

NUMERIC®

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USER AND INSTALLATION MANUAL

**NEW ENERGY
TO POWER**

ONFINITI+
5 - 10 kVA Online UPS
Uninterruptible Power Supply System



www.numericups.com

PREFACE.

Congratulations! We are delighted to welcome you to our family of customers. Thank you for choosing Numeric as your power backup solution provider. You now have access to our extensive network of 254 service centers across the country.

Since 1984, Numeric has been empowering its clients to optimize their businesses with top-notch power solutions that promise seamless and clean power with controlled environmental footprints.

We look forward to your continued patronage in the years to come! This manual provides general information regarding the installation and operation of ONFINITI+.

ONFINITI+ from Numeric is a true online double-conversion UPS, available from 6-10kVA, with and without an isolation transformer.



Please strictly adhere to all warnings and operating instructions provided in this manual. Ensure to store this manual properly and carefully read the following instructions before installing the unit. Do not operate this unit until you have thoroughly read through all safety information and operating instructions.

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Introduction

Onfiniti+ from Numeric is a true on-line double conversion UPS available from a range of 5, 6, 7.5 and 10 kVA, with and without a transformer. Onfiniti+ is easy to install and is a reliable power solution backed by the widest service support.

This user manual covers the UPS listed below:

1. Onfiniti+ 5 kVA FM and Onfiniti+ 5 kVA FMI
2. Onfiniti+ 6 kVA FM and Onfiniti+ 6 kVA FMI
3. Onfiniti+ 7.5 kVA FM and Onfiniti+ 7.5 kVA FMI
4. Onfiniti+ 10 kVA FM and Onfiniti+ 10 kVA FMI

Please verify the model of the UPS you have purchased before you begin your installation.

1. Safety and EMC instructions



Please carefully read the following user manual and safety instructions before installing or using the unit.

1-1. Transportation and Storage

- Please transport the UPS system only in the original package to protect against shock and impact.
- The UPS must be stored in a ventilated and dry room.

1-2. Preparation

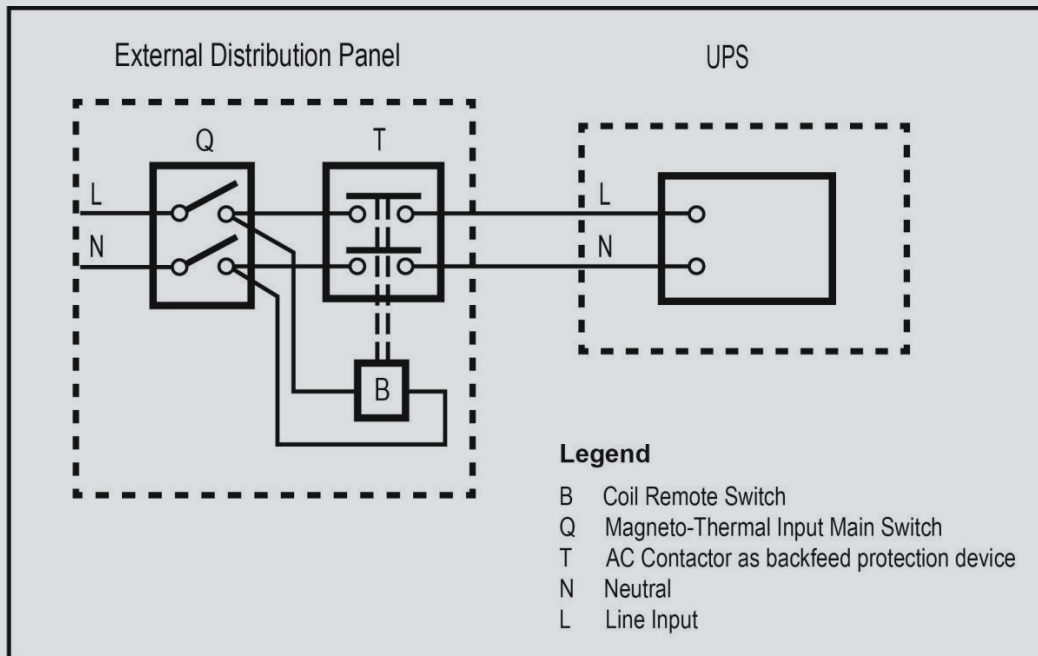
- Condensation may occur if the UPS system is moved directly from cold to warm environment. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate the environment.
- Do not install the UPS system near water or in moist environments.
- Do not install the UPS system where it would be exposed to direct sunlight or nearby heater.
- Do not block ventilation holes in the UPS housing.

1-3. Installation

- Do not connect appliances or devices which would overload the UPS (e.g. big motor-type equipment) to the UPS output sockets or terminal.
- Place cables in such a way that no one can step on or trip over them.
- Do not block air vents in the housing of UPS. The UPS must be installed in a location with good ventilation. Ensure enough space on each side for ventilation.
- The UPS includes an earthed terminal. In the final installed system configuration, ensure equipotential earth bonding to the external UPS battery cabinets.
 - The UPS can be installed only by a qualified maintenance personnel.
 - An appropriate disconnect device should be provided in the building wiring installation to serve as short-circuit backup protection.
 - An integral single emergency switching device which prevents further supply to the load by the UPS in any mode of operation should be provided in the building wiring installation.
 - Ensure to connect the earth before connecting to the building wiring terminal..
 - Installation and Wiring must be performed in accordance with the local electrical laws and regulations.

1-4. Connection Warnings

- Please note that there is no standard backfeed protection inside. Therefore, isolate the UPS before working according to this circuit. Ensure that the isolation device can safely carry the UPS input current.



- This UPS should relate to **TN** earthing system.
- The power supply for this unit must be single-phase rated in accordance with the equipment nameplate. It also must be suitably grounded.
- Using this equipment in life support applications, where failure could cause life support equipment to fail or significantly affect its safety or effectiveness, is not recommended. Additionally, do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide.
- Connect your UPS power module's grounding terminal to a grounding electrode conductor.
- The UPS is connected to a DC energy source (battery). The output terminals may be live when the UPS is not connected to an AC supply.

Before working on this circuit

- Isolate Uninterruptible Power System (UPS)
- Then check for Hazardous Voltage between all terminals including the protective earth.



Risk of Voltage Backfeed

1-5. Operation

- Do not disconnect the earth conductor cable from the UPS or the building wiring terminals at any time, as this would cancel the protective earth of the UPS system and all connected loads.
- The UPS system features its own internal current source (batteries). The UPS output sockets or output terminal blocks may be electrically live even if the UPS system is not connected to the building wiring outlet.
- To fully disconnect the UPS system, press the 'OFF' button first, and then disconnect the mains.
- Ensure that no liquid or foreign objects can enter the UPS system.
- The UPS can be operated by individuals with no previous experience.

1-6. Standards

* Safety	
IEC/EN 62040-1	
* EMI	
Conducted Emission	IEC/EN 62040-2 Category C3
Radiated Emission	IEC/EN 62040-2 Category C3
*EMS	
ESD.....	IEC/EN 61000-4-2 Level 4
RS.....	IEC/EN 61000-4-3 Level 3
EFT	IEC/EN 61000-4-4 Level 4
SURGE.....	IEC/EN 61000-4-5 Level 4
CS.....	IEC/EN 61000-4-6 Level 3
Power-frequency Magnetic field	IEC/EN 61000-4-8 Level 4
Low Frequency Signals.....	IEC/EN 61000-2-2



WARNING!

This product is designed for commercial and industrial applications. In environments with specific installation restrictions or where disturbances are more prevalent, additional measures may be necessary to prevent disruptions.

2. Installation and Operation

The following are different types of online UPS models: those with isolation transformers and those without isolation transformers.

Model	Type	Model	Type
5KVA FM	Standard model	7.5KVA FM	Standard model
5KVA FMI		7.5KVA FMI	
6KVA FM		10KVA FM	
6KVA FMI		10KVA FMI	

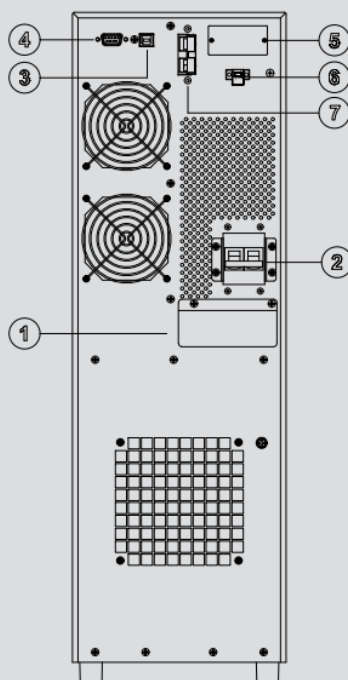
2-1. Unpacking and Inspection

Unpack the package and check its contents. The shipping package includes:

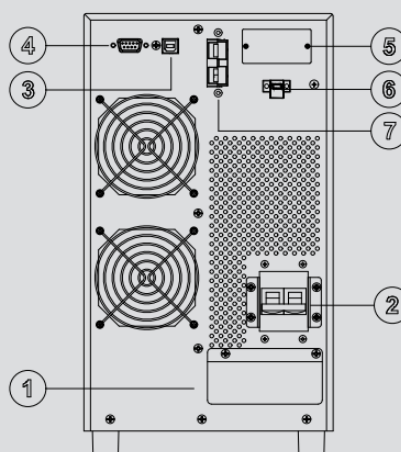
- One UPS
- One RS-232 cable (option)
- One USB cable
- One battery cable

NOTE: Before installation, carefully inspect the unit to ensure that nothing inside the package is damaged during transportation. Do not turn on the unit. If you notice any damage or if any parts are missing, please notify the carrier and dealer immediately. Additionally, keep the original package in a safe place for future use.

2-2. Rear Panel View



5KVA FMI / 6KVA FMI /
7.5KVA FMI / 10KVA FMI



5KVA FM / 6KVA FM /
7.5KVA FM / 10KVA FM

- (1) AC Input/Output terminal
- (2) Input circuit breaker
- (3) USB communication port
- (4) RS-232 communication port
- (5) SNMP Intelligent slot
- (6) Emergency power off function connector (EPO connector)
- (7) External battery connection

2-3. Single UPS Installation

Installation and wiring must comply with local electrical laws and regulations. Ensure that the following instructions are executed by professional personnel.

Step 1 Ensure that the mains wire and breakers in the building comply with the standard rated capacity of the UPS to prevent electric shock or fire hazards.

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

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

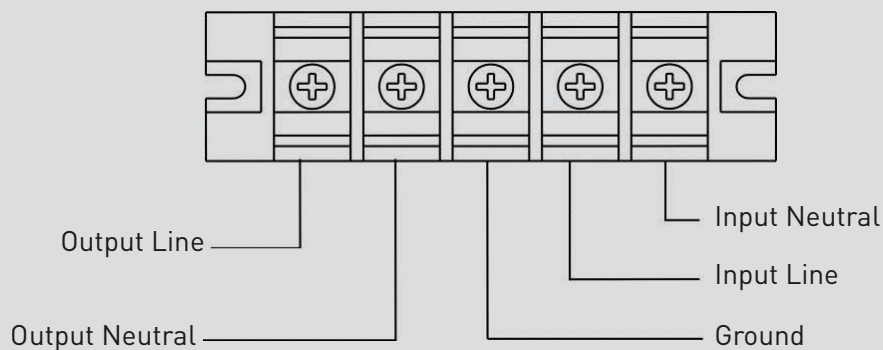
Step 3 Turn off all connected devices before connecting to the UPS.

Step 4 Prepare wires according to the following table:

Model	Wiring spec (SQMM)			
	Input	Output	Battery	Ground
5KVA / 6KVA	4	4	4	4
7.5KVA / 10KVA	10	10	6	6

NOTE: 1) It is recommended to use suitable wire in above table or thicker for safety and efficiency.
2) The selections for color of wires should be followed by the local electrical laws and regulations.

Step 5 Remove the terminal block cover on the rear panel of the UPS. Then, connect the wires according to the following terminal block diagrams. Remember to connect the earth wire first when making wire connections and disconnect the earth wire last when making wire disconnections.



Terminal Block wiring diagram

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

2) Please install the output breaker between the output terminal and the load, and the breaker should be qualified with leakage current protective function if necessary.

Step 6 Put the terminal block cover back to the rear panel of the UPS.

WARNING!



- Ensure a DC breaker or other protection device is installed between the UPS and the external battery pack. If not installed, carefully install it. Switch off the battery breaker before installation.
- Pay close attention to the rated battery voltage marked on the rear panel. If changing the number of battery packs, modify the settings simultaneously. Incorrect battery voltage connection may permanently damage the UPS.
- Pay close attention to the polarity marking on the external battery terminal block. Ensure correct battery polarity connection to prevent permanent UPS damage.
- Verify the correctness of the protective earth ground wiring, including current spec, color, position, connection, and conductance reliability of the wire.
- Verify the correctness of the utility input and output wiring, including current spec, color, position, connection, and conductance reliability of the wire. Ensure correct L/N terminal connections to avoid reverse or short-circuiting.

2-4. Software Installation

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

You may insert provided CD into CD-ROM to install the monitoring software. Follow the on-screen instructions to install the software..

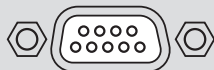
Communication connection

a) Communication port:

USB port



RS-232 port



Intelligent slot



To enable unattended UPS shutdown/start-up and status monitoring, connect one end of the communication cable to the USB/RS-232 port on the UPS and the other end to the communication port of your PC. With the monitoring software installed, you can schedule UPS shutdown/start-up and monitor UPS status through your PC.

The UPS also features an intelligent slot suitable for either SNMP or AS400 card installation. Adding either an SNMP or AS400 card to the UPS provides advanced communication and monitoring options.

NOTE: USB port and RS-232 port can't work at the same time.

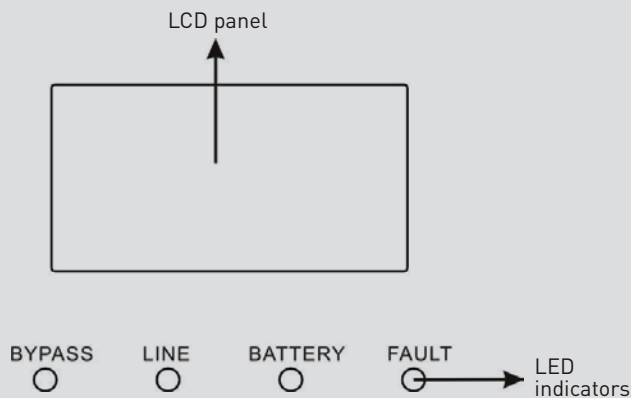
3. Operations

3-1. Button Operation

Button	Function
ON/Enter Button	<ul style="list-style-type: none"> Turn on the UPS: Press and hold the button more than 1s to turn on the UPS. Enter Key: Press this button to confirm the selection in setting menu.
OFF/ESC Button	<ul style="list-style-type: none"> Turn off the UPS: Press and hold the button more than 1s to turn off the UPS. Esc key: Press this button to return to last menu in setting menu.
Test/Up Button	<ul style="list-style-type: none"> Battery test: Press and hold the button more than 1s to test the battery while in AC mode, or CVCF mode. UP key: Press this button to display next selection in setting menu.
Mute/Down Button	<ul style="list-style-type: none"> Mute the alarm: Press and hold the button more than 1s to mute the buzzer. Please refer to section 3-4 "Mute the buzzer" for details. Down key: Press this button to display previous selection in setting menu.
Test/Up + Mute/Down Button	<ul style="list-style-type: none"> Press and hold both buttons simultaneously for more than 1 second to enter or exit the setting menu.

* CVCF mode means converter mode.

3-2. LED Indicators and LCD Panel



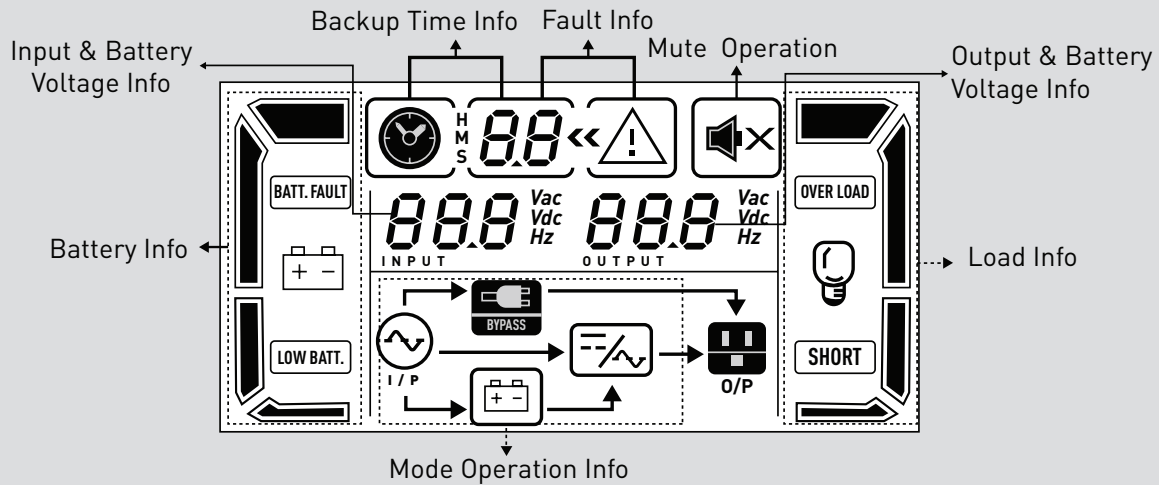
LED Indicators:

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

Mode	LED			
	Bypass	Line	Battery	Fault
UPS Startup	●	●	●	●
Bypass mode	●	○	○	○
AC mode	○	●	○	○
Battery mode	○	○	●	○
CVCF mode	○	●	○	○
Battery Test	●	●	●	○
Fault	○	○	○	●






Note: ● means LED is lighting, and ○ means LED is faded.

LCD Panel:






Display	Function
Backup time information	
	Indicates the backup time in numbers. H: hours, M: minutes, S: seconds
Fault information	
	Indicates that the warning and fault occurs.
	Indicates the fault codes, and the codes are listed in details in section 3-9.
Mute operation	
	Indicates that the UPS alarm is disabled.
Output & Battery voltage information	
	Indicates the output voltage, frequency or battery voltage. Vac: output voltage, Vdc: battery voltage, Hz: frequency
Load information	
	Indicates the load level by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates overload.
	Indicates the load or the output is short.

Mode operation information

	Indicates that the UPS is connected to the mains.
	Indicates that the battery is working.
	Indicates that the bypass circuit is working.
	Indicates that the Inverter circuit is working.
	Indicates that the output is working.

Battery information

	Indicates the Battery capacity by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates that the battery is fault.
	Indicates low battery level and low battery voltage.

Input & Battery voltage information



Indicates the input voltage or frequency or battery voltage. Vac: Input voltage, Vdc: battery voltage, Hz: input frequency

3-3. Audible Alarm

Description	Buzzer status	Muted
UPS status		
Bypass mode	Beeping once every 2 minutes	Yes
Battery mode	Beeping once every 4 seconds	
Fault mode	Beeping continuously	
Warning		
Overload	Beeping twice every second	No
Low battery	Beeping once every second	
Battery unconnected		
Over charge		
EPO enable		
Fan failure/Over temperature		
Charger failure		
Overload 3 times in 30min		
EPO status		
Cover of maintain switch is open		

Description	Buzzer status	Muted
Fault		
Bus start failure	Beeping continuously	Yes
Bus over		
Bus under		
Bus unbalance		
Inverter soft start failure		
High Inverter voltage		
Low Inverter voltage		
Inverter output short circuited		
Battery SCR short circuited		
Over temperature		
Overload		

3-4. Single UPS Operation

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

- Ensure the power supply is connected correctly before setting the breaker of the battery pack to the "ON" position, followed by setting the input breaker to the "ON" position. At this time, the fan will run, and the UPS will supply power to the loads via bypass, operating in Bypass mode.

NOTE: When the UPS is in Bypass mode, the output voltage will directly power from the utility after the input breaker is switched on. In Bypass mode, the load is not protected by the UPS. To protect your devices, turn on the UPS. Refer to the next step.

- Press and hold the "ON" button for 1 second to turn on the UPS; the buzzer will beep once.
- After a few seconds, the UPS will enter AC mode. If the utility power is abnormal, the UPS will operate in Battery mode without interruption.

NOTE: When the UPS runs out of battery, it will shut down automatically in Battery mode. When the utility power is restored, the UPS will auto restart in AC mode.

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

- Ensure that the breaker of the battery pack is set to the "ON" position (only for long-run models).
- Press and hold the "ON" button for 1 second to turn on the UPS, and the buzzer will beep once.
- After a few seconds, the UPS will be turned on and enter Battery mode.

3. Connect devices to UPS:

After turning on the UPS, you can connect devices to it.

- Switch on the devices one by one, and the total load level will be displayed on the LCD panel.
- If it is necessary to connect inductive loads such as a printer, carefully calculate the in-rush current to ensure it meets the UPS's capacity, as the power consumption of these loads is significant.
- If the UPS is overloaded, the buzzer will beep twice every second.
- When the UPS is overloaded, please remove some loads immediately. It is recommended to have the total loads connected to the UPS be less than 80% of its nominal power capacity to prevent overload for system safety.
- If the overload time exceeds the acceptable time listed in the specifications in AC mode, the UPS will automatically transfer to Bypass mode. After the overload is removed, it will return to AC mode. If the overload occurs 3 times in half an hour, the UPS will be locked in Bypass mode. The UPS can only transfer to Line mode by manual restart at this time. If bypass is enabled, the UPS will power the load via bypass. If the bypass function is disabled or the input power is not within the bypass acceptable range, it will cut off output directly.

4. Charge the batteries

- After the UPS is connected to the utility power, the charger will automatically charge the batteries, except in Battery mode or during battery self-test.
- It is recommended to charge the batteries for at least 10 hours before use to ensure optimal performance. Otherwise, the backup time may be shorter than expected.
- Ensure that the battery number setting on the control board (refer to section 3-4-11 for detailed setting) matches the actual battery connection.
- The charging current can be adjusted from 1A to 4A via the LCD or software. Please ensure that the charging current is suitable for the battery specifications.

5. Battery mode operation:

- When the UPS is in Battery mode, the buzzer will beep according to the battery capacity. If the battery capacity is more than 25%, the buzzer will beep once every 4 seconds. If the battery voltage drops to the alarm level, the buzzer will beep quickly (once every second) to remind users that the battery is at a low level, and the UPS will shut down automatically soon. Users can switch off some non-critical loads to disable the shutdown alarm and prolong the backup time. If there are no more loads to be switched off at that time, you must shut down all loads as soon as possible to protect the devices or save data. Otherwise, there is a risk of data loss or power failure.
- In Battery mode, if the buzzer sound is annoying, users can press the Mute button to mute the buzzer.
- The backup time of the long-run model depends on the external battery capacity.
- The backup time may vary depending on the environmental temperature and load type.
- When setting the backup time for 16.5 hours (default value from the LCD panel), after discharging for 16.5 hours, the UPS will shut down automatically to protect the battery. This battery discharge protection can be enabled or disabled through the LCD panel control. (Refer to section 3-7 LCD setting).

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

- Turn off the inverter of the UPS by pressing the “OFF” button for at least 1 second, and then the buzzer will beep once. The UPS will enter Bypass mode.

NOTE: 1) If the UPS has been set to enable the bypass output, it will bypass voltage from the utility power to the output sockets and terminals even though you have turned off the UPS (inverter).

2) After turning off the UPS, please be aware that the UPS is operating in Bypass mode, and there is a risk of power loss for connected devices..

- In Bypass mode, the output voltage of the UPS is still present. To cut off the output, switch off the input breaker. After a few seconds, there will be no display shown on the LCD panel, and the UPS will be completely off.

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

- Turn off the UPS by pressing the “OFF” button for at least 1 second, and then the buzzer will beep once.
- Then, the UPS will cut off power to the output, and there will be no display shown on the display panel.

8. Mute the buzzer:

- To mute the buzzer, press the “Mute” button for at least 1 second. If you press it again after the buzzer is muted, the buzzer will beep again.
- Some warning alarms can't be muted unless the error is fixed. Please refer to section 3-3 for the details.

9. Operation in warning status:

- When the Fault LED flashes, and the buzzer beeps once every second, it means that there are some problems with UPS operation. Users can get the fault code from the LCD panel. Please check the troubleshooting table in chapter 4 for details.
- Some warning alarms can't be muted unless the error is fixed. Please refer to section 3-3 for the details.

10. Operation in Fault mode

- When the Fault LED illuminates and the buzzer beeps continuously, it indicates a fatal error in the UPS. Retrieve the fault code from the display panel and refer to the troubleshooting table in chapter 4 for details.
- After a fault occurs, check the loads, wiring, ventilation, utility, battery, etc. Do not attempt to restart the UPS until the issues are resolved. If unable to resolve the problems, contact the distributor or service personnel immediately.
- In case of an emergency, immediately disconnect the utility, external battery, and output connections to prevent further risk or danger.

11. Operation of changing battery numbers

- This operation should only be performed by professional or qualified technicians.
- Turn off the UPS. If unable to disconnect the load, remove the cover of the maintenance bypass switch on the rear panel and switch the maintenance switch to the “BPS” position.
- Switch off the input breaker and the battery breaker.
- Remove the cabinet cover and modify the jumpers (CN1) on the control board according to the following table.

Battery Number	CN1					
	pin15	Pin16	Pin17	Pin18	Pin19	Pin20
16	X	1	0	0	0	0
17	X	0	1	0	0	0
18	X	0	0	1	0	0
19	X	0	0	0	1	0
20	X	0	0	0	0	1

Note: 1 = connect with jumper; 0 = no jumper; x = the pins are for other functions.

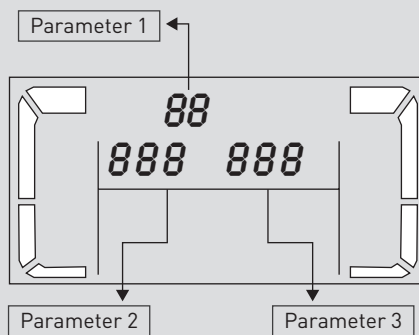
- Modify the battery pack for the setting number carefully. After completing it, put the cover back, and switch on the battery breaker.
- Switch on the input breaker and the UPS will enter Bypass mode. If the UPS is in maintenance Bypass mode, turn the maintenance switch to “UPS” position and then turn on the UPS.

3-5. Abbreviation Meaning in LCD Display

Abbreviation	Display content	Meaning
ENA	ENR	Enable
DIS	dI S	Disable
ATO	AtO	Auto
BAT	bAt	Battery
NCF	nCF	Normal mode (not CVCF mode)
CF	CF	Converter
SUB	SUb	Subtract
ADD	AdD	Add

Abbreviation	Display content	Meaning
ON	ON	On
OFF	OFF	Off
FBD	Fbd	Not allowed
OPN	OPN	Allow
RES	RES	Reserved

3-6. LCD Setting



There are three parameters to set up the UPS. Refer to following diagram.

Parameter 1: It's for program alternatives. Refer to below table for the programs to set up.

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

Note: Please select “Up” or “Down” button to change the programs or parameters.

Programs available list for parameter 1:

Code	Description	Bypass	AC	CVCF	Battery	Battery Test
01	Output voltage	Y				
02	Output frequency	Y				
03	Voltage range for bypass	Y				
04	Frequency range for bypass	Y				
05	Reserved					
06	Reserved					
07	Reserved					
08	Bypass mode setting	Y	Y			
09	Battery maximum discharge time setting	Y	Y	Y	Y	Y

Code	Description	Bypass	AC	CVCF	Battery	Battery Test
10	Reserved					
11	Reserved					
12	Reserved					
13	Battery voltage Calibration	Y	Y	Y	Y	Y
14	Reserved					
15	Inverter voltage Calibration		Y	Y	Y	
16	Floating charger voltage adjustment	Y	Y	Y	Y	Y
17	Constant charger voltage adjustment	Y	Y	Y	Y	Y
18	Charger maximum current setting	Y	Y	Y	Y	Y
19	Battery capacity and groups setting	Y	Y	Y	Y	Y
20	Backup time calibration	Y	Y	Y	Y	Y

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

01: Output voltage

Interface



Setting

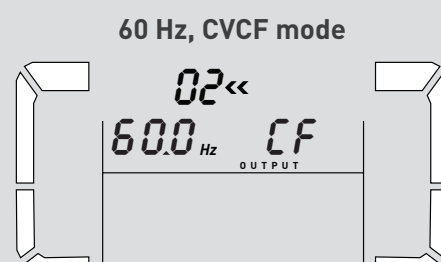
Parameter 3: Output voltage

You may choose the following output voltage in parameter 3:

- 208:** Presents output voltage is 208Vac
- 220:** Presents output voltage is 220Vac
- 230:** Presents output voltage is 230Vac
- 240:** Presents output voltage is 240Vac

02: Output frequency

Interface



Setting

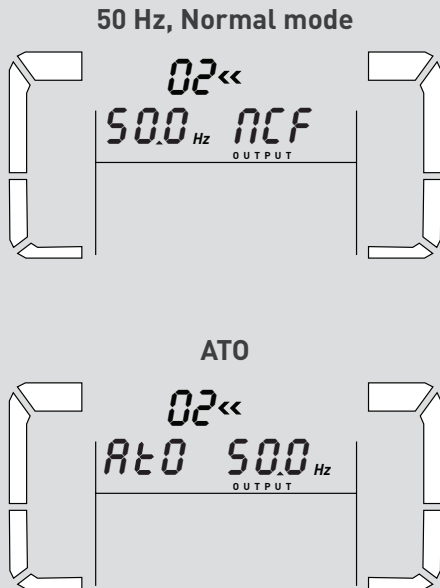
Parameter 2: Output Frequency

Setting the output frequency. You may choose following three options in parameter 2:

- 50.0Hz:** The output frequency is setting for 50.0Hz.
- 60.0Hz:** The output frequency is setting for 60.0Hz.
- ATO:** If selected, output frequency will be decided according to the latest normal utility frequency. If it is from 46Hz to 54Hz, the output frequency will be 50.0Hz. If it is from 56Hz to 64Hz, the output frequency will be 60.0Hz. ATO is default setting.

02: Output frequency

Interface



Setting

Parameter 3: Frequency mode

Setting output frequency at CVCF mode or non-CVCF mode. You may choose following two options in parameter 3:

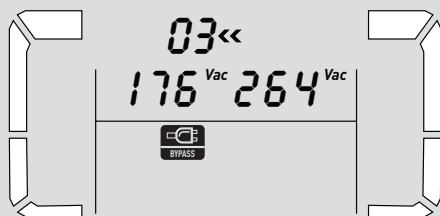
CF: Setting UPS to CVCF mode. If selected, the output frequency will be fixed at 50Hz or 60Hz according to setting in parameter 2. The input frequency could be from 46Hz to 64Hz.

NCF: Setting UPS to normal mode (non-CVCF mode). If selected, the output frequency will synchronize with the input frequency within 46~54 Hz at 50Hz or within 56~64 Hz at 60Hz according to setting in parameter 2. If 50 Hz selected in parameter 2, UPS will transfer to battery mode when input frequency is not within 46~54 Hz. If 60Hz selected in parameter 2, UPS will transfer to battery mode when input frequency is not within 56~64 Hz.

*If Parameter 2 is ATO, the Parameter 3 will show the current frequency.

03: Voltage range for bypass

Interface



Setting

Parameter 2: Set the acceptable low voltage for bypass. Setting range is from 110V to 209V and the default value is 110V.

Parameter 3: Set the acceptable high voltage for bypass. Setting range is from 231V to 276V and the default value is 264V.

04: Frequency range for bypass

Interface



Setting

Parameter 2: Set the acceptable low frequency for bypass. 50 Hz system: Setting range is from 46.0Hz to 49.0Hz.

60 Hz system: Setting range is from 56.0Hz to 59.0Hz. The default value is 46.0Hz/56.0Hz.

Parameter 3: Set the acceptable high frequency for bypass. 50 Hz: Setting range is from 51.0Hz to 54.0 Hz.

60 Hz: Setting range is from 61.0Hz to 64.0Hz. The default value is 54.0Hz/64.0Hz.

05: Reserved

Interface

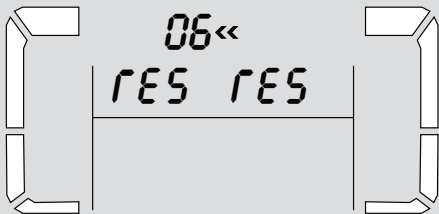


Setting

Reserved

06: Reserved

Interface



Setting

Reserved

07: Reserved

Interface



Setting

Reserved

08: Bypass mode setting

Interface



Setting

Parameter 2:

OPN: Bypass allowed. When selected, UPS will run at Bypass mode depending on bypass enabled/disabled setting.

FBD: Bypass not allowed. When selected, it's not allowed for running in Bypass mode under any situations.

Parameter 3:

ENA: Bypass enabled. When selected, Bypass mode is activated.

DIS: Bypass disabled. When selected, automatic bypass is acceptable, but manual bypass is not allowed. Manual bypass means users manually operate UPS for Bypass mode. For example, pressing OFF button in AC mode to turn into Bypass mode.

09: Battery maximum discharge time setting

Interface



Setting

Parameter 3:

000~999: Set the maximum discharge time from 0 min. to 999 min. UPS will shut down to protect battery after discharge time arrives. The default value is 990 min.

DIS: Disable battery discharge protection and backup time will depend on battery capacity.

10: Reserved

Interface



Setting

Reserved

11: Reserved

Interface

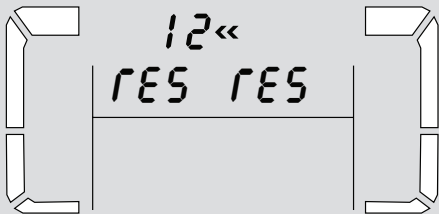


Setting

Reserved

12: Reserved

Interface



Setting

Reserved

13: Battery voltage calibration

Interface



Setting

Parameter 2: Select “Add” or “Sub” function to calibrate battery voltage to real figure.

Parameter 3: The voltage setting range is from **0V to 5.7V**. The default value is 0V.

14: Reserved

Interface

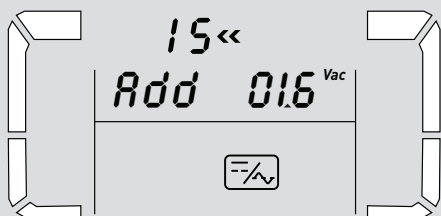


Setting

Reserved

15: Inverter voltage calibration

Interface



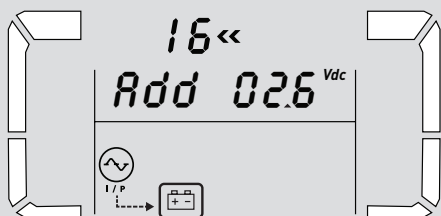
Setting

Parameter 2: you may choose **Add** or **Sub** to calibrate inverter voltage

Parameter 3: The voltage setting range is from **0V to 6.4V**. The default value is 0V.

16: Floating charger voltage adjustment

Interface



Setting

Parameter 2: you may choose **Add** or **Sub** to adjust floating charger voltage.

Parameter 3: the voltage range is from **0V to 8V**, the default value is 0V.

17: Constant charger voltage adjustment

Interface



Setting

Parameter 2: you may choose **Add** or **Sub** to adjust constant charger voltage.

Parameter 3: the voltage range is from **0V to 4V**, the default value is 0V.

18: Maximum charger current setting

Interface



Setting

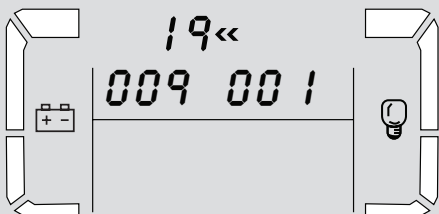
Parameter 3:

The maximum charging current could be adjusted.

Default value is 4A for standard model. The available options are 1A, 2A, 4A.

19: Battery capacity and groups setting

Interface



Setting

Parameter 2:

Set the battery capacity such as 7AH, 9AH, 10AH, 12AH, 17AH, 26AH, 40AH, 65AH, 100AH and so on.

The default value is 9AH.

Parameter 3:

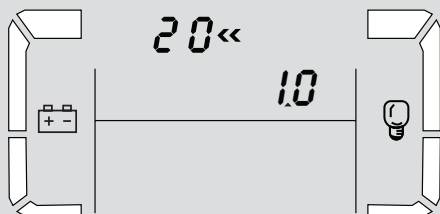
Set battery group range from 1 to 6.

The default value is 1 group.

These parameters are for the battery backup time calculation.

20: Backup time calibration

Interface



Setting

Parameter 3:

Calibrate the displayed backup time by adjusting this multiplier factor. The formulation is listed below:



Displayed backup time = Original calculated backup time x Multiplier factor

The default value of multiplier factor is 1.0 and the setting range is from 0.5 to 2.

















3-7. Operating Mode / Status Description

AC mode	<p>When the input voltage is within acceptable range, UPS will provide pure and stable AC power to output. The UPS will also charge the battery at AC mode.</p>	
CVCF mode	<p>When input frequency is within 46 to 64Hz, the UPS can be set at a constant output frequency, 50 Hz or 60 Hz. The UPS will still charge battery under this mode.</p>	
Battery mode	<p>When the input voltage is beyond the acceptable range or power failure, UPS will backup power from battery and alarm will beep every 4 seconds.</p>	
Bypass mode	<p>When input voltage is within acceptable range and bypass is enabled, turn off the UPS and it will enter Bypass mode. Alarm beeps every two minutes.</p>	
Battery Test	<p>When UPS is in AC mode or CVCF mode, press "Test" key for more than 1s. Then, the UPS will beep once and start "Battery Test". The line between I/P and inverter icons will blink to remind users. This operation is used to check the battery status.</p>	
Fault status	<p>When UPS has fault happened, it will display fault codes in LCD panel.</p>	

3-8. Fault Code

Fault event	Fault code	Icon	Fault event	Fault code	Icon
Bus start failure	01	None	Low Inverter voltage	13	None
Bus over	02	None	Inverter output short circuited	14	
Bus under	03	None	Battery SCR short circuited	21	None
Bus unbalance	04	None	Over temperature	41	None
Inverter soft start failure	11	None	Overload	43	
High Inverter voltage	12	None			

3-9. Warning Indicator

Warning	Icon (flashing)	Alarm
Battery low	 	Beeping every second
Overload	 	Beeping twice every second
Battery unconnected	 	Beeping every second
Over charge	 	Beeping every second
EPO enable	 	Beeping every second
Over temperature	 	Beeping every second
Charger failure	 	Beeping every second
Overload 3 times in 30min		Beeping every second
Cover of maintain switch is open		Beeping every second

4. Trouble Shooting

If the UPS system malfunctions, refer to the troubleshooting table below to resolve the issue.

Symptom	Possible cause	Remedy
No indication and alarm in the front display panel even though the mains is normal.	The AC input power is not connected well.	Check if the input cable is securely connected to the mains.
The icon  and the warning code EP flash on LCD display and alarm beeps every second.	EPO function is enabled.	Set the circuit in closed position to disable EPO function.
The icon  and BATT.FAULT flash on LCD display and alarm beeps every second.	The external or internal battery is incorrectly connected.	Check if all batteries are properly connected.
The icon  and OVER LOAD flash on LCD display and alarm beeps twice every second.	UPS is overloaded.	Remove excess loads from UPS output.
	UPS is overloaded. Devices connected to the UPS are fed directly by the electrical network via the Bypass.	Remove excess loads from UPS output.
	After repetitive overloads, the UPS is locked in the Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from UPS output first. Then shut down the UPS and restart it.
Fault code is shown as 43. The icon OVER LOAD lights on LCD display and alarm beeps continuously.	UPS is overload too long and becomes fault. Then UPS shut down automatically.	Remove excess loads from UPS output and restart it.
Fault code is shown as 14, the icon SHORT lights on LCD display, and alarm beeps continuously.	The UPS shut down automatically because short circuit occurs on the UPS output.	Check output wiring and if connected devices are in short circuit status.
Other fault codes are shown on LCD display and alarm beeps continuously.	An internal fault has occurred within the UPS.	Contact your dealer
Battery backup time is shorter than nominal value	Batteries are not fully charged	Charge the batteries at least 7 hours and then check capacity. If the problem still persists, consult your dealer.
	Batteries defect	Contact your dealer to replace the battery.
The icon  and  flash on LCD display and alarm beeps every second.	The UPS temperature is too high.	Check fans and notify dealer.
UPS can not start up, the icon  flashes on LCD display, and alarm beeps every second.	Cover of maintain switch is open.	Check if the cover of maintain switch is screwed tightly.

If the problem persists, visit www.numericups.com to register your service request and contact our nearest after sales service department; or call our customer support team at 0484-3103266 / 4723266 or write to them at customer.care@numericups.com, with the below details:

1. Model number, Serial number
2. Date on which the problem occurred
3. LCD/LED display status, Buzzer alarm status
4. Utility power condition, load type and capacity, environment temperature, ventilation condition

5. Storage and Maintenance

5-1. Storage

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

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

Ref standard: ISO 14001:2015

- After unpacking the UPS, the removed packaging materials like polythene paper, thermocole/polyethylene, carton box, nylon belt, nylon thread shall be collected and disposed through authorized recycler.
- Batteries when found faulty/damaged must be handed over to identified authorized recycler or to Numeric, where it is disposed properly.
- Battery contains harmful metals and chemicals such as nickel-cadmium, alkaline, mercury, nickel-metal hydride and lead acid, which contaminates if it is not disposed properly.
- When batteries containing cadmium is used in fills, they will eventually dissolve and release the toxic substance than can seep into water supplies posing serious health hazards for the population/society. Hence, recycling of batteries will prevent pollution and saves resource.

5-2. Maintenance



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



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



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



Only individuals who are adequately familiar with batteries and the necessary precautionary measures may replace batteries and oversee operations. Unauthorized persons must be kept away from the batteries.



Before maintenance or repair, ensure that there is no voltage between the battery terminals and the ground. In this product, the battery circuit is not isolated from the input voltage, so hazardous voltages may be present between the battery terminals and the ground.



Batteries can cause electric shock and have a high short-circuit current. Before maintenance or repair, remove all wristwatches, rings, and other metal personal objects. Only use tools with insulated grips and handles for maintenance or repair purposes.



When replacing the batteries, install the same number and type of batteries as before.



Do not attempt to dispose of batteries by burning them, as this could cause a battery explosion. Dispose of batteries properly according to local regulations.



Do not open or damage batteries, as escaping electrolyte can cause skin and eye injuries and may be toxic.



Replace the fuse only with the same type and amperage to avoid fire hazards.



Do not disassemble the UPS system.

6. Specifications

6-1. Without Isolation transformer UPS

NOMINAL POWER (KVA)		5 KVA 240V FM	6 KVA 240V FM	7.5 KVA 240V FM	10 KVA 240V FM
PID no.		NU 72 01 715	NU 72 01 711	NU 72 01 717	NU 72 01 713
Active power*		5000 VA / 4000 W	6000 VA / 4800 W	7500 VA / 6000 W	10000 VA / 8000 W
INPUT					
Voltage range	Low line loss	110 VAC \pm 3% at 50% Load; 176 VAC \pm 3% at 100% Load			
	Low line comeback	Low line loss voltage + 10 V			
	High line loss	300 VAC \pm 3%			
	High line comeback	High line loss voltage - 10 V			
Frequency range		46Hz ~ 54 Hz @ 50Hz system. 56Hz ~ 64 Hz @ 60Hz system			
Phase		Single phase with ground			
Power factor		\geq 0.99 at 100% Load			
OUTPUT					
Output voltage		208 / 220 / 230 / 240 VAC			
AC voltage regulation		\pm 1%			
Frequency range (synchronized range)		46Hz ~ 54 Hz @ 50Hz system. 56Hz ~ 64 Hz @ 60Hz system			
Frequency range (Battery mode)		50 Hz \pm 0.1 Hz or 60Hz \pm 0.1 Hz			
Overload	AC mode - 5kVA	105 - 130% 30 mins, 131 - 150% 5 mins, >150% 10 sec			
	Battery mode - 5kVA	105 - 130% 3 mins, 131 - 150% 30 secs, >150% 3 sec			
	AC mode - 6kVA	105 - 110% 30 mins, 111 - 130% 5 mins, 131 - 150% 10 sec			
	Battery mode - 6kVA	105 - 110% 3 mins, 111 - 130% 30 secs, 131 - 150% 3 sec			
	AC mode - 7.5kVA	105 - 140% 30 mins, 141 - 170% 5 mins, >170% 10 sec			
	Battery mode - 7.5kVA	105 - 140% 3 mins, 141 - 170% 30 sec, >170% 10 sec			
	AC mode - 10kVA	105 - 110% 30 mins, 111 - 130% 5 mins, 131 - 150% 10 sec			
	Battery mode - 10kVA	105 - 110% 3 mins, 111 - 130% 30 secs, 131 - 150% 3 sec			
Current crest ratio		3:1 max			
Harmonic distortion		\leq 3% THD (Linear load)			
		\leq 5% THD (Non - linear load)			
Transfer time	Line <> battery	0 ms			
	Inverter <> bypass	0 ms			
BATTERY					
Long-run model	Battery type	VRLA / Tubular / Lithium-Ion			
	Numbers	16 nos - 20 nos			
	Charging current	Default: 4 A \pm 10% Max.: 1 A, 2 A, 4 A, (Adjustable)			
	Charging voltage	13.65 x number of battery \pm 1%			
PHYSICAL					
Standard model	Dimension, WxDxH (mm)	190 x 400 x 336		190 x 475 x 336	
	Net weight (kgs)	12		16	
ENVIRONMENT					
Operation temperature		0 ~ 50 °C (battery life cycle will be shorten when temperature is above 25 °C)		0 ~ 40 °C (battery life cycle will be shorten when temperature is above 25 °C)	
Operation humidity		< 95% and non - condensing			
Operation altitude**		< 1000 m			
Acoustic noise level		Less than 55 dB @ 1 meter		Less than 58 dB @ 1 meter	
MANAGEMENT					
Smart RS-232 or USB		Supports Windows® 2000 / 2003 / XP / Vista / 2008, Windows® 7/8, Linux, Unix, and MAC			
Optional SNMP		Power management from SNMP manager and web browser			

* Derate capacity to 60% of capacity in CVCF mode and to 90% when the output voltage is adjusted to 208 VAC.

** If the UPS is installed or used in a place where the altitude is above than 1000m, the output power must be derated one percent per 100m.

*** Product specifications are subject to change without further notice.

6. Specifications

6-2. With Isolation transformer UPS

NOMINAL POWER (KVA)		5 KVA 240V FMI	6 KVA 240V FMI	7.5 KVA 240V FMI	10 KVA 240V FMI
PID no.		NU 72 01 716	NU 72 01 712	NU 72 01 718	NU 72 01 714
Active power*		5000 VA / 4000 W	6000 VA / 4800 W	7500 VA / 6000 W	10000 VA / 8000 W
INPUT					
Voltage range	Low line loss	110 VAC ± 3% at 50% Load; 176 VAC ± 3 % at 100% Load			
	Low line comeback	Low line loss voltage + 10 V			
	High line loss	300 VAC ± 3 %			
	High line comeback	High line loss voltage - 10 V			
Frequency range		46Hz ~ 54 Hz @ 50Hz system. 56Hz ~ 64 Hz @ 60Hz system			
Phase		Single phase with ground			
Power factor		≥ 0.99 at 100% Load			
OUTPUT					
Output voltage		208 / 220 / 230 / 240 VAC			
AC voltage regulation		± 2%			
Frequency range (synchronized range)		46Hz ~ 54 Hz @ 50Hz system. 56Hz ~ 64 Hz @ 60Hz system			
Frequency range (Battery mode)		50 Hz ± 0.1 Hz or 60Hz ± 0.1 Hz			
Overload	AC mode - 5kVA	105 - 130% 30 mins, 131 - 150% 5 mins, >150% 10 sec			
	Battery mode - 5kVA	105 - 130% 3 mins, 131 - 150% 30 secs, >150% 3 sec			
	AC mode - 6kVA	105 - 110% 30 mins, 111 - 130% 5 mins, 131 - 150% 10 sec			
	Battery mode - 6kVA	105 - 110% 3 mins, 111 - 130% 30 secs, 131 - 150% 3 sec			
	AC mode - 7.5kVA	105 - 140% 30 mins, 141 - 170% 5 mins, >170 % 10 sec			
	Battery mode - 7.5kVA	105 - 140% 3 mins, 141 - 170% 30 sec, >170 % 10 sec			
	AC mode - 10kVA	105 - 110% 30 mins, 111 - 130% 5 mins, 131 - 150% 10 sec			
	Battery mode - 10kVA	105 - 110% 3 mins, 111 - 130% 30 secs, 131 - 150% 3 sec			
Current crest ratio		3:1 max			
Harmonic distortion		≤ 3 % THD (Linear load)			
		≤ 5 % THD (Non - linear load)			
Transfer time	Line <> battery	0 ms			
	Inverter <> bypass	0 ms			
BATTERY					
Long-run model	Battery type	VRLA / Tubular / Lithium-Ion			
	Numbers	16 nos - 20 nos			
	Charging current	Default: 4 A ± 10% Max.: 1 A, 2 A, 4 A, (Adjustable)			
	Charging voltage	13.65 x number of battery ± 1%			
PHYSICAL					
Standard model	Dimension, WxDxH (mm)	190 x 475 x 596		190 x 475 x 596	
	Net weight (kgs)	59		62	
ENVIRONMENT					
Operation temperature		0 ~ 50 °C (battery life cycle will be shorten when temperature is above 25 °C)		0 ~ 40 °C (battery life cycle will be shorten when temperature is above 25 °C)	
Operation humidity		< 95% and non - condensing			
Operation altitude**		< 1000 m			
Acoustic noise level		Less than 55 dB @ 1 meter		Less than 58 dB @ 1 meter	
MANAGEMENT					
Smart RS-232 or USB		Supports Windows® 2000 / 2003 / XP / Vista / 2008, Windows® 7/8, Linux, Unix, and MAC			
Optional SNMP		Power management from SNMP manager and web browser			

* Derate capacity to 60% of capacity in CVCF mode and to 90% when the output voltage is adjusted to 208 VAC.

** If the UPS is installed or used in a place where the altitude is above than 1000m, the output power must be derated one percent per 100m.

*** Product specifications are subject to change without further notice.

Head Office

10th Floor, Prestige Center Court,
Office Block, Vijaya Forum Mall, 183,
N.S.K Salai, Vadapalani,
Chennai - 600 026.
Phone: +91 44 4656 5555

Regional Offices

New Delhi

B-225, Okhla Industrial Area,
4th Floor, Phase-1,
New Delhi - 110 020.
Phone: +91 11 2699 0028

Kolkata

Bhakta Tower, Plot No. KB22,
2nd & 3rd Floor, Salt Lake City,
Sector - III, Kolkata - 700 098.
Phone : +91 33 4021 3535 / 3536

Mumbai

C/203, Corporate Avenue, Atul Projects,
Near Mirador Hotel, Chakala,
Andheri Ghatkopar Link Road,
Andheri (East), Mumbai - 400 099.
Phone : +91 22 3385 6201

Chennai

10th Floor, Prestige Center Court,
Office Block, Vijaya Forum Mall,
183, N.S.K Salai, Vadapalani,
Chennai - 600 026.
Phone : +91 44 3024 7236 / 200

Branch Offices

Chandigarh

SCO 4, First Floor, Sector 16,
Panchkula, Chandigarh - 134 109.
Phone : +91 93160 06215

Dehradun

Unit-1 and 2, Chakrata Road,
Vijay Park Dehradun - 248001.
Uttarakhand
Phone : +91 135 661 6111

Jaipur

Plot No. J-6, Scheme-12B,
Sharma Colony, Bais Godown,
Jaipur - 302 019.
Phone : +91 141 221 9082

Lucknow

209/B, 2nd Floor, Cyber Heights,
Vibhuti Khand, Gomti Nagar,
Lucknow - 226 018.
Phone : +91 93352 01364

Bhubaneswar

N-2/72 Ground Floor, IRC Village,
Nayapally, Bhubaneswar - 751 015.
Phone: +91 674 255 0760

Guwahati

House No 02,
Rajgarh Girls High School Road
(Behind Rajgarh Girls High School),
Guwahati - 781 007.
Phone : +91 96000 87171

Patna

405, Fraser Road, Hemplaza,
4th Floor, Patna - 800 001.
Phone : +91 612 220 0657

Ranchi

202 & 203, 2nd Floor, Sunrise Forum,
Bardwan Compound, Lalpur, 2nd Floor,
Ranchi - 834 001.
Phone : + 91 98300 62078

Ahmedabad

A-101/102, Mondeal Heights,
Beside Hotel Novotel, Near Iscon Circle,
S G Highway, Ahmedabad - 380 015.
Phone : +91 79 6134 0555

Bhopal

Plot No. 2, 221, 2nd Floor, Akansha Complex,
Zone-1, M.P.Nagar, Bhopal- 462 011.
Phone : +91 755 276 4202

Nagpur

Plot.No.174, H.No.4181/C/174, 1st Floor,
Loksewa Housing Society, Near Dr. Umathe
& Mokhare College, Bhamti Road,
Loksewa Nagar, Nagpur - 440 022.
Phone : +91 712 228 6991 / 228 9668

Pune

Pinacle 664 park avenue, 8th floor,
Plot no 102+103, CTS No. 66/4,
Final, 4, Law College Rd, Erandwane,
Pune, Maharashtra - 411 004.
Phone : +91 +20 6729 5624

Bengaluru

No-58, First Floor, Firoze White Manor,
Bowring Hospital Road,
Shivajinagar, Bangalore -560 001.
Phone : +91 80 6822 0000

Coimbatore

No. B-15, Thirumalai Towers, No. 723,
1st Floor, Avinashi Road, Coimbatore - 641 018.
Phone : +91 422 420 4018

Hyderabad

Prestige Phoenix Building,
1st Floor, Survey no. 199,
No. 6-3-1219/J/101 & 102, Uma Nagar,
Opposite to Begumpet Metro Station
Begumpet 500016
Phone: +91 40 4567 1717/2341 4398/2341 4367

Kochi

Door No. 50/1107A9, JB Manjooran Estate,
3rd Floor, Bypass Junction,
Edappally, Kochi - 682 024.
Phone : +91 484 6604 710

Madurai

12/2, DSP Nagar,
Dinamalar Avenue,
Madurai - 625 016.
Phone : +91 452 260 4555

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Contact us.:

Email : customer.care@numericups.com

Phone : 0484-3103266 / 4723266

www.numericups.com

