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Delta UPS - Amplon Family

N Series, Single Phase
6/ 10 kVA

User Manual

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Save This Manual

This manual contains important instructions and warnings that you should follow during the installation, operation, storage and maintenance of this product. Failure to heed these instructions and warnings will void the warranty.

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Chapter 1 : Important Safety Instructions

1.1 Safety Instructions

Installation Warnings


- Before installation and usage, please read this User Manual thoroughly. This helps you to use the product correctly and safely.
- Install the UPS in a well-ventilated area, away from excess moisture, heat, dust, flammable gas or explosives.
- To avoid fire accidents and electric shock, please install the UPS in a temperate and humidity well-controlled indoor area that is free of conductive contaminants. For the temperature and humidity specifications, please refer to **Appendix 1: Technical Specifications**.
- Leave adequate space (at least 50cm) around all sides of the UPS for proper ventilation.

Connection Warnings

- The UPS must be well grounded due to a possible risk of current leakage.
- The installation of upstream and downstream protective devices is highly recommended when the UPS is connected to the mains and the loads.
- The protective devices connecting to the UPS must be installed near the UPS and must be easily accessible for operation.
- If you need to move the UPS or perform re-wiring, please turn off the AC input power and ensure that the UPS has been safely shutdown and the connected external battery pack has been disconnected. Otherwise, the output end might still be energized, which might cause electric shock.

Usage Warnings

- This is a class-A product. In a domestic environment, this product may cause radio interference, in which case, the user is required to take adequate measures.
- The UPS can be used to power computers and associated peripheral devices, such as monitors, modems, cartridge tape drives, external hard drives, etc.

- It is strictly forbidden to connect the UPS with:
 1. any regenerative-type loads.
 2. any asymmetrical loads (ex. half-wave rectifier).
- To ensure reliable operation of the UPS and to protect the UPS from overheating, the slits and openings in the UPS must not be blocked or covered.
- Before usage, you must allow the UPS to adjust to room temperature for at least one hour to avoid moisture condensing inside the UPS.
- Do not pour and splash any liquid on the UPS. Do not insert any object into the UPS's slits and openings. Do not put beverage containers on or around the UPS.
- When an emergency occurs, press the  button and release the button after you hear one beep to turn off the UPS. Cut off the input power to completely shut down the UPS.
- Do not use any cleaning liquid or spray to clean the UPS. Before cleaning, please make sure that the UPS has been completely shut down, and the connection between the UPS and the input power and the connection between the UPS and the external battery pack have been entirely cut off.
- All maintenance services must be performed by qualified service personnel. Forbid opening or removing the cover of the UPS by yourself to avoid high voltage electric shock.
- You must contact qualified service personnel if either of the following events occur:
 1. Liquid is poured or splashed on the UPS.
 2. The UPS does not run normally after this *User Manual* is carefully observed.





NOTE :

If you use the UPS in an area that generates or incurs dust, you should install a dust filter in the UPS to ensure normal product life and function.

Battery Warnings

- Servicing of batteries or battery packs must be performed or supervised by qualified service personnel knowledgeable in batteries, battery packs and the required precautions. Keep unauthorized personnel away from batteries and battery packs.

- The risk of electric shock and short-circuit current is possible when the batteries and battery packs are connected to the UPS. Before maintenance, disconnect all batteries and battery packs to cut off the battery power.
- For battery replacement, only use the same number and type of batteries.
- Observe the following before replacing the batteries:
 1. Remove watches, rings, or other metal objects.
 2. Use tools with insulated handles.
 3. Wear rubber gloves and boots.
 4. Do not lay tools or metal parts on the top of batteries.
 5. Before battery removal, replacement or installation, disconnect any circuit connected to the batteries.
- Do not connect the batteries in reverse; otherwise, a risk of electric shock or fire accidents might occur.
- A loss of battery charge capacity may occur during shipping and storage. Before 1st use of the UPS, please fully charge the batteries until the Battery Level Bar Graph  shown on the UPS's LCD is fully on.
- If the UPS needs to be stored for an extended period of time, idle batteries must be fully charged every three months. When every time you charge the idle batteries, please charge them until the Battery Level Bar Graph  shown on the UPS's LCD is fully on.



WARNING :

1. The risk of electric shock and short-circuit current is possible when the batteries are still connected to the UPS even though the UPS is disconnected from the mains. Do not forget to cut off the battery source before maintenance.
2. When connecting the external battery pack with the UPS, you must install an appropriate non-fuse DC breaker or the fast-acting fuse that meets the safety certification. Do not use an AC breaker.
3. The breaker must be a 2-pole non-fuse DC breaker with characteristics of 1-pole 250Vdc, 2-pole 500Vdc and 35kA (or above) DC breaking capacity.

1.2 Standard Compliance



- CE
- EN 62040-1
- EN 62040-2 Category C2

1.3 Storage

- **Prior to installation**

If the UPS needs to be stored prior to installation, it should be placed in a dry area. The allowable storage temperature is between -15°C and +50°C.

- **After usage**

Press the  button for 3 seconds and release it after you hear a beep, make sure that the UPS has been completely shut down, disconnect the UPS from the utility power, remove all loads from the UPS, and store the UPS in a dry and well-ventilated area at a temperature between -15°C and +50°C. Idle batteries must be recharged fully every three months if the UPS needs to be stored for an extended period of time. When every time you charge the batteries, please charge them until the Battery Level Bar Graph  shown on the UPS's LCD is fully on.



NOTE :

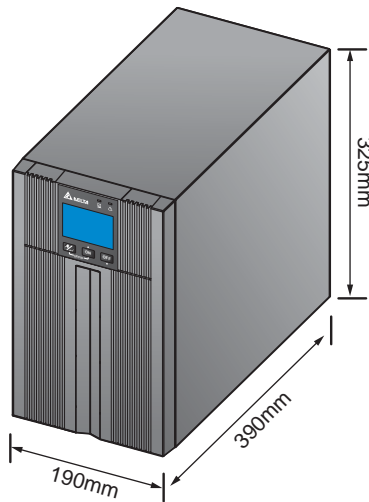
After storage and before start-up of the UPS, you must allow the UPS to adjust to room temperature (20°C~25°C) for at least one hour to avoid moisture condensing inside the UPS.

Chapter 2 : Introduction

2.1 General Overview

The N series UPS is a single-phase on-line UPS providing reliable and consistent sine-wave quality power to your electronic equipment. It adopts the latest technology and the highest quality components providing output power factor up to unity, and its efficiency in on-line mode can reach at maximum 95%. The UPS not only provides safe, reliable and uninterrupted power to your sensitive electronic equipment at all times, but also produces greater electronic power efficiency at less cost. Its compact design does not occupy much space and is easy to use. There are two different ratings, 6kVA and 10kVA, for your selection.

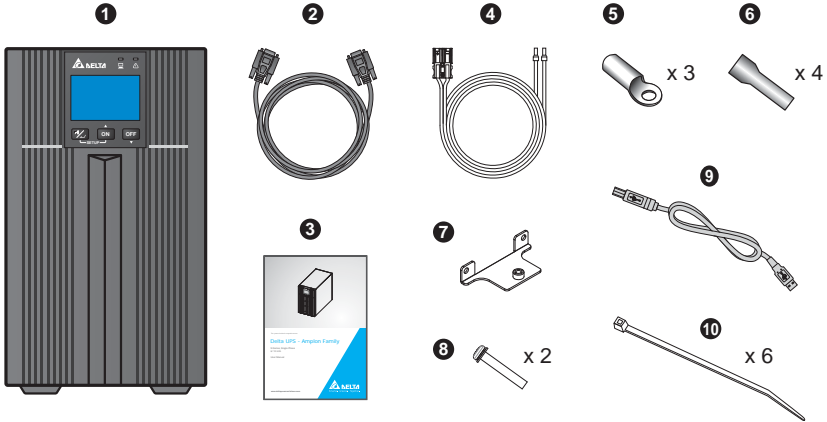
2.2 Exterior & Dimensions



(Figure 2-1 : 6 kVA/ 10kVA Exterior & Dimensions)

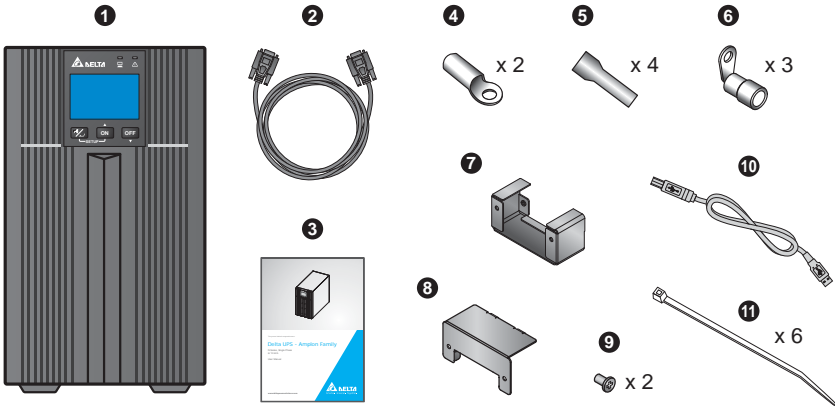
2.3 Package List

- For models UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA)



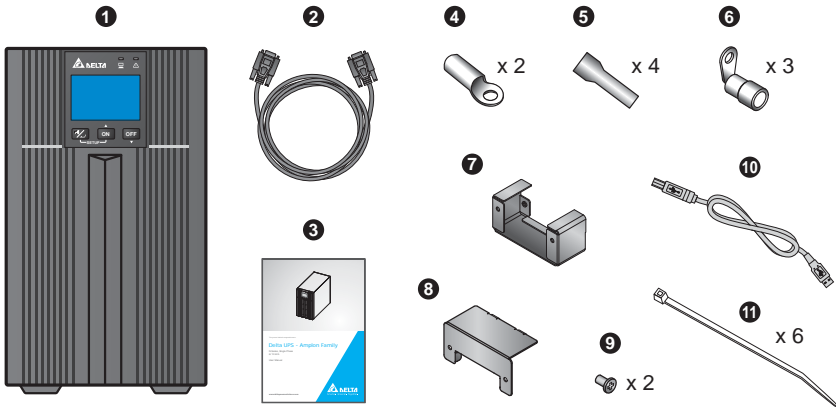
No.	Item	Q'ty
①	UPS	1 PC
②	Parallel Cable	1 PC
③	User Manual	1 PC
④	Battery Cable	1 PC
⑤	CU Terminal_ Type A	3 PCS
⑥	CU Terminal_ Type B	4 PCS
⑦	Battery Cable Holder	1 PC
⑧	Screw for Battery Cable Holder	2 PCS
⑨	USB Cable	1 PC
⑩	Cable Tie	6 PCS

- For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA)



No.	Item	Q'ty
①	UPS	1 PC
②	Parallel Cable	1 PC
③	User Manual	1 PC
④	CU Terminal_ Type A	2 PCS
⑤	CU Terminal_ Type B	4 PCS
⑥	CU Terminal_ Type C	3 PCS
⑦	Battery Terminal Box	1 PC
⑧	Battery Terminal Box Cover	1 PC
⑨	Screw for Battery Terminal Box Cover	2 PCS
⑩	USB Cable	1 PC
⑪	Cable Tie	6 PCS

- For models UPS602N2004N0BA (6 kVA) & UPS103N2004N0BA (10 kVA)



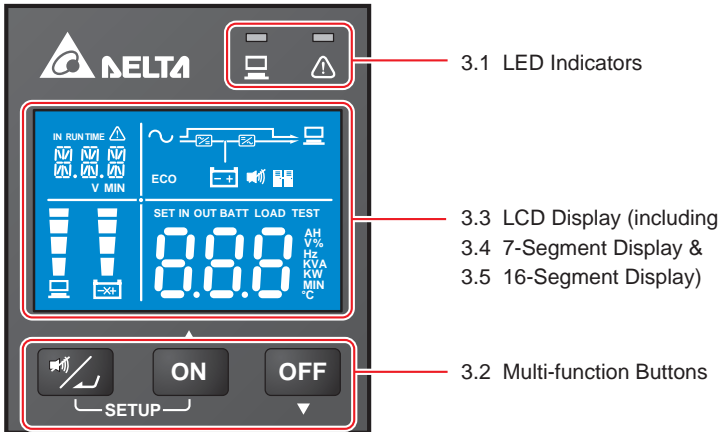
No.	Item	Q'ty
①	UPS	1 PC
②	Parallel Cable	1 PC
③	User Manual	1 PC
④	CU Terminal_ Type A	2 PCS
⑤	CU Terminal_ Type B	4 PCS
⑥	CU Terminal_ Type C	3 PCS
⑦	Battery Terminal Box	1 PC
⑧	Battery Terminal Box Cover	1 PC
⑨	Screw for Battery Terminal Box Cover	2 PCS
⑩	USB Cable	1 PC
⑪	Cable Tie	6 PCS



NOTE :






1. If there is any damage or anything missing, please immediately contact the dealer from whom you purchased the unit.
2. If the UPS needs to be returned, carefully repack the UPS and all of the accessories using the original packing material that came with the unit.

Chapter 3 : Operation Panel









(Figure 3-1: Operation Panel)







3.1 LED Indicators

No.	LED	Description
1	  	Indicates the output status. 1. On (green): There is output. 2. Off: There is no output.
2	 	Indicates the warning status. 1. On (red): The UPS is in failure mode. 2. Flash (red): The UPS's working conditions are abnormal.

3.2 Multi-function Buttons

No.	Multi-function Button	Description
1		<p>The button has two functions. Please refer to the following for detailed information.</p> <p>1. Buzzer On/ Off:</p> <p>When the buzzer is on, press the button for 0.1 second to turn off the buzzer. When the buzzer is off, press the button for 0.1 second to turn on the buzzer.</p> <p>2. Confirmation:</p> <p>In setup mode, press the button for 0.1 second to enter into the item that you want to set up or confirm your parameter setup.</p>
2		<p>The button has three functions. Please refer to the following for detailed information.</p> <p>1. Turn-on:</p> <ul style="list-style-type: none"> • In bypass mode, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will run in on-line mode. • Cold start: When there is no AC input, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will start up in battery mode. <p>2. Battery Test:</p> <ul style="list-style-type: none"> • A battery test can only be executed in on-line mode. • For manual battery test, please press and hold the button for 3 seconds, release it after you hear one beep, and the UPS will transfer to run in battery mode and perform a 10-second battery test. If the test result is ok, the 7-segment display will show 'PAS' and the UPS will return to on-line mode. If the test result is abnormal, the 7-segment display will show 'FAL', the no-battery/ battery replacement icon () will illuminate and the UPS will return to on-line mode. For 7-segment display information, please refer to 3.4 7-Segment Display.

No.	Multi-function Button	Description
2		<p> NOTE:</p> <ul style="list-style-type: none"> • For models UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA) & UPS602N2004N0BA (6kVA) & UPS103N2004N0BA (10kVA): <p>For automatic regular battery test, you must install the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en-in/mcis/software-center.php) or configure the SNMP card (optional) or ModBus card (optional).</p> <ul style="list-style-type: none"> • For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA): <p>For automatic regular battery test, you must install the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en-in/mcis/software-center.php) or configure the mini SNMP card (optional) or mini ModBus card (optional).</p> <p>3. Scrolling Up/ Increasing Number:</p> <ul style="list-style-type: none"> • Press the button for 0.1 second to go to the previous display or increase number.
3		<p>The button has three functions. Please refer to the following for detailed information.</p> <p>1. Turn-off:</p> <ul style="list-style-type: none"> • In on-line mode, press and hold the button for 3 seconds, release it after you hear one beep and the inverter will be off and the UPS will transfer to run in bypass mode. <p>The UPS will keep charging the batteries when the UPS is in bypass mode. To fully turn off the UPS, please completely disconnect the UPS from the input power.</p> <ul style="list-style-type: none"> • In battery mode, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will turn off its output.

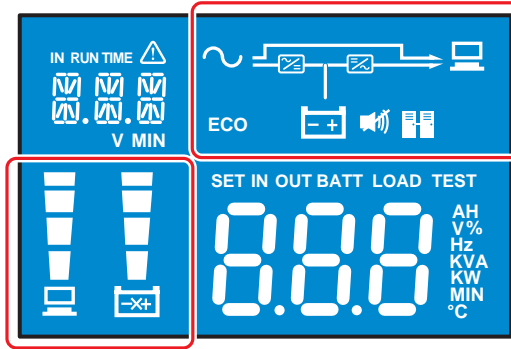
No.	Multi-function Button	Description
3		<p>2. Scrolling Down/ Decreasing Number:</p> <p>Press the button for 0.1 second to go to the next display or to decrease number.</p> <p>3. Fault Clear:</p> <p>When the UPS has a fault condition, press and hold the button for 3 seconds, release it after you hear one beep and the UPS will clear the fault condition and return to standby mode.</p> <p> NOTE:</p> <p>When the UPS clears the fault condition, it doesn't mean that the fault has been automatically eliminated but means that the buzzer has been turned off. For more information, please refer to 3.6 Error Code Information and Chapter 10: Troubleshooting.</p>
4		<ul style="list-style-type: none"> • Entering into the Setup Mode <p>Simultaneously press the  and  these two buttons for 3 seconds to enter into the setup mode.</p> <ul style="list-style-type: none"> • Exiting from the Setup Mode <p>In setup mode, press these two buttons simultaneously for 3 seconds to exit from the setup mode.</p> <p> NOTE:</p> <p>For more information about the setup mode, please refer to 6.6. Setup Mode. Please note that only qualified service personnel can perform setup action.</p>





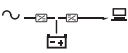

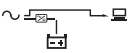
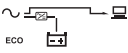



NOTE:




The backlight of the LCD automatically turns off after 3 minutes of inactivity. You can press any button to wake up the display and enable each button function. The duration of backlight (3 minutes) cannot be changed.

3.3 LCD Display



No.	Icon	Naming	Description
1		AC Icon	Indicates the input source status. 1. ON: The AC input is within the acceptable bypass range. 2. Flashing: The AC input is out of the acceptable bypass range but is able to let the unit operate in on-line mode. 3. OFF: The AC input is out of the acceptable bypass range and is not able to let the unit operate in on-line mode.
2		Output Icon	Indicates the output status. 1. ON: There is output. 2. OFF: There is no output.
3		Battery Power Icon	Indicates the battery power status. 1. ON: The UPS runs in battery mode or the batteries are charging. 2. OFF: It is not the batteries to supply power to the connected loads or the batteries are not charging.
4		PFC Icon	Indicates the PFC status. 1. ON: The PFC is running. 2. OFF: The PFC is not running.

No.	Icon	Naming	Description
5		Inverter Icon	Indicates the inverter status. 1. ON: The inverter is running. 2. OFF: The inverter is not running.
6		Standby Mode Graph	Illuminates when the UPS is operating in standby mode.
7		Online Mode Graph	Illuminates when the UPS is operating in online mode.
8		Battery Mode Graph	Illuminates when the UPS is operating in battery mode.
9		Bypass Mode Graph	Illuminates when the UPS is operating in bypass mode.
10		ECO Mode Graph	Illuminates when the UPS is operating in ECO mode.
11	ECO	ECO Mode	Illuminates when the UPS is operating in ECO mode. It is bypass to supply power to the connected loads in ECO mode.
12		Buzzer Off Icon	Illuminates when the buzzer is disabled.
13		Parallel Icon	1. ON: The UPS is in parallel mode. 2. OFF: The UPS is in single mode.  NOTE: 1. You can parallel at maximum four UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please note that parallel UPSs cannot share common batteries.

No.	Icon	Naming	Description
			2. Only when the parallel icon  illuminates can you perform turn on procedures for parallel units.
14		Load Level Bar Graph	1. ON: Total capacity (%) of the connected loads*1. 2. Flashing: Overload.
15		Battery Level Bar Graph	1. ON: The remaining battery capacity (%)*1. 2. Flashing: Low battery.



NOTE :

*1 means that:

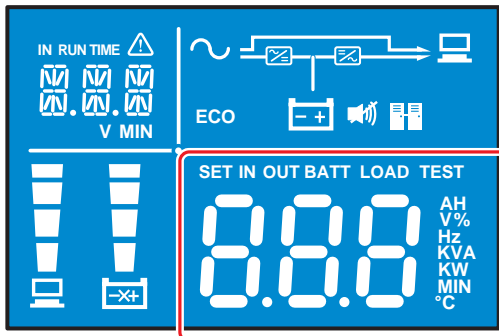
1%-25%: the 1st segment will illuminate.

26%-50%: the first two segments will illuminate.

51%-75%: the first three segments will illuminate.

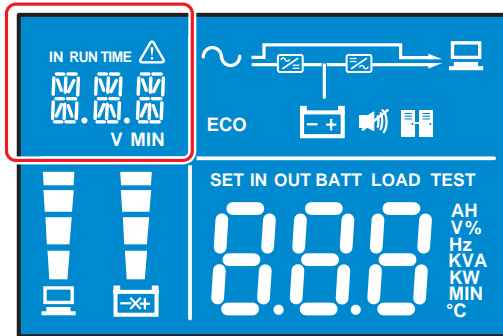
76%-100%: all segments will illuminate.

3.4 7-Segment Display







No.	Display	Meaning	Category	
1	8.8.8	7-segment display	Number	The combination of the three categories (left-hand side) presents relevant information such as input voltage, output voltage, output frequency, load capacity etc.
2	SET	Setup mode. Please refer to 6.6 Setup Mode.	Status	
3	IN	Input		
4	OUT	Output		
5	BATT	Battery status		
6	LOAD	Load status		
7	TEST	Test		
8	AH	Ampere hour		
9	A	Current		
10	V	Voltage		
11	%	Percentage		
12	Hz	Frequency		
13	KVA	kVA		
14	KW	kW		
15	MIN	Minute		
16	°C	The UPS's internal temperature.		



3.5 16-Segment Display



No.	Display	Meaning	Category	
1		16-segment display	Number/ Error code (For error code information, please refer to 3.6 Error Code Information.)	The combination of the three categories (left-hand side) presents relevant information such as input voltage and remaining battery time (minutes).
2	IN	Input	Status	
3	RUN TIME	Battery remaining time		
4	V	Voltage	Unit	
5	MIN	Minute		



No.	Display	Meaning	Description
6		Warning	<p>The warning icon  will illuminate when any of the following situations occurs.</p> <ol style="list-style-type: none"> 1. When the fault LED  illuminates. 2. When an abnormality such as overload or battery missing is detected. 3. When the 16-segment display  shows an error code.

3.6 Error Code Information

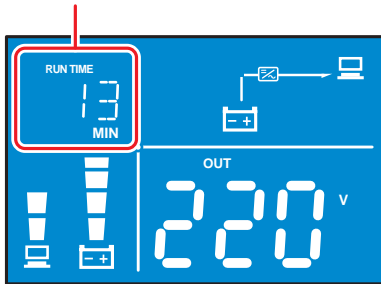
1. The error code only appears on the 16-segment display .
2. The error code is composed of an alphabet and four numbers such as E2303, E0301, E2002, E2702, etc. The display of the error code shown on the 16-segment display  is presented by two alternate screens and each screen appears for 0.5 second. Please see **Figure 3-2** as the example of the alternate screens for error cord E2302.



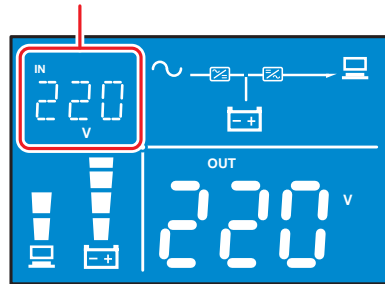
(Figure 3-2: Alternate Screens for Error Code E2302)

3. For each error code's meaning, please refer to **Chapter 10: Troubleshooting**.
4. In battery mode, the 16-segment display  will display the remaining battery time. Please see **Figure 3-3**.
5. In any mode (except battery mode), the 16-segment display  will display the input voltage. Please see **Figure 3-3**.

In battery mode, here displays the remaining battery time.



In any mode (except battery mode), here displays the input voltage.



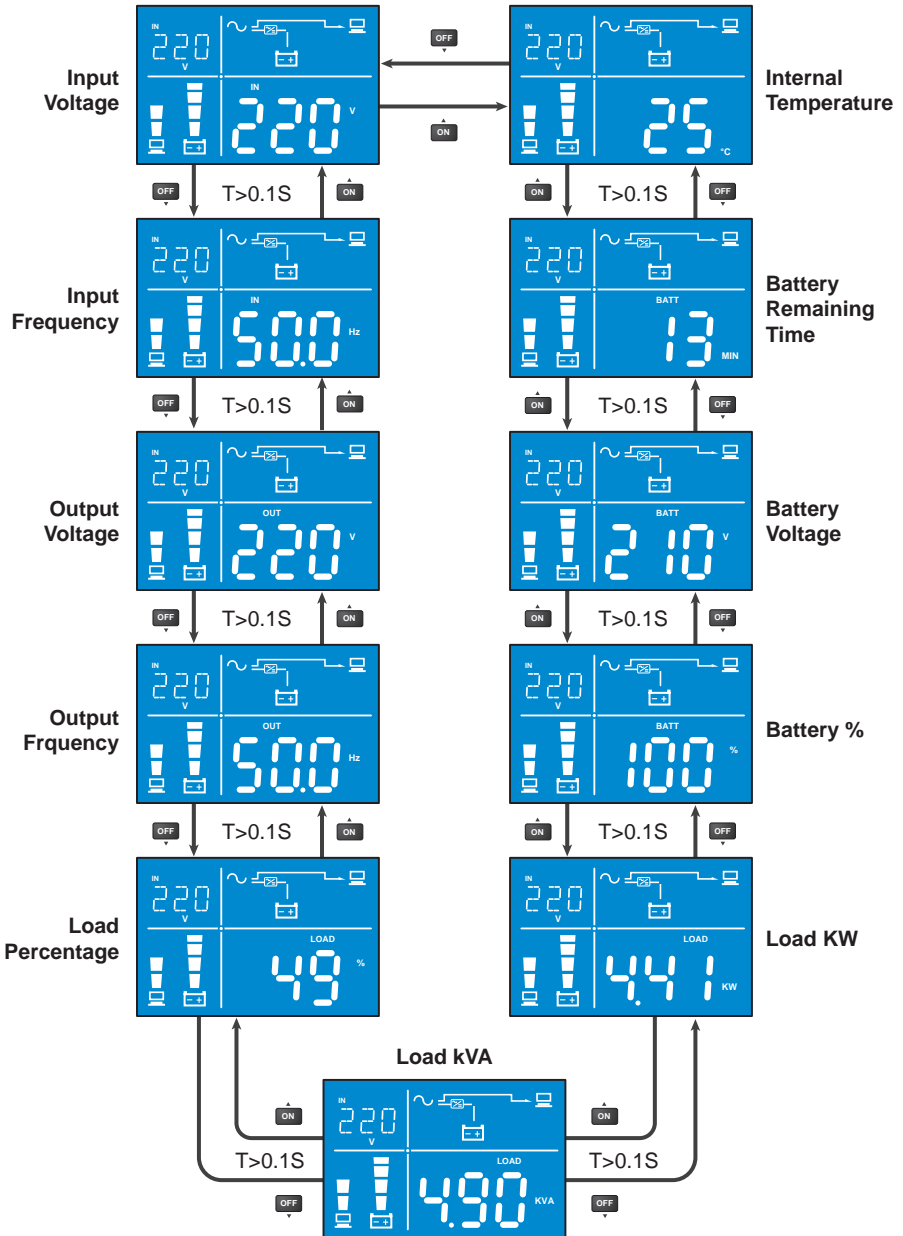
(Figure 3-3: 16-segment Display in Battery Mode & in Any Other Mode)

3.7 LCD Display Flow Chart

The following flow chart helps you to understand how to go through each display screen. Here, we take 'Bypass Mode' as an example. Press the **ON** button for 0.1 second to view the previous screen and press the **OFF** button for 0.1 second to view the next screen.

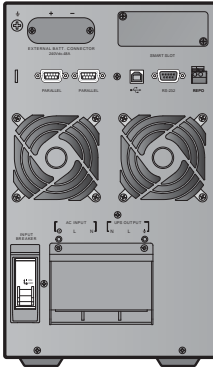
Any No., diagram, icon, text, etc. shown in the LCD diagrams presented below are for reference only. Actual display depends on the operation of the UPS.

Bypass Mode

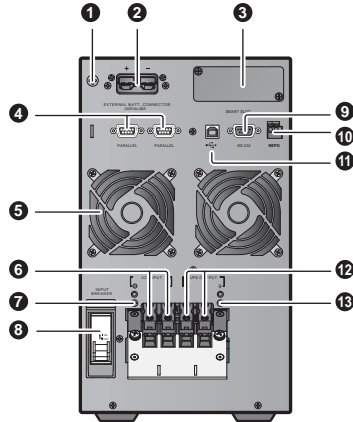


Chapter 4 : Rear Panel

- For models UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA)







(Before Removal of Wiring Panel)

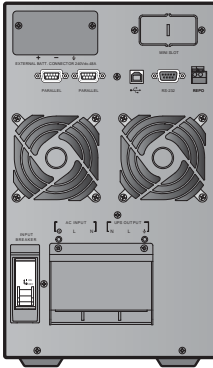


(After Removal of Wiring Panel)

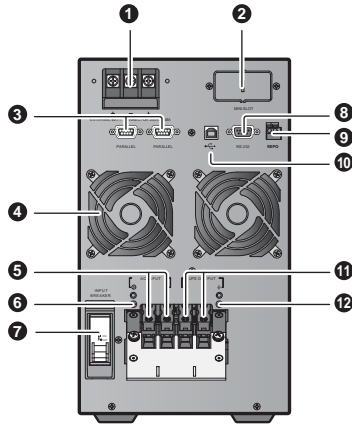
No.	Item	Functions
①		For external battery pack's grounding.
②	External Battery Connector	Connects to the external battery pack.
③	Smart Slot	Accepts an SNMP, Relay I/O, USB and ModBus card (optional).
④	Parallel Ports	For UPS parallel communication. You can parallel at maximum four UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please note that parallel UPSs cannot share common batteries.
⑤	Fans	Cool and ventilate the UPS.
⑥	AC Input Terminals (L & N)	Connect the UPS to the mains.
⑦		For UPS grounding.

No.	Item	Functions
8	Input Breaker	It is the input power's protective device and is for safety protection.
9	RS-232 Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
10	REPO Port	<p>Remotely shuts down the UPS when an emergency occurs.</p> <p> NOTE: Please connect a user-supplied normally-open switch to the REPO port. When the user-supplied switch is closed, the UPS will immediately shut down the inverter and output (the UPS won't transfer into bypass mode).</p>
11	USB Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
12	UPS Output Terminals (L & N)	<p>Connect to your loads.</p> <p> NOTE: To avoid output from over current protection, please follow the load capacity (from the largest to the smallest) to connect the loads to the UPS.</p>
13	⏏	For connected loads' grounding.

- For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA)







(Before Removal of Wiring Panel)

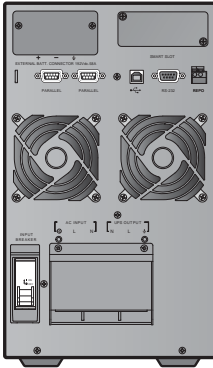


(After Removal of Wiring Panel)

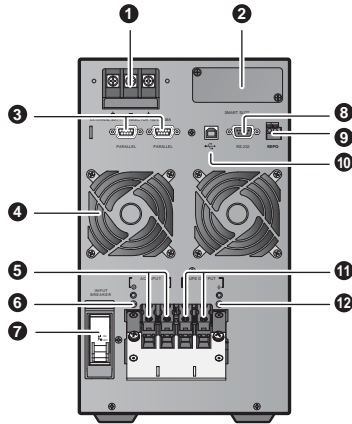
No.	Item	Functions
①	External Battery Connector	Connects to the external battery pack.
②	Mini Slot	Accepts an mini SNMP, mini Relay I/O, mini USB and mini ModBus card (optional).
③	Parallel Ports	For UPS parallel communication. You can parallel at maximum four UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please note that parallel UPSs cannot share common batteries.
④	Fans	Cool and ventilate the UPS.
⑤	AC Input Terminals (L & N)	Connect the UPS to the mains.
⑥	⊕	For UPS grounding.
⑦	Input Breaker	It is the input power's protective device and is for safety protection.

No.	Item	Functions
8	RS-232 Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
9	REPO Port	<p>Remotely shuts down the UPS when an emergency occurs.</p> <p> NOTE: Please connect a user-supplied normally-open switch to the REPO port. When the user-supplied switch is closed, the UPS will immediately shut down the inverter and output (the UPS won't transfer into bypass mode).</p>
10	USB Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
11	UPS Output Terminals (L & N)	<p>Connect to your loads.</p> <p> NOTE: To avoid output from over current protection, please follow the load capacity (from the largest to the smallest) to connect the loads to the UPS.</p>
12	⏚	For connected loads' grounding.

- For models UPS602N2004N0BA (6 kVA) & UPS103N2004N0BA (10 kVA)







(Before Removal of Wiring Panel)



(After Removal of Wiring Panel)

No.	Item	Functions
①	External Battery Connector	Connects to the external battery pack.
②	Smart Slot	Accepts an SNMP, Relay I/O, USB and ModBus card (optional).
③	Parallel Ports	For UPS parallel communication. You can parallel at maximum four UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please note that parallel UPSs cannot share common batteries.
④	Fans	Cool and ventilate the UPS.
⑤	AC Input Terminals (L & N)	Connect the UPS to the mains.
⑥	⊕	For UPS grounding.
⑦	Input Breaker	It is the input power's protective device and is for safety protection.

No.	Item	Functions
8	RS-232 Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
9	REPO Port	<p>Remotely shuts down the UPS when an emergency occurs.</p> <p> NOTE: Please connect a user-supplied normally-open switch to the REPO port. When the user-supplied switch is closed, the UPS will immediately shut down the inverter and output (the UPS won't transfer into bypass mode).</p>
10	USB Port	<p>Connects to your computer. You can monitor the UPS's status via your computer by installing the UPSentry 2012 software (please download from http://www.deltapowersolutions.com/en/mcis/software-center.php).</p> <p> NOTE: Do not use the USB port and the RS-232 port at the same time. If you connect the USB cable to the USB port, the RS-232 port will disable right away.</p>
11	UPS Output Terminals (L & N)	<p>Connect to your loads.</p> <p> NOTE: To avoid output from over current protection, please follow the load capacity (from the largest to the smallest) to connect the loads to the UPS.</p>
12	⏚	For connected loads' grounding.

Chapter 5 : Wiring

5.1 Pre-wiring Warnings

- Before wiring or making any electrical connection, make sure that the UPS is in shutdown status, and the power supplied to the input and output of the UPS is completely cut off to avoid accidents.
- When connecting the UPS to the mains and the loads, you must install the protective devices. The protective devices must be approved components that meet safety certifications. Please refer to the table below.

Capacity	Protective Device	Suggested Supplier
6kVA	D Curve- 63A Breaker	I/P: DELIXI (CDB6i1252D63) O/P: DELIXI (CDB6i1252D63)
10kVA	D Curve- 80A Breaker	I/P: DELIXI (CDB6i1252D80) O/P: DELIXI (CDB6i1252D80)

- Check that the size, diameter, phase, and polarity of each cable that needs to connect to the UPS are correct. Please refer to **Table 5-2**.

Table 5-2: Input/ Output Electrical Data

Capacity	6kVA	10kVA
Input Cable	8AWG/ 6mm ²	6AWG/ 10mm ²
Output Cable	8AWG/ 6mm ²	6AWG/ 10mm ²
Battery Cable	8AWG/ 6mm ²	6AWG/ 10mm ²
Input Breaker	63D (2-pole x 1)	80D (2-pole x 1)



NOTE :

1. Please install a suitable conduit and bushing to protect input/ output wiring.
2. Please refer to local/ national electrical codes and local regulations for acceptable non-fuse breakers and cable size.
3. Cables with PVC material and with temperature resistance up to 105°C are suggested.

5.2 Input/ Output Wiring



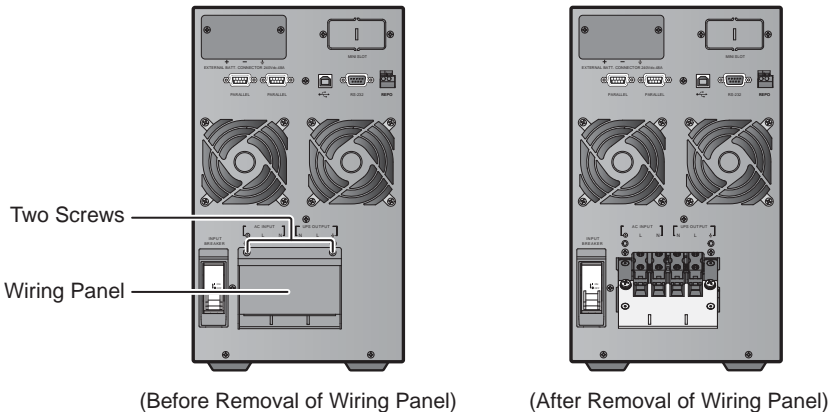
NOTE:

1. The UPS doesn't have any built-in backfeed protection device. Please install a backfeed protection device in front of the input power. The suggested backfeed protection device rating is as follows:

UPS	Suggested Backfeed Protection Device Rating
6kVA	240VAC/ 40A
10kVA	240VAC/ 65A

2. Each model's input/ output wiring methods are the same. Below, we only use model UPS103N2004N0B0 (10 kVA) as an example for illustration.

- 1) Remove the two screws from the wiring panel shown below.



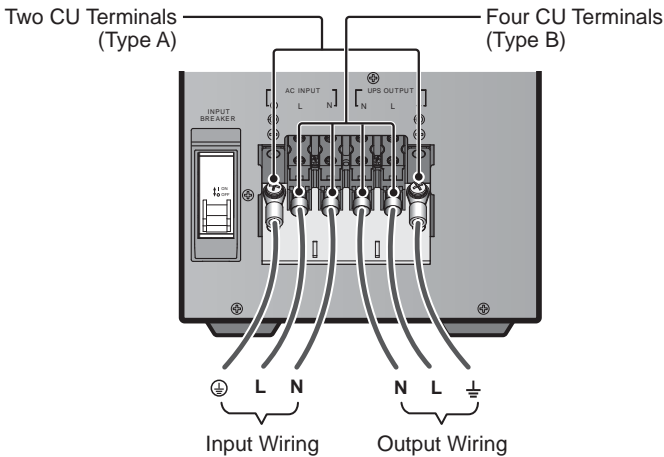
(Figure 5-1 : Removal of Wiring Panel)

- ② (A) Connect the provided four CU terminals (type B) to the input cables (L & N) and output cables (L & N), and then connect the four CU terminals (type B) to the AC input terminals and UPS output terminals.
- (B) Connect the provided two CU terminals (type A) to the input grounding cable and output grounding cable, and then connect the two CU terminals (type A) to the input grounding terminal \oplus and output grounding terminal \perp .



NOTE:

To avoid output from over current protection, please follow the load capacity (from the largest to the smallest) to connect the loads to the UPS.



(Figure 5-2: Input & Output Wiring)

5.3 External Battery Pack Connection

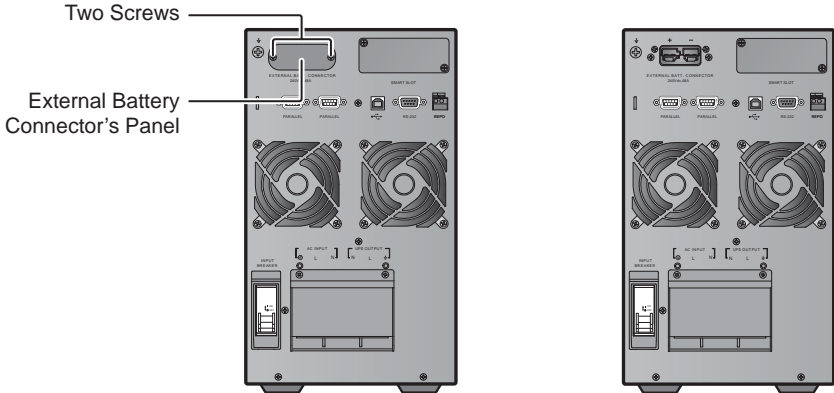


NOTE:

1. When connecting the external battery pack with the UPS, you must install an appropriate non-fuse DC breaker or the fast-acting fuse that meets the safety certification. Do not use an AC breaker.
2. The breaker must be a 2-pole non-fuse DC breaker with characteristics of 1-pole 250Vdc, 2-pole 500Vdc and 35kA (or above) DC breaking capacity.

• **For models UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA):**

- 1 Remove the two screws from the external battery connector's panel shown below.

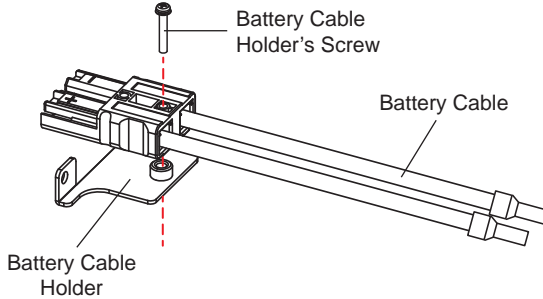


(Before Removal of External Battery Connector's Panel)

(After Removal of External Battery Connector's Panel)

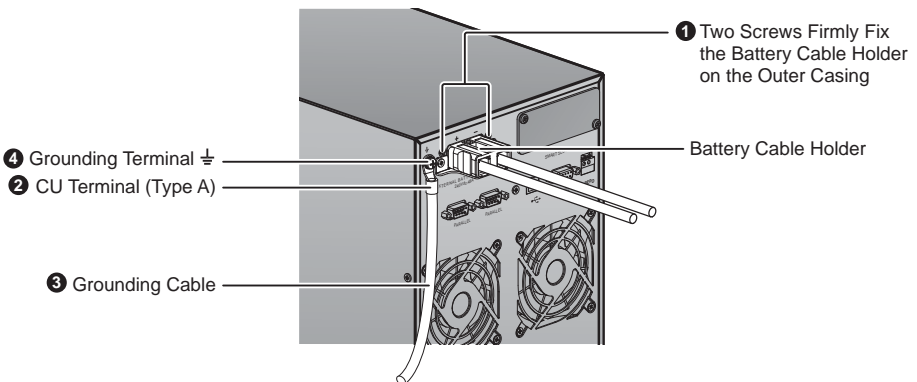
(Figure 5-3: Removal of External Battery Connector's Panel)

- ② Use the provided battery cable holder's screw (total: 2; the other is the spare part) to install the battery cable holder (provided) on the battery cable (provided). Please refer to the following figure.



(Figure 5-4 : Install the Battery Cable Holder on the Battery Cable)

- ③ Insert the battery cable into the external battery connector and use the two screws that were removed from the external battery connector's panel to firmly fix the battery cable holder on the outer casing ①. Use the provided CU terminal (type A) ② to connect with the external battery pack's grounding cable ③, and connect the CU terminal (type A) to the external battery pack's grounding terminal \perp ④.



(Figure 5-5 : Battery Cable Connection)

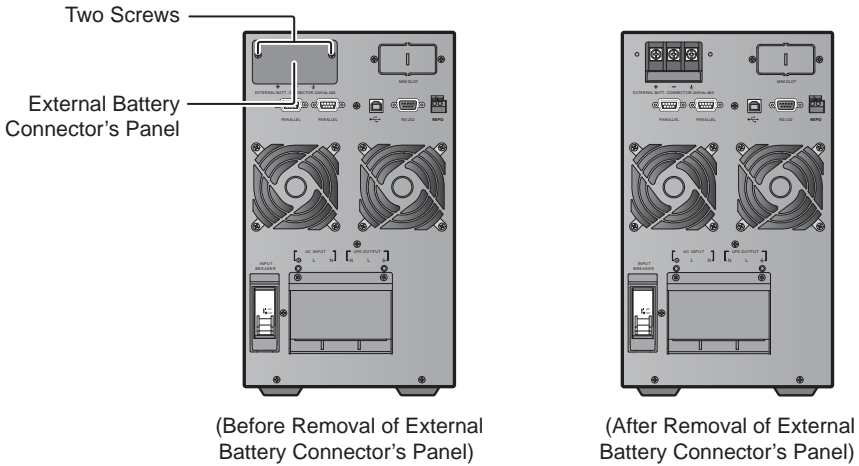
- For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA) & UPS602N2004N0BA (6kVA) & UPS103N2004N0BA (10kVA):



NOTE :

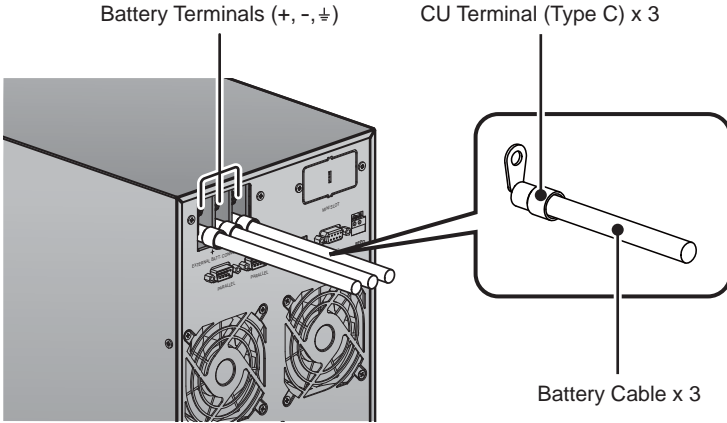
For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA) & UPS602N2004N0BA (6kVA) & UPS103N2004N0BA (10kVA), their external battery pack wiring methods are the same. Below, we only use model UPS103N2004N0B0 (10 kVA) as an example for illustration.

- 1 Remove the two screws from the external battery connector's panel shown below.



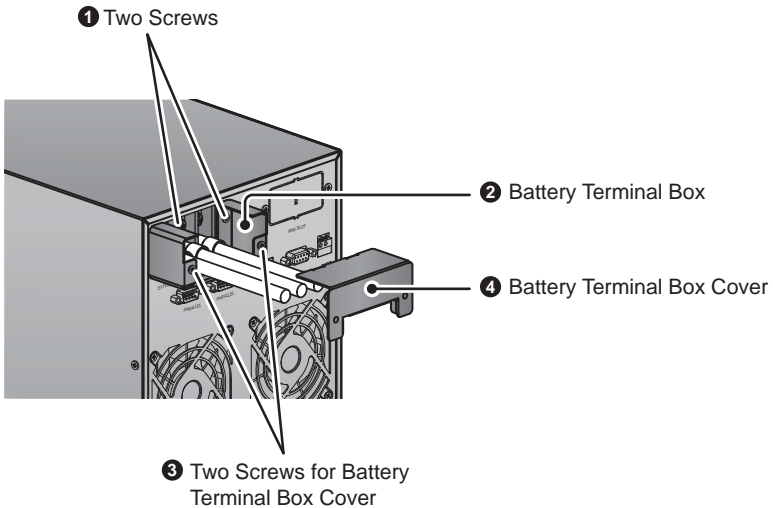
(Figure 5-6 : Removal of External Battery Connector's Panel)

- 2 Connect the three provided CU terminals (type C) to the battery cables, and then connect the three CU terminals (type C) to the battery terminals (+, -, $\frac{1}{2}$).



(Figure 5-7 : Battery Cable Connection)

- 3 Use the two screws ❶ that were removed from the external battery connector's panel to firmly fix the provided battery terminal box ❷ on the outer casing. Use the two provided battery terminal box cover's screws ❸ to firmly fix the provided battery terminal box cover ❹ on the provided battery terminal box. Please see **Figure 5-8**.



(Figure 5-8 : Battery Terminal Box & Battery Terminal Box Cover Installation)

Chapter 6 : Operation Modes



NOTE :

1. Please refer to **Chapter 3 : Operation Panel** to learn how to operate the operation panel and understand the display meaning.
2. Each of the display diagrams shown in this chapter is for reference only. Actual display depends on the operation of the UPS.

6.1 Standby Mode



NOTE :

When the UPS is in the shutdown status and is the first time to be fed with the utility AC power, the bypass will supply power to the output directly and the bypass output voltage and frequency won't be controlled.

After the UPS is connected to the AC utility, it will supply power to the UPS and the batteries will be charged.

6.2 On-line Mode

In online mode, the connected loads are supplied by the inverter, which derives its power from the utility AC power, and the UPS charges the batteries and provides power protection to its connected loads.

6.3 Bypass Mode



NOTE :

When the UPS is in the shutdown status and is the first time to be fed with the utility AC power, the bypass will supply power to the output directly and the bypass output voltage and frequency won't be controlled.

In bypass mode, the critical loads are directly supplied by the utility power and the batteries are charged. The default setting of the UPS is set in '**Bypass Mode**'.

6.4 Battery Mode

When the UPS is operating during a power outage, the batteries provide DC power, which maintains inverter operation to supply power to the connected critical loads.



NOTE:

- **For models UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA) & UPS602N2004N0BA (6kVA) & UPS103N2004N0BA (10kVA):**

You can install the UPSentry 2012 software (please download from <http://www.deltapowersolutions.com/en-in/mcis/software-center.php>) or the SNMP card (optional) or the ModBus card (optional) to monitor and estimate the battery remaining capacity before or during an AC power failure. For more information about the SNMP card (optional) or the ModBus card (optional), please refer to its user manual.

- **For models UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA):**

You can install the UPSentry 2012 software (please download from <http://www.deltapowersolutions.com/en-in/mcis/software-center.php>) or the mini SNMP card (optional) or the mini ModBus card (optional) to monitor and estimate the battery remaining capacity before or during an AC power failure. For more information about the mini SNMP card (optional) or the mini ModBus card (optional), please refer to its user manual.

6.5 ECO Mode

You can manually set the UPS to run in ECO mode. In ECO mode, when the bypass input voltage is within the range of rated voltage $\pm 10\%$ and the bypass input frequency is within the range of rated frequency $\pm 5\text{Hz}$, the connected loads are supplied by the bypass power; if out of the range, the connected loads are supplied by the inverter.












6.6 Setup Mode

Please note that only qualified service personnel can perform setup action. In setup mode, you can set up the following items:

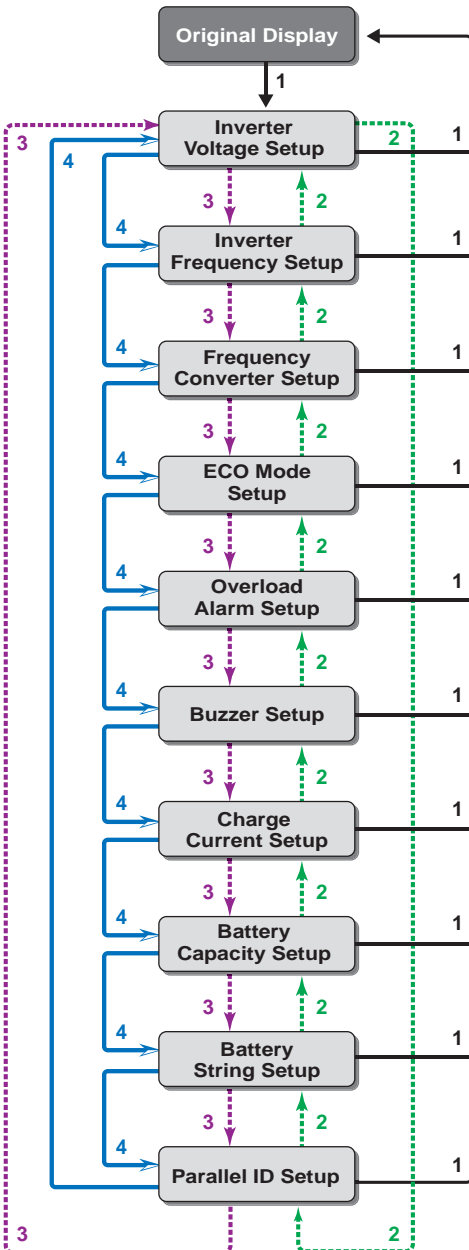
1. Inverter voltage setup
2. Inverter frequency setup

3. Frequency converter setup
4. ECO mode setup
5. Overload alarm setup
6. Buzzer setup
7. Charge current setup
8. Battery capacity setup
9. Battery string setup
10. Parallel ID setup

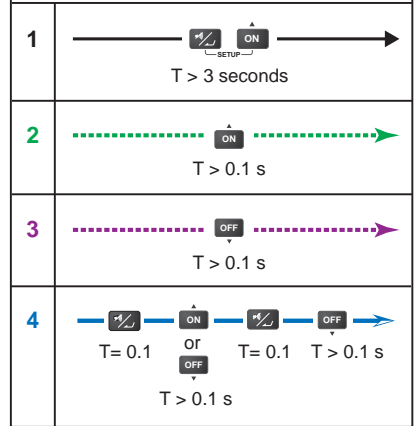
For setup procedures, please refer to the following:

- 1 Simultaneously press the two buttons   for 3 seconds to enter into the setup mode.
- 2 Press the  button for 0.1 second or press the  button for 0.1 second to view the previous or the next display.
- 3 Press the  button for 0.1 second to enter into the item that you want to set up.
- 4 Press the  button for 0.1 second or press the  button for 0.1 second to increase or decrease the parameter value.
- 5 Press the  button for 0.1 second to confirm your parameter setup.
- 6 After that, press the  button for 0.1 second to go to the next setup item.
- 7 In setup mode, simultaneously press the two buttons   for 3 seconds, the LCD will exit from the setup mode.
- 8 In setup mode, if you don't press any button for more than 2 minutes, the LCD will exit from the setup mode and go back to the original display automatically.

Setup Mode Flow Chart



Setup Procedures Illustration




For some settings, they can't be set in certain operation modes. Please refer to the table below for relevant information.

Setup Item	Standby Mode	On-line Mode	Bypass Mode	Battery Mode	ECO Mode
Inverter Voltage Setup	✓	✗	✓	✗	✗
Inverter Frequency Setup	✓	✗	✓	✗	✗
Frequency Converter Setup	✓	✗	✓	✗	✗
ECO Mode Setup	✓	✓	✓	✓	✓
Overload Alarm Setup	✓	✓	✓	✓	✓
Buzzer Setup	✓	✓	✓	✓	✓
Charge Current Setup	✓	✓	✓	✓	✓
Battery Capacity Setup	✓	✓	✓	✓	✓
Battery String Setup	✓	✓	✓	✓	✓
Parallel ID Setup	✓	✓	✓	✓	✓

Chapter 7 : Turn-on & Turn-off Procedures




NOTE:

A loss of battery charge capacity may occur during shipping and storage. Before 1st use of the UPS, please (1) check the battery capacity and battery charge setup, and (2) fully charge the batteries until the Battery Level Bar Graph  shown on the UPS's LCD is fully on.




7.1 Turn-on Procedures

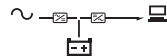


WARNING:



- Pre Turn-on Procedures Warnings for Parallel Units
 1. You can parallel at maximum four UPS units. To enhance parallel reliability, please adopt the Daisy Chain method to execute parallel configuration. Please note that parallel UPSs cannot share common batteries.
 2. Only when the parallel icon  illuminates can you perform turn on procedures for the parallel units.

A. Normal Startup


- 1 Verify if the UPS's input wiring (N, L & ) is correct and AC utility is normal.
- 2 Please check the '+' and '-' poles and ensure that battery wiring is correct.
- 3 Turn on the external battery pack's breaker.
- 4 Turn on the UPS's input breaker.
- 5 Press and hold the  button for 3 seconds and release it after you hear one beep.
- 6 The UPS starts self-inspection. When the LCD shows , it means that the UPS is running in on-line mode.



B. Cold Start

- 1 Please check the '+' and '-' poles and ensure that battery wiring is correct.
- 2 Press and hold the  button for 3 seconds and release it after you hear one beep.
- 3 The UPS starts self-inspection. When the LCD shows , it means that the UPS is running in battery mode.

7.2 Turn-off Procedures

- 1 Make sure that the connected loads have been completely turned off.
- 2 Press and hold the  button for 3 seconds and release it after you hear one beep.
- 3 Turn off the UPS's input breaker.
- 4 Wait until the LCD backlight is completely off.
- 5 Turn off the external battery pack's breaker.


Chapter 8 : Alarm

When the external battery pack connected to the UPS has the following problems, the UPS system will sound an alarm. Please see the table below.

No.	Condition	Alarm
1	Battery Mode	Sounds once every 2 seconds.
2	Low Battery	Sounds once every 0.5 second.
3	Battery Missing/ Weak Battery Battery Replacement *	Sounds once every 2 seconds.
4	Overload	1. Overload_105%~125%: The alarm sounds once every 2 seconds. 2. Overload_125%~150%: The alarm sounds once every 0.5 seconds.
5	Fault	The alarm sounds continuously for 5 seconds when the UPS detects an internal fault. After the 5 seconds, the alarm sounds once every 2 seconds.



NOTE :

*: After reconnecting or replacing the batteries, it might take a while for the UPS to switch off the alarm automatically. If, after a period of time, the audible alarm still exists, the user must manually initiate a battery test (press and hold the  button for 3 seconds and release it after you hear one beep) to clear the alarm.

Chapter 9 : Optional Accessories

There are several optional accessories available for this N series UPS. Please refer to the table below for the optional accessories and their descriptions.

- For models **UPS602N2004N035 (6 kVA) & UPS103N2004N035 (10 kVA)**

No.	Item	Function
1	Dust Filter	Prevents dust from entering into the UPS to ensure UPS reliability and to prolong product life.
2	Manual Bypass Box (Single/ Parallel)	Lets the UPS continue supplying power to its connected loads when the UPS is under maintenance.
3	Battery Cable Extension Kit (includes two ring-type thimbles and two joints)	Extends the provided battery cable (1.5m).
4	SNMP Card	Monitors and controls the status of the UPS via a network system.
5	ModBus Card	Lets the UPS have ModBus communication function.
6	Relay I/O Card	Increases the quantity of dry contacts.

- For models **UPS602N2004N0B0 (6 kVA) & UPS103N2004N0B0 (10 kVA)**

No.	Item	Function
1	Dust Filter	Prevents dust from entering into the UPS to ensure UPS reliability and to prolong product life.
2	Insect Screen	Prevents insects from entering into the UPS to ensure UPS reliability and to prolong product life.
3	Manual Bypass Box (Single/ Parallel)	Lets the UPS continue supplying power to its connected loads when the UPS is under maintenance.

No.	Item	Function
4	Mini SNMP Card	Monitors and controls the status of the UPS via a network system.
5	Mini Relay I/O Card	Increases the quantity of dry contacts.
6	Mini USB Card	Lets the UPS have USB communication function.
7	Mini ModBus Card	Lets the UPS have ModBus communication function.
8	Mini TVSS Card	Lets the UPS have surge protection function.

• For models UPS602N2004N0BA (6kVA) & UPS103N2004N0BA (10kVA)



No.	Item	Function
1	Dust Filter	Prevents dust from entering into the UPS to ensure UPS reliability and to prolong product life.
2	Manual Bypass Box (Single/ Parallel)	Lets the UPS continue supplying power to its connected loads when the UPS is under maintenance.
3	SNMP Card	Monitors and controls the status of the UPS via a network system.
4	ModBus Card	Lets the UPS have ModBus communication function.
5	Relay I/O Card	Increases the quantity of dry contacts.




NOTE :

1. For detailed installation and operation of any accessory mentioned above, please refer to the Quick Guide, User Guide, or Installation & Operation Guide included in the package of the relevant optional accessory.
2. If you want to buy any accessory mentioned above, please contact your local dealer or customer service.


Chapter 10 : Troubleshooting

1. When a problem occur, please check if the following situation exists before contacting Delta service personnel:
 - Is the main input voltage present?
2. Please have the following information ready if you would like to contact the Delta service personnel:
 - Unit information including model, serial number, etc.
 - An exact description of the problem. The more detailed description of the problem, the better.
3. When the following error code appears on the 16-segment display , please follow the table below to solve the according problems. To know how the error code appears on the 16-segment display , please refer to **3.6 Error Code Information**.

Error Code	Meaning	Possible Cause	Solution
E0002	Abnormal input (when the AC icon  is flashing)	The AC input voltage is out of the acceptable bypass range.	1. Check whether the AC input voltage is abnormal. 2. Contact service personnel.
E0301	Input fuse blown	The input fuse is blown or the input electric relay is not closed.	Contact service personnel.
E2002	Rectifier abnormal	The UPS has internal abnormalities.	Contact service personnel.
E2003	BUS start abnormal	The UPS has internal abnormalities.	Contact service personnel.
E2102	Battery start abnormal	The UPS has internal abnormalities.	Contact service personnel.

Error Code	Meaning	Possible Cause	Solution
E2103	BUS start abnormal in battery mode	The UPS has internal abnormalities.	Contact service personnel.
E2302	+BUS voltage too high	<ol style="list-style-type: none"> 1. Output connects with regenerative loads. 2. The UPS has internal abnormalities. 	<ol style="list-style-type: none"> 1. Remove any inductive or capacitive loads that have regenerative properties. 2. Contact service personal.
E2502	-BUS voltage too high	<ol style="list-style-type: none"> 1. Output connects with regenerative loads. 2. The UPS has internal abnormalities. 	<ol style="list-style-type: none"> 1. Remove any inductive or capacitive loads that have regenerative properties. 2. Contact service personnel.
E2702	+BUS voltage too low	The UPS has internal abnormalities.	Contact service personnel.
E2902	-BUS voltage too low	The UPS has internal abnormalities.	Contact service personnel.
E3102	Inverter output voltage abnormal	The UPS has internal abnormalities.	Contact service personnel.
E3701	Overload shutdown	The UPS is overloaded.	Check the connected loads and decrease some loads.
E5001	Charge voltage too high	The UPS has internal abnormalities.	Contact service personnel.

Error Code	Meaning	Possible Cause	Solution
E6101	Damaged batteries	The batteries are damaged or battery lifetime is due.	Contact service personnel.
E6801	Battery missing	1. The battery cables are not connected or not firmly connected. 2. The batteries are damaged.	1. Check if the battery cables are firmly connected or not. 2. Contact service personnel.
E6702	Battery voltage too low	The UPS has internal abnormalities.	Contact service personnel.
E7302	Over-temperature protection	1. The vents are blocked. 2. The UPS has internal abnormalities.	1. Check if the vents are blocked or not. 2. Contact service personnel.

4. If the error code that appears on the 16-segment display  is not listed in the table above, please contact service personnel for possible causes and solutions.



NOTE :

If all possible causes are eliminated but the alarm/ error code still exists, please contact your local dealer or customer service.

Chapter 11 : Maintenance

11.1 UPS

- **UPS Cleaning**

Regularly clean the UPS, especially the slits and openings, to ensure that the air freely flows into the UPS to avoid overheating. If necessary, use an air-gun to clean the slits and openings to prevent any object from blocking or covering these areas.


- **UPS Regular Inspection**

Regularly check the UPS every half year and inspect:

1. Whether the UPS, LEDs, and alarm function are operating normally.
2. Whether battery voltage is normal. If battery voltage is too high or too low, find the root cause.

11.2 Batteries

The N series UPS uses sealed lead-acid batteries. Though the typical battery life cycle is 3~5 years, the battery life depends on the temperature, the usage, and the charging/ discharging frequency. High temperature environments and high charging/ discharging frequency will quickly shorten the battery life. The UPS does not require maintenance by the user; however, the batteries should be checked periodically. Please follow the suggestions below to ensure a normal battery lifetime and sufficient back-up time.

- Keep the usage temperature at 20°C ~25°C.
- Idle batteries must be fully recharged every three months if the UPS needs to be stored for an extended period of time. Please fully charge the batteries until the Battery Level Bar Graph  shown on the UPS's LCD is fully on.
- If you need to replace the batteries or the external battery packs, please contact service personnel.

11.3 Fans

Higher temperatures shorten fan life. When the UPS is running, please check if each fan works normally and make sure if the ventilation air can move freely around and through the UPS. If not, contact service personnel.



NOTE:

Please ask your local dealer or customer service for more maintenance information. Do not perform maintenance if you are not trained for it.

Appendix 1 : Technical Specifications

Model		N-6K	N-10K
Power Rating		6kVA/6kW	10kVA/10kW
Waveform		Pure Sine Wave	
Input	Nominal Voltage	200/208/220/230/240 Vac	
	Voltage Range	1. 200/208 Vac (derating to 90%): 176Vac ~ 280Vac*1 2. 220/230/240 Vac: 195Vac ~ 280 Vac*2	
	Frequency	40Hz ~ 70Hz	
	Power Factor	> 0.99 (full load)	
	iTHD	< 3% (linear load)	
Output	Power Factor	1	
	Nominal Voltage	200/208/220/230/240 Vac	
	Voltage Regulation	± 1% (linear load)	
	Frequency	50/60 ±0.05 Hz	
	vTHD	<3% (linear load)	
	Overload Capability	< 105%: continuous; 105% ~ 125%: 2 minutes; 125% ~ 150%: 30 seconds	
	Cress Factor	3:1	
Efficiency	Online Mode	Up to 95%	
	ECO Mode	Up to 98%	
Audible Noise		<50dBA (at a distance of 1 meter in front of the UPS)	
Display		LED indicators & LCD display	

Model		N-6K	N-10K
Battery	Battery Voltage	192 ~ 264Vdc (adjustable)	
		192Vdc (default)	0B0 & 035 Models: 240Vdc (default) 0BA Model: 192Vdc (default)
	Battery Type	Sealed VRLA battery	
	Charge Current	1.5 ~ 8A (selectable)	
Communication Interfaces	035 & 0BA Models	REPOx1, RS-232 Port x1, USB Port x1, Parallel Portx2, Smart Slotx1	
	0B0 Model	REPOx1, RS-232 Portx1, USB Portx1, Parallel Portx2, Mini Slotx1	
Physical	Dimensions (W x D x H)	190x390x325 mm	
	Weight	10.1 kg	12.7 kg
Environment	Operating Altitude	1000 meters (without derating)	
	Operating Temperature	0°C ~ 40°C (without derating)	
	Storage Temperature	-15°C ~ 50°C	
	Relative Humidity	5% ~ 95% (non-condensing)	



NOTE :

1. *1 : Linear derating between 50%~90% load at 100Vac~175Vac.
2. *2 : Linear derating between 50%~100% load at 100Vac~194Vac.
3. Please refer to the rating label for the safety rating.
4. All specifications are subject to change without prior notice.

Appendix 2 : Warranty

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship within the warranty period. If the product has any failure problem within the warranty period, Seller will repair or replace the product at its sole discretion according to the failure situation.

This warranty does not apply to normal wear or to damage resulting from improper installation, operation, usage, maintenance or irresistible force (i.e. war, fire, natural disaster, etc.), and this warranty also expressly excludes all incidental and consequential damages.

Maintenance service for a fee is provided for any damage out of the warranty period. If any maintenance is required, please directly contact the supplier or Seller.



WARNING:

The individual user should take care to determine prior to use whether the environment and the load characteristic are suitable, adequate or safe for the installation and the usage of this product. The User Manual must be carefully followed. Seller makes no representation or warranty as to the suitability or fitness of this product for any specific application.

