U P S

On-Line

700VA-3000VA

USER MANUAL

EMC Statement

These products are tested and thereby comply with the conditions of CE regulation, which established to offer sufficient protection against dangerous interference for installation. Installation and use of the equipment should comply with the instructions provided to avoid such interference due to the amount of radio frequency energy that generates by the equipment; Despite this, we cannot assure that a certain amount of interference may not occur in some installations.

If by turning on and off, you conclude that the equipment's harmful interference influences your radio or television reception, use one of the following preventive measures:

- Place the receiving antenna in a separate location or orientation
- Ensure a greater distance between the receiver and the equipment
- Ensure that your Equipment connects to an outlet on a separate circuit
- Contact a technician experienced with radio and TV or the dealer for technical assistance

Declaration of Conformity Request

Units labelled with a CE mark comply with the following stander and directives:

- EMC Directive 2014/30/EU
- LVD Directive 2014/35/EU
- Safety: EN 62040 - 1
- EMC: EN 62040 - 2

The EC Declaration of Conformity is available upon request for production with a CE mark.

FCC Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference, and 2. this device must accept any interference received, including interference that may cause undesired operation.

French Safety Instruction

INSTRUCTIONS DE SÉCURITÉS IMPORTANTES
CONSERVER CES INSTRUCTIONS

Le présent manuel contient des instructions importantes qui devraient être suivies durant l'installation et l'entretien de l'UPS et de la batterie.

Ces appareils sont conçus pour être installés à l'intérieur, dans un endroit à température contrôlée et à environnement non conducteur.

Toute intervention sur les batteries devra être effectuée ou surveillée par un personnel qui connaît les batteries et qui prend les précautions requises.

Interdire à tout personnel non autorisé de toucher aux batteries.

Pour le remplacement, utiliser le même nombre de batteries du modèle.

ATTENTION – Eviter de jeter la batterie dans un feu, car elle risque d'exploser.

ATTENTION – Ne jamais ouvrir ou endommager la batterie, l'électrolyte libéré est nocif pour la peau et les yeux.

ATTENTION – Les batteries peuvent causer un choc électrique ou provoquer des courants élevés de court-circuit.

Veuillez observer les précautions suivantes:

A. Enlever montres, bagues et tout objet métallique.
B. Utiliser des outils à poignée isolée.
C. Porter des gants et des bottes en caoutchouc.
D. Éviter de déposer des outils ou des pièces métalliques sur le dessus de la batterie.
E. Débrancher la source de charge avant de brancher ou de débrancher les bornes de batterie.

ATTENTION – Pour réduire les risques d'incendie, utiliser uniquement des conducteurs de télécommunications 26 AWG au de section supérleure.

ATTENTION – Afin de réduire les risques d'incendie, ne raccordez qu'à un circuit muni d'une protection de surintensité du circuit de dérivation maximum de 30 ampères conformément au Code Électrique National (National Electrical Code) des États-Unis, ANSI/NFPA 70.

ATTENTION – (3000VA) -Afin de réduire les risques d'incendie, ne raccordez qu'à un circuit muni d'une protection de surintensité du circuit de dérivation maximum de 30 ampères conformément au Code Électrique National (National Electrical Code) des États-Unis, ANSI/NFPA 70.

La protection de surintensité de sortie ainsi que le sectionneur doivent être fournis par des tiers.

Table of content

1. IMPORTANT SAFETY INSTRUCTIONS

WARNING: SAVE THESE INSTRUCTIONS!!

- **WARNING (SAVE THESE INSTRUCTIONS):** This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries. The equipment can be operated by any individuals with no previous experience.
- **WARNING:** It is recommended to install UPS in an ANSI/NFPA75 room in which temperature and humidity are controlled and free from electrically conductive particles. **DO NOT** expose UPS to direct sunlight or high heat source; **DO NOT** block off ventilation opening around the housing.
- **CAUTION:** Intended for Installation in a Controlled, indoor area free of conductive contaminants.
- **CAUTION:** Before conducting maintenance, repair, or shipment, please turn off everything completely and disconnect them.
- **CAUTION:** The UPS is **NOT** applicable for any inductive loads such as motors or domestic appliances like hairdryers, speakers, and fluorescent lamps.
- **CAUTION:** All interconnection and power cable should be connected **ONLY AFTER** the UPS shut down and disconnected from main.
- **CAUTION:** To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.
- **CAUTION: DO NOT** unplug UPS from main power during operation or protective ground will fail. **DO NOT** disconnect battery under load or shut down may occur.
- **CAUTION:** Ensure the total leakage current of UPS and the connected equipment under 3.5mA.
- **CAUTION:** Ensure UPS connects to grounded main power with a fuse or circuit breaker protection.
- **CAUTION:** Dangerous amount of voltage might still exist even the UPS disconnects from the main power since residual voltage exists due to battery supply.
- **CAUTION:** Beware of all the details on the cautionary sticker located on UPS.
- **CAUTION (No user-serviceable parts):** Do not attempt to remove the unit's cover, no user-serviceable parts inside. Please refer all service to qualified service technicians.
- **CAUTION: DO NOT** Dispose of Battery or Batteries in a Fire. The Battery May Explode.
- **CAUTION: DO NOT** Open or Mutilate the Battery or Batteries. Released Electrolyte is Harmful to the Skin and Eyes. It May be Toxic.
- **User's operations**: Users only permits to:
  - Turning the UPS unit on and off.
  - Operating the user interface.
  - Connecting data interface cables.
  - Changing the batteries. (Except 3k Tower model)
- **CAUTION:** A Battery can present a Risk of Electrical Shock and High Short Circuit Current. The Following Precautions Should be Observed When Working on Batteries:
  - **A.** Remove watches, rings, or other metal objects.
  - **B.** Use tools with insulated handles.
  - **C.** Wear rubber gloves and boots.
  - **D.** Please **DO NOT** place any tools or metal parts on top of batteries.
  - **E.** Disconnect charging source before connecting/disconnecting battery terminals.
  - **F.** Servicing of batteries should be performed or supervised by personnel with necessary precautions and knowledge. Keep unauthorized personnel away from batteries.
- **DANGER:** Hazardous electric component inside this unit (example: Heat-sinks) remain energized from the battery supply even when the main power is disconnected.
- **DANGER:** Battery circuit is not isolated from the AC input. Hazardous voltage may exist at battery terminals and ground—test for safety before any direct contact.

- **CAUTION:** Remove the battery's pole during service inside the battery cabinet or UPS.
- **CAUTION: ONLY** replace batteries with the same type and quantity.
- **WARNING (Fuses):** Ensure fuse replacement with the same type and rating ONLY.
- **CAUTION:(for 1.5KVA、2KVA、2.4KVA、1.5KVA):** A disconnect switch shall be provided by others for ac output terminal block circuit. To reduce the risk of fire, connect only to a circuit provided with branch circuit overcurrent protection for 20 amperes rating in accordance with the National Electric Code, ANSI/NFPA 70.
- **CAUTION:(for 3KVA):** A disconnect switch shall be provided by others for ac output terminal block circuit. To reduce the risk of fire, connect only to a circuit provided with branch circuit overcurrent protection for 30 amperes rating in accordance with the National Electric Code, ANSI/NFPA 70.
- **CAUTION:**Maximum ambient temperature 40℃" (or "0 ~ 40℃" for Ambient Operation).
- **CAUTION:**Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.

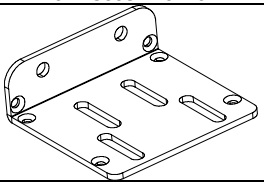
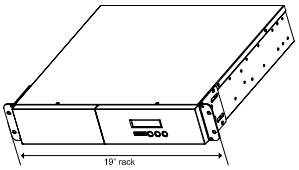
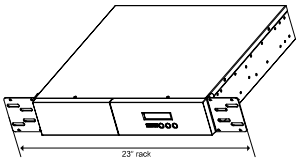
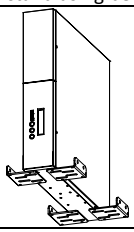
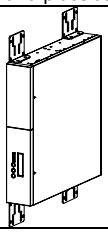
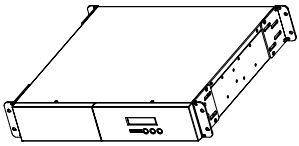
2. Introduction

The information provided in this manual covers Online 700VA-3000VA Uninterruptible Power Supply (UPS). This manual contains basic functions, operating procedures, and emergencies, also including information on how to ship, store, handle, and install the equipment. Only detailed requirements of the UPS units described herein. The installation must carry out according to this manual. The electrical installation must further comply with local legislation and regulations.

3. Installation

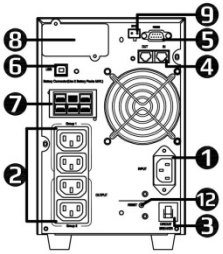
3.1 Hardware Installation

Please install the vertical and wall-mounted types of units according to the following

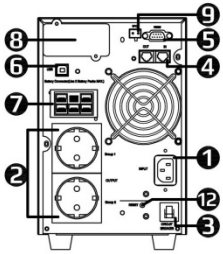
5 in 1 RACK-MOUNT BRACKETS: 94A-VM1K-000*4, 641-5008-410*16	19' Rack Parts EIA 310C Stander Rack	23' Rack Parts EIA 310 Stander Rack
		
Tower Mount the bracket with screw and stand as fig below	Wall mount Mount the bracelet at the side with screw and place as fig below	Rear bracket Mount the bracket at the rear of UPS or battery
		

3.2 Rear panel view (For reference only)

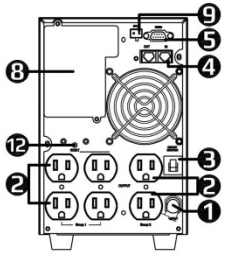
Tower 700-1.5KVA



IEC Type

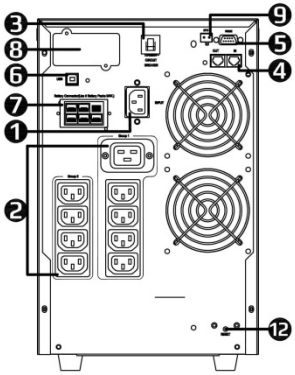


Schuko Type



NEMA Type

Tower 2-3KVA



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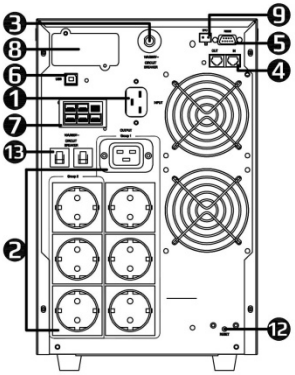
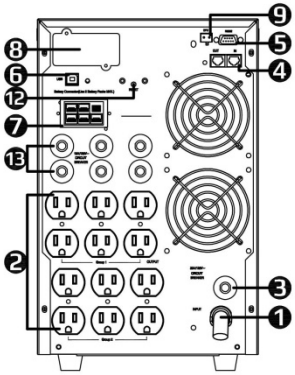


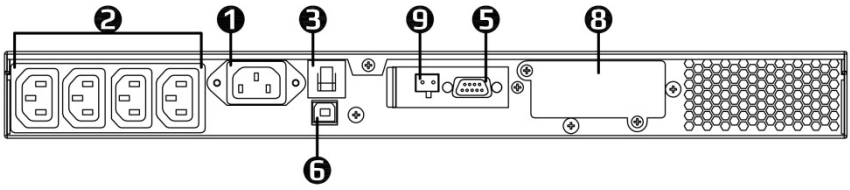
Schuko Type



NEMA Type

❶ Input
❷ Outlet
❸ Input breaker
❹ Network transient protector
❺ RS232 port
❻ USB (optional)
❼ External battery port (optional)
❽ Interface port (optional)
❾ EPO (optional)
❿ Maintenance switch (optional)
⓫ Terminal block
⓬ Reset
⓭ Outlet breaker

Rack(1U) 700-1KVA



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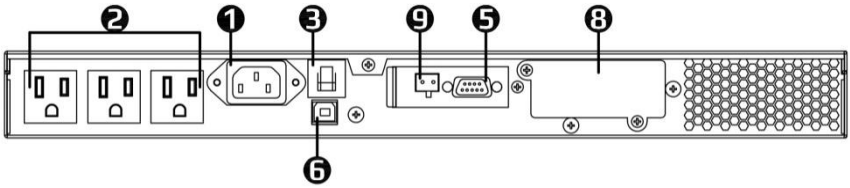
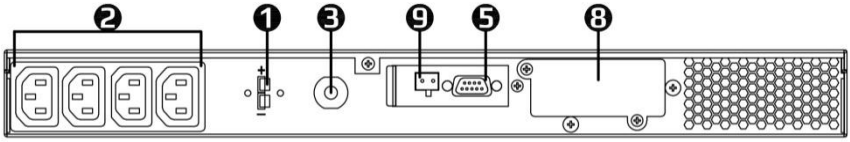


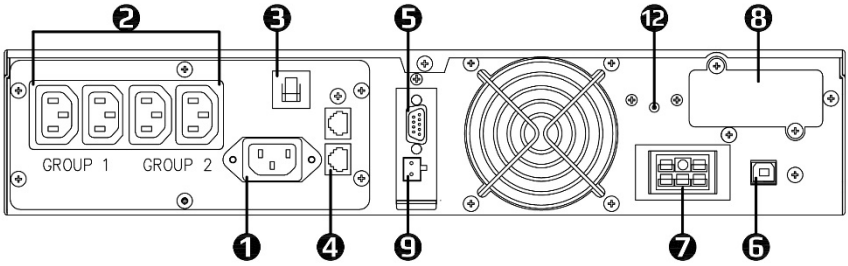
NEMA Type



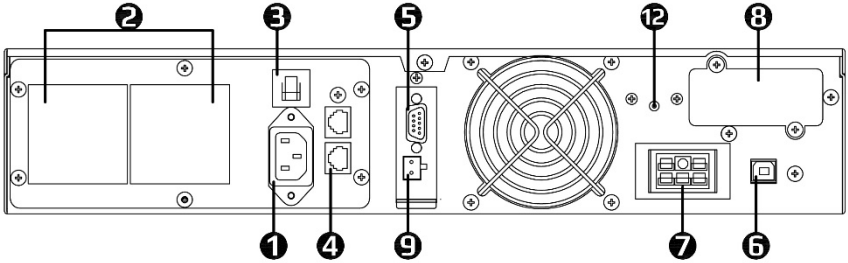
INVERTER

❶ Input
❷ Outlet
❸ Input breaker
❹ Network transient protector
❺ RS232 port
❻ USB (optional)
❼ External battery port (optional)
❽ Interface port (optional)
❾ EPO (optional)
❿ Maintenance switch (optional)
⓫ Terminal block
⓬ Reset
⓭ Outlet breaker

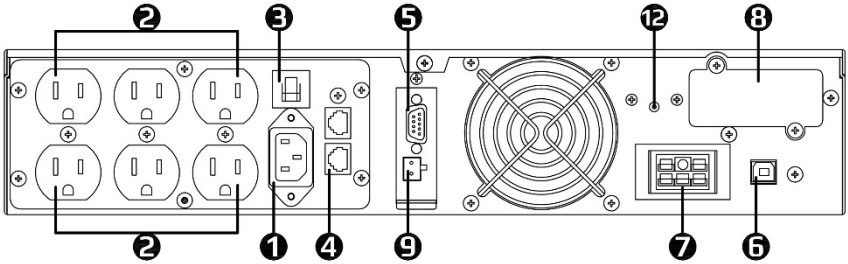
Rack(2U) 700-1.5KVA



IEC Type

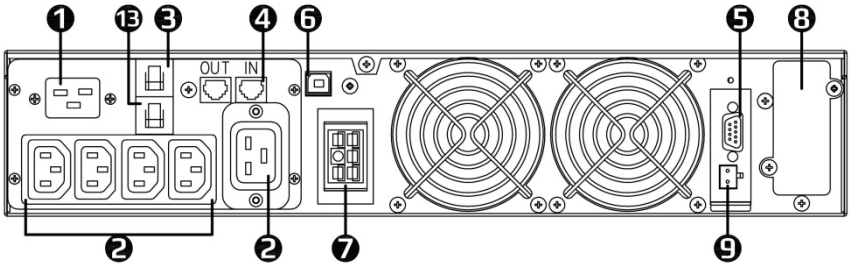


Schuko Type

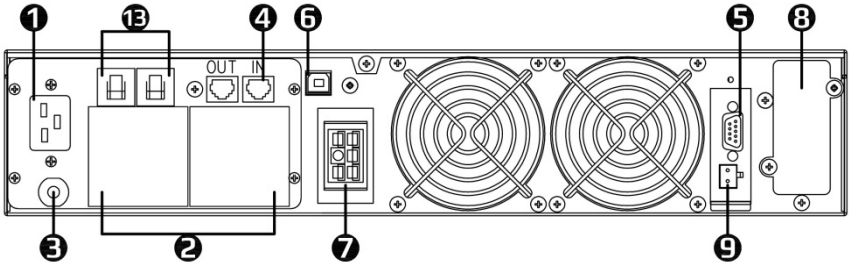


NEMA Type (220V)

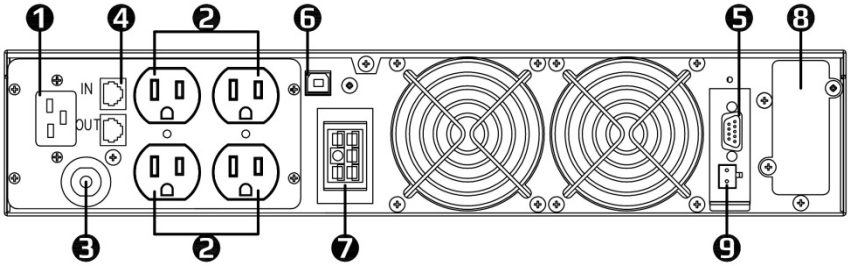
Rack(2U) 2K-3KVA



IEC Type

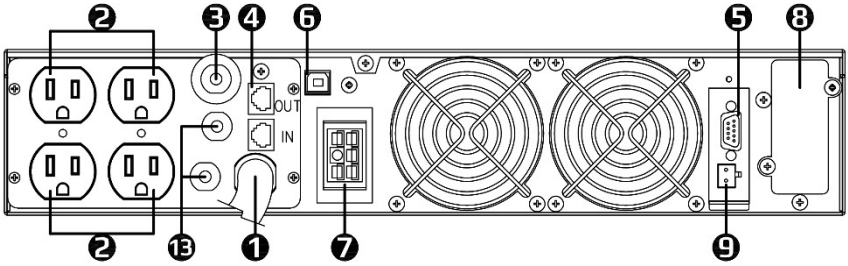


Schuko Type



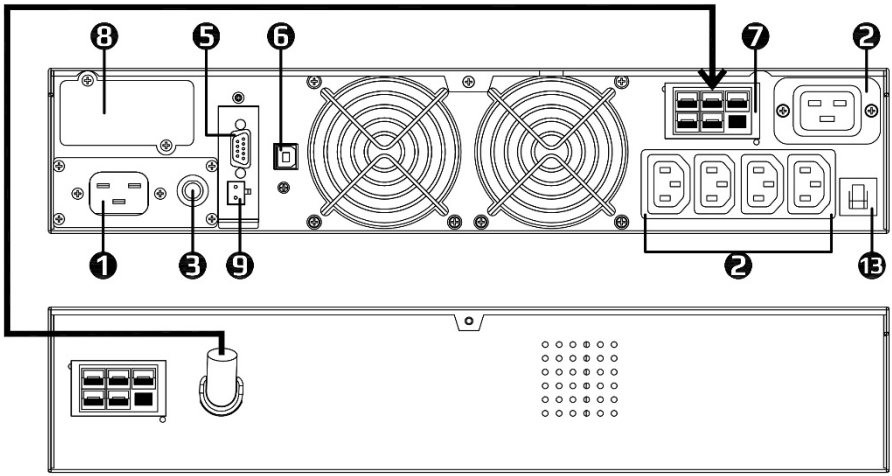
NEMA Type (220V)

Rack(2U) 2K-3KVA



NEMA Type (110V)

Rack(2U+2U) 2K-3KVA



IEC Type

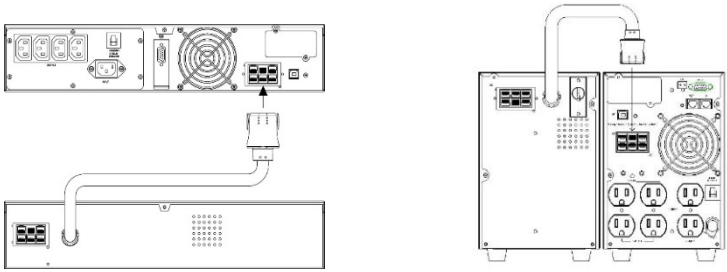
***Figures only display available function; functions are not on unit if not marked.**

EPO port

A customer-supplied switch can remotely use to open the EPO connection and shut off UPS output. Since EPO shuts down the UPS immediately without regular procedure and monitoring, UPS will require a manual restart to restore operation.

3.3 Connection to External Battery Pack

- External battery connections shall install by service personnel **only**.
- Please read safety instructions first before proceeding.
- Ensure UPS disconnects from all main and loads before attempting.
- Locate the battery connector, then use **only** factory-supplied or authorized battery cable provided to connect the UPS with the battery as fig below.
- Connect the second battery to the first one if more than one is needed.



- **Fig.** Example of connecting to an external battery pack

3.4 Connection to Main and Load

- Follow all installation and safety instructions very carefully; failure to do so may cause hazardous situations to personnel and equipment.
- Ensure the main power voltage matches with UPS. (110V/220V)
- For electrical installation, closely observe the nominal current rating of the source.
- Check the equipment's power requirement to prevent overloading situations.
- Do not connect devices that draw either massive power shortly or half-wave rectified current - such as hairdryer, vacuum cleaner, laser printer, and plotter.

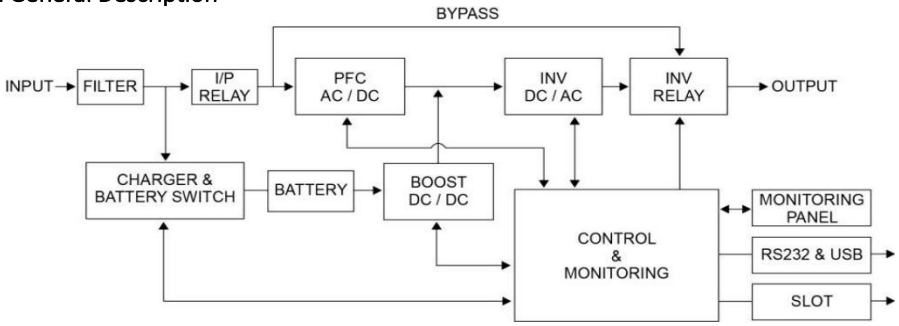
Note: Although you may use the UPS immediately, maximum back up time will not be available yet. It is recommended to charge the batteries for a minimum of 8 hours before use.

- Connect the input cable to the UPS and the other end to the mains.
  The battery will automatically charge when connecting to the main power.
- After charging the UPS, connect the load to the UPS.
- Should computer or alarm connections be used, refer to the UPS monitoring connection chapter for further detail.
- The installation is completed.
- **Note**: (For Schuko) If the unit instantly shows "set wiring fault," please rotate the connector. See troubleshooting for detail.

4. Operation

Necessary information for the operation of the unit is covered in this chapter. Normally UPS runs automatically, but on a few occasions such as just after installation, all procedures are described herein.

4.1 General Description



As double conversion On-line UPS, it can convert clean single-phase power to support your critical system. The diagram of UPS is as shown above.

- Input filter reduces transients and interference from the main
- With PFC AC/DC, AC-power is rectified and regulated to DC power
- DC power is converted to AC in the inverter passing it on to the load

Line-Mode/Battery-Mode

UPS will operate in Line-Mode that supports power and charge battery while connected to power. During a power failure, the UPS will switch to Battery-Mode, in which power is maintained from the battery. In case of failure time exceed Battery-Mode duration, UPS will shut down until voltage return to prevent battery discharge.

Free Run Mode

Free Run Mode provides a wider input frequency range when input frequency does not match the selected range (user adjustable). Free Run Mode enlarges input frequency acceptance up to 45Hz ~ 65Hz but fixes output frequency to 50Hz(220V) and 60Hz(110V) with ±0.25Hz. Free Run Mode designs for large power variation. It is activated in default and can run with Line-mode simultaneously.

High-Efficiency Mode

High-Efficiency Mode designs to minimize power loss and power consumption. Whenever power is stable, UPS will automatically switch to bypass for efficiency. When any irregularity is detected, Line-Mode will reactivate immediately. Switching occurs when the input voltage is outside ±10% of nominal (±15% selectable), input frequency is outside of ±3Hz, or when no input line is available.

You can also activate this mode from the LCD panel. Refer to UPS configuration.

Diagnostic Test

The diagnostic test automatically executes to check and report UPS status. While the advanced battery management system monitors the conditions of the batteries, it sends early warnings if a battery replacement is needed. Diagnostic tests can also be performed by manual control.

Generator mode

This mode designs for highly unstable power. In this mode, UPS normal operation will not transfer to bypass to prevent load damage and frequent battery discharge. UPS will also fix output frequency to 50Hz(220V) or 60Hz(110V) with ±0.25Hz. Users can set the UPS to bypass/shutdown whenever UPS malfunction occurred.

Generator Mode can activate from the LCD panel too.

4.2 System Configuration

The UPS device and battery make up the system. Depending on site and load requirements, certain additional options are available as tailored solutions. Please consider the following when planning your UPS system:

- The total demand for the protected system shall dictate the output power rating (VA). When measuring demand, please allow a margin for future expansion and calculation error.
- Battery-mode duration needs dictate the battery size. If the load is less than the UPS nominal power rating, then the actual backup time is longer.
- The following options are available:
  - Connectivity options (relay card, SNMP/WEB card)
  - External battery packs
  - Transformer cabinets
  - Maintenance bypass switches

4.3 Panel overview

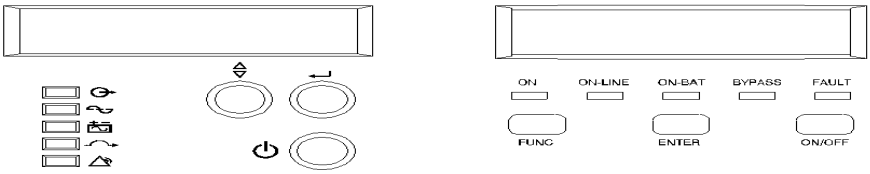


Fig. Control panel and display

4.4 UPS Control

Control panel functions

Display	Function Description	Display	Function Description
LED Display			
	UPS ON (Green) The LED will display in green when UPS is on		On-Bat(Yellow) UPS is operating with battery power LED will display in Yellow
	On-Line(Green) UPS In LINE/Static Bypass mode, a green light indicates output voltage exists		Bypass (Yellow) Bypass mode operating LED will display in yellow
	Fault:(Red) Internal Fault Occur, LED will flash in red with an audible alarm		
LCD Display			
Line Mode	UPS is operating with Main power	Battery Mode	UPS is operating with battery power
Bypass Mode	UPS on Bypass mode	Fault	UPS Fault Information Refer to troubleshooting for detail
Button Display			
	ON/OFF Button To turn UPS on and off, refer to Button Operation		Status / Enter Button To check UPS status and confirm settings, refer to Button Operation
	Function Button To check UPS status and confirm settings, refer to Button Operation		

Button operation

Cold Start function

When the main power is disconnected from UPS, it is capable of starting with battery power for users' needs. Simply start the UPS as the instruction below.

Note: To avoid accidental battery discharge, cold start function is not available until the initial connection to the main power.

"**ON/OFF**" **button**

(a) Press and hold the "⏻" button for 3 seconds to turn on the UPS.

(b) Press and hold the "⏻" button for 3 seconds to turn off the UPS while UPS is working,

2. "Status/Enter" button ↵

Use this button to check the content and confirm the selection of UPS.

(a) Press and hold "↵" button for 1 second to check UPS contents.

(b) Display each status by pressing once. There are **10** statuses available for users.

(c) **Enter** function only uses during settings. Check the"▲▼" button for more detail.

(d) If UPS idles for 20 seconds, the display will return to the main status.

3. "Settings or Selection" button ▲▼

Use this button and "ENTER" button to execute the setting

(a) Press and hold the "▲▼" button for 1 second to enter the configurations of UPS.

(b) Display each setting by pressing the "▲▼" once. There are 7 settings available for users.

(c) Press the "↵" button to enter the function.

(d) Press the "▲▼" button to select your option.

(e) Press the "↵" button to confirmation (YES/NO) of your selected option.

(f) Press the "↵" button again to confirm and enable your function.

(g) If UPS is idle over 10 seconds, the display will return to the main status.

Turn on the UPS

- Ensure installation is correct and successful, and connect teh input power cable to a well-grounded outlet.
- Push the "on/off" bottom on the front panel for 3 seconds.
- UPS should start its inspection of internal function, main synchronization, and inverter start-up. The LCD panel will display "Line-Mode" indication and power should start supplying via the outlets
- Switch on the loads

Shut Down the UPS

- Shut down and turn off all the loads
- Press the "On/Off" for 3 seconds. UPS will shut down with an alarm
- (If applicable) To avoid electrical hazards, please turn off the internal/external input breaker after the display disappeared, and only the backlight remains. Then, turn off any external battery breaker and wait till all fans completely shut down.
- In an emergency, use the EPO located on the rear panel.

4.5 UPS Status Display

UPS status shows in normal display mode. From here, you can go to the UPS meter display by pressing the button. Various measurements are available through UPS meters display; Pressing the button will scroll through the following meters.

LCD message	Description
O/P VOLT= xxx, xV	Shows Output AC voltage
O/P FREQ= xx, x Hz	Shows Output Frequency
I/P VOL T= xxx, xV	Shows Input AC voltage
I/P FREQ= xx, x Hz	Shows Input Frequency
BAT VOLT= xx,xV	Shows Battery Voltage

O/P LOAD%= xx%	Shows Load % of max load
O/P W= xW	Shows Output Watts
O/P VA= xVA	Shows Output VA
O/P CURR= xA	Shows Output Current
BACKUP TIME= xx min	Shows Estimated Backup time in minutes
BAT CHARG= xx%	Shows the approximate percentage of Battery capacity
TEMPERATURE= xxC	Shows approximate ambient temperature
BAT PACK NUM= x	Shows External Battery Pack Number
RATING = xxxxVA	Shows UPS Rating
CPU VERSION xx.x	Shows CPU Version

4.6 UPS Configuration

Caution: Factory default settings do not necessarily have to be changed, although you are free to tailor the UPS as your specific needs.
Here are the procedures to enter configuration mode

Settings	LCD	Selection	Factory Default
Output Voltage Setting	O/P V Setting	[208V][220V][230V][240V]	[230V]
		[100V][110V][115V][120V][127V]	[120V]
Input/Frequency	I/P F Setting	[±2%] [±5%] [±7%]	[±5%]
Input/Bypass Voltage	I/P Bypass Set	[±10%][+10/-15%][+15/-20%]	[+10/-15%]
Free Run Mode	Free Run Set	[On][Off]	[On]
Bypass Enable/Disable at Free Run Mode	Bypass disable	[Enable] [Disable]	[Disable]
He Mode Setting	HE Mode Set	[On] [Off]	[Off]
Force Manual Bypass*	Manual bypass	[On] [Off]	[Off]
Management of load groups	Outlet Setting	[1&2 ON] [1OFF 2ON] [1&2 OFF] [1ON 2OFF]	[1&2 ON]
Do Battery Test	Battery Test		
Silence Function	Silence Set	[On] [Off]	[Off]
Number of external battery packs	Bat Cabinet Set	[0] (Internal only) [1] (1 External cabinet) [2] (2 External cabinets)	[0]
Site wiring alarm	Sit Fault Set	[Enable] [Disable]	[Disable]
Select Language	Language	[English] [German] [French] [Spanish] [Italian]	[English]
Set Generator Mode	Generator	[On] [Off]	[Off]
Set RS232 communication	RS232 Control	[Enable] [Disable]	[Enable]

UPS Manual test

Manual tests for UPS or battery can be conducted from the UPS configuration as well and are functional even when the UPS is not charging the battery.

Simple test: It's recommended to conduct a simple simulation test when

1. The first use of UPS.
2. Adding new loads.
3. 6 months' regular check-up

Switch on the UPS and wait for the power indicator to light up, then unplug UPS to simulate the main power failure.

Manual Battery Test: Scroll thought configuration until the Manual Battery test function displayed. Then select by pressing **"Enter**" Twice

5. UPS Monitoring Connection

UPSMON Pro software (Or other power monitoring software) can further utilize the UPS with warning reminders, monitoring, control shut down, and setting adjustments.
Using monitoring features requires connecting the UPS to a computer or the internet

5.1 Connect UPS to Computer with USB (Optional)/RS232 port.

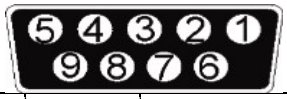
- Locate the USB/RS232 port on UPS.
- Connect with factory-provided/approved communication cable.
- Ensure your computer can install and support power management software.
- **Note**: Either USB Port or RS232 port, only one port will function at a time.

5.2 Connect UPS with interface Slot(Optional)

- **SNMP Card** allows UPS management and monitoring over a network or internet
- For more information, please contact for technical assistance.
- **AS400 Card** allows voltage free relay contacts.

5.3 UPS RS232 PORT

- The RS-232 interface uses a 9-pin female D-sub connector.
- The RS-232 port carries the data about utility, load, and UPS.
  The interface port pins and their functions are in the following table.



Pin #	Signal	Direction	Function
2	TxD	Output	TxD Output
3	RxD	Input	RxD / Inverter Off Input
5	Common		Common
6		Output	AC Fail Output
8		Output	Low Battery Output
9		Output	12VDC Power

Caution! Max rated values 12VDC

Load segments

The power management software controls the sets of receptacles known as load segments, which provide an organized shutdown and startup for the equipment. Less critical loads can be turned off during power outage to save battery power for critical loads. Each segment can be viewed and changed by the LCD panel. You can also identify the Load segment at the rear panel. Read the Power management manual for more detailed information.

6. Maintenance

Please read the following instruction to ensure your safety and maintain a longer product lifetime. This section contains detailed information about moving, maintaining, and placing the UPS. With a minimal amount of maintenance, you can expect the UPS to function smoothly.

6.1 Transportation

Please handle UPS with extreme caution since a high amount of energy is within the batteries. Keep the unit in position as marked on the packaging and never drop the unit.

6.2 Storage

Please read the following instructions if the UPS is not installed immediately:

- Store the equipment as is in its original packing and shipping carton.
- Do not store in temperatures outside the range of +15°C to +25°C.
- Protect the equipment from wet or damp areas and moist air.
- To maintain the vitality of the batteries, please recharges the UPS at least 8 hours every six months.

6.3 Operation

CAUTION: Ensure that all environmental concerns and requirements are met according to safety instruction; otherwise, the safety of installation personnel cannot be guaranteed since the unit may malfunction.

- Please ensure no flammable substances such as gases or fumes.
- Avoid extreme temperature and humidity. Protect the equipment from moisture.
- Ensure there is enough space (300mm or above recommended) at the rear and side of UPS for proper ventilation.
- Ensure that the front of the UPS remains clear for user operation.
- **Only** authorized agents or technicians may service the unit.
- **Do not** open the UPS cabinet. Components may contain hazardous or fatal voltage.
- Output receptacles may carry live voltage without connecting to the main power.
- Pay special attention to UPS air inlet; **do not** let it coved by dust.

6.4 Battery

6.4.1 Maintenance

The reliability of the battery is heavily related to the environmental issue.

At the temperature of 25 degrees Celsius, A regular 6-12 months' checkup is advised.

6.4.2 Replacement

Caution: Read safety instruction before proceeding.

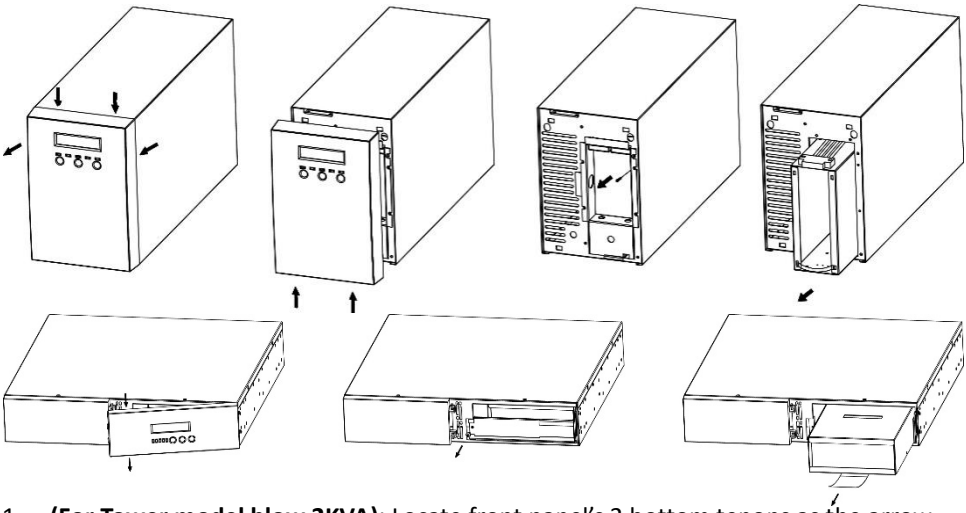
In all the following steps and factory stander:

The **black** battery cable is the **negative** (-) pole

The **red** battery cable is **positive** (+) pole

Caution: Avoid battery positive port directly contacts with metal. (including UPS cover)

Caution: Do not remove the battery during battery-mode.



1. **(For Tower model blow 2KVA)**: Locate front panel's 2 bottom tenons as the arrow indicated; Press the tenon and pull out lightly. Then, push the top of the front panel downward and pull to remove the panel.
   (For Tower model 2~3KVA)
   Hold the top two corners of the front panel as arrow indicated; Pull out lightly then push down to unlock the bottom tenon.
   (For Rack model)
   From the middle of the front panel, hold the display-side inner corner and pull out lightly. Then, push sideways to unlock the outer tenon.
2. Remove the battery cover and battery cartridge.
3. Replace with the same type and quantity of battery.
4. Reinstall new battery cartridge back in the UPS (**For Tower Model**) Ensure that the battery terminal connects to a matching terminal. (Black to black, and Red to Red)
5. Reinstall the battery cover and front panel.
   Note: Please ensure the battery correctly connects with the attached port.
   Note: Do not forcefully pull out front panel, the tenon may be damaged
   Note: UPS's voltage will drop to 48V dc when the battery removed in all models.

6.4.3 External battery pack

The following chart is the recommended specification of the external battery pack/cabinet. For other options, please ensure that the option meets safety instruction and local legislation.

Note: when power supplies by external batteries, output loads will be limited to 90% for overall power generation.

Model		1000VA	1500VA	2000VA	3000VA
Battery type		Lead-acid 12V/7AH			
Number of battery	Tower	6		12	
	RM2U				
Backup time/full load (battery pack only)		Approx. 13-15min	Approx. 10-13min	Approx. 13-15min	Approx. 10-13min
Recharge time		<8 h to 90%			
Dimensions W x D x H	Tower	152 x 420 x 237	152 x 420 x 237	225 x 420 x 358	
	RM2U	428 x 425 x 84	428 x 425 x 84	428 x 631 x 84	
Net Weight	Tower	18.8kg	18.8kg	34.6kg	34.6kg
	RM2U	20.7kg	20.7kg	37.3kg	37.3kg

Maintenance Bypass Procedure

Maintenance

1. Press the “ON/OFF” button to turn on UPS. It will operate in “Line-Mode.”
2. Press the “Function” button for 3 seconds and toggle to “Manual Bypass.”
3. Press “Enter” to select. You will see the default setting “OFF” displayed in LCD.
4. Use the “Function” button again to set Bypass on “ON” and press “Enter” again. UPS will go on “Manual Bypass Mode” with display indication.

Restore

1. Check the UPS display; it should show “Manual Bypass Mode” with indications
2. Press the” Function” button for 3 seconds and toggle to “Manual Bypass.”
3. Press “Enter” to select. You will see the setting as “ON” displayed in LCD.
4. Use the “Function” button again to set Bypass on “OFF” and press “Enter” again. UPS will return to Line-Mode.

APP-A. Trouble Shooting

Troubleshooting procedures give simple instructions in determining UPS malfunctions. Start the troubleshooting procedure if you witness any alarm indication.

Alarm

The UPS has an audible alarm. When different situations occurred, UPS will alert users with display and buzzer. Refer to the chart below for detail information

Silencing Alarm

Here is the instruction to mute the active alarm or future alarm notification:

Note: During battery-mode, if the battery is low on power, the alarm will sound regardless of silent-mode enable/disable.

Silencing during Battery-Mode: Press any button when the alarm occurred.

Silent Mode: configure on LCD to enable/disable all audio malfunction warning.

Situation Display	Alarm	Description & Solution
High Output Voltage	**Constant beep**	High output voltage Please contact for technical assistance
Low output Voltage	**Constant beep**	Low output voltage Please Contact for technical assistance
Output short	**Constant beep**	Output short circuit Please Contact for technical assistance
Bus fault	**2 beep/seconds**	High internal DC bus Voltage Please contact for technical assistance
Over-temperature	**2 beep/seconds**	High surrounding temperature Ensure fan operational and ventilation clear Contact for technical assistance If the problem emains
Set wiring fault	**1 beep/seconds**	Wrong UPS input wiring between natural and line, turn the plug 180 degrees and plug it in
Output overload	**2 beep/seconds**	The connected load power requirement exceeds UPS provision. UPS will switch to bypass mode when overload in Line-mode. Shut off less essential equipment connected to UPS. UPS automatically switches back to normal when the problem resolves
Over-charge	**Constant beep**	Battery overcharged, Turn off UPS and contact for technical assistance
Charger failure	**N/A**	The charger has failed Contact for technical ssistance
Battery failure	**3 beep/5 seconds**	The battery has failed Contact for technical assistance
Line abnormal	**1beep/seconds**	Wrong AC line backed up during auto restart Please reconfirm your main power and frequency
Battery test	**N/A**	UPS battery test processing UPS will return to normal operation after completion No action needed
Battery mode	**1 beep/5 second with display**	The unit is operating with battery power secure your data and perform a controlled shutdown
Low battery	**2 beep/5 seconds with display**	UPS will shut down due to low battery voltage The unit will restart automatically when sufficient power returns

APP-B Technical Specifications

For all model
* While 208V output, capacity will be derated to 90%.
** Specifications are subject to change without further notice.
** Specifications are for reference, please refer to information based on real product.

Model		700	1000	1500	2000	3000
Configuration						
Capacity (VA/Watts)		700VA/490W	1000VA/700W	1500VA/1050W	2000VA/1400W	3000VA/2100W
Form		Tower Type				
Phase		Single Phase				
Energy Saving		Yes - ECO Mode Efficiency >94%				
Input						
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 VAC				
Input Voltage Range (110 Vac)		60 - 144 VAC, < 40% Load 70 - 144 VAC, < 70% Load 80 - 144 VAC, < 100% Load				
Input Voltage Range (220 Vac)		120 - 276 VAC < 40% Load 140 - 276 VAC < 70 % Load 160 - 276 VAC < 100% Load				
Input Frequency Range		50 / 60 Hz (Auto Sensing)				
Input Power Factor		>0.97				
Cold Start		Yes				
Output						
Rated Power Factor		0.7				
Waveform		Pure Sine Wave				
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 Vac ± 2%				
Frequency		50 / 60 Hz ±0.25 Hz				
Transfer Time		0 ms				
Harmonic Distortion		≦ 3% THD at Linear Load				
Crest Factor		3 : 1				
EPO Function		Yes				
Protection						
Overload	Line Mode	110% - 125% for 60 seconds : 125% - 150% for 10 seconds				
	Battery Mode	> 110% for 10 seconds				
Surge Protection		IEC 61000-4-5 Level 3				
Bypass		Internal Bypass (Automatic and Manual)				
Short Circuit Protection		UPS Output Cut Off Immediately				
Battery						
Type & Quantity		12V 7Ah x 2	12V 7Ah x 3	12V 9Ah x 3	12V 7Ah x 6	12V 9Ah x 6
Sealed, Maintenance Free		Yes				
Typical Recharge Time		4 hr to 90%				
External Battery Module		Option				
External Battery Connector		Option				
Management & Communication						
Indicator		LCD Control Panel				
Communication Port		RS 232, USB B type, SNMP card (Option)				
SNMP Slot		Option				
Audible Alarms		Yes				
Physical						
Dimensions (WxDxH) (mm)		152 x 420 x 237			225 x 420 x 360	
Weight (kgs)		15.3	16	17.7	30.6	33.5
Shipping Dimensions (mm)		280 x 545 x 355			340 x 526 x 485	
Shipping Weight (kgs)		17.5	17.4	19.5	33.2	35.9

Model		700 RM	1000 RM	1500 RM	2000 RM	2000 RM (2U+2U)
Configuration						
Capacity (VA)		700 VA	1000 VA	1500 VA	2000 VA	2000 VA
Capacity (Watts)		490 W	700 W	1050 W	1400 W	1400 W
Form		Rack Type				
Phase		Single Phase				
Energy Saving		Yes - ECO Mode Efficiency >94%				
Input						
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 VAC				
Input Voltage Range (110 Vac)		60 - 144 VAC, < 40% Load 70 - 144 VAC, < 70% Load 80 - 144 VAC, < 100% Load				
Input Voltage Range (220 Vac)		120 - 276 VAC < 40% Load 140 - 276 VAC < 70 % Load 160 - 276 VAC < 100% Load				
Input Frequency Range		50 / 60 Hz (Auto Sensing)				
Input Power Factor		>0.97				
Cold Start		Yes				
Output						
Rated Power Factor		0.7				
Waveform		Pure Sine Wave				
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 Vac ± 2%				
Frequency		50 / 60 Hz ±0.25 Hz				
Transfer Time		0 ms				
Harmonic Distortion		≦3% THD at Linear Load				
Crest Factor		3 : 1				
EPO Function		Yes				
Protection						
Overload	Line Mode	110% - 125% for 60 seconds : 125% - 150% for 10 seconds				
	Battery Mode	> 110% for 10 seconds				
Surge Protection		IEC 61000-4-5 Level 3				
Bypass		Internal Bypass (Automatic and Manual)				
Short Circuit Protection		UPS Output Cut Off Immediately				
Battery						
Type		12V 7Ah	12V 7Ah	12V 9Ah	12V 7Ah	12V 7Ah
Quantity		2	3	3	6	6
Sealed, Maintenance Free		Yes				
Typical Recharge Time		4 hr to 90%				
External Battery Module		Option				
External Battery Connector		Option				
Management & Communication						
Indicator		LCD Control Panel				
Communication Port		RS 232, USB B type, SNMP card (Option)				
SNMP Slot		Option				
Audible Alarms		Yes				
Physical						
Power Module	Dimensions (WxDxH) (mm)	428x525x44 (1U)	428x425x84 (2U)	428x525x44 (1U)	428x425x84 (2U)	428x425x84 (2U)	428x635x84 (2U)	428 x 425 x 84
	Weight (kgs)	15.5	14.6	15.5	17.7	19.1	31.7	10.5
	Shipping Dimensions	547x645x168	546x552x206	547x645x168	546x552x206	546x552x206	550x750x220 (2U)	546 x 552 x 206
	Shipping Weight	17.5	16.4	17.5	19.9	21.3	34.7	12.5
Battery Module	Dimensions (WxDxH) (mm)	-	428x425x84 (2U)	-	428x425x84 (2U)	428x425x84 (2U)	428x635x84 (2U)	428 x 425 x 84
	Weight (kgs)	-	16.3	-	16.3	16.3	43.5	21

Model		3000 RM	3000 RM (2U+2U)
Configuration			
Capacity (VA)		3000 VA	3000 VA
Capacity (Watts)		2100 W	2100
Form		Rack Type	
Phase		Single Phase	
Energy Saving		Yes - ECO Mode Efficiency >94%	
Input			
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 VAC	
Input Voltage Range (110 Vac)		60 - 144 VAC, < 40% Load 70 - 144 VAC, < 70% Load 80 - 144 VAC, < 100% Load	
Input Voltage Range (220 Vac)		120 - 276 VAC < 40% Load 140 - 276 VAC < 70 % Load 160 - 276 VAC < 100% Load	
Input Frequency Range		50 / 60 Hz (Auto Sensing)	
Input Power Factor		>0.97	
Cold Start		Yes	
Output			
Rated Power Factor		0.7	
Waveform		Pure Sine Wave	
Voltage		100 / 110 / 115 / 120 Vac or 208 / 220 / 230 / 240 Vac ± 2%	
Frequency		50 / 60 Hz ±0.25 Hz	
Transfer Time		0 ms	
Harmonic Distortion		≦3% THD at Linear Load	
Crest Factor		3 : 1	
EPO Function		Yes	
Protection			
Overload	Line Mode	110% - 125% for 60 seconds : 125% - 150% for 10 seconds	
	Battery Mode	> 110% for 10 seconds	
Surge Protection		IEC 61000-4-5 Level 3	
Bypass		Internal Bypass (Automatic and Manual)	
Short Circuit Protection		UPS Output Cut Off Immediately	
Battery			
Type		12V 9Ah	
Quantity		6	
Sealed, Maintenance Free		Yes	
Typical Recharge Time		4 hr to 90%	
External Battery Module		Option	
External Battery Connector		Option	
Management & Communication			
Indicator		LCD Control Panel	
Communication Port		RS 232, USB B type, SNMP card (Option)	
SNMP Slot		Option	
Audible Alarms		Yes	
Physical			
Power Module	Dimensions (WxDxH) (mm)	428x635x84 (2U)	428 x 425 x 84
	Weight (kgs)	31.7	10.5
	Shipping Dimensions	550x750x220 (2U)	546 x 552 x 206
	Shipping Weight	34.7	12.5
Battery Module	Dimensions (WxDxH) (mm)	428x635x84 (2U)	428x425x84
	Weight (kgs)	43.5	21