

# Delta UPS - Amplon Family

N Series, Single Phase

6/ 10 kVA Maintenance Bypass Box

for Single UPS & Parallel UPSs

## Installation & Operation Quick Guide

ENGLISH

### 1 Product Introduction

The Maintenance Bypass Box is designed to operate in conjunction with your Delta N series 6kVA/ 10kVA UPS. It ensures that your connected critical load continues to be powered from the input supply during UPS maintenance or during the unlikely event of a UPS failure.

### 2 Important Safety Instructions

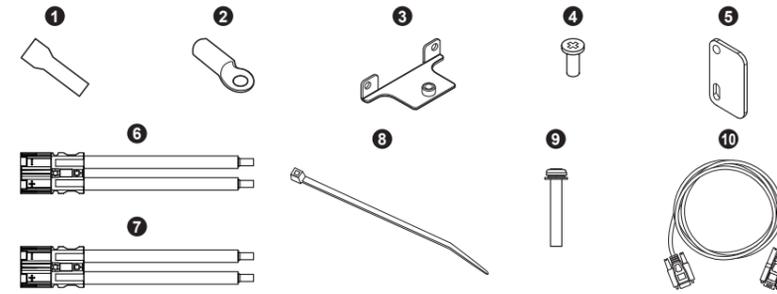
- Only qualified service personnel can perform installation and maintenance of the Maintenance Bypass Box.
- The Maintenance Bypass Box must operate in conjunction with Delta N series 6kVA/ 10kVA UPS. Please refer to the following table.

Maintenance Bypass Box Model	PDB1511A530035 (for single UPS application)	PDB1512A510035 (for parallel UPSs application)
Applicable Delta N series UPS Model	UPS103N2002N009 UPS103N2004N0B0 UPS103N2004N0BA UPS103N2004N035 UPS602N2002N009 UPS602N2004N0B0 UPS602N2004N0BA UPS602N2004N035	UPS103N2004N0B0 UPS103N2004N0BA UPS103N2004N035 UPS602N2004N0B0 UPS602N2004N0BA UPS602N2004N035

- Before installation of the Maintenance Bypass Box, please completely turn off the UPS and cut off the input power and battery power (if applicable).
- Failure to properly install the Maintenance Bypass Box may result in severe damage to your UPS or load equipment.
- Please install the Maintenance Bypass Box in an indoor temperature controlled environment that is free of conductive contaminants.
- Do not operate the unit in extremely dusty and/ or unclean areas, locations near heating devices, water or excessive humidity, or where the unit is exposed to direct sunlight.
- Select a location where provides good air circulation for the unit at all times.
- Properly route power cords so they cannot be walked on or damaged.
- The Maintenance Bypass Box must be well grounded due to a possible risk of current leakage.
- The Maintenance Bypass Box is not intended for use in direct patient care or in life support applications.

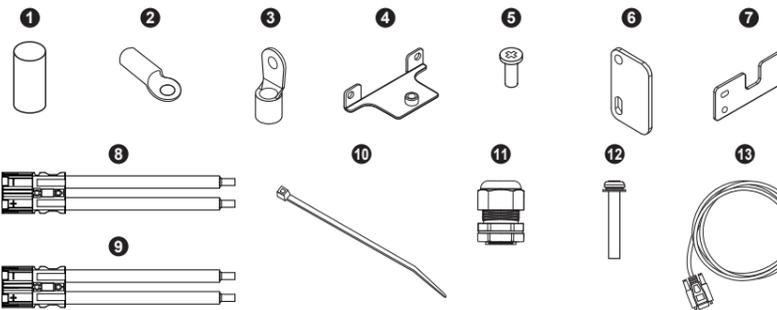
### 3 Package List

- Model PDB1511A530035\_ Maintenance Bypass Box for Single UPS Application



No.	Item	Q'ty
1	CU Terminal (Type A)	4 PCS
2	CU Terminal (Type B)	4 PCS
3	Terminal Holder	2 PCS
4	Screw for Fastener	8 PCS
5	Fastener (Type A)	4 PCS
6	Wire 1	1 PCS
7	Wire 2	1 PCS
8	Cable Tie	6 PCS
9	Screw for Terminal Holder	2 PCS
10	RS-232 Cable	1 PCS

- Model PDB1512A510035\_ Maintenance Bypass Box for Parallel UPSs Application



No.	Item	Q'ty
1	Heat Shrink Tube	12 PCS
2	CU Terminal (Type B)	4 PCS
3	CU Terminal (Type C)	6 PCS
4	Terminal Holder	4 PCS
5	Screw for Fastener	12 PCS
6	Fastener (Type A)	4 PCS
7	Fastener (Type B)	1 PCS
8	Wire 1	2 PCS
9	Wire 2	2 PCS
10	Cable Tie	6 PCS
11	Cable Gland	2 PCS
12	Screw for Terminal Holder	4 PCS
13	Parallel Cable	1 PCS



#### NOTE:

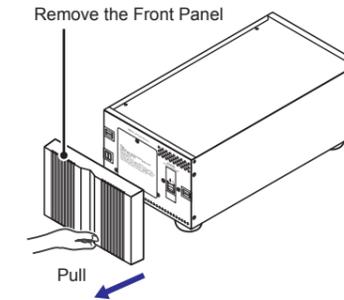
- If there is any damage or anything missing, please immediately contact the dealer from whom you purchased the unit.
- If the Maintenance Bypass Box needs to be returned, carefully repack the Maintenance Bypass Box and all of the accessories using the original packing material that came with the unit.

### 4 Standard Compliance

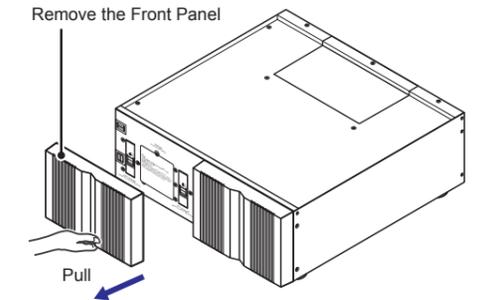
- IEC
- EN62040-1

### 5 How to Remove the Front Panel

- PDB1511A530035

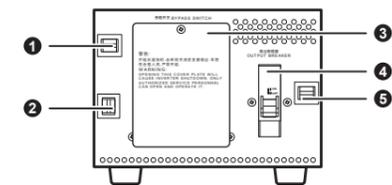


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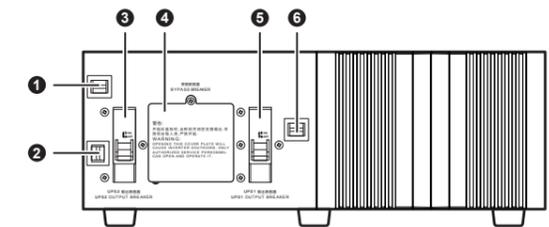
### 6 Front View after Front Panel Removal

- PDB1511A530035



No.	Item
1	Latch (for fastening the front panel)
2	Latch (for fastening the front panel)
3	Bypass Switch (please remove the cover's screw shown in the figure above to see the bypass switch)
4	Output Breaker
5	Latch (for fastening the front panel)

- PDB1512A510035



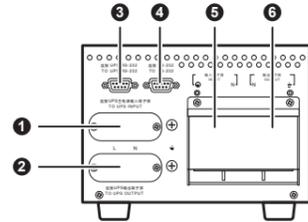
No.	Item
1	Latch (for fastening the front panel)
2	Latch (for fastening the front panel)
3	UPS2 Output Breaker

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No.	Item
4	Bypass Breaker (please remove the cover's screw shown in the figure above to see the bypass breaker)
5	UPS1 Output Breaker
6	Latch (for fastening the front panel)

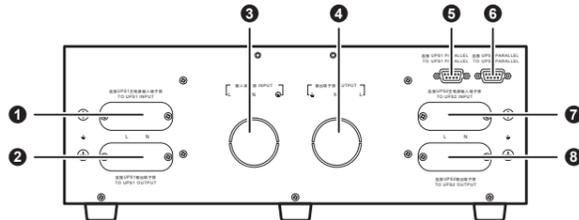
## 7 Rear Panel

• PDB1511A530035



No.	Item	Connection
1	TO UPS INPUT (L/ N/ $\perp$ )	Connects to the UPS's AC INPUT terminals (L/ N/ $\perp$ ).
2	TO UPS OUTPUT (L/ N/ $\perp$ )	Connects to the UPS's UPS OUTPUT terminals (L/ N/ $\perp$ ).
3	TO UPS RS-232	Connects to the UPS's RS-232 port.
4	TO RS-232	Connects to your computer's RS-232 port.
5	INPUT (L/ N/ $\perp$ )	Connects to the main AC utility.
6	OUTPUT (L/ N/ $\perp$ )	Connects to the critical load.

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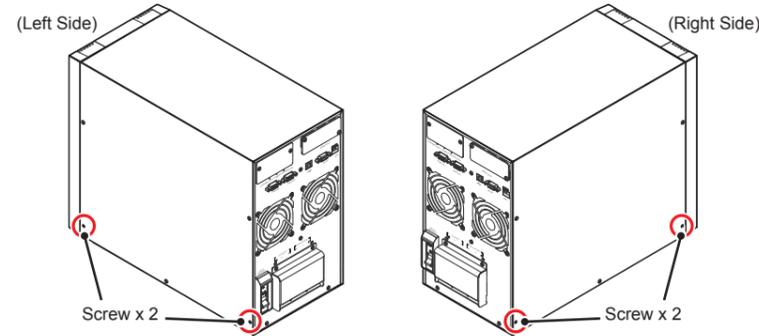


No.	Item	Connection
1	TO UPS1 INPUT (L/ N/ $\perp$ )	Connects to the UPS1's AC INPUT terminals (L/ N/ $\perp$ ).
2	TO UPS1 OUTPUT (L/ N/ $\perp$ )	Connects to the UPS1's UPS OUTPUT terminals (L/ N/ $\perp$ ).
3	INPUT (L/ N/ $\perp$ )	Connects to the main AC utility.
4	OUTPUT (L/ N/ $\perp$ )	Connects to the critical load.
5	TO UPS1 PARALLEL	Connects to the UPS1's parallel port.
6	TO UPS2 PARALLEL	Connects to the UPS2's parallel port.
7	TO UPS2 INPUT (L/ N/ $\perp$ )	Connects to the UPS2's AC INPUT terminals (L/ N/ $\perp$ ).
8	TO UPS2 OUTPUT (L/ N/ $\perp$ )	Connects to the UPS2's UPS OUTPUT terminals (L/ N/ $\perp$ ).

## 8 How to Install the UPS(s) on the Maintenance Bypass Box

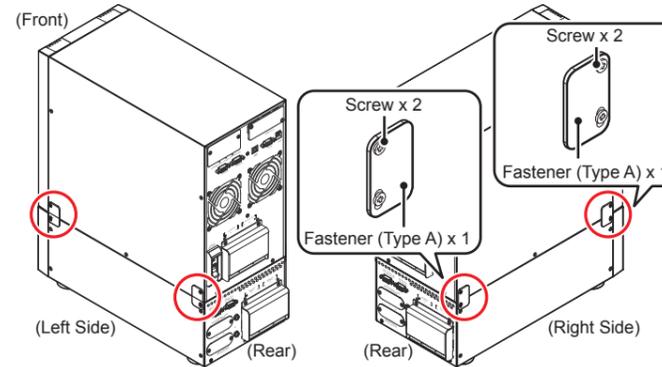
• PDB1511A530035

- Remove the bottom of the UPS's four screws shown in **Figure 1**.



(Figure 1)

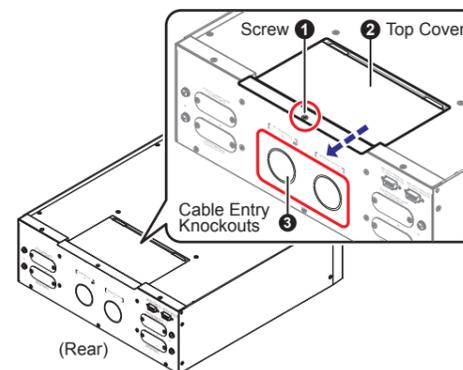
- Place the UPS on the top of the Maintenance Bypass Box.
- Use the provided four fastener (type A) and eight screws to firmly fix the UPS on the Maintenance Bypass Box. Please fix the two fasteners (type A) on the right side of the UPS and two fasteners (type A) on the left side of the UPS. Each fastener (type A) requires two screws (provided). Please refer to **Figure 2**.



(Figure 2)

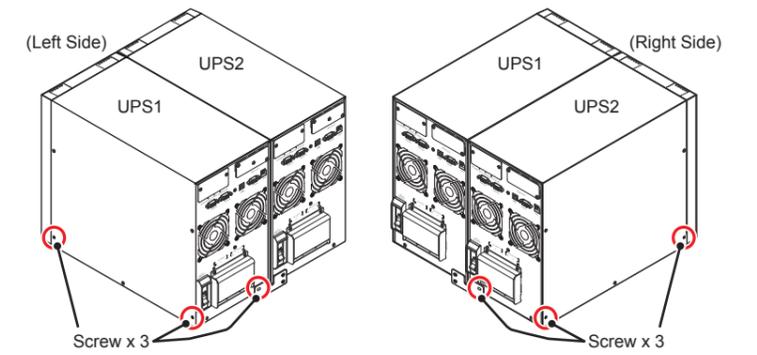
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- Loosen the screw (1) to remove the Maintenance Bypass Box's top cover (2). Please see **Figure 3**.
- Remove the two cable entry knockouts (3) (please see **Figure 3**), install the provided two cable glands, six CU terminals (Type C) and twelve heat shrink tubes (please see **Figure 10**), and perform wiring for main AC input and equipment load. For wiring information, please refer to **9 Wiring**.



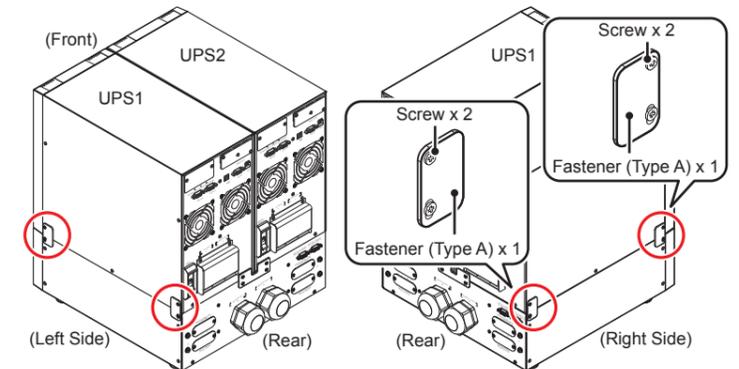
(Figure 3)

- Reinstall the Maintenance Bypass Box's top cover.
- Remove each UPS's bottom three screws shown in **Figure 4**.



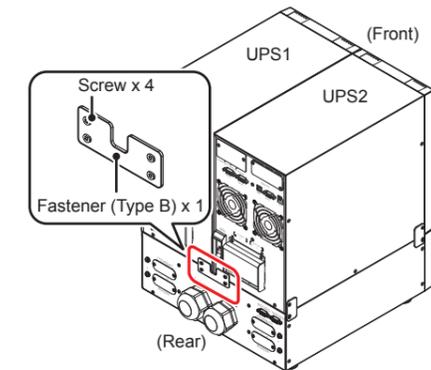
(Figure 4)

- Place UPS1 and UPS2 on the top of the Maintenance Bypass Box.
- Use the provided four fastener (type A) and eight screws to firmly fix the UPS1 and the UPS2 on the Maintenance Bypass Box. Please fix the two fasteners (type A) on the left side of the UPS1 and fix the two fasteners (type A) on the right side of the UPS2. Each fastener (type A) requires two screws (provided). Please refer to **Figure 5**.



(Figure 5)

- Use the provided fastener (type B) and four screws to firmly fix the rear of UPS1 and UPS2 on the rear of the Maintenance Bypass Box. Please refer to **Figure 6**.



(Figure 6)

## 9 Wiring



### WARNING:

Before wiring:

- Follow **2 Important Safety Instructions**.
- Ensure that all of the breakers/ switches are in the **OFF** position before wiring.
- Please refer to the following table for input and output cable selection.

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• PDB1511A530035:

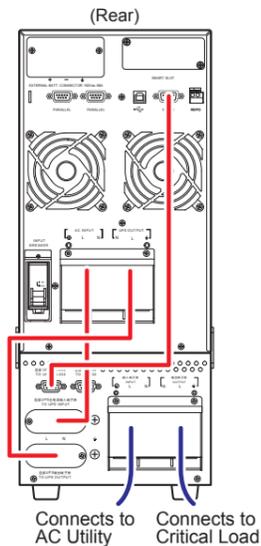
Temperature Rating	6kVA	10kVA
60°C / 75°C	# 8AWG / 6mm <sup>2</sup> (Cu)	# 6AWG / 10mm <sup>2</sup> (Cu)

• PDB1512A510035:

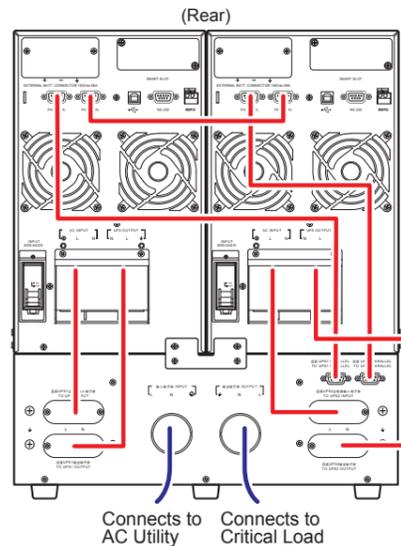
Temperature Rating	12kVA	20kVA
60°C / 75°C	# 4AWG / 16mm <sup>2</sup> (Cu)	35mm <sup>2</sup>

1 Please see **Figure 7** for a general concept of wiring.

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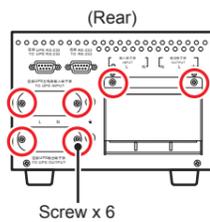
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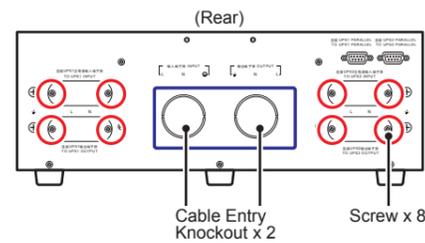
(Figure 7)

2 Remove all of the cover plates' screws and the cable entry knockouts shown in **Figure 8**.

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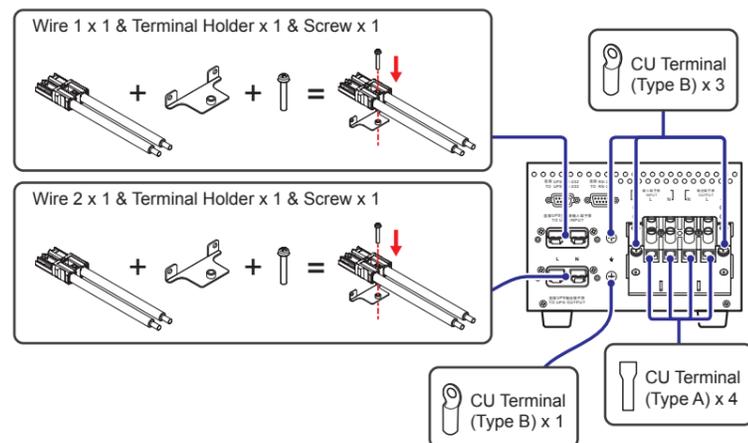
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(Figure 8)

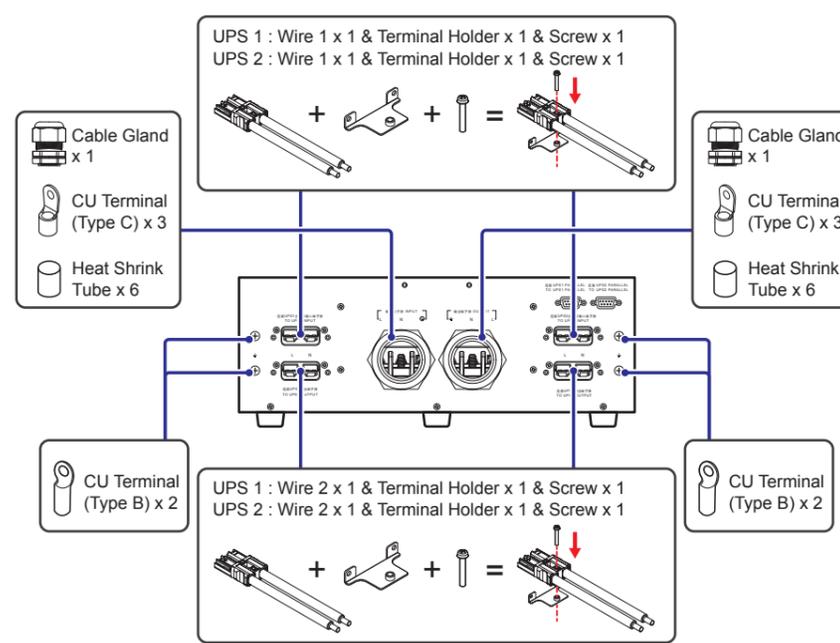
3 Follow **Figure 9** and **Figure 10** to install the provided accessories on the Maintenance Bypass Box and perform wiring.

• PDB1511A530035



(Figure 9)

• PDB1512A510035



(Figure 10)

## 10 Start-up Operation

• PDB1511A530035

All the equipment and the UPS system must be properly connected and there must be an acceptable AC voltage present. Please refer to the UPS's user manual for more information.



**NOTE:**

The cover plate of the Maintenance Bypass Box's bypass switch must still be installed.

- 1 Turn on the input utility breaker at the service panel.
- 2 Turn on the Maintenance Bypass Box's OUTPUT BREAKER.
- 3 Turn on each connected external battery pack's circuit breaker.
- 4 Turn on the UPS's INPUT BREAKER. The fans will turn on, and the UPS will run in bypass mode.



**NOTE:**

If there is a power interruption while the UPS is in bypass mode, the connected load won't be protected.

- 5 Turn on the connected equipment.
- 6 Press and hold the UPS's ON button for 3 seconds and release it after you hear one beep to turn the UPS on.
- 7 Please refer to the UPS's user manual for more information.

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All the equipment and the UPS system must be properly connected and there must be an acceptable AC voltage present. Please refer to the UPS's user manual for more information.



**NOTE:**

The cover plate of the Maintenance Bypass Box's bypass breaker must still be installed.

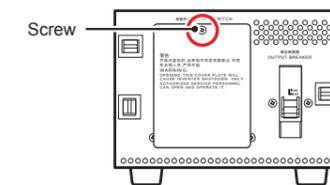
- 1 Turn on the input utility breaker at the service panel.
- 2 Turn on the Maintenance Bypass Box's UPS1 OUTPUT BREAKER.
- 3 Turn on the Maintenance Bypass Box's UPS2 OUTPUT BREAKER.
- 4 Turn on each connected external battery pack's circuit breaker.

- 5 Turn on the UPS1's INPUT BREAKER. The fans will turn on, and the UPS1 will run in bypass mode.
  - 6 Turn on the UPS2's INPUT BREAKER. The fans will turn on, and the UPS2 will run in bypass mode.
- NOTE:**  
If there is a power interruption while the UPS1 and UPS2 are both in bypass mode, the connected load won't be protected.
- 7 Turn on the connected equipment.
  - 8 Press and hold the UPS1's ON button for 3 seconds and release it after you hear one beep to turn the UPS1 on.
  - 9 Press and hold the UPS2's ON button for 3 seconds and release it after you hear one beep to turn the UPS2 on.
  - 10 Please refer to the UPS's user manual for more information.

## 11 Maintenance

• PDB1511A530035

- 1 Press and hold the UPS's OFF button for 3 seconds and release it after you hear one beep. The inverter will be off and the UPS will transfer to run in bypass mode.
- 2 Remove the front panel of the Maintenance Bypass Box. Please refer to **5 How to Remove the Front Panel**.
- 3 Remove the screw shown in **Figure 11** to remove the cover plate of the BYPASS SWITCH.

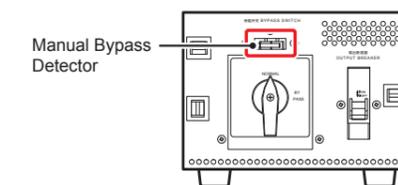


(Figure 11)



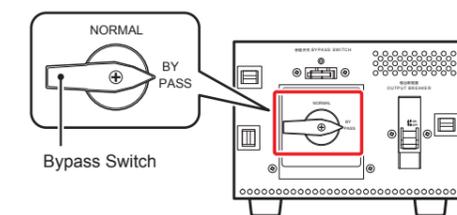
**NOTE:**

Under the cover plate, there is a manual bypass detector (see **Figure 12**) that will be automatically activated to send the UPS a message of transferring into bypass mode once the cover plate is removed.



(Figure 12)

- 4 After you confirm that the UPS has been run in bypass mode, switch the Box's BYPASS SWITCH to the BYPASS position (see **Figure 13**). Now, the connected load is being powered by the utility power.



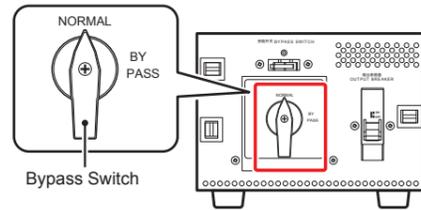
(Figure 13)

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**NOTE:**  
If there is a power interruption while the UPS is in the bypass mode, the connected load won't be protected.

- 5 Turn off the UPS's INPUT BREAKER.
- 6 Turn off each connected external battery pack's circuit breaker.
- 7 Turn off the Maintenance Bypass Box's OUTPUT BREAKER.
- 8 Disconnect the battery cables from the UPS and the external battery pack(s).
- 9 Disconnect the power cables from the 'TO UPS INPUT' and 'TO UPS OUTPUT' terminals on the Maintenance Bypass Box.
- 10 Disconnect all of the communication cables from the rear panel of the UPS.
- 11 Now, the UPS and the external battery pack(s) can be removed to perform maintenance.
- 12 Once the maintenance is complete, re-install the UPS and the external battery pack(s).
- 13 Reconnect all of the battery cables, the power cables and the communication cables.
- 14 Turn on each connected external battery pack's circuit breaker.
- 15 Turn on the UPS's INPUT BREAKER.
- 16 Turn on the Maintenance Bypass Box's OUTPUT BREAKER.
- 17 Switch the Maintenance Bypass Box's BYPASS SWITCH to the NORMAL position (see **Figure 14**).

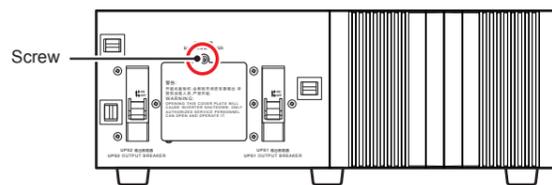


(Figure 14)

- 18 Re-install the cover plate of the BYPASS SWITCH on the Maintenance Bypass Box. This will automatically inactivate the manual bypass detector.
- 19 Press and hold the UPS's ON button for 3 seconds and release it after you hear one beep to turn the UPS on.
- 20 The UPS system is ready for normal operation. Please refer to the UPS's user manual for more information.

• **PDB1512A510035**

- 1 Press and hold the UPS1's OFF button for 3 seconds and release it after you hear one beep. The inverter will be off and the UPS1 will transfer to run in bypass mode.
- 2 Press and hold the UPS2's OFF button for 3 seconds and release it after you hear one beep. The inverter will be off and the UPS2 will transfer to run in bypass mode.
- 3 Remove the front panel of the Maintenance Bypass Box. Please refer to **5 How to Remove the Front Panel**.
- 4 Remove the screw shown in **Figure 15** to remove the cover plate of the BYPASS BREAKER.



(Figure 15)

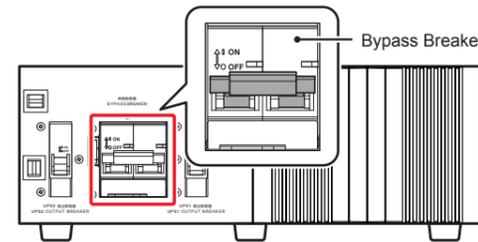


**NOTE:**  
Under the cover plate, there is a manual bypass detector (see **Figure 16**) that will be automatically activated to send the UPS a message of transferring in to bypass mode once the cover plate is removed.



(Figure 16)

- 5 After you confirm that both of UPS1 and UPS2 have been run in bypass mode, switch the Maintenance Bypass Box's BYPASS BRAKER to the ON position. The ON/ OFF printing is marked on the BYPASS BREAKER (see **Figure 17**). Now, the connected load is being powered by the utility power.

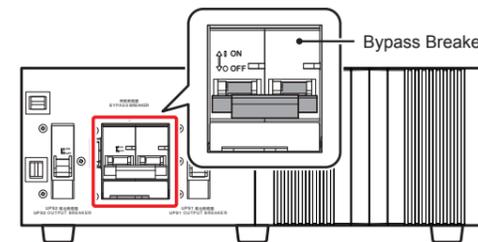


(Figure 17)



**NOTE:**  
If there is a power interruption while the UPS1 and UPS2 are both in bypass mode, the connected load won't be protected.

- 6 Turn off the UPS1's INPUT BREAKER.
- 7 Turn off the UPS2's INPUT BREAKER.
- 8 Turn off each connected external battery pack's circuit breaker.
- 9 Turn off the Maintenance Bypass Box's UPS1 OUTPUT BREAKER.
- 10 Turn off the Maintenance Bypass Box's UPS2 OUTPUT BREAKER.
- 11 Disconnect the battery cables from the UPS1 and the external battery pack(s).
- 12 Disconnect the battery cables from the UPS2 and the external battery pack(s).
- 13 Disconnect the power cables from the 'TO UPS1 INPUT' and 'TO UPS1 OUTPUT' terminals on the Maintenance Bypass Box.
- 14 Disconnect the power cables from the 'TO UPS2 INPUT' and 'TO UPS2 OUTPUT' terminals on the Maintenance Bypass Box.
- 15 Disconnect all of the communication cables from the rear panel of the UPS1 and UPS2.
- 16 Now, the UPS1, the UPS2 and the external battery pack(s) can be removed to perform maintenance.
- 17 Once the maintenance is complete, re-install the UPS1 and UPS2 and the external battery packs.
- 18 Reconnect all of the battery cables, the power cables and the communication cables.
- 19 Turn on each connected external battery pack's circuit breaker.
- 22 Turn on the UPS1's INPUT BREAKER.
- 21 Turn on the UPS2's INPUT BREAKER.
- 22 Turn on the Maintenance Bypass Box's UPS1 OUTPUT BREAKER.
- 23 Turn on the Maintenance Bypass Box's UPS2 OUTPUT BREAKER.
- 24 Switch the Maintenance Bypass Box's BYPASS BREAKER to the OFF position. The ON/ OFF printing is marked on the BYPASS BREAKER (see **Figure 18**).



(Figure 18)

- 25 Re-install the cover plate of the BYPASS BREAKER on the Maintenance Bypass Box. This will automatically inactivate the manual bypass detector.
- 26 Press and hold the UPS1's ON button for 3 seconds and release it after you hear one beep to turn the UPS1 on.
- 27 Press and hold the UPS2's ON button for 3 seconds and release it after you hear one beep to turn the UPS2 on.
- 28 The UPS system is ready for normal operation. Please refer to the UPS's user manual for more information.



**NOTE:**  
If you encounter any problems that you cannot solve, please ask your local dealer or customer service for more information. Do not attempt to solve the problems if you are not trained for it.

## 12 Technical Specifications

	Model No.	PDB1511A530035	PDB1512A510035
Input	Nominal Voltage	200/ 208/ 220/ 230/ 240 Vac	
	Frequency	50/ 60Hz	
	Current (Max.)	63A	125A
	Connection	Terminal Block	
Output	Nominal Voltage	200/ 208/ 220/ 230/ 240 Vac	
	Frequency	50/ 60Hz	
	Power (Max.)	10kVA/ 10kW	20kVA/ 20kW
	Connection	Terminal Block	
Environment	Operating Altitude	1000 meters (without derating)	
	Operating Temperature	0 ~ 40°C (32 ~ 104°F)	
	Storage Temperature	-15 ~ 50°C (5 ~ 122°F)	
	Relative Humidity	5 ~ 95% (non-condensing)	
Physical	Dimensions (W x D x H)	190 x 408 x 142.7 mm	382 x 390 x 142.7 mm
	Weight	4 Kg	7.6 Kg



**NOTE:**  
1. Refer to the rating label for the safety rating.  
2. All specifications are subject to change without prior notification.

## 13 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 Quick Guide must be carefully followed. Seller makes no representation or warranty as to the suitability or fitness of this product for any specific application.

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No. 501324610101  
Version : V 1.1  
Release Date : 2017\_2\_9

