the long-run model depends on the external battery capacity.

4) The backup time may vary from different operating temperature and load type.

5) When setting backup time for 16.5 hours (default value from LCD

menu), after discharging 16.5 hours, UPS will shut down automatically to protect the battery. This battery discharge protection can be enabled or disabled through LCD menu. (Refer to 3-7 for details).

6. Test the batteries

1) If you need to check the battery status when the UPS is running in AC mode/CVCF mode, you could press the "Test" button for battery self-test.

2) Users also can set battery self-test through monitoring software.

7. Turn off the UPS with utility power supply in AC mode

1) Turn off the inverter of the UPS by pressing "OFF" button for at least 0.5s, and then the buzzer will sound once. The UPS will enter into Bypass mode.

NOTE 1: If the UPS has been set to bypass output, it will bypass voltage from the mains to output terminal even though you have turned off the UPS (inverter).

NOTE 2: After turning off the UPS, please be aware that the UPS is working in Bypass mode, there will be risk of power loss for connected devices.

2) In Bypass mode, output voltage of the UPS is still present. In order to cut off the output, switch off the line input breaker. The LCD display will turn off and UPS is now completely off.

8. Turn off the UPS without utility power supply in Battery mode

1) Turn off the UPS by pressing "OFF" button for at least 0.5s, and then the buzzer will sound once.

2) Then, UPS will cut off power to output terminals and there will no display shown on the LCD panel.

9. Mute the buzzer

1) To mute the buzzer, please press the "Mute" button for at least 0.5s. If you press it again after the buzzer is muted, the buzzing will resume.

2) Some warning alarms can't be muted unless the error is fixed. Please refer to section 3-3 for details.

10. Operation in warning status

1) When Fault LED illuminates and the buzzer beeps once every second, it indicates that there are problems for UPS operation. Users can read the warning message(s) from LCD menu. Please refer to the Chapter 4 for details.

2) Some warning alarms can't be muted unless the error is fixed. Please refer to section 3-3 for details.

11. Operation in Fault mode

1) When Fault LED illuminates and the buzzer beeps continuously, it means that there is a fatal error with the UPS. Users can get the fault code from LCD menu. Please refer to the Chapter 4 for details.

2) Please check the loads, wiring, ventilation, mains, battery and so on after the fault occurs. Don't try to turn on the UPS again before solving the issues. If the problems persist, contact the distributor or service personnel immediately.

3) In case of an emergency, shut off connections from mains, external battery, and output immediately to avoid possible damage to the UPS or equipment.

12. Operation in maintenance mode

This operation should only be performed by maintenance personnel or qualified technicians.
When the UPS needs to repair or service and the load could not be shut off, the UPS needs to be put into maintenance mode.

1) First, switch off the UPS.

2) Then, remove the cover of maintenance bypass switch on the panel.

3) Turn the maintenance switch to "BPS" position. Then, turn off the UPS input breaker and output breaker.

13. Operation in changing battery quantity

1) This operation should only be performed by maintenance personnel or qualified technicians.

2) Turn off the UPS. If the load cannot be shut off, you should remove the cover of maintenance bypass switch on the panel and turn the maintenance switch to “BPS” position.

3) Switch off the line input breaker and external bypass input breaker. Then, UPS will enter into “No Output mode”.

4) Connect communication cable to the UPS and a computer. Be sure to install communication tool first. For this software tool, please check your local dealer for the details. Use the software to set up battery quantity accordingly. Or use LCD setting interface to set the battery quantity directly, please contact with the local after-sales service.

5) After settings are updated successfully, shut down the UPS with battery connected to save the changes. Then, modify the connected battery pack numbers accordingly.

6) Switch on the utility power breaker and external bypass input breaker. Then, the UPS will enter into bypass mode. If the UPS is in maintenance bypass mode, turn the maintenance switch back to “UPS” position and then turn on the UPS.

NOTE!

If you see warning code “01”, the UPS is not able to set up the battery quantity. Only in No output mode can battery quantity be modified.

14. Operation in setting charging current

1) This operation should only be performed by maintenance personnel or qualified technicians.

2) Connect communication cable to the UPS and a computer. Be sure to install communication tool first. For this software tool, please check your local dealer for the details. Use the software to set up charging current accordingly. Or use LCD setting interface to set charge current directly. Please refer to Program 21 in LCD setting section (3-7).

3) After settings are updated successfully, the updated charging current will take effect immediately. The UPS would need to be restarted

to saving the setting.

15. Operation in setting charger quantity

1) This operation should only be performed by maintenance personnel or qualified technicians.

2) Turn off the UPS. If the load can not be cut off, you should remove the cover of maintenance bypass switch on the panel and turn the maintenance switch to “BPS” position.

3) Switch off the line input breaker and UPS will enter into “No Output mode”.

4) Connect communication cable to the UPS and a computer. Be sure to install communication tool first. For this software tool, please

NOTE!

The charger quantity setting must coincide with actual number installed in the UPS. If the setting quantity is more than actual installed quantity, the charging current will not meet the specification.

3.5 Parallel Operation

1. Parallel system initial startup

Please make sure that all of the running UPSs are parallel models and have the same configuration.

1) Turn on each UPS in AC mode respectively (Refer to section 3-4(1). Then, measure the inverter output voltage of each phase for each UPS with a multi-meter. Calibrate the inverter output voltage by configuring inverter voltage adjustment (Refer to Program 15, 16 and 17 in section 3-7) in LCD menu until the inverter output voltage difference of each UPS is within 1V or less.

2) Calibrate the output voltage measurement by configuring output voltage calibration (Refer to Program 18,19, and 20, section 3-7) in LCD setting to make sure the difference between real output voltage and detected value of UPS is less than 1V.

3) Turn off each UPS (Refer to section 3-4(7.). Then, follow the wiring procedure in section 2-4.

4) Remove the cover of parallel share current cable port on the UPS, connect each UPS one by one with the parallel cable and share current cable, and then replace the cover.

5 Turn on the parallel system in AC mode:

a) Turn on the line input breaker of each UPS. If using dual-input unit, please also turn on bypass input breaker. After all UPSs enter into bypass mode, measure the output voltage between two UPSs for the same phase to make sure the phase sequence is correct. If these two voltage differences are near to zero, that means all connections are met. Otherwise, please check if the wirings are connected correctly.

b) Turn on the output breaker of each UPS.

c) Turn on each UPS in turns. After a while, the UPSs should enter into AC mode synchronously and then, the parallel system is now complete.

6 Turn on the parallel system in Battery mode:

a) Turn on the battery breaker and external output breaker of each UPS.

b) Turn on any UPS. A few seconds later, the UPS will enter into battery mode.

c) Turn on the next UPS in sequence until all the UPSs enter into Battery mode and add to the parallel system. Now the parallel system is now complete.

If you would like to have more information regarding the parallel operation, please contact your supplier or service center for detail parallel operation instruction.

2. Add new units into the parallel system

1) You can not add new unit into the parallel system when whole system is running. You must cut off the load and shutdown the system.

2) Make sure all of the UPS are the parallel models, and follow the wiring reference in section 2-4.

3) Install the new parallel system as per section 3-5.

3. Remove units from the parallel system

There are two methods to remove units from the parallel system:

First method:

1) Press the "OFF" key twice and each press should be last for more than 0.5s. Then, the UPS will enter into Bypass mode or No Output mode without output.

2) Turn off the external output breaker of this unit, and then turn off the input breaker of this unit.

3) After this UPS shuts down, turn off the battery breaker (for long-run model) and remove the parallel and share current cables. And then remove the unit from the parallel system.

Second method:

1) If the bypass is abnormal, you can not remove the UPS without interruption. You must cut off the load and shut down the system.

2) Make sure the bypass setting is enabled in each UPS and then turn off the system. All UPSs will transfer to Bypass mode. Remove all the maintenance bypass covers and set the maintenance switches from "UPS" to "BPS" position. Turn off all the input breakers and battery breakers in parallel system.

3) Turn off the output breaker and remove the parallel cable and share current cable of the UPS which you want to remove. Now, you can remove the UPS from parallel system.

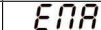
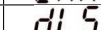
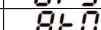
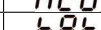
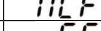
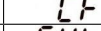
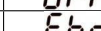
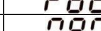
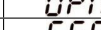
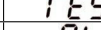
4) Turn on the input breaker of the remaining UPS and the system will transfer to Bypass mode. Set the maintenance switches from "BPS" to "UPS position and put the maintenance bypass covers back on.

5) Turn on the remaining UPS according to the previous section.

⚠ WARNING (Only for the parallel system)

- Before turning on the parallel system to activate inverter, make sure that all unit's maintenance switch at the same position.
- When parallel system is turned on, please do not operate the maintenance switch of any unit.
- The parallel system DOES NOT support ECO mode. Therefore, please DO NOT "enable" ECO mode in any unit.

3.6 Abbreviation Meaning in LCD Display

Abbreviation	Display content	Meaning
ENA		Enable
DIS		Disable
ATO		Auto
BAT		Battery
NCV		Normal mode (not CVCF mode)
CF		CVCF mode
SUB		Subtract
ADD		Add
ON		On
OFF		Off
FBD		Not allowed
OPN		Allow
RES		Reserved
N.L		Neutral line loss
CHE		Check
OP.V		Output voltage
PAR		Parallel, 001 means the first UPS
AN		The first phase
BN		The second phase

English

Română

CN	CN	The third phase
AB	Ab	The first line
BC	bC	The second line
CA	CA	The third line
HS.H	HS.H	Hot Standby

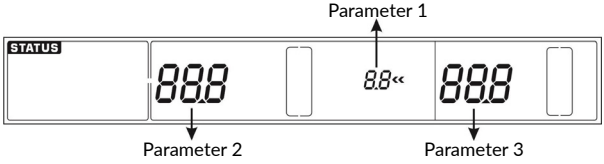
3.7 LCD Setting

There are three parameters to set up the UPS. Refer to following diagram. Parameter 1: It's for program alternatives. Refer to below table for the programs to set up.

Parameter 2 and parameter 3 are the setting options or values for each program.

NOTE!

*Please select "**Up**" or "**Down**" button to change the programs or parameters.*



Available program list for parameter 1:

Code	Description	Bypass / No Output mode	AC mode	ECO mode	CVCF mode	Battery mode	Battery Test
01	Output voltage	Y*					
02	Output frequency	Y					
03	Reserved	Reserved for future options					
04	Reserved	Reserved for future options					
05	ECO mode enable/disable	Y					
06	Reserved	Reserved for future options					
07	Reserved	Reserved for future options					
08	Bypass mode setting	Y	Y				

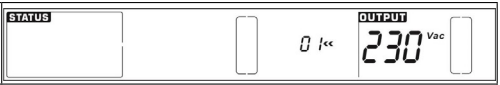
09	Maximum battery discharge time setting	Y	Y	Y	Y	Y	Y
10	Reserved	Reserved for future options					
11	Hot standby function Setting	Y					
12	Neutral loss detection	Y	Y	Y	Y	Y	Y
13	Battery voltage calibration	Y	Y	Y	Y	Y	Y
14	Charger voltage adjustment	Y	Y	Y	Y	Y	Y
15	Inverter A voltage adjustment		Y		Y	Y	
16	Inverter B voltage adjustment		Y		Y	Y	
17	Inverter C voltage adjustment		Y		Y	Y	
18	Output A voltage calibration		Y		Y	Y	
19	Output B voltage calibration		Y		Y	Y	
20	Output C voltage calibration		Y		Y	Y	
21	Charging current setting	Y	Y	Y	Y	Y	Y
22	Battery number setting	Y					

*Y means that this program can be set in this mode.

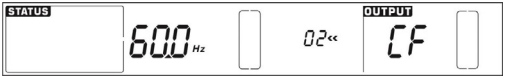
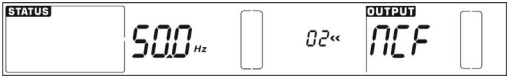
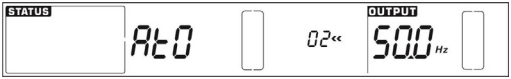
NOTE!

All parameter settings will be saved only when UPS shuts down normally with internal or external battery connection. (Normal UPS shutdown means turning off input breaker in bypass/no output mode).

- **01: Output voltage**

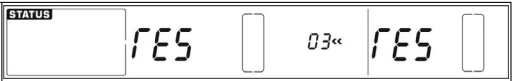
Interface	
Setting	**Parameter 3: Output voltage** For 208/220/230/240 VAC models, you may choose the following output voltage: **208:** presents output voltage is 208Vac **220:** presents output voltage is 220Vac **230:** presents output voltage is 230Vac **240:** presents output voltage is 240Vac

- **02: Output frequency**

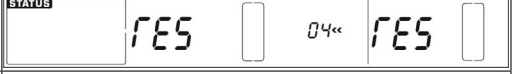
Interface	**60 Hz, CVCF mode**  **50 Hz, Normal mode**  **ATO** 

Setting	**Parameter 2: Output Frequency** Setting the output frequency. You may choose following three options in parameter 2: **50.0Hz:** The output frequency is setting for 50.0Hz. **60.0Hz:** The output frequency is setting for 60.0Hz. **ATO:** If selected, output frequency will be decided according to the latest normal utility frequency. If it is from 46Hz to 54Hz, the output frequency will be 50.0Hz. If it is from 56Hz to 64Hz, the output frequency will be 60.0Hz. ATO is default setting. **Parameter 3: Frequency mode** Setting output frequency at CVCF mode or not CVCF mode. You may choose following two options in parameter 3: **CF:** Setting UPS to CVCF mode. If selected, the output frequency will be fixed at 50Hz or 60Hz according to setting in parameter 2. The input frequency could be from 46Hz to 64Hz. **NCF:** Setting UPS to normal mode (not CVCF mode). If selected, the output frequency will synchronize with the input frequency within 46~54 Hz at 50Hz or within 56~64 Hz at 60Hz according to setting in parameter 2. If 50 Hz selected in parameter 2, UPS will transfer to battery mode when input frequency is not within 46~54 Hz. If 60Hz selected in parameter 2, UPS will transfer to battery mode when input frequency is not within 56~64 Hz. *If Parameter 2 is ATO, the Parameter 3 will show the current frequency

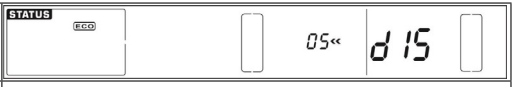
- **03: Reserved**

Interface	
Setting	Reserve for future options.

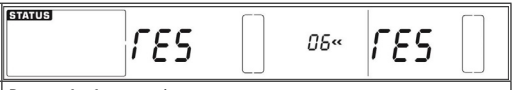
- **04: Reserved**

Interface	
Setting	Reserve for future options.

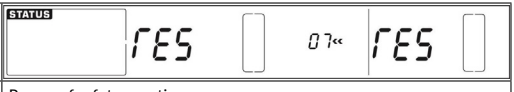
- **05: ECO mode enable/disable**

Interface	
Setting	**Parameter 3:** Enable or disable ECO function. You may choose following two options: **DIS:** disable ECO function **ENA:** enable ECO function If ECO function is disabled, voltage range and frequency range for ECO mode still can be set, but it is meaningless unless the ECO function is enabled. *If the system is running in parallel, be sure to set “DIS” only.

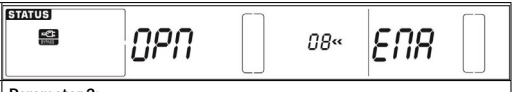
- **06: Reserved**

Interface	
Setting	Reserve for future options.

- **07: Reserved**

Interface	
Setting	Reserve for future options.

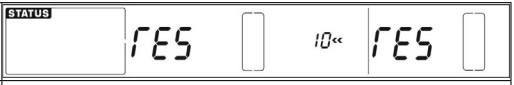
- **08: Bypass mode setting**

Interface	
Setting	**Parameter 2:** **OPN:** Bypass allowed. When selected, UPS will run at Bypass mode depending on bypass enabled/disabled setting. **FBD:** Bypass not allowed. When selected, it’s not allowed for running in Bypass mode under any situations. **Parameter 3:** **ENA:** Bypass enabled. When selected, Bypass mode is activated. **DIS:** Bypass disabled. When selected, automatic bypass is acceptable, but manual bypass is not allowed. Manual bypass means users manually operate UPS for Bypass mode. For example, pressing OFF button in AC mode to turn into Bypass mode.

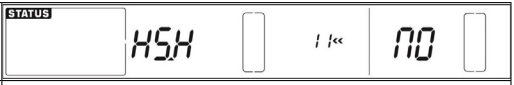
- **09: Maximum battery discharge time setting**

Interface	
Setting	**Parameter 3:** **000~999**: Set the maximum discharge time from 0 min to 999 min. UPS will shut down to protect battery if the discharge time arrives before the battery is under voltage. The default value is 990 min. **DIS:** Disable battery discharge protection and backup time will depend on battery capacity.

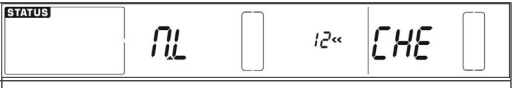
- **10: Reserved**

Interface	
Setting	Reserve for future options.

- **11: Hot standby function Setting**

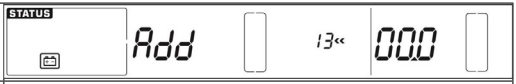
Interface	
Setting	**Parameter 2:** **HS.H:** Indicates Hot standby function. **Parameter 3:** Enable or disable hot standby function. **YES:** Hot standby function is enabled. It means that the current UPS is set to host of the hot standby function, and it will restart After AC recovery even without battery connected. **NO**: Hot standby function is disabled. The UPS is running at Normal mode and can't restart without battery.

- **12: Neutral loss detection**

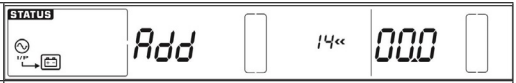
Interface	
Setting	**Parameter 2:** **N.L:** Indicates neutral loss detection function. **Parameter 3:** **DIS:** Disable the neutral loss detection function. The UPS will not detect the neutral loss or not.

	ATO: The UPS will automatically detect the neutral is lost or not. If neutral loss is detected, an alarm will be generated. If the UPS is turned on, it will transfer to battery mode. When neutral is restored and detected, the alarm will be muted automatically and the UPS will go back to normal mode automatically. **CHE:** The UPS will automatically detect the neutral loss. If neutral loss is detected, an alarm will be generated. If the UPS is turned on, it will transfer to battery mode. When neutral is restored, the alarm will NOT be muted automatically and the UPS will NOT go back to normal mode automatically. Here, you must mute the alarm and make the UPS go back to normal mode manually. The operation is: Firstly, enter this menu and press the "Enter" key to make the "CHE" flash. Secondly, press the "Enter" key again to activate the neutral detection (check). If neutral is detected, the alarm will be muted and the UPS will go back to normal mode. If neutral is not detected, the UPS will continue alarming and stay on the latest status until the neutral is detected well at next manual checking operation. CHE is default setting.

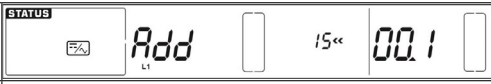
- **13: Battery voltage calibration**

Interface	
Setting	**Parameter 2:** Select **"Add"** or **"Sub"** function to adjust battery voltage to real figure. **Parameter 3:** the voltage range is from 0V to 9.9V and the default value is 0V.

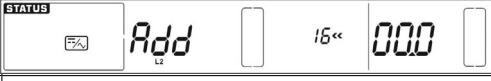
- **14: Charger voltage adjustment**

Interface	
Setting	**Parameter 2:** you may choose **Add** or **Sub** to adjust charger voltage. **Parameter 3:** the voltage range is from 0V to 9.9V and the default value is 0V. **NOTE:** *Before making voltage adjustment, be sure to disconnect all batteries first to get the accurate charger voltage. * Any modification should be suitable to battery specifications.

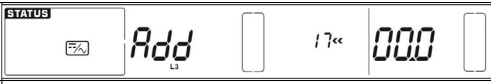
- **15: Inverter A voltage adjustment**

Interface	
Setting	**Parameter 2:** you may choose **Add** or **Sub** to adjust inverter A voltage. **Parameter 3:** the voltage range is from 0V to 9.9V and the default value is 0V. * **Add** or **Sub** is according to the output voltage what you set.

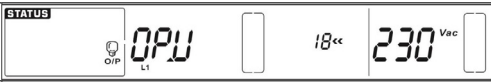
- **16: Inverter B voltage adjustment**

Interface	
Setting	**Parameter 2:** you may choose **Add** or **Sub** to adjust inverter A voltage. **Parameter 3:** the voltage range is from 0V to 9.9V and the default value is 0V. *It will display number 1 under Add or Sub to represent inverter B voltage.

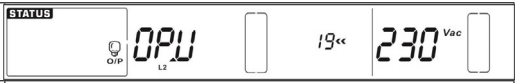
- **17: Inverter C voltage adjustment**

Interface	
Setting	**Parameter 2:** you may choose **Add** or **Sub** to adjust inverter C voltage*. **Parameter 3:** the voltage range is from 0V to 9.9V, the default value is 0V. *It will display number 2 under Add or Sub to represent inverter C voltage.

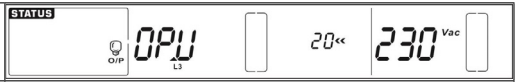
- **18: Output A voltage calibration**

Interface	
Setting	**Parameter 2:** it always shows **OP.V** as output voltage. **Parameter 3:** it shows the internal measurement value of the output A voltage, and you can calibrate it by pressing **Up** or **Down** according to the measurement from an external voltage meter. The calibration result will be effective by pressing **Enter**. The calibration range is limited within +/-9V. This function is normally used for parallel operation.

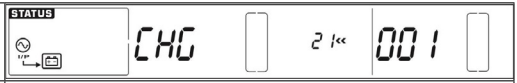
- **19: Output B voltage calibration**

Interface	
Setting	**Parameter 2:** it always shows **OP.V** as output voltage*. **Parameter 3:** it shows the internal measurement value of the output B voltage, and you can calibrate it by pressing **Up** or **Down** according to the measurement from an external voltage meter. The calibration result will be effective by pressing **Enter**. The calibration range is limited within +/-9V. This function is normally used for parallel operation. *It will display number 1 under OPU to represent the output B voltage.

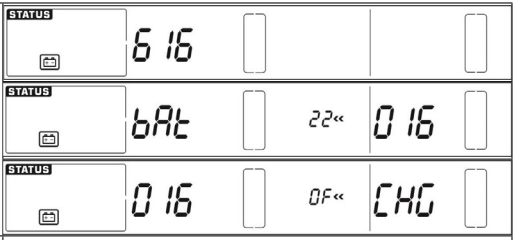
- **20: Output C voltage calibration**

Interface	
Setting	**Parameter 2:** it always shows **OP.V** as output voltage. **Parameter 3:** it shows the internal measurement value of the output C voltage, and you can calibrate it by pressing **Up** or **Down** according to the measurement from an external voltage meter. The calibration result will be effective by pressing **Enter**. The calibration range is limited within +/-9V. This function is normally used for parallel operation. *It will display number 2 under OPU to represent the output C voltage.

- **21: Charging current setting**

Interface	
Setting	**Parameter 2:** it always shows **CHG** as charging current. **Parameter 3:** The setting range is from 1A to 12A and the default value is 1A.

- **22: Battery numbers setting**

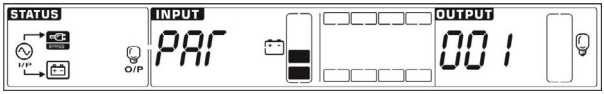
Interface	
Setting	The battery numbers setting menu will be displayed only after entering the password. Please enter password “616” by pressing “**Up**” and “**OFF**” button to access setting menu. Press “**Up**” and “**OFF**” buttons at the same time to exit the menu. It always shows **BAT** to indicate battery numbers in parameter 2. It will show the internal measurement value of battery numbers in parameter 3 and you can change it by pressing **Up** or **Down** button. The setting range of battery numbers is from 16PCS to 20PCS. The setting result will be effective by pressing “**Enter**” button. After pressing “**Enter**” button, it will show “CHG” in parameter 3 to enter charger on/off setting menu. It shows “**ON**” or “**OF**” as charger status in parameter 1. This setting can be changed by pressing “**Up**” or “**Down**” button. The setting result will be effective by pressing “**Enter**”button.

3.8 Operating Mode/Status Description

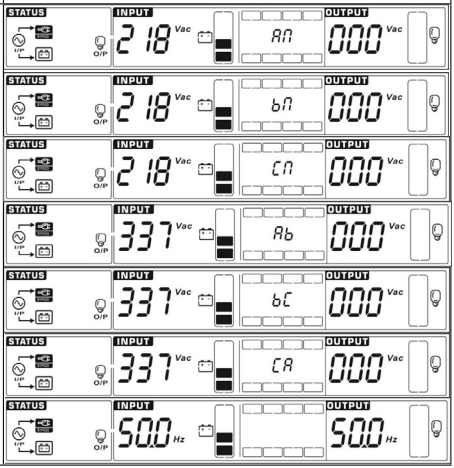
Following table shows LCD display for operating modes and status.

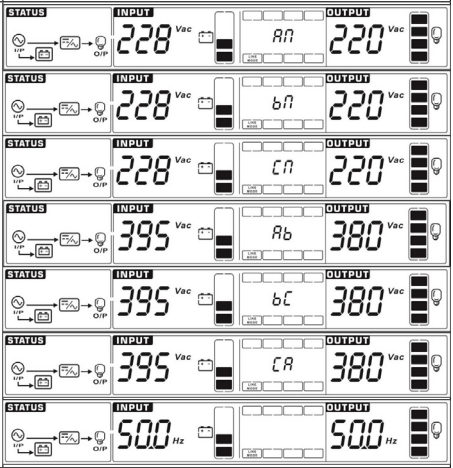
(1) If the UPS is in normal operation, it will show seven screens one by one, which represents 3 phase input voltages (An, bn, Cn), 3 line input voltages (Ab, bC, CA) and frequency on one screen.

(2) If a parallel UPS system is successfully set up, it will show one more screen with “**PAR**” in parameter 2 and assigned number in parameter 3 as below parallel screen diagram. The master UPS will be default assigned as “**001**” and slave UPSs will be assigned as either “002” or “003”. The assignment may be changed dynamically in the UPS operation.



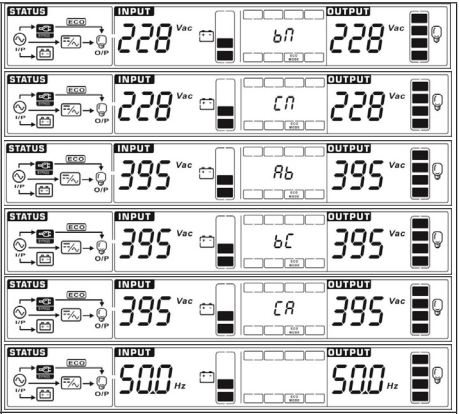
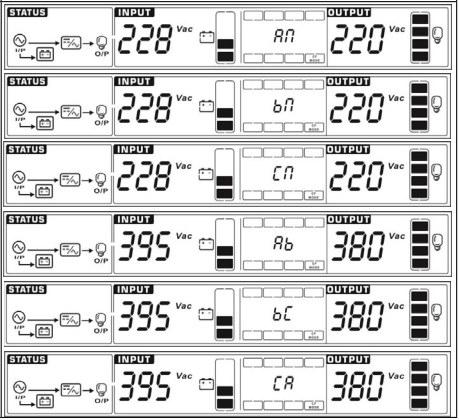
Parallel screen

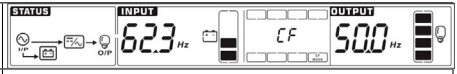
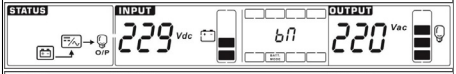
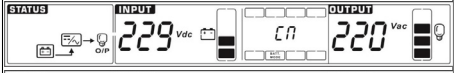
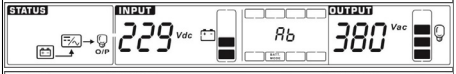
Operating mode/status		
UPS Power On	Descrip-tion	When UPS is powered on, it will enter into this mode for a few seconds as initializing the CPU and system.
	LCD display	
No output mode	Descript-tion	When bypass voltage/frequency is out of acceptable range or bypass is disabled (or forbidden), UPS will enter into no-output mode if powering on or turning off the UPS. It means the UPS has no output. Alarm beeps every two minutes
	LCD display	

<table>
<tr><td rowspan="8">AC mode</td><td>Description</td><td colspan="2">When the input voltage is within acceptable range, UPS will provide pure and stable AC power to output. The UPS will also charge the battery at AC mode.</td></tr>
<tr><td>LCD display</td><td colspan="2">
</td></tr>
<tr><td rowspan="2">ECO mode</td><td>Description</td><td colspan="2">When the input voltage is within voltage regulation range and ECO mode is enabled, UPS will bypass voltage to output for energy saving.</td></tr>
<tr><td>LCD display</td><td colspan="2">
</td></tr>
</table>

English

Română

		
CVCF mode	Description	When the output frequency is set to “CF”, the inverter will output constant frequency (50 Hz or 60 Hz). At this mode, the UPS will have no bypass output but still charge battery.
	LCD display	

<table>
<tr><td></td><td></td><td>
</td></tr>
<tr><td rowspan="9">Battery mode</td><td>Description</td><td>When the input voltage/frequency is beyond the acceptable range or power failure, UPS will backup power from battery and alarm will beep every 4 seconds.</td></tr>
<tr><td>LCD display</td><td>
</td></tr>
<tr><td></td><td>
</td></tr>
<tr><td></td><td>
</td></tr>
<tr><td></td><td>
</td></tr>
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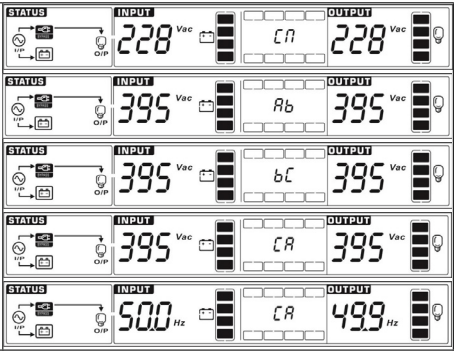
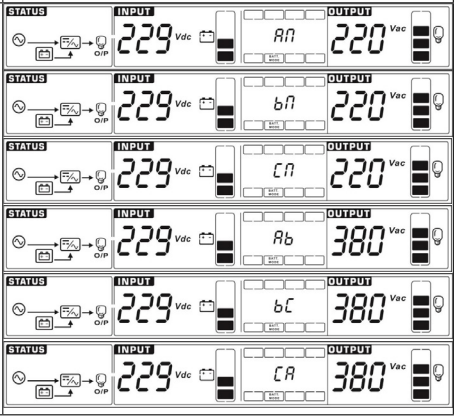
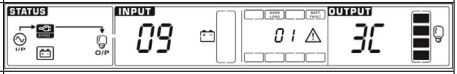
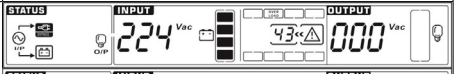
<tr><td></td><td>
</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td rowspan="3">Bypass mode</td><td>Description</td><td>When input voltage is within acceptable range and bypass is enabled, turn off the UPS and it will enter Bypass mode. Alarm beeps every two minutes.</td></tr>
<tr><td>LCD display</td><td>
</td></tr>
<tr><td></td><td>
</td></tr>
</table>

English

Română

		
Battery Test	Description	When UPS is in AC mode or CVCF mode, press “Test” key for more than 0.5s. Then, the UPS will beep once and start “Battery Test”. The line between I/P and inverter icons will blink to remind users. This operation is used to check the battery status.
	LCD display	

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Warning status</td><td>Description</td><td>If some errors occur in the UPS (but it is still running normally), it will show one more screen to represent the warning situation. In the warning screen, the icon ⚠will be flashing, and it can show up to 3 error codes and each code indicates one error. You can find the code meaning in the warning code table.</td></tr>
<tr><td>LCD display</td><td></td></tr>
<tr><td rowspan="4">Fault status</td><td>Description</td><td>When UPS has fault happened, the inverter will be blocked. It will display fault code in screen, and the icon⚠will light up. You can find the code meaning in the fault code table.</td></tr>
<tr><td>LCD display</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>

3.9 Fault Code

Fault code	Fault event	Icon	Fault code	Fault event	Icon
01	Bus start failure	None	41	Over temperature	None
02	Bus over	None	42	DSP communication failure	None
03	Bus under	None	43	Overload	OVER LOAD
04	Bus unbalance	None	46	Incorrect UPS setting	None
06	Converter over current	None	47	MCU communication failure	None

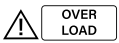
English

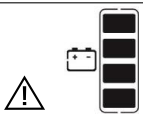
Română

11	Inverter soft start failure	None	48	Two DSP firmware versions are incompatible in parallel system.	None
12	High inverter voltage	None	60	Bypass phase short circuited	SHORT
13	Low inverter voltage	None	61	Bypass SCR short circuited	None
14	Inverter B output (line to neutral) short circuited	SHORT	62	Bypass SCR open circuited	None
15	Inverter B output (line to neutral) short circuited	SHORT	63	Voltage waveform abnormal in R phase	None
16	Inverter C output (line to neutral) short circuited	SHORT	64	Voltage waveform abnormal in S phase	None
17	Inverter A-B output (line to line) short circuited	SHORT	65	Voltage waveform abnormal in T phase	None
18	Inverter B-C output (line to line) short circuited	SHORT	66	Inverter current sample abnormal	None
19	Inverter C-A output (line to line) short circuited	SHORT	67	Bypass O/P short circuited	SHORT
1A	Inverter A negative power fault	None	68	Bypass O/P line to line short circuited	SHORT
1B	Inverter B negative power fault	None	69	Inverter SCR short circuited	None

1C	Inverter C negative power fault	None	6C	BUS voltage drops too fast	None
21	Battery SCR short circuited	None	6D	Current sampling error value	None
23	Inverter relay open circuited	None	6E	SPS power error	None
24	Inverter relay short circuited	None	6F	Battery polarity reverse	None
25	Line wiring fault	None	71	PFC IGBT over-current in R phase	None
31	Parallel communication failure	None	72	PFC IGBT over-current in S phase	None
32	The host signal failure	None	73	PFC IGBT over-current in T phase	None
33	Synchronous signal failure	None	74	INV IGBT over-current in R phase	None
34	Synchronous trigger signal failure	None	75	INV IGBT over-current in S phase	None
35	Parallel communication loss	None	76	INV IGBT over-current in T phase	None
36	Parallel output current unbalance	None	78	LCD & MCU communication failure	None

3.10 Warning Indicator

Warning	Icon (flashing)	Alarm
Battery low		Beeping every second
Overload		Beeping twice every second
Battery unconnected		Beeping every second

Over charge		Beeping every second
EPO enable		Beeping every second
Fan failure/Over temperature		Beeping every second
Charger failure		Beeping every second
I/P fuse broken		Beeping every second
Other warnings (refer to 3-11)		Beeping every second

3.11 Warning Code

Warning code	Warning event	Warning code	Warning event
01	Battery unconnected	21	Line situations are different in parallel system
02	IP Neutral loss	22	Bypass situations are different in parallel system
04	IP phase abnomal	33	Locked in bypass after overload 3 times in 30 minutes
05	Bypass phase abnormal	34	Converter current unbalanced
07	Over charge	3A	Cover of maintain switch is open
08	Low battery	3C	Utility extremely unbalanced
09	Overload	3D	Bypass is unstable
0A	Fan failure	3E	Battery voltage too high

0B	EPO enable	3F	Battery voltage unbalanced
0D	Over temperature	40	Charger short circuited
0E	Charger failure		

4 Trouble Shooting

If the UPS system does not operate correctly, please solve the problem by using the table below.

Symptom	Possible cause	Remedy
No indication and alarm in the front display panel even though the mains is normal.	The AC input power is not connected well.	Check if input cable firmly connected to the mains.
The icon ⚠ and the warning code EP flash on LCD display and alarm beeps every second.	EPO function is activated. At this time, the EPO switch is in "OFF" status or the jumper is open.	Set the circuit in closed position to disable the EPO function.
The icon ⚠ and BATT FAULT flash on LCD display and alarm beeps every second.	The external or internal battery is incorrectly connected.	Check if all batteries are connected well.
The icon ⚠ and OVER LOAD flash on LCD display and alarm beeps twice every second.	UPS is overload.	Remove excess loads from UPS output.
	UPS is overloaded. Devices connected to the UPS are fed directly by the electrical network via the Bypass.	Remove excess loads from UPS output.
	After repetitive overloads, the UPS is locked in the Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from UPS output first. Then shut down the UPS and restart it.

English

Română

Fault code is shown as 43. The icon [OVER LOAD] lights on LCD display and alarm beeps continuously.	UPS is overload too long and becomes fault. Then UPS shut down automatically.	Remove excess loads from UPS output and restart it.
Fault code is shown as 14, 15, 16, 17, 18 or 19, the icon [SHORT] lights on LCD display, and alarm beeps continuously.	The UPS shut down automatically because short circuit occurs on the UPS output.	Check output wiring and if connected devices are in short circuit status.
Other fault codes are shown on LCD display and alarm beeps continuously.	A UPS internal fault has occurred.	Contact your dealer
Battery backup time is shorter than nominal value	Batteries are not fully charged.	Charge the batteries for at least 7 hours and then check capacity. If the problem still persists, consult your dealer.
	Batteries defect	Contact your dealer to replace the battery.
The icon ⚠ and [fan] flash on LCD display and alarm beeps every second.	Fan is locked or not working. Or the UPS temperature is too high.	Check fans and notify dealer.

The warning code 02 and the icon⚠flash on LCD display. The alarm beeps every second.	The input neutral wire is disconnected.	Check and correct the input neutral connection. If the connection is ok and the warning is still displaying, please refer to the LCD setting section, to enter the neutral loss check menu, to see if the parameter3 is “CHE”. If it is, please press the “Enter” key firstly to make the “CHE” flash and press the “Enter” key secondly to make the UPS clear the alarm. If the warning still exists, please check input fuses of L2 and L3.
	The L2 or L3 input fuse is broken.	Replace the fuse.

5 Storage and Maintenance

5.1 Storage

Before storing, charge the UPS at least 7 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration
-25°C - 40°C	Every 3 months	1-2 hours
40°C - 45°C	Every 2 months	1-2 hours

5.2 Maintenance

⚠ The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.

⚠ Even after the unit is disconnected from the mains, components inside the UPS system are still connected to the battery packs which are potentially dangerous.

⚠ Before carrying out any kind of service and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exists in the terminals of high capability capacitor such as BUS-capacitors.

⚠ Only persons are adequately familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorized persons must be kept well away from the batteries.

⚠ Verify that no voltage between the battery terminals and the ground is present before maintenance or repair. In this product, the battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the grounding/earthing.

⚠ Batteries may cause electric shock and have a high short-circuit current. Please remove all wristwatches, rings and other conductive objects before maintenance or repair, and only use tools with insulated grips and handles for maintaining or repairing.

⚠ When replace the batteries, install the same number and same type of batteries.

⚠ Do not attempt to dispose of batteries by burning them. This could cause battery explosion. The batteries must be deposed according to local environmental regulations.

⚠ Do not open or destroy batteries. Escaping electrolyte can cause injury to the skin and eyes. It may be toxic.

⚠ Please replace the fuse only with the same type and amperage in order to avoid fire hazards.

⚠ Do not disassemble the UPS system.

Disposal of Old Electrical & Electronic Equipment

(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste.

Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The recycling of materials will help to conserve natural resources.

Multumim pentru ca ati ales produsele noastre!

Va rugam cititi cu atentie manualul de utilizare inainte de a pune in functiune acest produs.

nJoy este un brand de solutii UPS dedicate protectiei si rezervei de energie din diferite medii de utilizare, de la rezidential la industrial

UPS-ul va protejeaza echipamentele electronice de daune fizice si ofera o baterie de rezerva pentru a preveni pierderile de date in cazul intreruperilor accidentale ale energiei electrice.

1 Instructiuni de siguranta si compatibilitatea electromagnetica

Toate instructiunile prezentate trebuie citite cu atentie si respectate in interactiunea cu produsul.

1.1 Transportul si depozitarea

⚠ Va rugam transportati produsul doar in ambalajul original, protejat de socuri mecanice si deteriorare.

⚠ UPS-ul trebuie pastrat in incaperi cu temperaturi moderate care sa nu depaseasca 40 de grade Celsius.

1.2 Pregatirea

⚠ Fenomenul de condesare poate aparea daca UPS-ul este transferat de la un mediu rece la unul cald. Va rugam asteptati cel putin 2 ore pentru ca UPS-ul sa fie complet uscat inainte de a-l instala.

⚠ Nu instalati UPS-ul aproape de surse de apa externe sau in medii cu umiditate ridicata.

⚠ Nu instalati UPS-ul aproape de surse de apa externe sau in medii cu umiditate ridicata.

⚠ Nu instalati UPS-ul in bataia directa a soarelui sau in apropierea surselor de caldura.

⚠ Nu blocati orificiile de ventilare ale carcasei UPS-ului.

1.3 Instalarea

⚠ Nu conectati la iesirea UPS-ului echipamente care vor provoca supraincarcarea lui (cum ar fi motoare mari).

⚠ Aranjati cablurile UPS-ului intr-un fel in care nu sunt calcate frecvent si nu provoaca accidente.

⚠ Nu blocati orificiile de ventilare. Asigurati o ventilare corespunzatoare in incaperea in care se afla UPS-ul.

⚠ UPS-ul este echipat cu terminal de impamantare. La finalizarea instalarii va rugam legati impamantarea la cabinetele de baterii exterioare sau la alte terminale de impamantare corespunzatoare.

⚠ Instalarea acestui UPS trebuie executata doar de catre tehnicieni autorizati.

⚠ Este recomandata o modalitate de oprire in in siguranta este instalarea unui intrerupator de scurtcircuit.

⚠ Este recomandata instalarea unui intrerupator de siguranta care permite blocarea incarcarii UPS-ului in orice mod de operare.

⚠ Asigurati cablul de impamantare inainte de a conecta orice terminal faza.

⚠ Instalarea si cablarea trebuie facuta in conformitate cu legislatia electrica locala.

1.4 Avetismente la conexiuni electrice

⚠Nu exista un circuit de protectie la scurgerea curentilor inversi (Backfeed protection) in interiorul UPS-ului. In schimb, exista relee la intrare care blocheaza cablul de tensiune cat timp neutrul este conectat la UPS.

- UPS-ul trebuie cablat cu sistem de impamantare TN.
- Reteaua de alimentare electrica pentru acest echipament trebuie sa fie trifazica si impamantata corect.

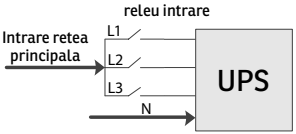


Diagrama intrare releu

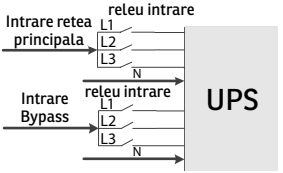


Diagrama releu intrare pentru modelul cu intrare dubla (Dual input)

⚠ ATENTIONARE

Pericol major de scurgere tensiune! Impamantarea este esentiala! Conectati impamantarea UPS-ului la un electrod conductor de impamantare.

- Utilizarea acestui echipament in medii medicale sau conectat la echipamente de sustinere a vietii, in care este pus in pericol siguranta sau eficienta, nu este recomandat. Nu utilizati acest echipament in prezenta amestecurilor de gaze inflamabile, cum ar fi aer, oxigen si oxid de azot.

- Conectați borna de împământare a UPS-ului la un electrod de împământare.

- In conformitate cu standardul electric de siguranta EN-IEC 62040-1, instalarea trebuie asigurata cu un circuit de protectie la curenti inversi (Backfeed protection), un contactor de exemplu, care va preveni scurgerea curentilor periculosi in circuitul de alimentare in timpul unor defectiuni. Respectati instalarea corecta a circuitului de protectie backfeed in functie de modelul echipamentului mono sau trifazic.

⚠ Nu se vor face derivatii ale cablului care duce de la circuitul de protectie backfeed la UPS deoarece se vor incalca standardele de siguranta.

- Toate prizele care alimenteaza UPS-ul trebuie semnalizate corespunzator pentru a alerta personalul de mentenanta de prezenta UPS-ului in circuitul electric. Eticheta va contine urmatorul text sau o variatie a acestui text:

⚠ ATENTIONARE

Inainte de a face lucrari de mentenanta:

- Izolati unitatea neintreruptibila de tensiune (UPS).

- Verificati sa nu existe tensiuni periculoase la terminale, inclusiv impamantarea.

⚠ Risc major tensiune inversa!

1.5 Operarea

⚠ Nu deconectati impamantarea de la UPS ori de la retea sub nicio circumstanta.

⚠ Sistemul UPS contine o sursa de alimentare interna (bateriile). Prizele de iesire ale UPS-ului sau cablarea prin blocuri terminale pot fi sub tensiune chiar si in cazul in care UPS-ul nu este conectat la reteaua electrica de alimentare (doar pentru modele standard).

⚠ Pentru a deconecta corect UPS-ul, prima data apasati butonul de oprire, apoi deconectati fazele.

⚠ Asigurati-va ca niciun obiect strain sau lichid nu va patrunde in interiorul UPS-ului.

⚠ UPS-ul poate fi operat de persoane fara experienta tehnica anterioara.

2 Instalare si operare

Aceasta serie este echipata cu un sistem VAC: 400V. Va rugam sa consultati urmatorul tabel.

Sistem VAC	Model	Tip
400V	Ranger 60KR	Model Long-run

Functionare in paralel la cerere. UPS-ul cu functionare in paralel este numit “model in paralel”. Detalierea procedurii de operare pentru acest tip de UPS se regaseste in capitolul urmator.

2.1 Desfacere si inspectare

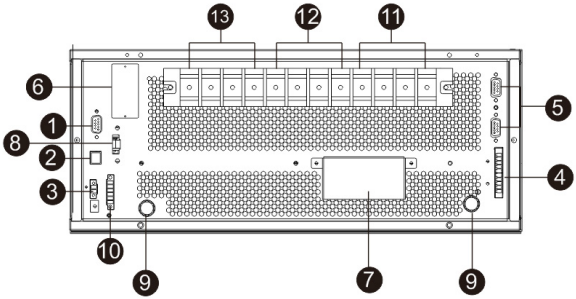
Desfaceti cutia si inspectati continutul. La livrare, cutia trebuie sa contina urmatoarele:

- 1 UPS.
- 1 Manual de utilizare.
- 1 CD soft monitorizare.
- 1 Cablu RS-232 (optional).
- 1 Cablu USB.
- Manere pentru montare in rack.
- Suporturi pentru rack.
- 1 cablu pentru UPS si 2 cabinete.
- 1 cablu pentru UPS si cabinet extern.

NOTA!

Inainte de instalare, verificati unitatea UPS. Asigurati-va ca nu exista deteriorari. Daca se gasesc defecte sau accesorii lipsa, nu porniti UPS si anuntati imediat unitatea de unde ati achizitionat produsul. Pastrati cutia originala pentru utilizari viitoare. Este recomandata pastrarea echipamentului si setului de baterii in ambalajul original pentru ca acesta a fost special creat pentru a proteja acest tip de produs in timpul transportului si depozitarii.

2.2 Prezentare panou cablare



Ranger 60KR Panoul din spate

1. Port de comunicare RS-232
2. Port de comunicare USB
3. Conector inchidere de urgenta (EPO)
4. Port divizare curent (doar pentru versiunile in paralel)
5. Port paralel (doar pentru versiunile in paralel)
6. Slot inteligent
7. Terminal/conector de baterii externe
8. Port extern de semnal bypass pentru mentenanta (EMBS)
9. Terminal de impamantare
10. Port de comunicare contact-uscat
11. Terminal de intrare faza
12. Terminal de intrare Bypass
13. Terminal iesire

2.3 Instalare UPS singular

Instalarea si cablarea trebuie executata de tehnicieni autorizati si in conformitate cu legislatia locala cu privire la conexiunile electrice.

1) Asigurati-va ca instalatia electrica a locatiei de instalare sunt cotate conform cu puterea UPS-ului pentru a evita provocarea de incendii sau soc electric.

NOTA!

Nu utilizati priza comuna din perete ca sursa principala de alimentare a UPS-ului pentru ca nu poate alimenta corect, poate provoca distrugerea ei si incendii.

2) Intrerupeti alimentarea cu energie electrica a circuitului in care se va face instalarea UPS-ului.

3) Inchideti echipamentele inainte de a le conecta la UPS.

4) Pregatiti cablurile folosind tabelul de mai jos:

Model	Specificatii cabluri (AWG)				
	Intrare faza	Iesire faza	Nul	Baterie	Impamantare
Ranger 60KR	4	4	1	1	4

NOTA 1: Cablul pentru Ranger 60KR trebuie sa suporte curent de peste 120A. Este recomandata utilizarea unui AWG 4 sau mai gros pentru faza si AWG 1 sau mai gros pentru nul, pentru siguranta si eficienta.

NOTA 2: Culorile cablurilor trebuie sa fie conforme cu legislatia locala unde se va efectua instalarea.

5) Indepartati capacul care acopera blocul terminal de pe spatele UPS-ului. Apoi conectati cablurile ca in diagrama de mai jos a blocului terminal. (conectati impamantarea prima, inaintea altor conexiuni. Indepartati impamantarea ultima la conectarea UPS-ului).

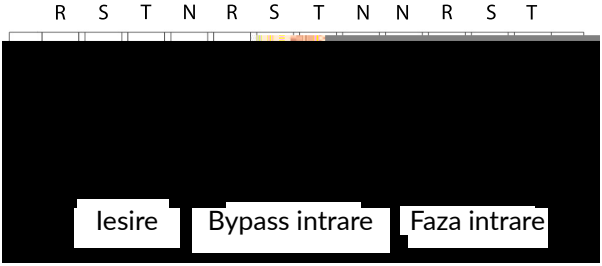
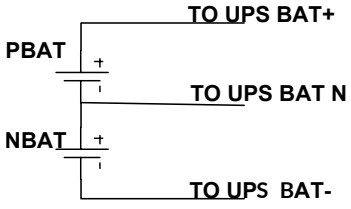


Diagrama cablajului blocului terminal pentru Ranger 60KR



Schema de conectare a bateriei

NOTA 1: Asigurati-va ca firele cablurilor sunt strans legate la terminale.

NOTA 2: Instalati intrerupatorul de iesire intre terminalul de iesire si incarcare, iar intrerupatorul trebuie sa aiba protectie la scurgere de curent daca se considera necesar.

6) Puneti inapoi capacul peste terminalele de conectare din spatele UPS-ului.

⚠ AVERTISMENT!

● Asigurati-va ca exista un intrerupator DC sau alte dispozitive de protectie intre UPS si cabinetul de baterie extern pentru extra siguranta. In cazul in care nu exista acest intrerupator, instalati cu precautie. Inchideti intrerupatorul de circuit baterie inainte de executarea instalarii.

NOTE: Setati intrerupatorul cabinetului de baterii in pozitie OFF apoi instalati-l.

● Acordati atentie speciala la tensiunea cotata a bateriei marcata pe panoul din spate. Daca se doreste modificarea numarului de baterii in serie, modificati aceasta valoare si in setarile UPS-ului. Conectarea cu tensiune eronata a bateriei poate provoca daune UPS-ului.

● Acordati atentie sporita polaritatii bateriei de pe panoul blocului terminal. Conectarea cu tensiune eronata a bateriei poate provoca daune UPS-ului.

● Asigurati-va ca impamantarea de protectie este corecta. Specificatia corectitudinii curentului, culorii, pozitiei, conexiunii si conductanta cablurilor folosite ar trebui verificate.

● Asigurati-va ca partea L/N este corecta, nu inversata sau in scurt circuit.

2.4 Instalare UPS in sistem paralel

Daca nu se aplica produsului achizitionat de dumneavoastra, puteti trece cu vederea acest capitol.

1. Efectuati instalarea conform cu sectiunea 2-3.

2. Conectati cablurile de iesire la un intrerupator.

3) Conectati toate intrerupatoarele de iesire la un intrerupator principal. Acest intrerupator se va conecta direct la echipamentele conectate la UPS.

4) Sunt permise fie pachete de baterii comune, fie pachete de baterii independente pentru fiecare UPS.

5) Consultati diagrama de mai jos:

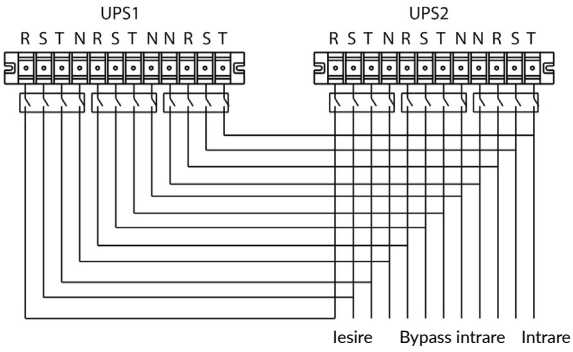


Diagrama de cablare a sistemului in paralel Ranger 60KR

2.5 Instalarea programului software

Pentru o protectie optima a sistemului recomandam instalarea programului de monitorizare pentru a configura UPS-ul, atat functionarea cat si inchiderea lui.

3 Functionalitate

3.1 Operarea butoanelor

Buton	Functie
ON/Enter	➢ Porniti UPS-ul: Apasati si mentineti apasat butonul mai mult de 0.5s pentru a porni UPS-ul. ➢ Enter Key: Apasati acest buton pentru a confirma selectia in meniul de setari.
OFF/ESC	➢ Oprire UPS: Apasati si mentineti apasat butonul mai mult de 0.5s pentru a opri UPS-ul. ➢ ESC: apasati acest buton pentru a va intoarce la fereastra anterioara din meniu.
Test/Sus	➢ Test baterie: Apasati si mentineti butonul mai mult de 0.5s pentru a testa bateria in mod AC si mod CVCF. ➢ Buton sus: apasati acest buton pentru a afisa urmatoarea selectie in meniul de setari.
Mute/Jos	➢ Alarma oprita: Apasati si mentineti butonul mai mult de 0.5s pentru a opri alarma. Consulatati sectiunea 3.4.9 pentru detalii. ➢ Buton jos: apasati acest buton pentru a afisa selectia anterioara in meniul de setari.
Test/Sus+Mute/Jos	➢ Apasati si mentineti aceste 2 butoane simultan pentru 1s pentru a intra/iesi din meniul de setari.

* CVCF = Tensiunea si frecventa constanta

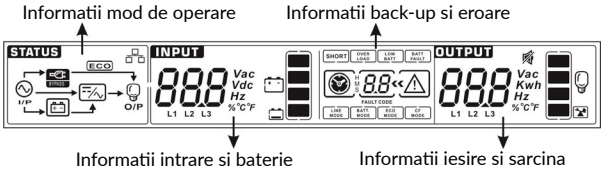
3.2 Indicatori LED si panoul LCD

Indicatorii LED:
Sunt 4 lumini LED pe panoul frontal al UPS-ului in functionare:

MOD / LED	Bypass	Faza	Baterie	Eroare
UPS pornit	●	●	●	●
Mod fara iesire	o	o	o	o
Mod Bypass	●	o	o	o
Mod AC	o	●	o	o
Mod Baterie	o	o	●	o
Mod CVCF	o	●	o	o
Test baterie	●	●	●	o
Mod ECO	●	●	o	o
Eroare	o	o	o	●

Nota: “●” inseamna LED luminos, “o” inseamna LED slab.

LCD panel:



Ecran	Functie
Informatii timp de rezerva	
	Indica descarcarea bateriei in numere H: ore, M: minute; S: secunde.
Informati eroare	
	Indica erorile si evenimentele in timp real.
	Indica codurile de eroare, iar codurile sunt detaliate in sectiunea 3.9.
Operare fara sonor	
	Indica ca alarma UPS-ului este dezactivata.
Informatii tensiune iesire si baterie	
	Indica tensiunea de iesire: frecventa sau tensiunea bateriei. Vac: tensiune iesire, Vdc: tensiune baterie, Hz: frecventa.
Informatii incarcare	
	Indica nivelul de incarcare sarcina cu 0-25%, 26-50%, 51-75%, 76-100%.
	Indica suprasarcina.
	Indica faptul ca sarcina sau iesirea sunt in scurt.
Informatii operare	
	Indica faptul ca UPS-ul este conectat la retea.
	Indica functionarea bateriei.
	Indica functionare circuit bypass.

ECO	Indica functionarea in ECO mod.
	Indica ca circuitul invertorului functioneaza.
O/P	Indica iesire functionala.
Informatie baterie	
	Indica nivelul de incarcare baterie cu 0-25%, 26-50%, 51-75%, 76-100%.
BATT FAULT	Indica baterie neconectata.
LOW BATT	Indica nivel scazut al bateriei si tensiune joasa.
Informatii intrare si tensiune baterie	
INPUT 888 Vac Vdc Hz L1 L2 L3	Indica tensiune intrare sau frecventa sau tensiune baterie. Vac: tensiune intrare, Vdc: tensiune baterie, Hz: frecventa intrare.

3.3 Alarme sonore

Descriere	Stare sonor	Fara sonor
Stare UPS		
Mod bypass	Suna la fiecare 2 minute	Da
Mod baterie	Suna la fiecare 4 secunde	
Mod eroare	Suna continuu	
Avertisment		
Supraincarcare	Suna de 2 ori la 2 secunde	Nu
Altele	Suna 1 data la fiecare secunda	
Eroare		
Toate	Suna incontinuu	Da

3.4 Operare UPS singular

1. Porniti UPS-ul cu reteaua electrica activa (In modul AC)

1) Dupa conectarea la reteaua corecta, setati siguranta cabinetului de baterii in pozitia ON (acest pas este necesar doar pentru modelul longrun). Apoi setati siguranta alimentarii in pozitia ON. In acelasi timp ventilatorul va porni si UPS-ul va incepe initializarea. In cateva secunde, UPS-ul va alimenta echipamentele conectate la iesire prin Bypass.

NOTA!

Cand UPS-ul este in modul bypass, tensiunea la iesire va fi directionata de la alimentare dupa activarea sigurantei de intrare. In modul bypass, echipamentele conectate nu sunt protejate de UPS. Pentru ca acestea sa fie in siguranta trebuie pornit UPS -ul.

2)Apasati si mentineti apasat butonul “ON” timp de 0,5 s pentru a porni UPS-ul, soneria va suna o data pentru confirmare.

3) Dupa cateva secunde, UPS-ul va intra in modul AC. Daca reteaua este instabila, UPS-ul va functiona in modul Baterie.

NOTA!

Cand UPS-ul este cu bateria epuizata, se va inchide automat in modul baterie. Cand reteaua de alimentare se stabilizeaza, UPS-ul va porni automat in mod AC.

2. Porniti UPS-ul cu retea 0 (in mod Baterie)

1) Asigurati-va ca cele 2 siruri de baterii sunt conectate corect in ordinea terminalelor + GND - si intrerupatorul cabinetului de baterii este intotdeauna pornit ON.

2) Apasati butonul de pornire pentru a alimenta UPS-ul dupa initializare UPS-ul va intra in modul Fara alimentare la iesire.

3) Dupa cateva secunde UPS-ul va fi pornit si va intra in modul Baterie.

3. Conectarea echipamentelor la UPS

Dupa pornirea UPS-ului puteti alimenta echipamente de la iesirea sa.

1) Porniti UPS apoi porniti echipamentele pe rand. Ecranul va afisa

valoarea incarcarii totale.

2) Daca este necesara conectarea echipamentelor inductive la UPS, curentul de pornire trebuie calculat in punctul maxim pentru a nu supraincarca UPS-ul. Orice incarcare mai mare de 150% peste capacitatea totala de functionare va asigura o functionare sub 60ms.

3) Daca UPS-ul este supraincarcat, soneria va suna de doua ori la fiecare secunda.

4) Daca UPS-ul este supraincarcat, va rugam eliminati din echipamentele conectate. In modul AC UPS-ul se va transfera automat in modul Bypass.

5) Daca UPS-ul este supraincarcat, va rugam eliminati din echipamentele conectate. In modul AC UPS-ul se va transfera automat in modul Bypass. Dupa rezolvarea supraincarcarii, se va intoarce in modul AC. Daca supraincarcarea depaseste timpul acceptabil listat in fisa tehnica in modul baterie, UPS-ul va intra in mod eroare. In acest punct daca functia de bypass este activata, UPS-ul va alimenta echipamentele conectate prin bypass. Daca este inactiva sau intrarea nu este in intervalul de bypass acceptat, se va opri alimentarea la iesire complet.

4. Incarcarea bateriilor

1) Dupa conectarea UPS-ului la retea acesta va functiona in modul AC. incarcatorul va incarca bateriile automat in modul baterie, in timpul unui test de baterie, supraincarcare sau tensiune majora la baterie.

2) Este recomandata incarcarea cu cel putin 10 ore a bateriei inainte de operare. In caz contrar, timpul de back-up va fi mai mic decat cel anticipat.

5. Operarea in modul baterie

1) Cand UPS-ul este in modul Baterie, alarma va suna incontinuu in functie de nivelul de incarcare a bateriei. Daca bateria este mai mult de 25%, alarma va suna 1 data la fiecare 4 secunde. Daca tensiunea bateriei scade pana la limita de alarma, aceasta va suna la secunda pentru a reaminti ca nivelul bateriei este in scadere si UPS-ul se va inchide in scurt timp. Utilizatorul are optiunea sa deconecteze echipamentele non-critice pentru a prelungi perioada de back-up. Daca aceasta operatiune nu este

posibila, pregatiti procedura de inchidere si salvare a datelor importante pentru a nu risca pierderea lor.

2) In modul Baterie, butonul “mute” poate fi apasat pentru a dezactiva alarma.

3) Timpul de back-up al modelelor long-run depinde de capacitatea cabinetului de baterii.

4) Timpul de back-up variaza in functie de temperatura de operare si tipul echipamentelor conectate.

5) Cand timpul de backup este setat la 16.5 ore (valoarea implicita setata in meniul UPS-ului dupa scurgerea celor 16.5 ore UPS-ul se va inchide automat pentru a proteja bateria. Aceasta protectie la descarcare poate fi activata / dezactivata prin meniul din ecranul UPS-ului.

6. Testarea bateriilor

1) Daca exista nevoia de a verifica starea bateriei cand UPS-ul este in functiune in modurile AC sau CVCF se poate apasa butonul “Test” pentru testarea automată a bateriei.

2) Utilizatorii pot seta testul de baterie prin programul de monitorizare.

7. Opriti UPS-ul cu alimentare de la retea in modul AC

1) Opriti invertorul UPS-ului apasand butonul „OFF” timp de cel putin 0,5 secunde, apoi soneria va suna o data. UPS-ul va intra in modul Bypass.

NOTA 1: Daca UPS-ul este setat sa fac bypass la iesire, tensiunea de bypass va fi continua chiar daca UPS-ul este oprit.

NOTA 2: Dupa inchiderea UPS-ului, acesta functioneaza in modul bypass, iar echipamentele conectate sunt expuse variatiilor de tensiune de la retea.

2) In modul Bypass, tensiunea de iesire este prezenta la UPS. Pentru a intrerupe iesirea, inchideti intrerupatorul de la alimentare. Ecranul LCD se va inchide si doar in acest moment este inchis UPS-ul complet.

8. Opriti UPS-ul fara alimentare de la retea in modul Baterie

1) Opriti UPS-ul apasand butonul „OFF" timp de cel putin 0,5 secunde, apoi soneria va suna o data.

2) Apoi, UPS-ul va intrerupe alimentarea la terminalele de iesire si nu va aparea niciun afisaj pe ecran.

9. Opriti alarma

1) Pentru a dezactiva sunetul, va rugam sa apasati butonul „Mute" timp de cel putin 0,5 secunde. Daca apasati din nou dupa ce soneria este dezactivata, soneria va relua.

2) Unele alarme nu pot fi puse in mod silentios fara a rezolva eroarea care le declanseaza. Consultati sectiunea 3-3 pentru detalii.

10. Operarea in starea de avertizare

1) Cand LED-ul de defectiune se aprinde si semnalul sonor emite un bip la fiecare secunda, aceasta indica faptul ca exista probleme la functionarea UPS-ului. Utilizatorii pot citi mesajul (mesajele) de avertizare din meniul de pe ecranul ups-ului. Consultati capitolul 4 pentru detalii.

2) Unele alarme nu pot fi puse in mod silentios fara a rezolva eroarea care le declanseaza. Consultati sectiunea 3-3 pentru detalii.

11. Operarea in modul avarie

1) Cand LED-ul de eroare se aprinde si soneria emite un sunet continuu, inseamna ca exista o eroare fatala la UPS. Utilizatorii pot obtine codul de eroare din meniul LCD. Consultati capitolul 4 pentru detalii.

2) Verificati echipamentele conectate, cablarea, ventilatia, reteaua, bateriile etc. dupa producerea erorii. Nu porniti UPS-ul inainte de rezolvarea erorii. Daca eroarea persista contactati unitatea de unde ati achizitionat produsul sau suportul tehnic.

3) In cazul unei urgente inchideti alimentarea de la retea, baterie externa si iesire imediat pentru a evita daune ale echipamentului.

12. Operarea in modul mentenanta bypass

Aceasta operatiune trebuie executata doar de personal autorizat si tehnicieni.

Cand este nevoie de mentenanta sau service, iar UPS-ul nu poate fi inchis se va utiliza modul mentenanta.

1) Opriti UPS.

2) Inlaturati capacul intrerupatorului de bypass din panou.

3) Puneti intrerupatorul in pozitia BPS. Apoi, opriti intrerupatorul de intrare UPS si intrerupatorul de iesire.

13. Operarea in timpul ajustarii numarului de baterii

1) Aceasta operatiune trebuie executata doar de catre personal autorizat.

2) Inchideti UPS-ul. Daca sarcina nu poate fi oprita, se poate indeparta capacul intrerupatorului de bypass de mentenanta si asezati-l in pozitia BPS.

3) Inchideti intrerupatorul de intrare faza si cel de intrare bypass extern. UPS-ul va intra in mod Fara tensiune la iesire.

4) Conectati cablul de comunicare intre UPS si computer. Asigurati-va ca ati instalat programul software (cereti ajutorul producatorului pentru acest program si versiune). Utilizati programul pentru a stabili numarul de baterii instalate sau utilizati ecranul pentru aceasta operatiune (contactati producatorul sau suportul tehnic pentru aceasta operatiune).

5) Dupa modificare va rugam opriti UPS-ul pentru a salva noile setari. Apoi modificati numarul de cabinete conectate.

6) Porniti intrerupatorul alimentarii de la retea si cel de intrare bypass. UPS-ul va intra in modul bypass. Daca UPS-ul este in bypass de mentenanta reglati intrerupatorul in pozitia UPS si porniti UPS-ul.

NOTA!

Daca apare codul de eroare 01, UPS-ul nu poate seta numarul de baterii introdus. Doar in modul "No output" (fara iesire) acest numar poate fi ajustat.

14. Operarea in timpul ajustarii curentului de incarcare

1) Aceasta operatiune trebuie executata doar de catre personal autorizat.

2) Conectati cablul de comunicare intre UPS si computer. Asigurati-va ca ati instalat programul software (cereti ajutorul producatorului pentru acest program si versiune). Utilizati programul pentru a seta curentul de incarcare sau utilizati ecranul pentru aceasta operatiune utilizand informatiile din sectiunea 3-7 Programul 21 din setari ecran.

3) Dupa ajustare, setarile se vor implementa imediat. UPS-ul trebuie repornit pentru a memora noile setari.

15. Operarea in timpul ajustarii numarului de incarcatoare

1) Aceasta operatiune trebuie executata doar de catre personal autorizat.

2) Opriti UPS. Daca sarcinile incarcate sunt critice si nu pot fi intrerupte puneti UPS-ul in modul bypass de mentenanta prin mutarea intrerupatorului din panou in pozitia BPS.

3) Opriti intrerupatorul de intrare alimentare iar UPS-ul va intra in modul No Output (fara iesire).

4) Conectati cablul de comunicare intre UPS si computer. Asigurati-va ca ati instalat programul software (cereti ajutorul producatorului pentru acest program si versiune). Utilizati programul pentru a seta numarul de incarcatoare.

5) Dupa modificare va rugam opriti UPS-ul pentru a salva noile setari, apoi setati numarul incarcatoarelor corespondente.

6) Porniti intrerupatorul alimentarii de la retea si cel de intrare bypass. UPS-ul va intra in modul bypass. Daca UPS-ul este in bypass de mentenanta reglati intrerupatorul in pozitia UPS si porniti UPS-ul.

NOTA!

Numarul de incarcatoare setate trebuie sa coincida cu numarul fizic instalate la UPS. in caz contrar, curentul de incarcare nu va fi la nivelul specificatiilor.

3.5 Operarea in paralel

1. Initializarea sistemului paralel

Asigurati-va ca toate sistemele UPS au aceeasi configuratie.

1) Porniti fiecare UPS in modul AC (Consultați secțiunea 3-4(1)). Apoi, masurati tensiunea de la iesire a fiecarei faze cu un multimetru. Calibrati tensiunea de iesire prin configurarea ajustarilor din ecranul (Consultați programele 15, 16 și 17 din secțiunea 3-7) din meniu pana cand diferenta dintre UPS-uri este 1V sau mai putin.

2) Calibrati masurarea tensiunii de iesire configurand (consultati Programul 18, 19 si 20, sectiunea 3-7) din setarea LCD pentru a va asigura ca diferenta dintre tensiunea reala de iesire si valoarea detectata a UPS-ului este mai mica de 1V.

3) Opriti fiecare UPS. (Consultati sectiunea 3-4(7.)). Apoi utilizati procedura de cablare de la sectiunea 2-4.

4) Indepartati capacul portului unde se va atasa cablul de curent paralel la UPS, conectati fiecare UPS cu un cablu si acoperiti cu un capac.

5) Porniti sistemul in paralel in mod AC:

a) Porniti intrerupatorul de intrare al fiecarui UPS. Daca este utilizat dual-input porniti si intrerupatorul pentru bypass intern. Dupa ce toate unitatile UPS sunt in mod bypass, masurati tensiunea de iesire intre doua UPS pe aceeasi faza pentru a va asigura ca ordinea de conectare a fazelor este corecta. Daca tensiunile masurate sunt aproape de 0 atunci legarea este corecta. In caz contrar asigurati-va ca sunt legate corect.

b) Porniti intrerupatorul de iesire al fiecarui UPS.

c) Porniti UPS-ul pe rand. Dupa un timp, toate unitatile ar trebui sa intre in modul AC sincronizat, iar apoi sistemul paralel este complet.

6) Pornirea sistemului paralel in modul baterie:

a) Porniti intrerupatorul bateriei si a iesirii externe de la fiecare UPS.

b) Porniti oricare UPS. Acesta va intra in modul baterie.

c) Porniti urmatorul UPS in modul baterie pana la completarea sistemului paralel.

Pentru mai multe detalii legate de functionarea in paralel contactati productorul sau centrul de service.

2. Adaugati noi unitati sistemului paralel

1) Nu se pot adauga noi unitati in sistemul deja functional. Acesta trebuie oprit si incetata alimentarea.

2) Asigurati-va ca toate unitatile UPS sunt modele ce suporta instalarea in paralel, consultati capitolul 2-4.

3) Instalati conform capitolului 3-5.

3. Indepartati unitati UPS din sistemul paralel

Exista 2 metode:

Metoda 1

1) Apasati tasta “OFF” de doua ori timp de 0,5 secunde pentru fiecare apasare. Apoi, UPS-ul va intra in modul Bypass sau in modul fara iesire.

2) Opriti intrerupatorul de iesire a acestei unitati apoi opriti intrarea.

3) Opriti intrerupatorul bateriei si indepartati cablul de conectare in paralel. Indepartati unitatea UPS din sistem.

Metoda 2:

1) Daca bypass-ul este atipic, nu poti indeparta UPS-ul fara intrerupere. Trebuie oprit tot sistemul.

2) Asigurati-va ca toate UPS-urile sunt in modul bypass apoi opriti sistemul. Indepartati capacele de la bypass de mentenanta si setati intrerupatoarele din pozitia UPS in BPS. Inchideti toate circuitele de intrare si cele de baterie.

3) Opriti intrerupatorul de iesire si indepartati cablul de conectare in paralel a untatii care trebuie indepartata. Indepartati unitatea UPS din sistem.

4) Porniti intrerupatorul de intrare a unitatilor UPS ramase iar sistemul se va transfera in mod Bypass. Setati intrerupatoarele din pozitia BPS in UPS.

5) Porniti unitatile UPS ramase conform cu sectiunea anterioara.

⚠ Avertisment (doar pentru sistemul paralel)

- Inainte de conectarea la alimentare a sistemului paralel, asigurati-va ca intrerupatoarele de mentenanta sunt toate in aceeasi pozitie.
- Cand sistemul paralel este alimentat, nu operati servicii de mentenanta la niciun UPS din circuit.
- Sistemul paralel nu poate fi pun in mod ECO. Nu porniti modul ECO la nicio unitate UPS.

3.6 Abrevierile pe de ecranul LCD

Abreviere	Afisaj	Semnificatie
ENA		Activat
DIS		Dezactivat
ATO		Auto
BAT		Baterie
NCV		Modul Normal (nu modul CVCF))
CF		Mod CVCF
SUB		Scade
ADD		Aduna

ON		Pornit
OFF		Oprit
FBD		Nu e permis
OPN		Permite
RES		Rezervat
N.L		Lipsa nul
CHE		Verifica
OP.V		Tensiune iesire
PAR		Paralel, 001 inseamna primul UPS
AN		Prima faza
BN		A doua faza
CN		A treia faza
AB		Prima linie
BC		A doua linie
CA		A treia linie
HS.H		Mod de veghe pregatit de actiune

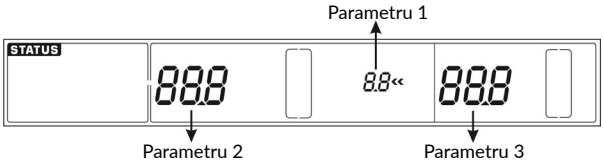
3.7 Ecran LCD

Exista 3 parametrii de setat a UPS. Folositi diagrama.
Parametru 1: Este pentru alternative la program. Folositi tabelul pentru a seta programele.

Parametru 2 si 3 sunt optiunile de setari sau valori pentru fiecare program.

NOTA!

*Selectati butonul in **sus** sau in **jos** pentru a schimba programele sau parametrii.*



Available program list for parameter 1:

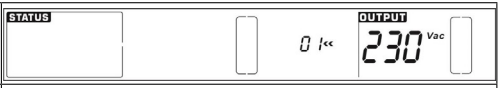
Cod	Descriere	Bypass / No Output mode	AC mode	ECO mode	CVCF mode	Battery mode	Battery Test
01	Tensiune iesire	Y*					
02	Frecventa iesire	Y					
03	Rezervat	Rezervat pentru optiuni viitoare					
04	Rezervat	Rezervat pentru optiuni viitoare					
05	Mod ECO activat / dezactivat	Y					
06	Rezervat	Rezervat pentru optiuni viitoare					
07	Rezervat	Rezervat pentru optiuni viitoare					
08	Setare mod bypass	Y	Y				
09	Setare timp de descare maxim pe baterii	Y	Y	Y	Y	Y	Y
10	Rezervat	Rezervat pentru optiuni viitoare					
11	Setare functie de stare de veghe pregatita de actiune	Y					
12	Detectare pierdere nul	Y	Y	Y	Y	Y	Y
13	Calibrare tensiune baterii	Y	Y	Y	Y	Y	Y
14	Ajustare tensiune incarcator	Y	Y	Y	Y	Y	Y
15	Ajustare tensiune invertor A		Y		Y	Y	
16	Ajustare tensiune invertor B		Y		Y	Y	
17	Ajustare tensiune invertor C		Y		Y	Y	
18	Calibrare tensiune iesire A		Y		Y	Y	
19	Calibrare tensiune iesire B		Y		Y	Y	
20	Calibrare tensiune iesire C		Y		Y	Y	
21	Setare curent de incarcare	Y	Y	Y	Y	Y	Y
22	Setare numar baterii	Y					

*Y inseamna ca se poate face aceasta setare in modul semnalizat.

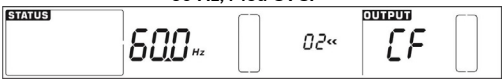
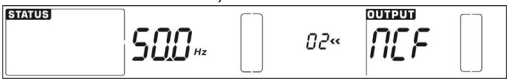
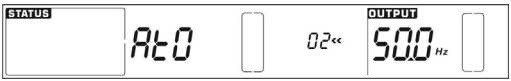
NOTA!

Toti parametrii setati se vor salva doar cand UPS-ul se inchide in conditii normale cu conectare la baterii interne sau externe. (Inchidere in condtii normale insemna inchiderea intrerupatorului de intrare in modul bypass/no output).

- **01: Tensiune iesire**

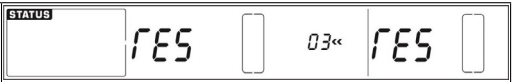
Interfata	
Setari	**Parametru 3: tensiune iesire** Pentru modelele 208/220/230/240 VAC urmatoarele tensiuni de iesire trebuie selectate: **208:** tensiune de iesire 208Vac **220:** tensiune de iesire 220Vac **230:** tensiune de iesire 230Vac **240:** tensiune de iesire 240Vac

- **02: Frecventa de iesire**

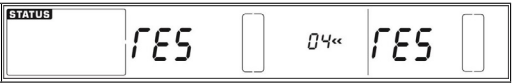
Interfata	**60 Hz, Mod CVCF**  **50 Hz, Mod Normal**  **ATO** 

Setting	**Parametru 2: Frecventa de iesire** Setati frecventa de iesire. Se poate alege din urmatoarele 3 optiuni: **50.0Hz:** Frecventa de iesire este setata la 50Hz. **60.0Hz:** Frecventa de iesire este setata la 60Hz. **ATO:** Daca este selectat, frecventa de iesire este stabilita in functie de cea mai recenta frecventa obtinuta de la reteaua electrica. Daca este in intervalul 46-54Hz, frecventa de iesire este 50.0Hz. Daca este in intervalul 56-64Hz, frecventa de iesire este 60.0Hz. Setarea ATO este implicita. **Parametrul 3: mod Frecventa** Setarea frecventei de iesire in mod CVCF sau in afara lui. Se poate alege din urmatoarele 2 optiuni: **CF:** Setarea UPS in modul CVCF. Daca este selectata frecventa de iesire va fi fixata la 50Hz sau 60Hz in functie de setarile de la parametrul 2. Frecventa de intrare poate fi intre 46-64Hz. **NCF:** Setarea UPS in modul Standard, (nu in modul CVCF). Daca este selectata, frecventa de iesire se va sincroniza cu frecventa de intrare la 50Hz daca se afla intervalul 46-54Hz si 60Hz daca se afla in intervalul 56-64Hz in functie de setarile de la parametrul 2. Daca in parametrul 2 este setat 50Hz, iar frecventa de intrare nu este in intervalul 46-54Hz UPS-ul va fi transferat in modul Baterie. Daca in parametrul 2 este setat 60Hz, iar frecventa de intrare nu este in intervalul 56-64Hz UPS-ul va fi transferat in modul Baterie. *Daca parametrul 2 este ATO, parametrul 3 va afisa frecventa curenta.

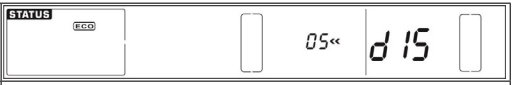
- **03: Rezervat**

Interfata	
Setare	Rezervat pentru optiuni viitoare.

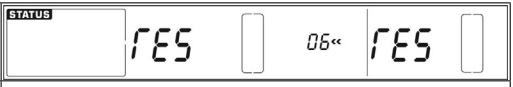
- **04: Rezervat**

Interfata	
Setare	Rezervat pentru optiuni viitoare.

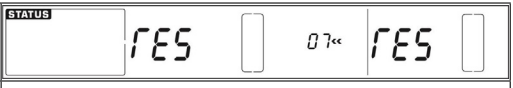
- **05: ECO mod activare/dezactivare**

Interfata	
Setari:	**Parametru 3:** Activare/dezactivare functie ECO. Se poate alege din urmatoarele optiuni: **DIS:** dezactivati functia ECO. **ENA:** activati functia ECO. Daca functia ECO este dezactivata se poate seta un interval pentru tensiune si frecventa in ECO, dar este inutila. *Daca sistemul functioneaza in paralel, asigurati-va ca este setat in DIS (dezactivat).

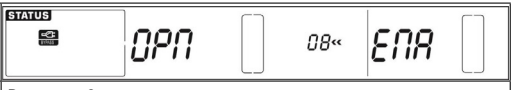
- **06: Rezervat**

Interfata	
Setare	Rezervat pentru optiuni viitoare.

- **07: Rezervat**

Interfata	
Setare	Rezervat pentru optiuni viitoare.

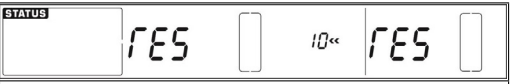
- **08: Setare mod Bypass**

Interfata	
Setare	**Parametru 2:** **OPN:** Bypass permis. O data selectat UPS-ul va functiona in Bypass. **FBD:** Bypass interzis. La selectie, UPS-ul nu va functiona in modul bypass in nicio conditie. **Parametru 3:** **ENA:** Bypass activat. **DIS:** bypass dezactivat. O data selectat, bypassul automat este acceptat, dar cel manual nu este permis. Bypass manual inseamna operarea manuala in bypass de catre utilizator, de exemplu apasarea butonului de oprire in modul AC pentru a pune UPS-ul in mod Bypass.

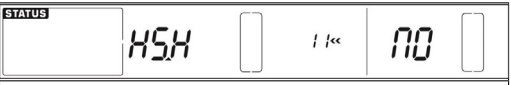
- **09: Setare timp de descarcare maxim pe baterie**

Interfata	
Setare	**Parametru 3:** **000~999**: Timpul de descarcare se poate seta in intervalul 0-999min. UPS-ul se va inchide pentru a proteja bateria daca timpul de descarcare primeaza in fata epuizarii totale a bateriei. Valoarea implicita este 990min. **DIS:** O data oprita, protectia la descarcare si timpul de back-up va depinde de capacitatea bateriei.

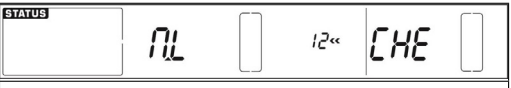
- **10: Rezervat**

Interfata	
Setare	Rezervat pentru optiuni viitoare.

- **11: Setarea functiei de veghe dinamica (Hot standby)**

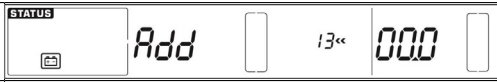
Interfata	
Setare	**Parametru 2:** **HS.H:** Indica starea de veghe dinamica (Hot standby). **Parametru 3:** Activeaza si dezactiveaza functia de stare de veghe dinamica. **YES:** functia de veghe dinamica este activata. Acest lucru semnifica curentul de la UPS este pus in stare de veghe dinamica si va reporni dupa restabilirea retelei AC chiar si fara baterie conectata. **NO**: functia de veghe dinamica este dezactivata. UPS-ul functioneaza in mod Standard si nu poate reporni fara baterii.

- **12: Detectare la pierderea nulului**

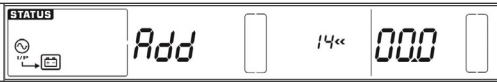
Interfata	
Setare	**Parametru 2:** **N.L:** Indica functia de detectare de pierdere a nulului.

	Parametru 3: **DIS:** Dezactiveaza functia de detectare pierdere nul. UPS-ul nu va detecta aceasta eroare. **ATO:** UPS-ul va detecta automat daca intervine pierderea nulului. Daca pierderea este detectata, alarma va fi generata. Daca UPS-ul este pornit, va fi transferat in modul pe Baterie. Daca nulul este restabilit alarma se va opri automat si va intra in modul standard de functionare. **CHE:** UPS-ul va detecta automat pierderea nulului. Daca nulul este pierdut, va suna alarma. Daca UPS-ul este pornit, va fi transferat in modul baterie. La restabilire, alarma nu se va opri automat si UPS-ul nu va intra in modul standard de functionare, ci va avea nevoie de setare manuala. Procedura de setare manuala este: intrati in meniu si apasati tasta Enter pentru a face activa optiunea CHE. Apoi, apasati din nou enter pentru a activa verificarea nulului. Daca nulul este detectat, alarma va fi inchisa si UPS-ul va fi in functionare standard. Daca nulul nu este activ, UPS-ul va continua sa sune pana la urmatoarea verificare manuala si isi va pastra ultima stare activata. CHE este starea implicita.

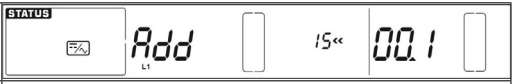
- **13: Battery voltage calibration**

Interfata	
Setare	**Parametru 2:** Selectati **Add** sau **Sub** pentru a ajusta tensiunea bateriei. **Parametru 3:** Intervalul de tensiune este intre 0V si 9.9V, iar valoarea implicita este 0V.

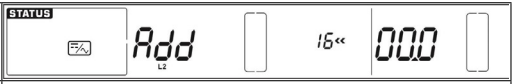
- **14: Ajustare tensiune charger (incarcator)**

Interfata	
Setare	**Parametru 2:** Selectati **Add** sau **Sub** pentru a ajusta tensiunea chargerului. **Parametru 3: I**ntervalul de tensiune este intre 0V si 9.9V, iar valoarea implicita este 0V. **NOTA:** *Inainte de a efectua ajutarile de tensiune, deconectati toate bateriile si introduceti tensiunea corecta a charger-ului. *Toate modificarile trebuie facute in conformitate cu specificatiile bateriei.

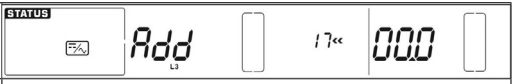
- **15: . Ajustare tensiune Invertor A**

Interfata	
Setare	**Parametru 2:** Selectati **Add** sau **Sub** pentru a ajusta tensiunea invertorului A. **Parametru 3:** Intervalul de tensiune este intre 0V si 9.9V, iar valoarea implicita este 0V. ***Add** sau **Sub** este in relatie cu tensiunea de la iesire pe care o doriti ajustata.

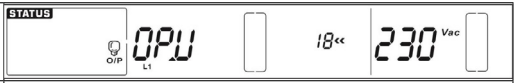
- **16: Ajustare tensiune Invertor B**

Interfata	
Setare	**Parametru 2:** Selectati **Add** sau **Sub** pentru a ajusta tensiunea invertorului B. **Parametru 3:** Intervalul de tensiune este intre 0V si 9.9V, iar valoarea implicita este 0V. *Va afisa numarul 1 sub Add sau Sub pentru a reprezenta tensiunea invertorului B.

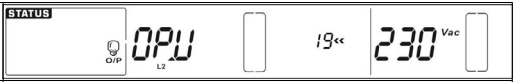
- **17: Ajustare tensiune Invertor C**

Interfata	
Setare	**Parametru 2:** Selectati **Add** sau **Sub** pentru a ajusta tensiunea invertorului C. **Parametru 3:** Intervalul de tensiune este intre 0V si 9.9V, iar valoarea implicita este 0V. Va afisa numarul 2 sub Add sau Sub pentru a reprezenta tensiunea invertorului C.

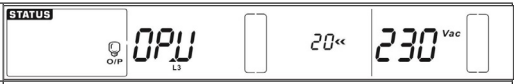
- **18: Calibrare tensiune iesire A**

Interfata	
Setare	**Parametru 2:** Afiseaza **OP.V** ca tensiune de iesire. **Parametru 3:** este afisat ca valoarea masuratorii interne a tensiunii de iesire A, si poate fi calibrata apasand **UP** sau **Down** in functie de masuratorile de la un contor de tensiune extern. Calibrarea se va efectua apasand **ENTER.** Intervalul de calibrare este limitat la +/-9V. Aceasta functie este folosita pentru operarea in paralel.

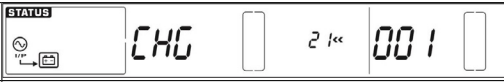
- **19. Calibrare tensiune iesire B**

Interfata	
Setare	**Parametru 2:** Afiseaza **OP.V** ca tensiune de iesire.* **Parametru 3:** Este afisat ca valoarea masuratorii interne a tensiunii de iesire B, si poate fi calibrata apasand **UP** sau **Down** in functie de masuratorile de la un contor de tensiune extern. Calibrarea se va efectua apasand ENTER. Intervalul de calibrare este limitat la +/-9V. Aceasta functie este folosita pentru operarea in paralel. *Va afisa numarul 1 sub OPU pentru a reprezenta tensiunea de iesire B.

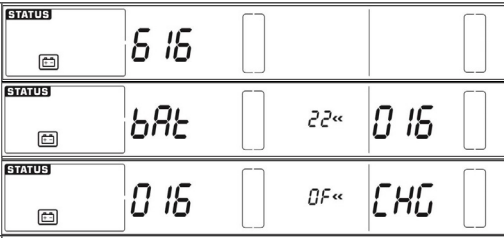
- **20: Calibrare tensiune iesire C**

Interfata	
Setare	**Parametru 2:** Afiseaza **OP.V** ca tensiune de iesire.* **Parametru 3:** este afisat ca valoarea masuratorii interne a tensiunii de iesire C, si poate fi calibrata apasand **UP** sau **Down** in functie de masuratorile de la un contor de tensiune extern. Calibrarea se va efectua apasand **ENTER**. Intervalul de calibrare este limitat la +/-9V. Aceasta functie este folosita pentru operarea in paralel. *Va afisa numarul 2 sub OPU pentru a reprezenta tensiunea de iesire C.

- **21: Setarea curentului de incarcare**

Interfata	
Setare	**Parametru 2:** Va fi afisat curent incarcare **CHG**. **Parametru 3:** Intervalul de setare este de la 1A la 12A, iar valoarea implicita este 1A.

- **22: Setare numar baterii**

Interfata	
Setare	In meniul de setari numarul de baterii va fi afisat doar dupa introducerea parolei. Introduceti **parola 616** apasand **UP** sau **OFF** pentru a accesa meniul de setari. Apasati butoanele **Up** si **OFF** in acelasi timp pentru a parasi meniul. Va afisa **BAT** pentru a indica numarul de baterii in parametrul 2. Va afisa valoarea masuratorii interne a numarului de baterii in parametru 3 si poate fi schimbata apasand butonul **UP** si **Down.** Intervalul de setari al bateriilor este de la 16 buc la 20 buc. Setarea va deveni activa dupa apasarea butonului **"Enter".** Dupa apasarea butonului **"Enter"**, va afia CHG in parametrul 3 pentru a pune chargerul in starea oprita sau pornita. Va afisa **ON** sau **OFF** ca stare a chargerului in parametrul 1 / Aceasta setare se poate schimba apasand butonul **UP** sau **Down**. Setarea va deveni activa dupa apasarea butonului enter.

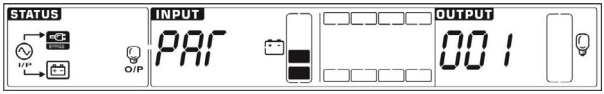
3.8 Moduri de operare / Descriere stare de functionare

Tabelul de mai jos afiseaza ecranul cu modurile de operare si starile de functionare.

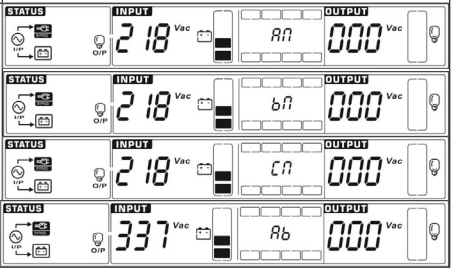
1. Daca UPS-ul functioneaza in regim standard ecranul va afisa 7 ecrane

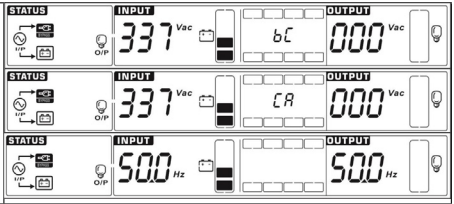
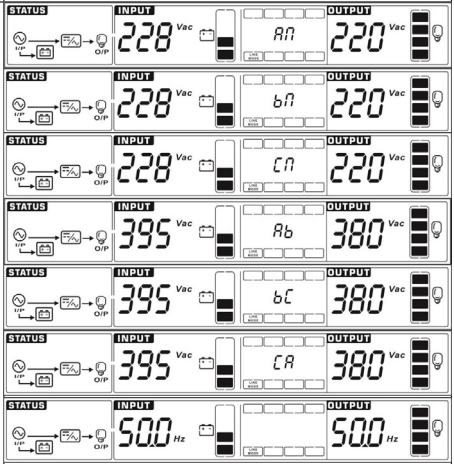
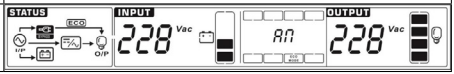
consecutive, toate reprezentand cele 3 faze de tensiune intrare (An, Bn, Cn), 3 linii de tensiune intrare (Ab, bC, CA) si frecventa.

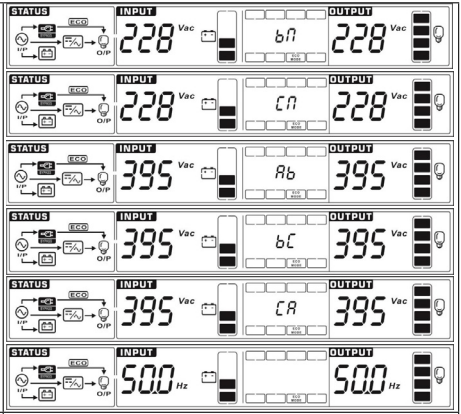
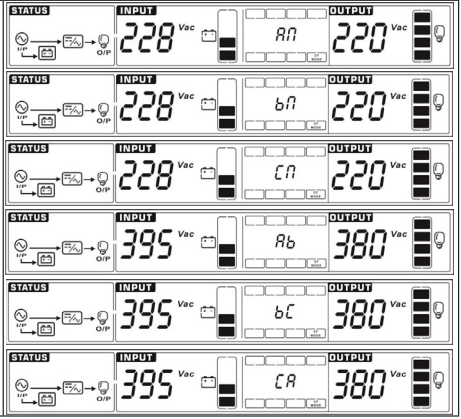
2. Daca este instalat un sistem in paralel, va afisa **PAR** in parametrul 2 si numarul asignat in parametru 3 cum prezinta diagrama de mai jos UPS-ul principal va avea numarul asignat implicit **001**, iar cel in paralel vor avea numerele consecutive **002**, **003** etc. Asignarea acestor nume pot fi schimbat dinamic in timpul operarii UPS-ului.

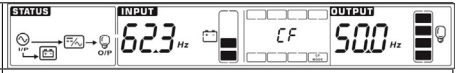
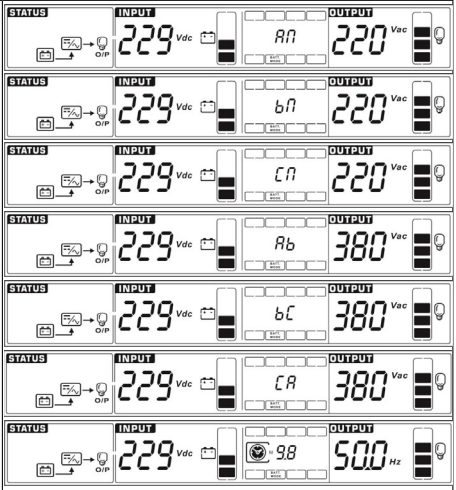
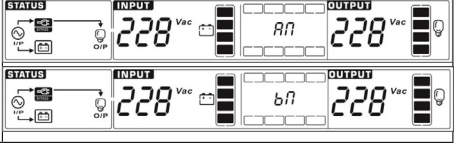


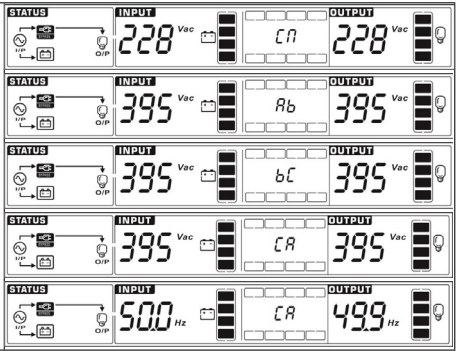
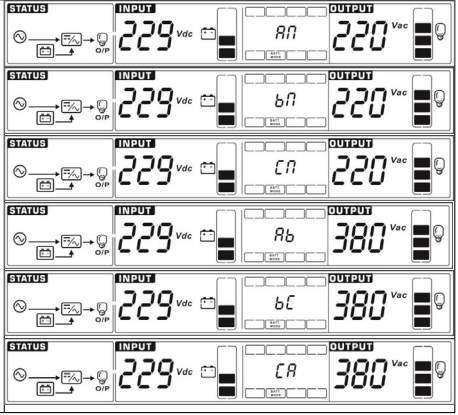
Ecran in functionare paralela

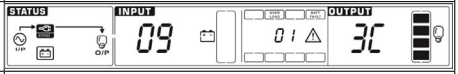
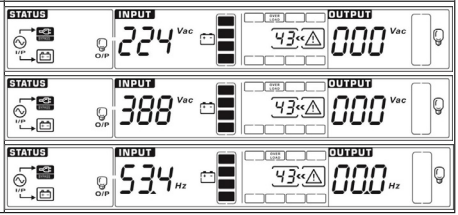
Mod de operare / stare		
UPS pornit	Descriere	Cand UPS-ul este pornit va intra in modul acesta la cateva secunde dupa initializare sistem.
	Ecran	
Mod fara iesire	Descriere	Cand frecventa/tensiunea de bypass este in afara intervalului acceptat sau bypass-ul este dezactivat, UPS-ul va intra in modul fara tensiune la iesire daca este pornit sau oprit. Alarma va suna la fiecare 2 minute.
	Ecran	

		
Mod AC	Descri-ere	Intervalul acceptat de tensiune la intrare este in para-metrii normali UPS-ul va oferi alimentare AC la iesire neintrerupta. UPS-ul incarca bateriile in mod AC.
	Ecran	
Mod ECO	Descri-ere	Cand tensiunea de intrare este in intervalul acceptat si modul ECO este activat, UPS-ul va trece in modul Bypass pentru tensiunea de iesire.
	Ecran	

		
Mod CVCF	Descri-ere	Cand frecventa la iesire este setata la CF, freceventa la iesire va fi constanta (50Hz sau 60Hz). In acest mod, UPS-ul nu va fi in bypass dar va incarca bateria.
	Ecran	

		
Mod Baterie	Descriere	Cand tensiunea de intrare sau frecventa este in afara intervalului acceptat sau se pierde reteaua, UPS-ul va fi alimentat de baterii si alarma va suna la fiecare 4 secunde.
	Ecran	
Mod Bypass	Descriere	Cand tensiunea de intrare este in intervalul acceptat si este activat modul Bypass, UPS-ul va trece in modul Bypass, iar alarma va suna la fiecare 2 minute.
	Ecran	

		
Test Baterie	Descriere	Cand UPS-ul este in modul AC sau CVCF, apasati tasta TEST pentru mai mult de 0.5s, UPS-ul va suna 1 data si va intra modul Test Baterie. Linia intre I/P va licari continuu. Aceasta operatiune va arata starea de fapt a bateriilor.
	Ecran	

		
Stare de avertizare	Descriere	Daca apare o eroare (dar UPS-ul functioneaza inca normal) va mai prezenta inca un ecran cu eroarea curenta. Icoana corespondenta erorii va licari constant, iar pe ecran pot aparea pana la 3 erori concomitent. Codul de eroare va fi explicat in tabelul urmator.
	Ecran	
Stare de eroare	Descriere	Eroarea la UPS va bloca invertorul. Ecranul cu eroarea curenta va fi afisat, iar icoana ⚠ va lumina intermitent. Codul de eroare va fi explicat in tabelul urmator.
	Ecran	

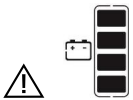
3.9 Coduri de eroare

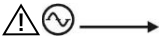
Cod eroare	Eroare	Simbol	Cod eroare	Eroare	Simbol
01	Bus start failure	Nu	41	Temperatura mare	Nu
02	Bus peste	Nu	42	Eroare la comunicare DSP	Nu
03	Bus sub	Nu	43	Suprasarcina	OVER LOAD
04	Bus Neechilibrat	Nu	46	Setare UPS incorecta	Nu
06	Supracurent convertor	Nu	47	Eroare comunicare MCU	Nu

11	Eroare soft start invertor	Nu	48	2 versiuni de firmware DSP incompatibile	Nu
12	Tensiune mare invertor	Nu	60	Scurtcircuit faza bypass	SHORT
13	Tensiune scazuta invertor	Nu	61	Scurtcircuit Bypass SCR	Nu
14	Scurtcircuit iesire inverter B (faza la nul)	SHORT	62	Circuit deschis SCR	Nu
15	Scurtcircuit iesire inverter B (faza la nul)	SHORT	63	Forma de unda a tensiunii atipica pe faza R	Nu
16	Scurtcircuit iesire inverter C (faza la nul)	SHORT	64	Forma de unda a tensiunii atipica pe faza S	Nu
17	Scurtcircuit iesire inverter A - B (faza la faza)	SHORT	65	Forma de unda a tensiunii atipica pe faza T	Nu
18	Scurtcircuit iesire inverter B - C (faza la faza)	SHORT	66	Mostra curenta tipic invertor	Nu
19	Scurtcircuit iesire inverter C - A (faza la faza)	SHORT	67	Scurtcircuit Bypass O/P	SHORT
1A	Eroare de putere negativa invertor A	None	68	Scurtcircuit bypass O/P faza la faza	SHORT
1B	Eroare de putere negativa invertor B	None	69	Scurtcircuit invertor SCR	Nu
1C	Eroare de putere negativa invertor C	None	6C	Tensiunea BUS scade brusc	Nu
21	Scurtcircuit baterie SCR	None	6D	Eroare valoare esantion curent	Nu
23	Circuit deschis releu invertor	None	6E	Eroare putere SPS	None

24	Scurtcircuit releu invertor	None	6F	Polaritate baterie inversata	None
25	Eroare cablare faza	None	71	Supracurent PFC IGBT pe faza R	None
31	Eroare la comunicare in paralel	None	72	Supracurent PFC IGBT pe faza S	None
32	Eroare semnal host	None	73	Supracurent PFC IGBT pe faza	None
33	Eroare de semnal sincron	None	74	Supracurent INV IGBT pe faza R	None
34	Eroare declansare semnal sincron	None	75	Supracurent INV IGBT pe faza S	None
35	Pierdut comunicare paralel	None	76	Supracurent INV IGBT pe faza T	None
36	Curent dezeechilibrat la iesire in paralel	None	78	Eroare comunicare LCD & MCU	None

3.10 Indicatori de avertizare

Avertizare	Simbol (intermitent)	Alarma
Nivel de baterie scazul		Suna la fiecare secunda
Suprasarcina		Suna de 2 ori pe secunda
Baterie neconectata		Suna la fiecare secunda
Supraincarcare		Suna la fiecare secunda
EPO activat		Suna la fiecare secunda
Eroare ventilator / temperatura ridicata		Suna la fiecare secunda

Eroare la incarcator		Suna la fiecare secunda
Siguranta I/P defecta		Suna la fiecare secunda
Alte avertismente (vezi sectiunea 3.11)		Suna la fiecare secunda

3.11 Coduri de avertizare

Cod avertizare	Eveniment	Cod avertizare	Eveniment
01	Baterie neconectata	21	In sistem paralel, situatiile fazelor sunt distincte.
02	Pierdere IP nul	22	In sistem paralel, situatiile bypass sunt distincte.
04	Faza IP atipica	33	Blocat in bypass dupa suprasarcina, de 3 ori in 30 de min.
05	Faza bypass atipica	34	Curent convertor dezechilibrat.
07	Supraincarcare	3A	Capac intrerupator de mentenanta deschis.
08	Nivel baterie scazut	3C	Retea extrem de dezechilibrata.
09	Suprasarcina	3D	Bypass instabil.
0A	Eroare ventilator	3E	Tensiune baterie prea mare.
0B	EPO activat	3F	Tensiune baterie dezechilibrata
0D	Temperatura depasita	40	Charger in scurtcircuit
0E	Eroare incarcator		

4 Depanare

Daca sistemul UPS nu functioneaza corect, va rugam sa rezolvati problema consultand tabelul de mai jos.

Simptom	Cauza posibila	Remediere
Nicio indicatie si alarma pe panoul frontal de afisare, chiar daca reteaua este normala.	Alimentarea de intrare AC nu este conectata corect.	Verificati daca cablul de intrare este corect conectat la retea.
Simbolul ⚠ si codul de avertizare EP lumineaza intermitent pe ecran si suna la fiecare secunda.	Functia EPO este activata. In acest moment, intrerupatorul EPO este in pozitia OFF sau jumperul este deschis.	Stati circuitul in pozitie inchis si dezactivati functia EPO.
Simbolul ⚠ de pe afisajul LCD si BATT FAULT alarma suna in fiecare secunda.	Bateria externa sau interna nu este conectata corect.	Verificati daca toate bateriile sunt conectate corect.
Simbolul ⚠ si OVER LOAD lumineaza pe ecran si alarma suna de 2 ori / sec.	UPS in suprasarcina.	Indepartati sarcinile in exces de la UPS.
	UPS in suprasarcina. Echipamentele conectate la UPS sunt alimentate direct de la reteaua electrica prin functia de Bypass.	Indepartati sarcinile in exces de la UPS.
	Dupa suprasarcini multiple, UPS-ul este blocat in modul Bypass. Echipamentele conectate la UPS sunt alimentate direct de la reteaua electrica.	Intai, Indepartati sarcinile in exces de la UPS, apoi reporniti UPS-ul.

Codul de eroare este 43. Simbolul OVER LOAD se aprinde pe ecran si alarma suna continuu.	UPS-ul este in suprasarcina de foarte mult timp. UPS-ul se va inchide automat.	Intai, Indepartati sarcinile in exces de la UPS, apoi reporniti UPS-ul.
Codul de eroare este 14, 15, 16, 17, 18 , 19 si simbolul SHORT se aprinde pe ecran iar alarma suna continuu.	UPS se va opri automat din cauza unui scurtcircuit la iesire.	Verificati cablarea pe iesire si reconectati echipamentele care sunt in scurtcircuit.
Alte coduri de eroare sunt afisate pe afisajul LCD si alarma suna continuu.	A aparut o eroare interna a UPS-ului.	Contactati distribuitorul.
Durata de rezerva a bateriei este mai scurta decat valoarea nominala.	Bateriile nu sunt complet incarcate.	Incarcati bateriile timp de cel putin 7 ore si apoi verificati capacitatea. Daca problema persista, consultati distribuitorul.
	Bateriile sunt defecte.	Contactati distribuitorul.
Simboulrile ⚠ si se aprind pe ecran iar alarma suna incontinuu.	Ventilator blocat sau nu functioneaza. Temperatura UPS peste limite.	Verificati ventilatorul si contactati Suportul Tehnic.

Codul de avertizare este 02 si icoana ⚠ luminează pe ecran. Alarma suna 1 data/sec.	Cablul de intrare nul este deconectat.	Verifcati conectarea cablul de intrare nul. Daca conexiunea este corecta dar eroarea continua sa fie afisata utilizati meniul de pe ecran si accesati sectiunea verificare pierdere nul (neutral loss check) pentru a seta parametru 3 sa fie CHE. Daca este CHE, apasati enter pentru a face CHE intermitent apoi apasati din nou enter pentru a comanda stergerea erorii de la UPS. Daca avertizarea nu dispare, verificati sigurantele de intrare L2 si L3.
	Sigurantele de intrare L2 si L3 sunt defecte.	Inlocuiti sigurantele.

5 Depozitare si mentenanta

5.1 Depozitare

Inainte de depozitare, incarcati UPS-ul cel putin 7 ore. Depozitati-l acoperit, in pozitie verticala, in mediu uscat si racoros. In timpul depozitarii, incarcati bateriile respectand indicatiile din tabelul de mai jos:

Temperatura de depozitare	Frecventa la care se vor incarca	Durata de incarcare
-25°C - 40°C	La fiecare 3 luni	1-2 ore
40°C - 45°C	La fiecare 2 luni	1-2 ore

5.2 Mentenanta

⚠ Sistemul UPS utilizeaza tensiuni periculoase. Reparatiile trebuie realizate de personal autorizat.

⚠ Chiar si dupa deconectarea de la retea componentele interne ale UPSului sunt conectate la cabinete de baterii care pot fi potential periculoase.

⚠ Inainte de a realiza orice operatiune de mentenenta, deconectati bateriile si verificati sa nu mai existe tensiune periculoase la terminale sau capacitori, cum sunt capacitorii BUS.

⚠ Doar tehnicienii cu experienta pot inlocui baterii si supraveghea alte lucrari. Persoanele neautorizate nu ar trebui sa aiba acces la baterii.

⚠ Verificati sa nu existe tensiuni intre terminalele bateriei si impamantare inainte de mentenenta sau reparatii. In acest produs circuitul bateriei nu este izolat de tensiunea de intrare. Tensiuni periculoase pot aparea intre terminalele bateriei si impamantare.

⚠ Bateriile pot provoca soc electric. Indepartati ceasul, inelele sau orice alt metal conductor inainte de reparatii si utilizati doar instrumente izolate.

⚠ La inlocuirea bateriilor, instalati acelasi numar si tip de baterie.

⚠ Nu incercati sa aruncati bateriile nediscriminatoriu si nu incercati sa le ardeti. Se pot provoca explozii. Reciclati bateriile in conformitate cu reglementarile locale.

⚠ Nu deschide si nu deteriorati bateriile. Scurgerea electrolitului poate cauza arsuri si este toxic.

⚠ Inlocuiti siguranta cu acelati tip si amperaj pentru a evita pericolul de incendiu.

⚠ Nu dezasamblati UPS-ul.

Memo



Dezafectarea echipamentelor electrice si electronice vechi

(Se aplica pentru ţarile membre ale Uniunii Europene si pentru alte tari europene cu sisteme de colectare separata)

Acest simbol aplicat pe produs sau pe ambalajul acestuia indica faptul ca acest produs nu trebuie tratat ca pe un deseu menajer.

El trebuie predat punctelor de reciclare a echipamentelor electrice si electronice.

Asigurandu-va ca acest produs este dezafectat in mod corect, veţi ajuta la prevenirea posibilelor consecinte negative asupra mediului si a sanatatii umane, care ar fi putut surveni daca produsul ar fi fost dezafectat in mod necorespunzator.

Reciclarea materialelor va ajuta la conservarea resurselor naturale.

