
USER MANUAL

PowerValue 11 RT G2

1-3 kVA UL



About this manual









Document information

File name	:	4NWP107193R0001_ABB_OPM_PVA11_1-3kVA-RT_G2_UL_EN_REV-B
UPS model	:	PowerValue 11 RT G2 1-3 kVA UL
Date of issue	:	30.09.2020
Issued by	:	Product Marketing
Checked by	:	R&D
		After Sales
Article number	:	4NWP107193R0001
Document number	:	4NWD005568
Revision	:	B



Safety symbols and warnings

The following symbols are used in this manual,
the list below explains each symbol.

	This symbol in conjunction with the signal word "DANGER" indicates an imminent electrical hazard. Failure to observe the related safety note may cause injury, death or equipment damage.
	This symbol in conjunction with the signal word "WARNING" indicates a potentially dangerous situation. Failure to observe may cause injury, death or equipment damage.
	This symbol in conjunction with the signal word "NOTE" indicates operator tips or particularly useful or important information for the use of the product. This symbol and wording does not indicate a dangerous situation.
	This symbol indicates that reading the instruction manual/booklet before starting work or before operating equipment or machinery is compulsory.
	Recycle.
	Do not dispose of with ordinary trash.

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1 Important safety instructions



READ THIS IMPORTANT SAFETY INSTRUCTION CHAPTER BEFORE READING THE OPERATING MANUAL. SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries

1.1 Operator precautions

Always follow the precautions and instructions described in this manual. Any deviations from the instructions may result in electric shock or cause accidental load loss.

ABB DOES NOT TAKE ANY RESPONSIBILITY FOR DAMAGES CAUSED THROUGH INCORRECT USE OF THE UPS SYSTEM.



DANGER

DO NOT REMOVE ANY SCREWS FROM THE UPS SYSTEM OR FROM THE BATTERY CABINET: DANGER OF ELECTRICAL SHOCK!



DANGER

HIGH FAULT CURRENTS (LEAKAGE CURRENTS). BEFORE CONNECTING THE MAINS ENSURE THAT THE UPS IS EARTHED!



DANGER

DISPLAY A WARNING LABEL ON ALL PRIMARY POWER ISOLATORS INSTALLED AWAY FROM THE UPS AREA TO WARN ELECTRICAL MAINTENANCE PERSONNEL THAT THE CIRCUIT FEEDS A UPS!

MAKE SURE THAT WARNING LABEL CONTAINS THE FOLLOWING TEXT OR EQUIVALENT: "ISOLATE THE UPS (UNINTERRUPTIBLE POWER SUPPLY) BEFORE WORKING ON THIS CIRCUIT!"

1.2 Environmental considerations

To operate the UPS with optimal efficiency, your installation site should meet the environmental parameters outlined in this user manual. Excessive amounts of dust or moisture in the operating environment may cause damage or lead to malfunction. The UPS should always be protected from the weather and sunshine. The operating environment must meet the weight, airflow, size and clearance requirements specified in the technical datasheet.

Under no circumstances should the UPS be installed in an airtight room, in the presence of flammable gases, or in an environment exceeding the environmental requirements specified below. An ambient temperature of +20°C to +25°C is recommended to achieve a long life of the UPS and batteries. The cooling air entering the UPS must not exceed +40 °C and the humidity should be below 95 percent (non-condensing).

1.3 Declaration of safety conformity and UL marking

The **PowerValue 11 RT G2 1-3 kVA** is designed, manufactured and commercialized in accordance with the **EN ISO 9001** standard relating to quality management systems.

These products conform with the following directives:

- UL 1778: 2017 5th & CSA C22.2 No. 107.3-14
- FCC part 15, Class A
- 2011/65/EU Restriction of the use of certain hazardous substances (RoHS) directive



WARNING

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

These products also meet the following product standards:

Table 1: Standards









	Product Standards
ESD	IEC 61000-4-2 Level 3
Low Frequency Signals	IEC/EN 61000-2-2 Disturbing Voltage:10V
RS	IEC61000-4-3 Level 3
EFT	IEC 61000-4-4 Level 4
Surge	IEC 61000-4-5 Level 4
CS	IEC 61000-4-6 Level 3
Power Frequency Magnetic Field Immunity	IEC 61000-4-8 Level 4
Conduction	FCC part 15, Class A
Radiation	FCC part 15 , Class A
Performance classification	VFI-SS-III
Safety	UL 1778: 2017 5th
Transportation	IEC 60068-2-31
	IEC 60068-2-64
	IEC 60068-2-27

1.4 Inquiries

Inquiries regarding the UPS should be addressed to the local ABB office or agent authorized by ABB. Note the type code and the serial number of the equipment before

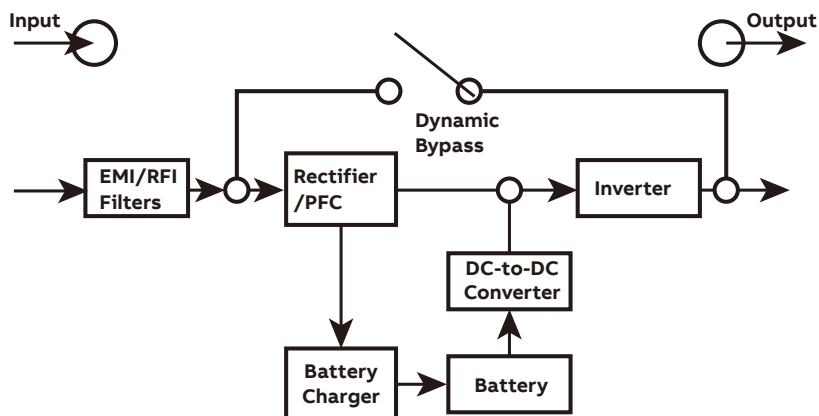
contacting ABB or authorized agent. The serial number is shown on the nameplate of the product. For further information on troubleshooting, see Chapter 6.

1.5 Operation

 WARNING	DO NOT DISCONNECT THE MAINS CABLE FROM THE UPS OR THE BUILDING WIRING SOCKET DURING OPERATION AS THIS REMOVES THE GROUND FROM THE AND ALL CONNECTED LOADS.	 WARNING	INDISCRIMINATE OPERATION OF SWITCHES MAY CAUSE OUTPUT LOSS OR DAMAGE TO EQUIPMENT.
 NOTE	PRESS THE OFF BUTTON TO FULLY DISCONNECT THE UPS. ENSURE THE UPS IS ON BYPASS OR ON STANDBY MODE BEFORE DISCONNECTING IT FROM THE MAINS.	 WARNING	NEVER DISPOSE OF BATTERIES IN A FIRE AS THEY MAY EXPLODE.
 NOTE	TO REDUCE THE RISK OF FIRE, CONNECT THE UPS TO A CIRCUIT PROVIDED WITH BRANCH CIRCUIT OVERCURRENT PROTECTION WITH AN AMPERE RATING IN ACCORDANCE WITH THE IEC/EN 60934 STANDARD OR YOUR LOCAL ELECTRICAL CODE.	 WARNING	DO NOT OPEN OR DAMAGE THE BATTERIES.
 NOTE	SEE TECHNICAL SPECIFICATIONS FOR RECOMMENDATIONS.	 WARNING	RELEASED ELECTROLYTE IS HARMFUL TO THE SKIN AND EYES.

1.6 Operating principle

The operating principle of the UPS is shown as below



The UPS is composed a mains input, EMI/RFI filters, a rectifier/PFC, an inverter, a battery charger, a DC-to-DC converter, a battery, a dynamic bypass and UPS output.

2 Maintenance

The **PowerValue 11 RT G2 1-3 kVA** UPS requires only minimal maintenance.

Charge the UPS regularly to maximize the expected life of the battery. When connected to mains power, the UPS charges the batteries and prevents the batteries from overcharging and over-discharging.

- Replace the batteries when the battery service life has been exceeded (around three to five years at 25°C ambient temperature). Contact your local ABB or an agent authorized by ABB for replacements.
- Charge the UPS once every four to six months if it is not used regularly.
- In high-temperature regions, charge and discharge the battery every two months. The standard charging time should be at least 12 hours.
- Replace the battery when the discharge time is less than 50 percent of specified after fully charging. Check the battery connection or contact your local dealer to order a new battery.



DANGER

COMPONENTS INSIDE THE UPS ARE CONNECTED TO THE BATTERY EVEN WHEN THE UPS IS DISCONNECTED FROM THE MAINS POWER SUPPLY.



DANGER

DISCONNECT THE BATTERIES BEFORE CARRYING OUT ANY KIND OF SERVICE AND/OR MAINTENANCE. VERIFY THAT NO CURRENT IS PRESENT, AND NO HAZARDOUS VOLTAGE EXISTS IN THE CAPACITOR OR BUS CAPACITOR TERMINALS. DO NOT DISCONNECT BATTERY CONNECTORS UNDER LOAD



DANGER

THE BATTERY CIRCUIT IS NOT ISOLATED FROM THE INPUT VOLTAGE. HAZARDOUS VOLTAGES MAY OCCUR BETWEEN THE BATTERY TERMINALS AND THE GROUND. VERIFY THAT NO VOLTAGE IS PRESENT BEFORE SERVICING.



DANGER

A BATTERY CAN PRESENT A RISK OF ELECTRICAL SHOCK AND HIGH SHORT CIRCUIT CURRENT. THE FOLLOWING PRECAUTIONS SHOULD BE OBSERVED WHEN WORKING ON BATTERIES:

- REMOVE WATCHES, RINGS OR OTHER METAL OBJECTS
- MAKE USE OF PROPER PPE (PERSONAL PROTECTION EQUIPMENT) AS PER LOCAL POLICIES AND RULES
 - WEAR FLAME/ARC RESISTANT WHOLE BODY CLOTHING
 - WEAR SUITABLE VOLTAGE RATED GLOVES
 - USE SAFETY DIELECTRIC FOOTWEAR
 - WEAR ARC FLASH FACE SHIELD
 - USE VOLTAGE RATED TOOLS
- DO NOT LAY TOOLS OR METAL PARTS ON TOP OF BATTERIES
- DISCONNECT THE CHARGING SOURCE PRIOR TO CONNECTING OR DISCONNECTING BATTERY TERMINALS.



WARNING

REPLACE BATTERIES WITH THE SAME NUMBER AND SAME TYPE OF BATTERIES. SERVICING OF BATTERIES SHOULD BE PERFORMED OR SUPERVISED BY PERSONNEL KNOWLEDGEABLE ABOUT BATTERIES AND THE REQUIRED PRECAUTIONS.

CAUTION: DO NOT DISPOSE OF BATTERIES IN A FIRE. THE BATTERIES MAY EXPLODE. CAUTION: DO NOT OPEN OR MUTILATE BATTERIES. RELEASED ELECTROLYTE IS HARMFUL TO THE SKIN AND EYES. IT MAY BE TOXIC.



WARNING

REPLACE FUSES ONLY WITH FUSES OF THE SAME TYPE AND OF THE SAME AMPERAGE TO AVOID FIRE HAZARDS.

A HB Flame class battery is not for use in a computer room as defined in the standard for the Protection of Electronic Computer/Data Processing Equipment ANSI/NFPA 75

2.1 UPS disposal and recycling

2.1.1 For professional users in the European Union



THE CROSSED –OUT WHEELED BIN SYMBOL ON THE PRODUCT(S) AND / OR ACCOMPANYING DOCUMENTS MEANS THAT WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) SHOULD NOT BE MIXED WITH GENERAL HOUSEHOLD WASTE.

IF YOU WISH TO DISCARD ELECTRICAL AND ELECTRONIC EQUIPMENT (EEE), PLEASE CONTACT YOUR DEALER OR SUPPLIER FOR FURTHER INFORMATION.

DISPOSING OF THIS PRODUCT CORRECTLY WILL HELP SAVE VALUABLE RESOURCES AND PREVENT ANY POTENTIAL NEGATIVE EFFECTS ON HUMAN HEALTH AND THE ENVIRONMENT, WHICH COULD OTHERWISE ARISE FROM INAPPROPRIATE WASTE HANDLING.

2.1.2 For disposal in countries outside of the European Union



THE CROSSED –OUT WHEELED BIN SYMBOL IS ONLY VALID IN THE EUROPEAN UNION (EU) AND MEANS THAT WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) SHOULD NOT BE MIXED WITH GENERAL HOUSEHOLD WASTE.

IF YOU WISH TO DISCARD THIS PRODUCT PLEASE CONTACT YOUR LOCAL AUTHORITIES OR DEALER AND ASK FOR THE CORRECT METHOD OF DISPOSAL.

DISPOSING OF THIS PRODUCT CORRECTLY WILL HELP SAVE VALUABLE RESOURCES AND PREVENT ANY POTENTIAL NEGATIVE EFFECTS ON HUMAN HEALTH AND THE ENVIRONMENT, WHICH COULD OTHERWISE ARISE FROM INAPPROPRIATE WASTE HANDLING.

3 Installation

3.1 Delivery, transportation, positioning and storage

3.1.1 Receipt of the UPS and visual inspection

When receiving the UPS, carefully examine the packing container and the UPS for any signs of physical damage. In case of damage, notify the carrier immediately.

The UPS packing container protects it from mechanical and environmental damage. To increase protection, the UPS is wrapped in a plastic sheet. Keep the packaging for later re-use.

3.1.2 Unpacking list

After examining the package, open the box and check that the following items are included:

- 1 x PowerValue 11 RT G2 UPS
- 1 X user manual
- 1 X USB with complete documentation and software
- 2 x UPS stands (support)
- 4 x M4 round screw & 4 x M4 Hex screw (UPS stands)
- 1 x USB cable
- 1 x monitoring software CD
- 1x input power cord 6 ft (5-15P+IEC C13 for 1K,1.5K; 5-20P+IEC C19 for 2K)

Rack-mounting accessories (full rack-mounting kit can be purchased separately):

- 2 x Rack mount ear
- 8 x M4 screw (Rack mount ears)

Examine the UPS for any signs of damage and ensure that the received UPS corresponds to the material indicated in the delivery note. Notify your carrier or supplier immediately in case of any damage.

For Pluggable Equipment - The socket-outlet shall be installed near the equipment and shall be easily accessible.

3.1.3 Operation of the UPS

The Units are considered acceptable for use in a maximum ambient temperature of 40°C (104°F). The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.



Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

3.1.4 Storage of the UPS

Before storing, charge the UPS for five 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

3.2 Site planning and positioning

—
3.2.1-1:
Step 1
—
3.2.1-2:
Step 2
—
3.2.1-3:
Step 3

3.2.1 Planning before the installation

To ensure a long service life, install the unit in a position where any danger to the UPS is minimized:

- Install the UPS indoors.
- Leave 50 cm of space on each side of the cabinet to allow cooling airflow and ensure that the circulation of air to the ventilation slits is not obstructed.
- Avoid excessively high temperatures and excessive moisture.
- Make sure that the surface is solid and flat.

3.2.2 Preparation

For safety consideration, the UPS is shipped out from the factory without connecting battery wires. Before installing the UPS, please follow the steps below to re-connect the battery wires first.

Step 1. Remove the front panel. (figure 3.2.1-1)

Step 2. Re-connect the battery wires. (figure 3.2.1-2)

Step 3. Put the front panel back on the unit. (figure 3.2.1-3)

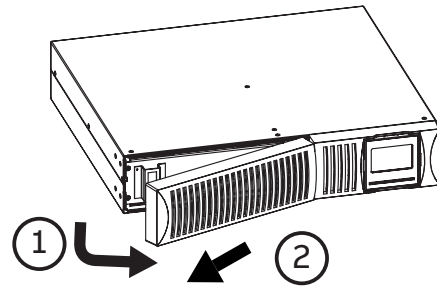
3.2.3 Positioning

The PowerValue 11 RT G2 can be mounted in a rack or installed in a stand-alone configuration.

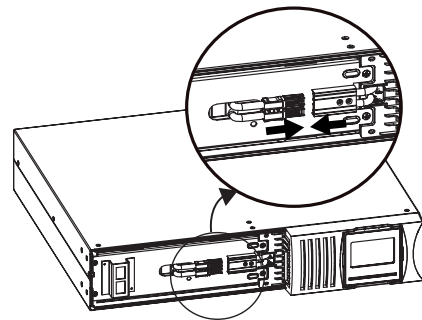


WARNING

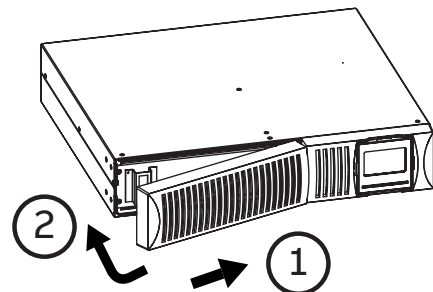
WATER CONDENSATION MAY OCCUR IF THE UPS IS UNPACKED IN A VERY LOW TEMPERATURE. TO AVOID HAZARDS AND RISK OF ELECTRIC SHOCK, WAIT UNTIL THE UPS IS FULLY DRY BOTH INSIDE AND OUTSIDE BEFORE INSTALLING/USING THE UPS.



3.2.1-1



3.2.1-2



3.2.1-3

—	3.2.4.1-1:	Ear bracket
—	3.2.4.1-2:	Rack rails
—	3.2.4.1-3:	Rack-mount installation
—	3.2.4.2-1:	Front panel removal
—	3.2.4.2-2:	Battery plug disconnection
—	3.2.4.2-3:	Battery module connection
—	3.2.4.2-4:	Battery module connection

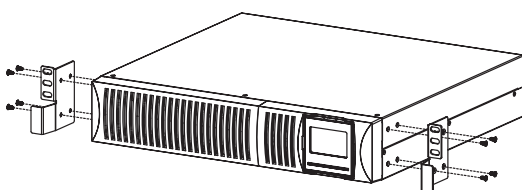
3.2.4 Rack mount installation

3.2.4.1 UPS

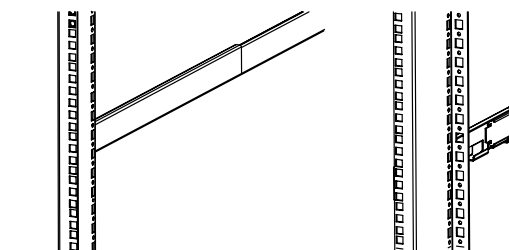
Note that you need a rack-mounting kit (purchased separately) for this operation. This procedure is suitable for 19-inch rack cabinet installation with a minimum depth of 800 mm.

Identify the final position and keep 2U spacing for this installation.

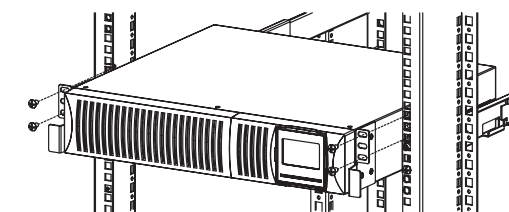
1. Install the ear bracket onto the unit using the M4 flathead screws (figure 3.2.4.1-1).
2. Slide the unit into the rail kit and make sure the rack-mounting screw is tightened (figure 3.2.4.1-2, 3.2.4.1-3).
3. After installing the UPS into the rack, proceed with the connection of the load to the UPS. Make sure the load equipment is turned off before plugging it into the output receptacles.



3.2.4.1-1



3.2.4.1-2



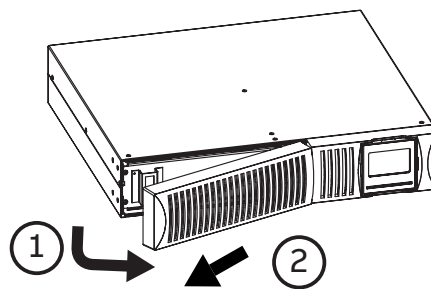
3.2.4.1-3

3.2.4.2 External battery modules

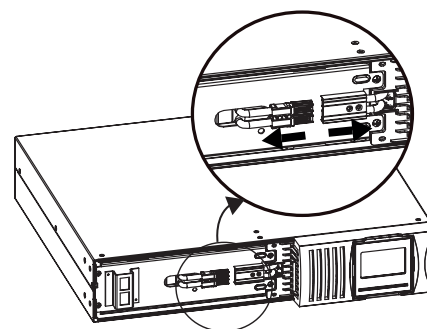
Identify the final position and keep 2U spacing for this installation; it is recommended that this spacing is provided below the UPS.

1. Install the ear bracket onto the unit with the flathead M4 screw. (figure 3.2.4.1-1).
2. Slide the unit into the rail kit and make sure the rack-mounting screw is tightened (figure 3.2.4.1-2, 3.2.4.1-3).
3. Turn off UPS, remove Power plug from the mains.

4. Turn off the circuit breaker on external battery bank.
5. Remove front panel, disconnect internal battery connector (figure 3.2.4.2-1, 3.2.4.2-1).

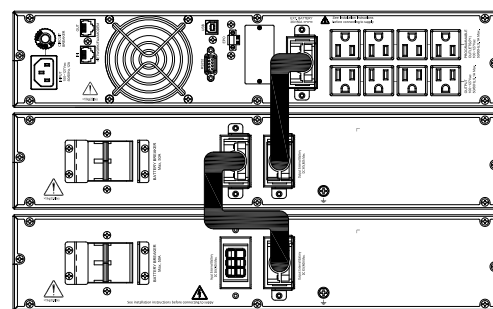


3.2.4.2-1

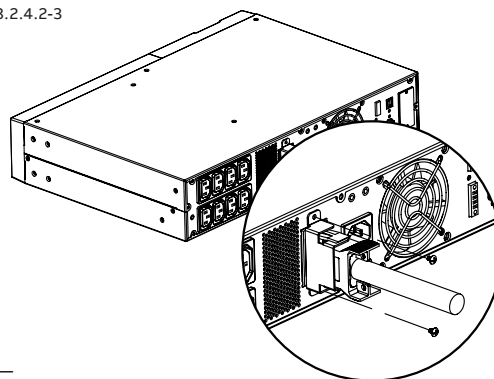


3.2.4.2-2

6. Connect the EBM to the UPS with the battery power cable (figure 3.2.4.2-3).
7. Install the fixing plate to fix the battery cable (figure 3.2.4.2-4)



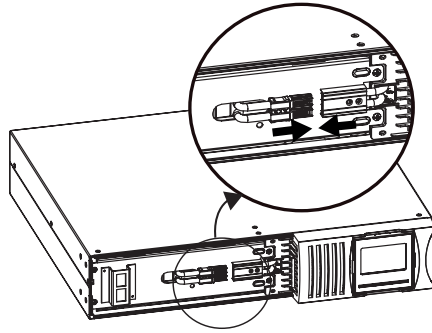
3.2.4.2-3



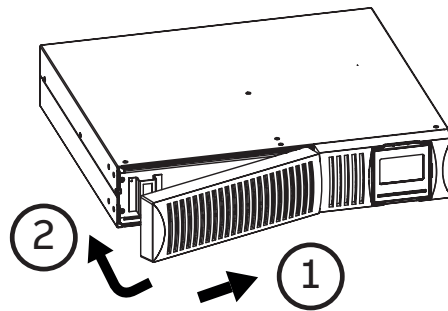
3.2.4.2-4

- 3.2.4.2-5: Battery plug connection
- 3.2.4.2-6: Front panel insertion
- 3.2.5.1-1: Stabilizer bracket for UPS
- 3.2.5.2-1: Stabilizer bracket for external batter module

8. Connect internal battery connector, and put the front panel back to the unit.



3.2.4.2-5



3.2.4.2-6

9. Turn on the circuit breaker on external battery bank.



NOTE

UP TO SIX EXTERNAL BATTERY ENCLOSURES CAN BE CONNECTED TO THE UPS IN THE SAME WAY, AS SHOWN ABOVE.

3.2.5 Stand-alone / tower installation

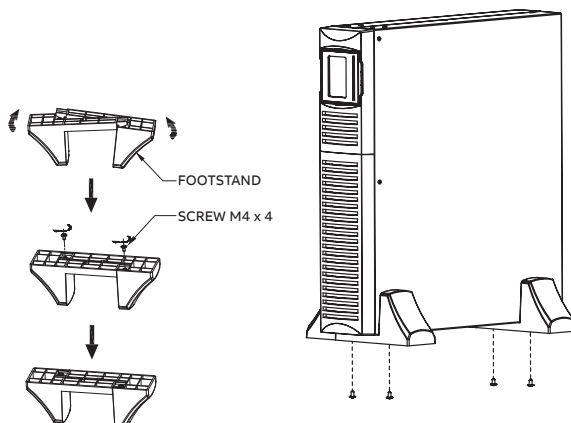
3.2.5.1 UPS

1. Set up the stabilizer bracket, then put the unit into the stabilizer bracket. (figure 3.2.5.1-1).



NOTE

PLEASE INSTALL THE 4 SCREWS TO ENSURE THAT THE UNIT IS CORRECTLY PLACED IN A STAND-ALONE/TOWER POSITION.



3.2.5.1-1

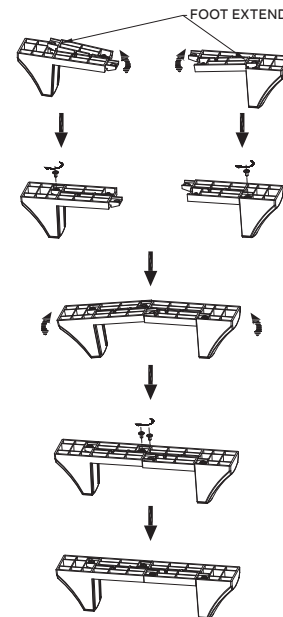
3.2.5.2 External battery modules

1. Set up the extension plate as below and install it on the UPS stabilizer bracket.
2. Install the UPS and EBM individually into the stabilizer bracket.
3. Connect to the UPS with the battery power cable (refer to rack position installation).



NOTE

PLEASE INSTALL THE 8 SCREWS TO ENSURE THAT THE UPS AND EXTERNAL BATTERY MODULE ARE CORRECTLY PLACED IN A STAND-ALONE/TOWER POSITION.

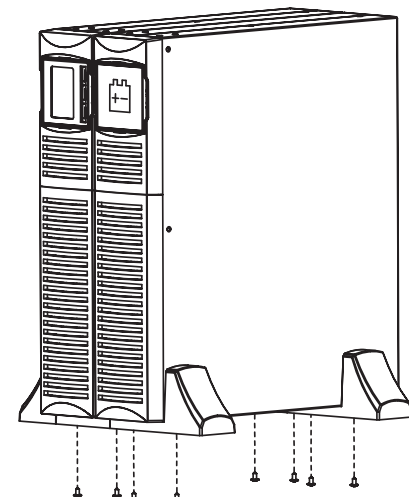


3.2.5.2-1



NOTE

IT IS RECOMMENDED THAT THIS UNIT BE INSTALLED TO THE RIGHT-HAND SIDE OF THE UPS. IF INSTALLING AN ADDITIONAL UNIT, PLACE IT NEXT TO THE PREVIOUS UNIT.

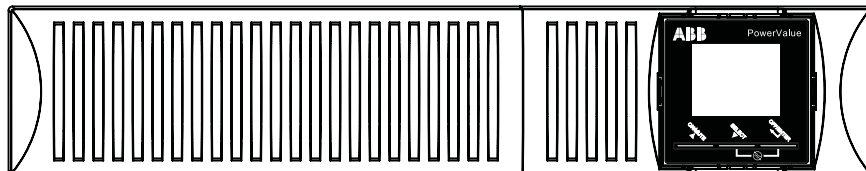


3.3 General characteristics

- 3.3.1-1:
UPS front panel
- 3.3.1-2:
PowerValue 11 RT
G2 1 kVA rear view
- 3.3.1-3:
PowerValue 11 RT
G2 1.5 kVA rear view
- 3.3.1-4:
PowerValue 11 RT
G2 2 kVA rear view
- 3.3.1-5:
PowerValue 11 RT
G2 3 kVA rear view

3.3.1 UPS front panel

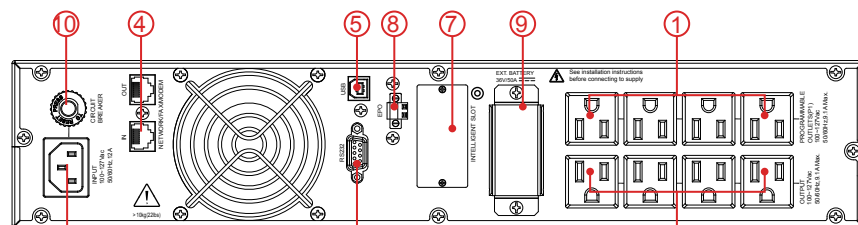
Figure 3.3.1-1 shows the front panel of the UPS.



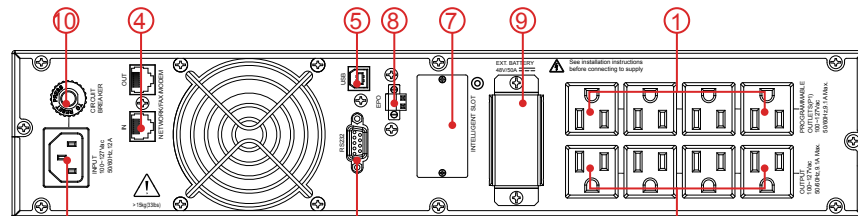
3.3.1-1

3.3.1-1 UPS rear panel

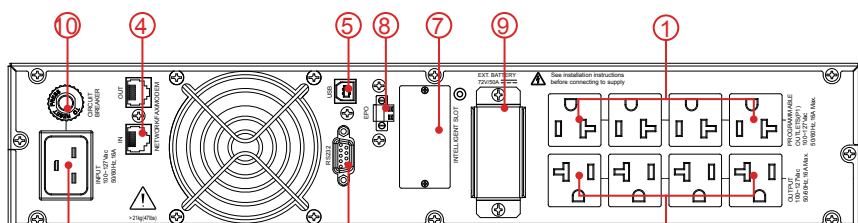
Table 2 and Figures 3.3.1-2~ Figures 3.3.1-5 show the connectors and ports in the UPS.



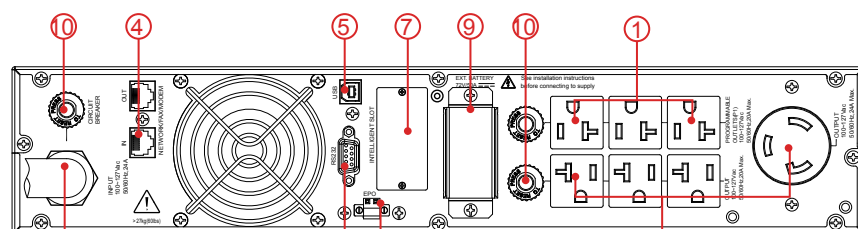
3.3.1-2



3.3.1-3



3.3.1-4



3.3.1-5

Table 2: UPS rear panel connectors and ports

1	Programmable outlets: connect to non-critical loads
2	Output receptacles: connect to mission-critical loads
3	AC input
4	Network/Fax/Modem surge protection
5	USB communication port
6	RS-232 communication port
7	SNMP intelligent slot
8	Emergency power off function connector (EPO)
9	External battery connection
10	Circuit breaker

3.4 Connection

3.4.1 UPS input connection

Plug the UPS into a proper socket (grounded and shockproof) and pay attention to the socket capacity. Avoid using extension cords. The UPS system has an input breaker on the standard cabinet.

- For PowerValue 11 RT G2 1/1.5/2 kVA models: The power cord is supplied in the UPS package.
- For PowerValue 11 RT G2 3 kVA models: The power cord is attached to the UPS.
- The input plug is a NEMA 5-15P for 1K and 1.5K models, NEMA 5-20P for the 2K model, and NEMA L5-30P for the 3K model.



NOTE

To reduce the risk of fire, connect only to a circuit provided with (Ⓜ) A maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70, and the Canadian Electrical Code, Part I, C22.1"

Model	(Ⓜ)
PowerValue 11 RT G2 1 kVA	20A
PowerValue 11 RT G2 1.5 kVA	20A
PowerValue 11 RT G2 2 kVA	20A
PowerValue 11 RT G2 3 kVA	40A

3.4.2 UPS output connection

The output sockets and types of the UPS are shown below.

Model No.	Output Socket – NEMA(pcs)
PowerValue 11 RT G2 1 kVA	8*NEMA 5-15R
PowerValue 11 RT G2 1.5 kVA	8*NEMA 5-15R
PowerValue 11 RT G2 2 kVA	8*NEMA 5-20R
PowerValue 11 RT G2 3 kVA	6*NEMA 5-20R + 1*NEMA L5-30R

There are two kinds of outputs: programmable outlets and general outlets. Please connect non-critical devices to the programmable outlets and critical devices to the general outlets. During power failure, you may extend the backup time to critical devices by setting a shorter backup time for non-critical devices.

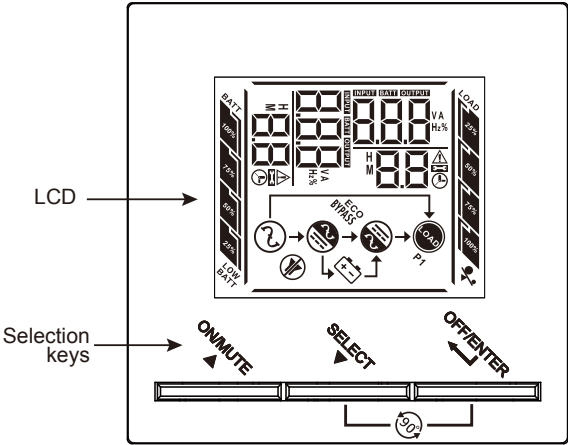
4 Operation

This chapter describes how the UPS is operated through the LCD.

- The user can:
- Operate the LCD
 - Start up and shut down the UPS (excluding the commissioning start up)
 - Operate additional SNMP adapters and their software

4.1 Control panel

4.1-1:
Control panel



The user-friendly control panel has two parts:

- Selection keys
- Power management LCD (PMD)

4.1.1 Selection keys

Table 3: UPS selection keys

Button	Function	Illustration
	ON/Mute Button	<ul style="list-style-type: none">• Turn on the UPS: Press and the hold ON/Mute button for at least 2 seconds to turn on the UPS.• Mute the alarm: After the UPS is turned on in battery mode, press and hold this button for at least 3 seconds to disable or enable the alarm system. But this is not applied to those situations when warnings or errors occur.• Up key: Press this button to display the previous selection in the UPS setting mode.• Switch to UPS self-test mode: Press the ON/Mute buttons for 3 seconds to enter UPS self-testing while in AC mode, ECO mode, or converter mode.
	OFF/Enter Button	<ul style="list-style-type: none">• Turn off the UPS: Press and hold this button for at least 2 seconds to turn off the UPS. The UPS will be in standby mode under power normal or transfer to Bypass mode if the Bypass enables the setting by pressing this button.• Confirm selection key: Press this button to confirm the selection in the UPS setting mode.
	Select Button	<ul style="list-style-type: none">• Switch LCD message: Press this button to change the LCD message for input voltage, input frequency, battery voltage, battery current, battery capacity, output voltage, output frequency, load current and load percent.• Setting mode: Press and hold this button for 3 seconds to enter UPS setting mode when in Standby and Bypass mode.• Down key: Press this button to display the next selection in the UPS setting mode.
	ON/Mute + Select Button	<ul style="list-style-type: none">• Switch to bypass mode: When the main power is normal, press the ON/Mute and Select buttons simultaneously for 3 seconds. Then the UPS will enter bypass mode. This action will be ineffective when the input voltage is out of acceptable range.• Exit setting mode or return to the upper menu: When working in setting mode, press the ON/Mute and Select buttons simultaneously for 0.2 seconds to return to the upper menu. If this is already in top menu, press these two buttons at the same time to exit the setting mode.
	OFF/Enter + Select Button	<ul style="list-style-type: none">• Rack or Tower display switch: Press the Select and OFF/Enter buttons simultaneously for 3 seconds. The display changes from/to Rack to/from Tower.

—
4.1.2-1:
The default LCD

4.1.2 LCD

The LCD shows an overview of the UPS status:

- Input
- Output
- Battery
- Load parameters
- Working mode
- Frequency
- Bypass presence.

The LCD backlight automatically dims after two minutes of inactivity (except in cases of a UPS fault). Press any button to wake up the screen.

A buzzer indicates the UPS status. Table 4 lists the buzzer status meanings

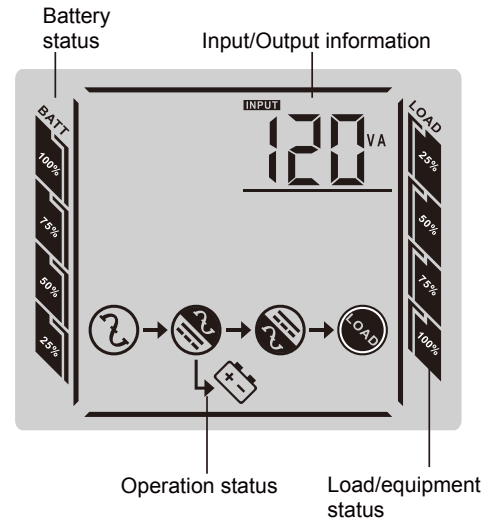
—
Table 4: Definition of alarms

UPS condition	Buzzer status
Active fault	Continuous
Battery	UPS on battery: Beeps every 5 seconds Low battery: Buzzer beeps every 2 seconds
Bypass	Beeps every ten seconds
Overload	Beeps every second

When powering on, the LCD shows the UPS status. The UPS will also return to this default screen when no buttons have been pressed for 15 minutes.

The status screen shows the following information:

- Status summary, including operating mode and load information.
- Alarm status, if present (including fault and warning information).
- Battery and charger status (including battery voltage, charge level and charger status)
- Current runtime information.



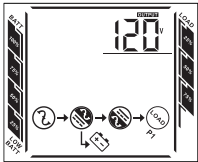
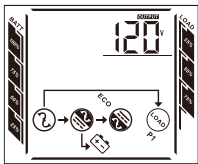
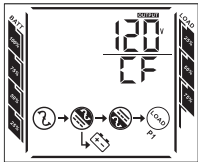
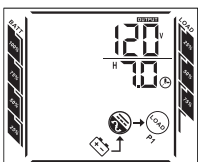
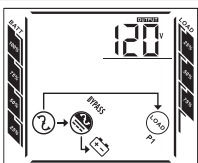
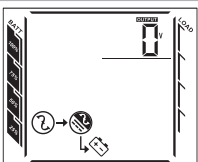
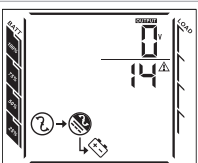
—
4.1.2-1

For more information on how to use the LCD, see Chapter 4.6 and 4.7.

4.2 Operating mode

The following table describes the UPS status information:

Table 5: Symbols in operating mode

Status	LCD Screen	Description
Online mode		When the input voltage is within acceptable range, the UPS will provide pure and stable AC power to the output. The UPS will also charge the battery in online mode.
ECO mode		Energy saving mode: When the input voltage is within voltage regulation range, the UPS will bypass voltage to output for energy saving. The UPS will also charge the battery in ECO mode.
Frequency Converter mode		When the input frequency is within 40 Hz to 70 Hz, the UPS can be set at a constant output frequency, 50 Hz or 60 Hz. The UPS will still charge battery under this mode.
Battery mode		When the input voltage is beyond the acceptable range or power failure, the UPS will backup power from the battery and alarm sounds every 5 seconds.
Bypass mode		When the input voltage is within acceptable range but the UPS is overloaded, the UPS will enter bypass mode or bypass mode can be set by the front panel. The alarm sounds every 10 seconds.
Standby mode		The UPS is powered off and there is no output supply power, but it can still charge the batteries.
Fault mode		When a fault has occurred, the ERROR icon and the fault code will be displayed.

4.3 UPS start-up and shutdown



WARNING

SWITCH OFF THE CONNECTED LOADS BEFORE TURNING ON THE UPS. SWITCH ON THE LOADS ONE BY ONE AFTER THE UPS IS TURNED ON. SWITCH OFF ALL OF THE CONNECTED LOADS BEFORE TURNING OFF THE UPS.



NOTE

THE FIRST TIME THE UPS IS STARTED UP, IT MUST BE CONNECTED TO THE UTILITY.

4.3.1 UPS start-up

To start up the UPS with the mains supply:

1. Check that all the cables are securely and correctly connected.
2. Keep the power button pressed for longer than 1 second. The fans will activate and the UPS will load for a few seconds.
3. The UPS will perform a self-test and the LCD will show the default UPS status screen.



NOTE

BYPASS MODE IS ENABLED BY DEFAULT AND CAN BE CONFIGURED THROUGH THE USER'S SETTINGS (FOR MORE INFORMATION, SEE TABLE 7).

To start up the UPS without the mains supply (cold start):

4. Check that all the cables are securely and correctly connected.
5. Keep the power button pressed for longer than 1 second. The UPS will power on, the fans will activate and the LCD will turn on. The UPS will perform a self-test and show the default UPS status screen.
6. Keep the power button pressed for longer than 2 seconds. The alarm buzzer will sound for 1 second and the UPS will start up.
7. After a few seconds, the UPS transfers to battery mode. When the UPS is supplied with power from the mains, the UPS transfers to online mode without interrupting the UPS power output.

4.3.2 UPS shutdown

To shut down the UPS with the mains supply:

1. If the UPS is working in bypass mode, go to step 3.
2. If the UPS is in online mode, keep the OFF/Enter Button pressed for more than 3 seconds. The alarm buzzer will sound and the UPS will transfer to standby mode.



DANGER

THE OUTPUT IS STILL ENERGIZED.

3. Disconnect the mains power supply. The display will shut down and the output voltage will be removed from the UPS output sockets.
4. If the bypass has been disabled via the Settings menu, keep the OFF/Enter button pressed for longer than 3 seconds to shut down the UPS. The unit will transfer from online to standby mode. Disconnect the input power cable and the display will shut down.

To shut down the UPS without the mains supply:

1. To power off the UPS, keep the OFF/Enter button pressed for more than 3 seconds. The alarm buzzer will sound for 3 seconds and the output power will be immediately cut off.
2. The display will shut down and the output voltage will be removed from the UPS output Sockets.

4.4 LCD display wordings index

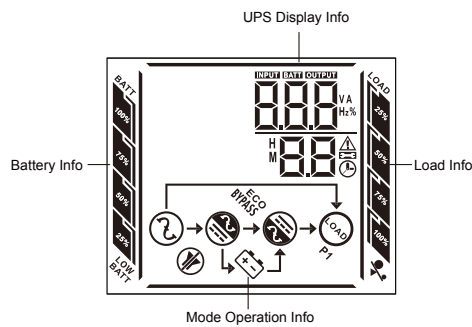
The following table describes the UPS status information:

Table 6: Symbols in operating mode

Abbreviation	Display content	Meaning
ENA	ENR	Enable
DIS	di S	Disable
ESC	ESC	Escape
HLS	HLS	High loss
LLS	LLS	Low loss
AO	AO	Active Open
AC	AC	Active Close
EAT	EAT	Estimated autonomy time
RAT	RAT	Running autonomy time
ON	ON	ON
SD	SD	Shut down
BL	BL	Battery Low
OL	OL	Over Load
OI	OI	Over input current
NC	NC	Battery No Connect
OC	OC	Over Charge
SF	SF	Site wiring fault
EP	EP	EPO
TP	TP	Temperature
CH	CH	Charger
BF	BF	Battery Fault
BV	bV	Bypass Out Range
FU	FU	Bypass frequency unstable
BR	br	Battery Replacement
EE	EE	EEPROM error

4.5 LCD Panel

Rack Display



Tower Display

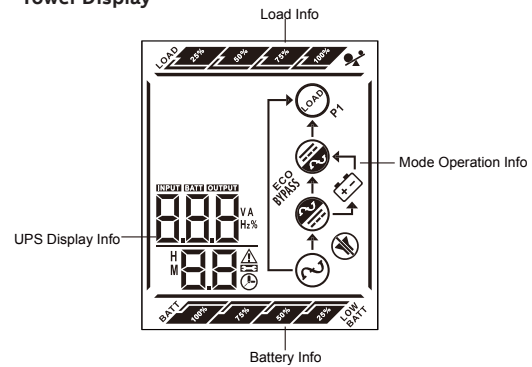


Table 7: Symbols in operating mode

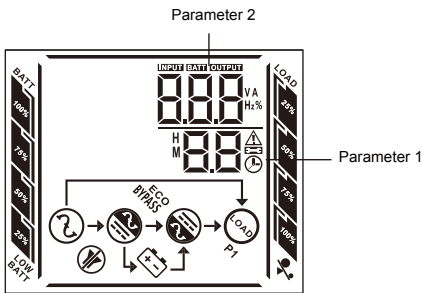
Display	Function
	Indicates the estimated or running autonomy time. H: hours, M: minute.
	Indicates that the configuration items, and the configuration items are listed in the detail in the section UPS Setting.
	Indicates that the warning and fault codes, and the codes are listed in the detail in the section Faults Reference Code and Warning indicator.
	Indicates that the UPS alarm is disabled.
	Indicate the input voltage, input frequency, battery voltage, battery current, battery capacity, output voltage, output frequency, load current and load percent. k: kilo, W: watt, V: voltage, A: ampere, %: percent, Hz: frequency.
	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.
	Indicates an overload.
	Indicates that the programmable management outlets are working.
	Indicates that the UPS connects to the mains.
	Indicates that the battery is working.
	Indicates that the bypass circuit is working.
	Indicates that the ECO mode is enabled.
	Indicates that the AC to DC circuit is working.
	Indicates that the inverter circuit is working.
	Indicates that the output is working.
	Indicates the battery level by 0-24%, 25-49%, 50-74%, and 75-100%.
	Indicates a low battery.



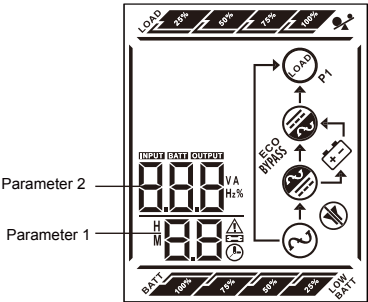
4.6 LCD Setting

Press and hold the select button for 5 seconds to enter the UPS setting mode when the UPS is in the standby mode or the bypass mode. Press and hold "Off/Enter" and the "select" buttons for five seconds to switch the LCD screen in the Rack or Tower display.

Rack Display



Tower Display



There are two parameters to set up the UPS.
Parameter 1: This is for program alternatives. Refer to the table below.
Parameter 2: The setting options or values for each program.

01: Output voltage setting

Interface	Setting
	<p>Parameter 2: Output voltage For 100/110/115/120/125 VAC models, you may choose the following output voltage: 100: presents output voltage as 100Vac 110: presents output voltage as 110Vac 115: presents output voltage as 115Vac 120: presents output voltage as 120Vac (Default) 125: presents output voltage as 125Vac</p>

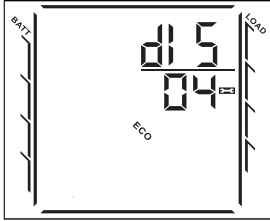
02: Frequency converter enable/disable

Interface	Setting
	<p>Parameter 2: Enable or disable the converter mode. You may choose the following two options: CF ENA: converter mode enable CF DIS: converter mode disable (Default)</p>

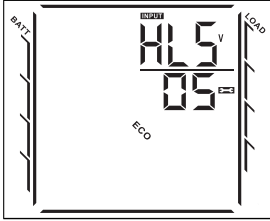
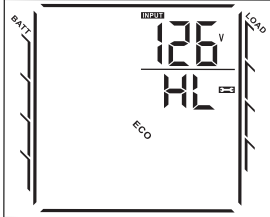
03: Output frequency setting

Interface	Setting
	<p>Parameter 2 : Output frequency setting. You may set the initial frequency on the battery mode: 50: output frequency is 50Hz 60: output frequency is 60Hz If the converter mode is enabled, you may choose the following output frequency: 50: output frequency is 50Hz 60: output frequency is 60Hz</p>

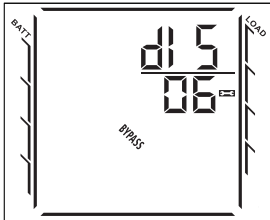
04: ECO enable/disable

Interface	Setting
	<p>Parameter 2: Enable or disable the ECO function. You may choose the following two options:</p> <p>ENA: ECO mode enable</p> <p>DIS: ECO mode disable (Default)</p>

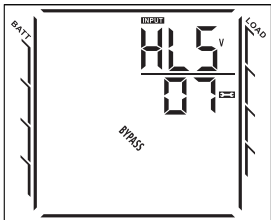
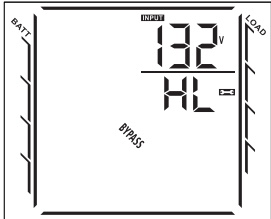
05: ECO voltage range setting

Interface	Setting
	<p>Parameter 2: Set the acceptable high voltage point and low voltage point for the ECO mode by pressing the Down key or Up key.</p> <p>HLS: High loss voltage in ECO mode in parameter 2. For 100/110/115/120/125 VAC models, the setting range is from +3V to +12V of the nominal voltage. (Default: +6V)</p> <p>LLS: Low loss voltage in ECO mode in parameter 2. For 100/110/115/120/125 VAC models, the setting voltage is from -3V to -12V of the nominal voltage. (Default: -6V)</p>
	

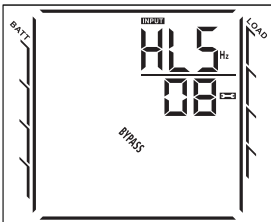
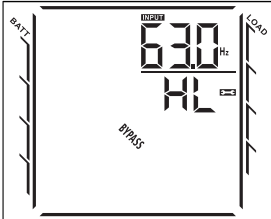
06: Bypass enable/disable when UPS is off

Interface	Setting
	<p>Parameter 2: Enable or disable the Bypass function. You may choose the following two options:</p> <p>ENA: Bypass enable</p> <p>DIS: Bypass disable (Default)</p>

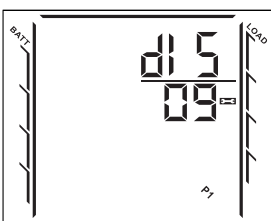
07: Bypass voltage range setting

Interface	Setting
	<p>Parameter 2: Set the acceptable high voltage point and acceptable low voltage point for the Bypass mode by pressing the Down key or the Up key.</p> <p>HLS: Bypass high voltage point For 100/110/115/120/125 VAC models: 120-140: setting the high voltage point from 120Vac to 140Vac. (Default: 132Vac)</p> <p>LLS: Bypass low voltage point For 100/110/115/120/125 VAC models: 85-115: setting the low voltage point from 85Vac to 115Vac. (Default: 85Vac)</p>
	

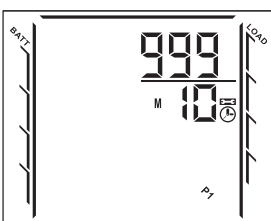
08: Bypass frequency range setting

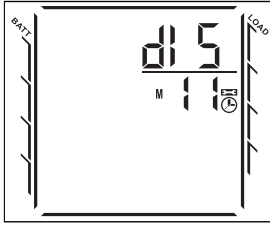
Interface	Setting
	<p>Parameter 2: Set the acceptable high frequency point and acceptable low frequency point for the Bypass mode by pressing the Down key or the Up key.</p> <p>HLS: Bypass high frequency point For 50Hz output frequency models: 51-55Hz: setting the frequency high loss point from 51Hz to 55HZ(Default: 53.0Hz) For 60Hz output frequency models: 61-65Hz: setting the frequency high loss point from 61Hz to 65Hz(Default: 63.0Hz)</p> <p>LLS: Bypass low Frequency point For 50Hz output frequency models: 45-49Hz: setting the frequency low loss point from 45Hz to 49HZ(Default: 47.0Hz) For 60Hz output frequency models: 55-59Hz: setting the frequency low loss point from 55Hz to 59Hz(Default: 57.0Hz)</p>
	

09: Programmable outlets enable/disable

Interface	Setting
	<p>Parameter 2: Enable or disable programmable outlets.</p> <p>ENA: Programmable outlets enable DIS: Programmable outlets disable (Default)</p>

10: Programmable outlets setting

Interface	Setting
	<p>Parameter 2: Set up backup time limits for programmable outlets.</p> <p>0-999: setting the backup time limits in minutes from 0-999 for programmable outlets which connect to non-critical devices on battery mode. (Default: 999)</p>

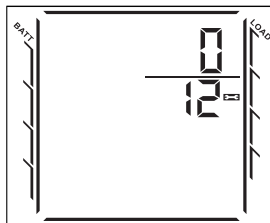
11: Autonomy limitation setting**Interface****Setting**

Parameter 2: Set up the backup time on the battery mode for general outlets.

0-999: setting the backup time in minutes from 0-999 for general outlets on the battery mode.

DIS: Disable the autonomy limitation and the backup time will depend on battery capacity. (Default)

Note: When setting as "0", the backup time will be only 10 seconds.

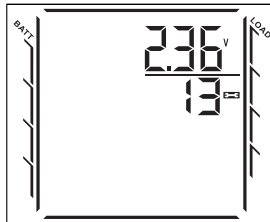
12: Battery pack number setting**Interface****Setting**

Parameter 2: Set up the Battery pack number.

0-6: setting up the external battery package number from 0-6. (Default: 0)

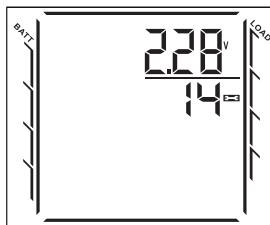
Note: Automatically adjust the charging current with the battery pack quantity.

EBM number	Charging current (A)
0	2
1	4
2-6EBM	6

13: Charger Boost voltage setting**Interface****Setting**

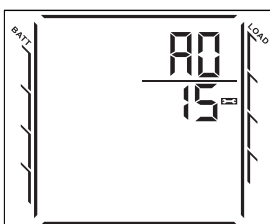
Parameter 2: Set up the charger boost voltage.

2.25-2.40: setting the charger boost voltage from 2.25 V/cell to 2.40V/cell. (Default: 2.36V/cell)

14: Charger Float voltage setting**Interface****Setting**

Parameter 2: Set up the charger float voltage.

2.20-2.33: setting the charger float voltage from 2.20 V/cell to 2.33V/cell. (Default: 2.28V/cell)

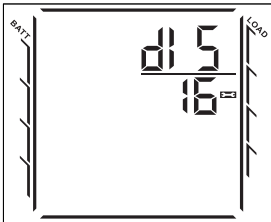
15: EPO logic setting**Interface****Setting**

Parameter 2: Set up the EPO function control logic.

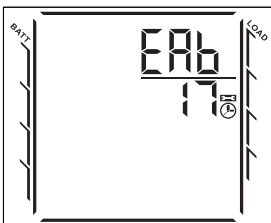
AO: Active Open (Default). When AO is selected as EPO logic, it will activate the EPO function with Pin 1 and Pin 2 in open status.

AC: Active Close. When AC is selected as EPO logic, it will activate the EPO function with Pin 1 and Pin 2 in close status.

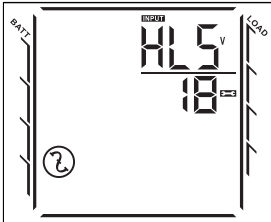
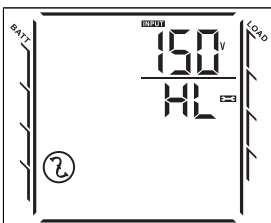
16: Bypass frequency range setting

Interface	Setting
	<p>Parameter 2: Allow or disallow the external output isolation transformer connection.</p> <p>ENA: If selected, connecting to an external output isolation transformer is allowed.</p> <p>DIS: If selected, connecting to an external output isolation transformer is not allowed. (Default)</p>

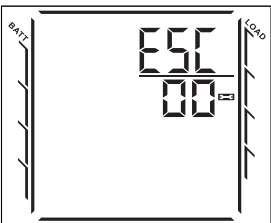
17: Display setting for autonomy time

Interface	Setting
	<p>Parameter 2: Set up the display setting for autonomy time.</p> <p>EAT: If EAT is selected, it will display the remaining autonomy time. (Default)</p> <p>RAT: If RAT is selected, it will show accumulated autonomy time so far.</p>

18: Acceptable input voltage range setting

Interface	Setting
	<p>Parameter 2: Set the acceptable high voltage point and acceptable low voltage point for the input voltage range by pressing the Down key or the Up key.</p> <p>HLS: Input high voltage point</p> <p>For 100/110/115/120/125 VAC models:</p> <p>140/145/150: setting the high voltage point in parameter 2. (Default: 150Vac)</p> <p>LLS: Bypass low voltage point</p> <p>For 100/110/115/120/125 VAC models:</p> <p>55/60/65/70/75/80: setting the low voltage point in parameter 2. (Default: 55Vac)</p>
	

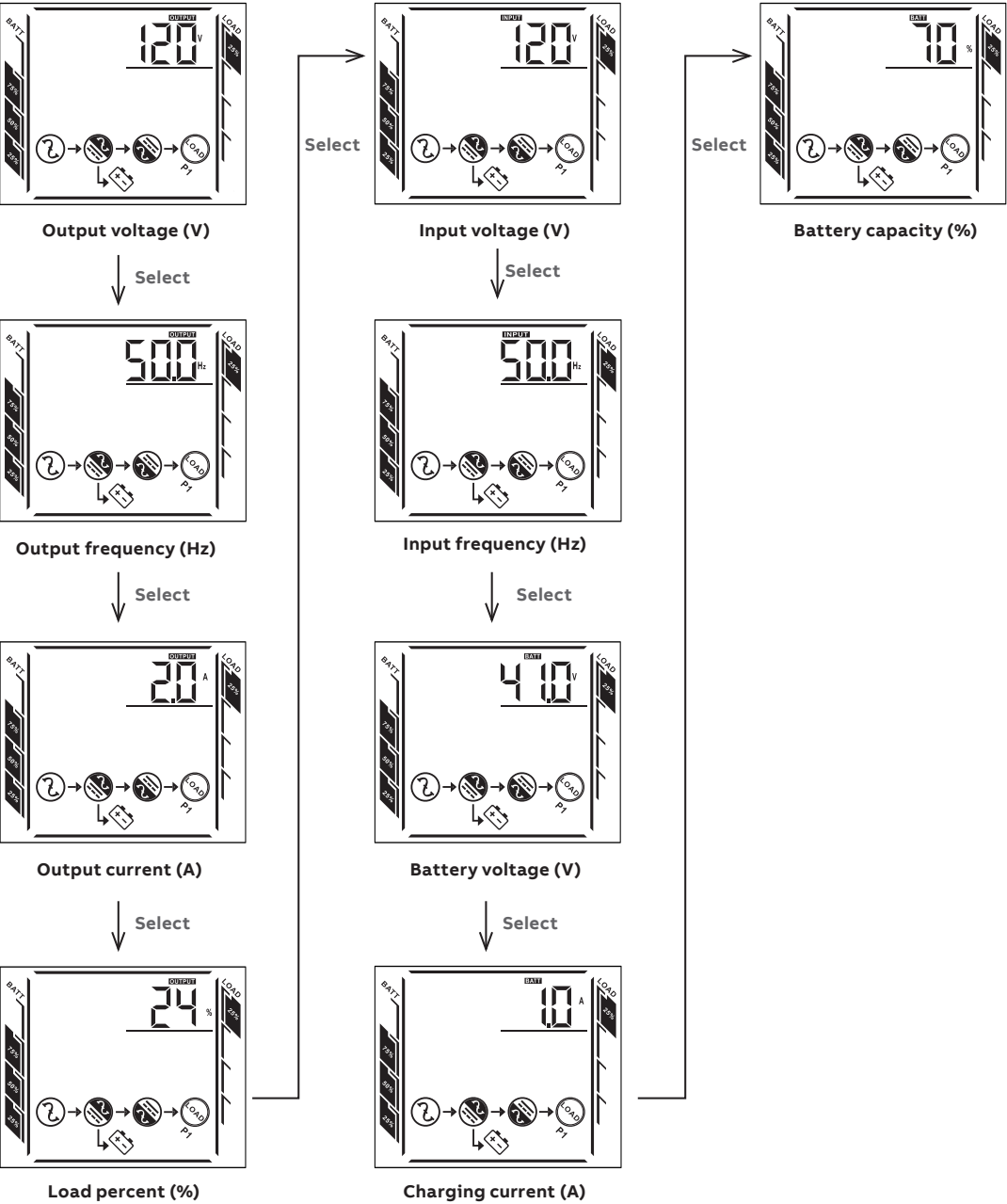
00: Exit setting

Interface	Setting
	<p>Exit the setting mode.</p>

4.7 LCD measurement functions

4.7-1
Display measurement functions

Use the Select button to navigate the display screen. When the UPS starts up, the display is in the default UPS status summary screen.



5 Battery replacement

—
5-1
Front panel removal

—
5-2
Battery plug
disconnection

—
5-3
Battery cover removal

—
5-4
Batteries replacement

—
5-5
Battery cover insertion

—
5-6
Battery plug connection

—
5-7
Front panel insertion

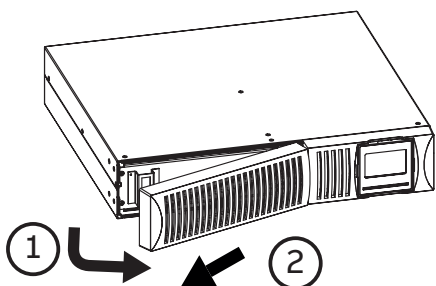


WARNING

PLEASE REFER TO CHAPTER 2 FOR SAFETY INSTRUCTIONS.

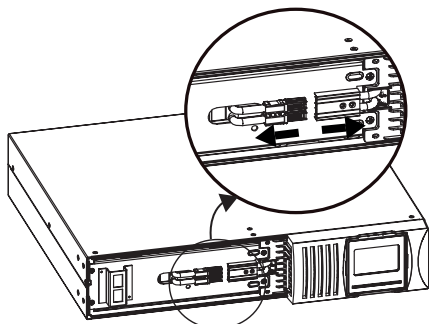
Please read the following instructions to perform a correct battery replacement:

1. Remove the front panel.



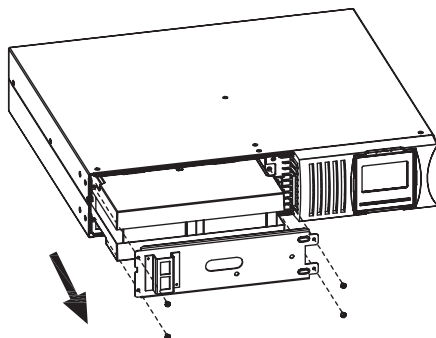
—
5-1

2. Disconnect the battery plug.



—
5-2

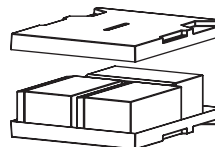
3. Take off the front battery cover by removing the four screws.



—
5-3

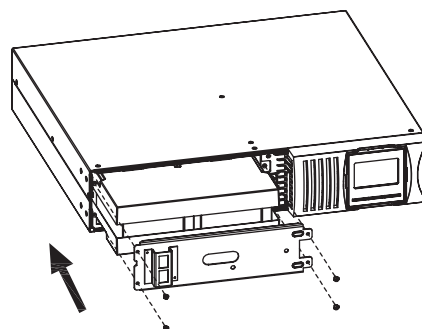
4. Extract the battery tray from the UPS and replace the batteries.

5. Reinsert the battery tray with the replaced batteries back into the original location



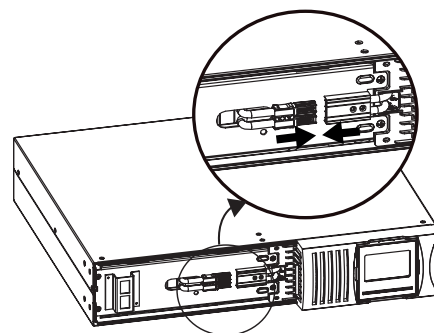
—
5-4

6. Tightly fix the four screws to lock back the battery cover to the unit.



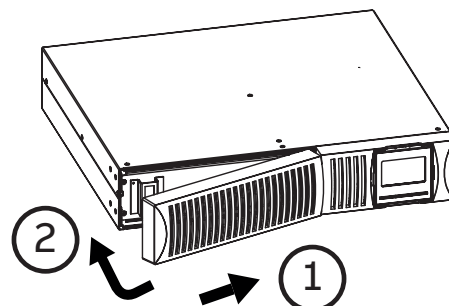
—
5-5

7. Reconnect the battery plug.



—
5-6

8. Reassemble the front panel back to the unit to conclude the battery replacement.



—
5-7

6 Communication

A USB and an RS-232 port are available to enable communication between the UPS and a remote computer/ station. Only one communication port can be active at a time and the priority is given to the USB port.

Once the communication cable is installed, the power management software can exchange information with the UPS. The software collects information from the UPS and indicates the status of the device, the power quality of the mains, and the battery autonomy of the units.

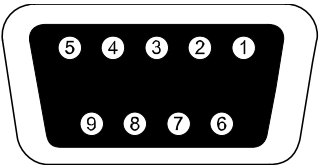
If there is a power failure and a predicted shutdown of the UPS due to low battery autonomies, the monitoring system can save the load data and initiate shutdown of the equipment connected to the UPS.

6.1 RS-232 port

6.1-1:
RS-232 Communication
Port (DB-9 Connector)

The UPS has an RS-232 port for UPS monitoring, control and firmware updates. To establish communication between the UPS and a computer, connect one end of the serial communication cable to the RS-232 port on the UPS and the other end to the RS-232 port of a computer.

The cable pins for the RS-232 communication port are described in Figure 6.1-1 and Table 8.



6.1-1

Table 8: Communication port pin assignment

PIN	Signal Name	Function	Direction from UPS
2	TxD	Transmit to external device	Out
3	RxD	Receive from external device	In
5	GND	Signal common	--

6.2 USB port

The UPS can communicate with USB-compliant computers that run power management software. To establish communication between the UPS and a computer, connect the USB cable to the USB port on the UPS. Connect the other end of the cable to the USB port on a computer.

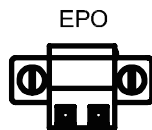
6.3 Emergency power off

—
6.3-1:
EPO (Emergency
power off)

The EPO connector can be used to block the UPS output in case of an emergency. The EPO connector can be configured as Normally Closed (NC) or Normally Opened (NO) through the USB or the RS232 port.

By default, the EPO connector is Normally Closed (NC) by a jumper in the rear panel. If the jumper is removed, the UPS output will not supply energy to the load until the EPO status is changed.

To return to normal status, the EPO connector must be closed. Enter the LCD setting to clear the EPO status (LCD setting-->LCD Program 15 EPO warning clearance). The UPS alarm is cleared and the bypass mode is recovered. Set the UPS to the inverter mode manually.



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6.3-1

6.4 Network management card (optional)

The PowerValue 11 RT G2 1–3 kVA is equipped with an intelligent slot for optional cards for remote management of the UPS through the Internet/intranet. Either of the following accessories can be installed in the intelligent slot:

- **SNMP/Modbus Card** – SNMP/Modbus, HTTP and monitoring capabilities through a Web browser interface.
- **AS400 Card** – AS400 card for AS400 communication protocol.

6.4.1 Installing a serial network management card (optional)

Each UPS has a communication slot for an optional serial network management protocol (SNMP/Modbus) card. After installing an SNMP/Modbus card, an environmental monitoring probe can be connected.



THE UPS DOES NOT HAVE TO BE SHUT DOWN BEFORE INSTALLING A COMMUNICATION CARD.

To install a network management card:

1. Remove the two screws that protect the UPS communication slot.
2. Insert the SNMP/Modbus card into the communication slot.
3. Screw the SNMP/Modbus card onto the slot using the screws removed in Step 1
4. Screw the SNMP card onto UPS rear panel for GND connection.

When connect SNMP to the computer, the recommended max length of shielded RJ45 cable is 2m to fulfill the FCC part15 Class A requirement.

For more information on the SNMP/Modbus Cards, see the SNMP/Modbus user's manual.

6.4.2 Monitoring software

The UPS can be monitored using software.

The software provides a remote and safe shutdown for multi-client systems in case of the absence of power at the UPS output.

Instructions on how to install the software are provided with the network management cards.

For more information, contact your local supplier.


7 Troubleshooting

7.1 Fault identification and rectification















Alarms and events indicate warnings and notify errors or potential failures in the system. The UPS output is not necessarily affected when an alarm arises, but taking the correct actions may prevent a loss of power to the load.

7.2 Accessing alarms












6.2.1 Faults Reference Code

Fault event	Fault code	Icon	Fault event	Fault code	Icon
Bus start fail	01	X	Battery voltage too high	27	X
Bus over	02	X	Battery voltage too low	28	X
Bus under	03	X	Charger output short	2A	X
Inverter soft start fail	11	X	Over temperature	41	X
Inverter voltage high	12	X	Overload	43	
Inverter voltage Low	13	X	Charger failure	45	X
Inverter output short	14	X	Over input current	49	X

6.2.2 Warning indicator

Warning	Icon (flashing)	Alarm
Low Battery		bL Sounding every 2 seconds
Overload		OL Sounding every second
Over input current		O I Sounding 2 beeps every 10 seconds
Battery is not connected		nc Sounding every 2 seconds
Over charge		OC Sounding every 2 seconds
Site wiring fault		SF Sounding every 2 seconds
EPO enable		EP Sounding every 2 seconds
Over temperature		EP Sounding every 2 seconds
Charger failure		CH Sounding every 2 seconds
Battery fault		bF Sounding every 2 seconds (At this time, the UPS is off to remind users that something is wrong with the battery)
Out of bypass voltage range		bV Sounding every 2 seconds
Bypass frequency unstable		FU Sounding every 2 seconds
Battery replacement		bT Sounding every 2 seconds
EEPROM error		EE Sounding every 2 seconds

NOTE: the "Site Wiring Fault" function can be enabled/disabled via the software. Please check software manual for details.

Symptom	Possible cause	Remedy
No indication or alarm even though the mains is normal.	The AC input power is not connected well.	Check if the input power cord is firmly connected to the mains.
	The AC input is connected to the UPS output.	Plug the AC input power cord into the AC input correctly.
The icon  and the warning code  flash on the LCD display and the alarm is sounding every 2 seconds.	The EPO function is activated.	Set the circuit in the closed position to disable the EPO function.
The icons  and  , and the warning code flash on the LCD display. The Alarm is sounding every 2 seconds.	The line and neutral conductors of the UPS input are reversed.	Rotate the mains power socket by 180° and then connect to the UPS system.
The icons of  and  , and the warning code  flash on the LCD display. The Alarm is sounding every 2 seconds.	The external or the internal battery is incorrectly connected.	Check if all the batteries are connected well.
The fault code is shown as 27 on the LCD display and alarm is continuously sounding.	The battery voltage is too high or the charger is faulty.	Contact your dealer.
The fault code is shown as 28 on the LCD display and alarm is continuously sounding.	The battery voltage is too low or the charger is faulty.	Contact your dealer.
The icons  and  , and the warning code  flash on the LCD display. The alarm is sounding every second.	The UPS is overloaded	Remove excess loads from the UPS output.
	The UPS is overloaded. The devices connected to the UPS are fed directly by the electrical network via the Bypass.	Remove excess loads from the UPS output.
	After repetitive overloads, the UPS is locked in Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from the UPS output first. Then shut down the UPS and restart it.
The fault code is shown as 49 on the LCD display and alarm is continuously sounding.	The UPS is over the input current.	Remove excess loads from the UPS output.
The fault code is shown as 43 and the icon  is lighting on the LCD display. The Alarm is continuously sounding.	The UPS shuts down automatically because the short circuit occurs on the UPS output.	Remove excess loads from the UPS output and restart it.
The fault code is shown as 14 on the LCD display and alarm is continuously sounding.	The UPS shuts down automatically because the short circuit occurs on the UPS output.	Check the output wiring and if the connected devices are in the short circuit status.
The fault code is shown as 01, 02, 03, 11, 12, 13 and 41 on the LCD display, and the alarm is continuously sounding.	A UPS internal fault has occurred. There are two possible results: 1. The load is still supplied, but directly from the AC power via the bypass. 2. The load is no longer supplied by the power.	Contact your dealer
The battery backup time is shorter than the nominal value.	The batteries are not fully charged	Charge the batteries for at least 5 hours and then check the capacity. If the problem still persists, consult your dealer.
	The batteries are defective	Contact your dealer to replace the battery.
The fault code is shown as 2A on the LCD display, and the alarm is continuously sounding.	The short circuit occurs on the charger output.	Check if the battery wiring of the connected external pack is in short circuit status.
The fault code is shown as 45 on the LCD display. At the same time, the alarm is continuously sounding.	The charger does not have any output and the battery voltage is less than 10V/PC.	Contact your dealer.

www.abb.com/ups
ups.sales@ch.abb.com