

The power behind competitiveness

Delta UPS - Amplon Family

RT Series, Single Phase & Three Phase

5/ 6/ 8/ 10/ 15/ 20 kVA

Lithium-ion Battery Pack

User Manual

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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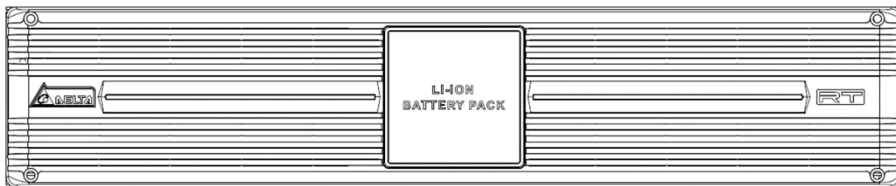
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Chapter 1 : Product Introduction

The Delta lithium-ion battery pack must operate in conjunction with the Delta Amplon RT series UPS model shown in the following table, for these UPSs are without any internal batteries. Whenever the AC source cannot supply power to the UPS (for example, when an unstable voltage or a power outage occurs), the Delta lithium-ion battery pack can provide DC power to the UPS's inverter to prevent the critical loads connected to the UPS from power interruption.

Delta Lithium-ion Battery Pack Model	Applicable Delta Amplon RT Series UPS Model
RT-10K-LIB	RT 5/ 6/ 8/ 10kVA UPS Extended Runtime Model
RT-20K-LIB	RT 15/ 20kVA UPS



(Figure 1-1: the Front View of the Delta Lithium-ion Battery Pack)

Chapter 2 : Important Safety Instructions

2.1 Safety Instructions

- Servicing of the batteries and battery packs must be performed or supervised by qualified service personnel knowledgeable in the batteries, battery packs and required precautions. Keep unauthorized personnel away from the batteries and battery packs.
- A battery can present a risk of electric shock and high short-circuit current.
- To reduce the risk of fire or electric shock, install the battery pack in a temperature and humidity controlled indoor area free of conductive contaminants.
- Forbid opening or removing the cover of the battery pack to avoid high voltage electric shock.
- The risk of dangerous high voltage is possible when the batteries are still connected to the UPS even if the UPS is disconnected from the mains.
- Do not forget to disconnect the battery cable to completely cut off the battery source.
- Turn off the UPS and cut off the AC source before performing battery/ battery pack replacement.
- Only use the same type of batteries from the same supplier. Never use old, new and different Ah batteries at the same time.
- Do not reverse or short circuit the polarity + and – when connecting the batteries because this will destroy the device and constitute a risk of electric shock or fire.
- The external slits and openings in the battery pack are provided for ventilation.
- To ensure reliable operation of the battery pack and to protect the battery pack from overheating, these slits and openings must not be blocked or covered. Do not insert any object into the slits and openings that may hinder ventilation.
- Do not allow liquid or any foreign object to enter the battery pack.

- Do not place beverages or any other liquid-containing vessels on or near the battery pack.
- Do not dispose of the battery or batteries in a fire. The batteries may explode.
- Do not open or mutilate the battery or batteries. The released electrolyte is harmful to the skin and eyes and may be toxic.
- Observe the following before replacing 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. Disconnect charging source prior to connecting or disconnecting the battery terminals.

2.2 Standard Compliance

- CE
- UL1973, UL60730
- UN38.3
- PSE
- CB
- RCM
- Gost-R

2.3 Storage

- **Prior to installation**

If the Delta lithium-ion battery pack needs to be stored prior to installation, it should be placed in a dry and well-ventilated area. The allowable storage temperature and relative humidity (non-condensing) are 5°F ~122°F (-15°C ~ +50°C) and 5% ~ 95% respectively.

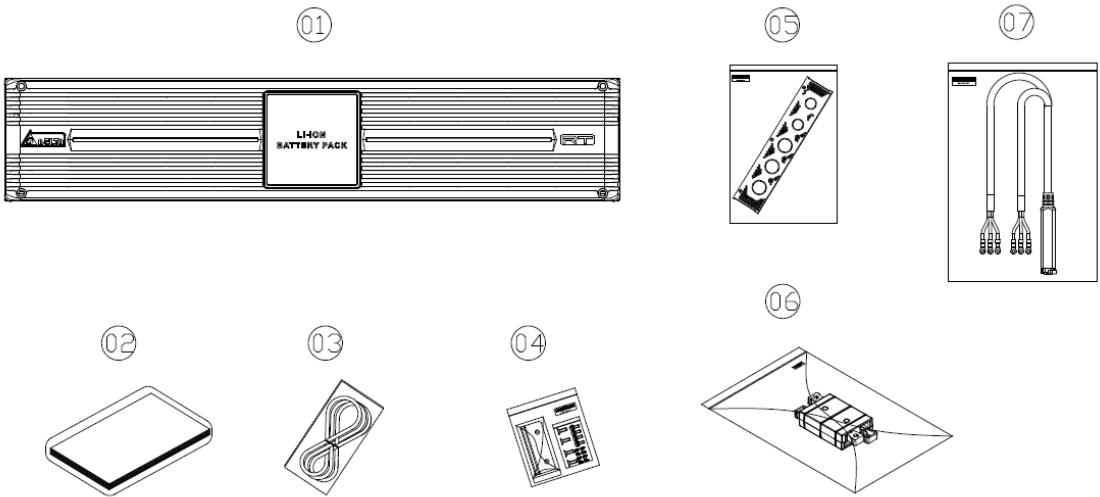
- **After usage**

Remove all the connected devices from the Delta lithium-ion battery pack, and store the Delta lithium-ion battery pack in a dry and well-ventilated area at a temperature between 5°F (-15°C) and 122°F (+50°C) and at a relative humidity (non-condensing) between 5% ~ 95%.

Chapter 3 : Package List

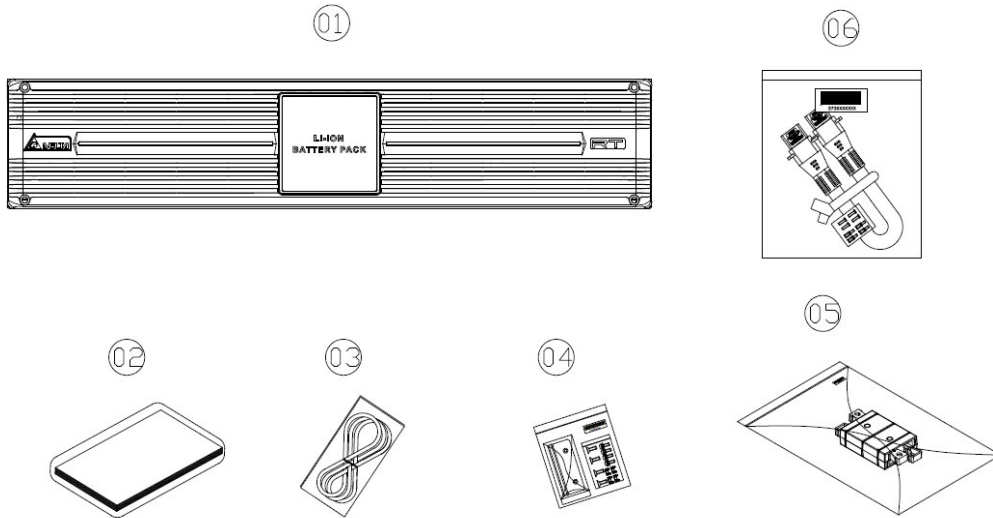
The package contains the following items. Please check if any item is missing. If there is anything missing, please contact the dealer immediately.

Models: RT-20K-LIB



No.	Item	Q'ty
1	Delta Lithium-ion Battery Pack	1 PC
2	User Manual	1 PC
3	RS-485 Cable	1 PC
4	Ear Bracket Kit	1 Set
5	Rear Panel for the UPS	1 Set
6	Tower Stand Extender	4 PCS
7	Battery Cable	1 PC

Models: RT-10K-LIB



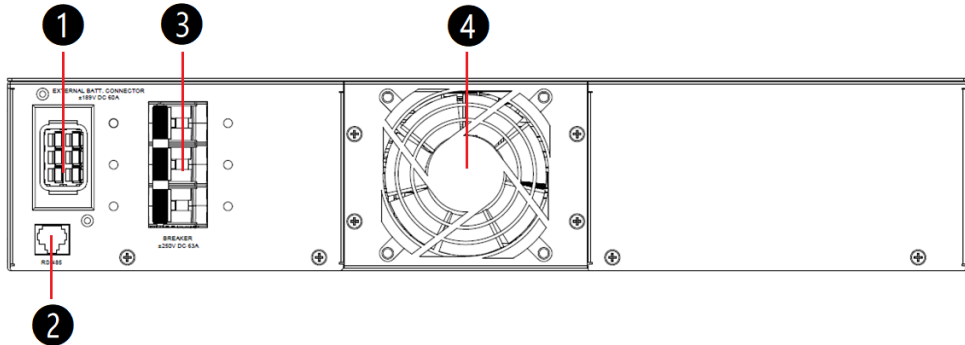
No.	Item	Q'ty
1	Delta Lithium-ion Battery Pack	1 PC
2	User Manual	1 PC
3	RS-485 Cable	1 PC
4	Ear Bracket Kit	1 Set
5	Tower Stand Extender	4 PCS
6	Battery Cable	1 PC



NOTE:

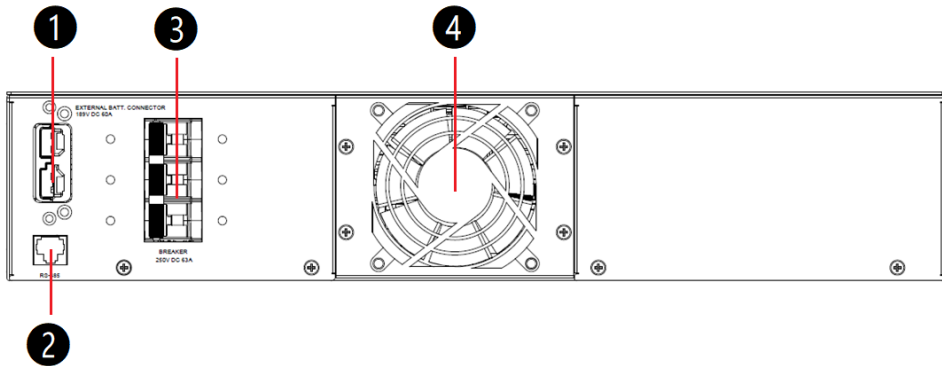
1. If there is any damage or anything missing, please immediately contact the dealer from whom you purchased the unit.
2. If the battery pack needs to be returned, carefully repack the battery pack and all of the accessories using the original packing materials that came with the battery pack.

Chapter 4 : The Rear Panel




(Figure 4-1: the Rear View of the RT-20K-LIB (for RT15/ 20kVA UPS))

No.	Item	Function
1	External Batt. Connector	<p>Connects with the UPS to supply power. The pin assignment of the external battery connector is shown below.</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;"> <p>Battery Positive (Red)</p> <p>Battery Negative (White)</p> <p>Ground (Green)</p> </div> <div style="text-align: center;"> </div> <div style="margin-left: 10px;"> <p>Battery Positive (Red)</p> <p>Battery Negative (White)</p> <p>Neutral line(Black)</p> </div> </div>
2	RS-485 Port	Lets the UPS communicate with the Delta lithium-ion battery pack.
3	Breaker	Has the switch function for safety protection.
4	Fan	Ventilates the air to avoid overheating.



(Figure 4-2: the Rear View of the RT-10K-LIB (for RT5-10kVA UPS))

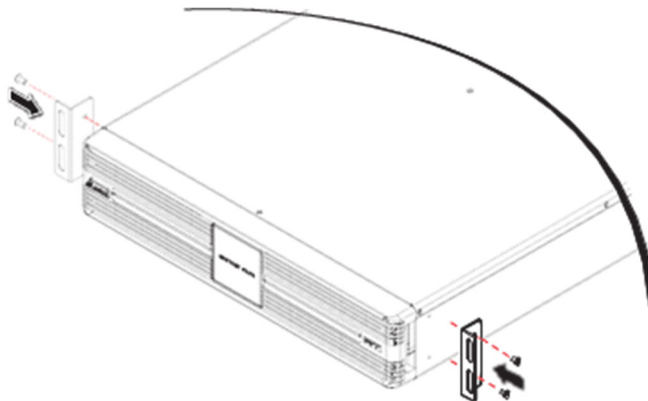
No.	Item	Function
1	External Batt. Connector	Connects with the UPS to supply power. The pin assignment of the external battery connector is shown below. <div style="text-align: center;">  <p>—Battery Positive</p> <p>—Battery Negative</p> </div>
2	RS-485 Port	Lets the UPS communicate with the Delta lithium-ion battery pack.
3	Breaker	Has the switch function for safety protection.
4	Fan	Ventilates the air to avoid overheating.

Chapter 5 : Installation Procedures

5.1 Rack Mounting

You can rack-mount the UPS and the Delta lithium-ion battery pack in a standard 19-inch server rack. The UPS and the Delta lithium-ion battery pack should adopt the same mounting kits and mounting procedures. The instructions below only show the rack mounting of the Delta lithium-ion battery pack. If you want to check the rack mounting procedures of the UPS, please refer to the **User Manual** of the Delta Amplon RT Series UPS.

1. Attach the bracket ears provided in the package to the lateral mounting holes of the Delta lithium-ion battery pack. See **Figure 5-1**.



(Figure 5-1: Mount the Bracket Ears)

2. Follow steps ① ~ ④ to install the Delta lithium-ion battery pack with the Delta's rail kit (optional). See **Figure 5-2**.

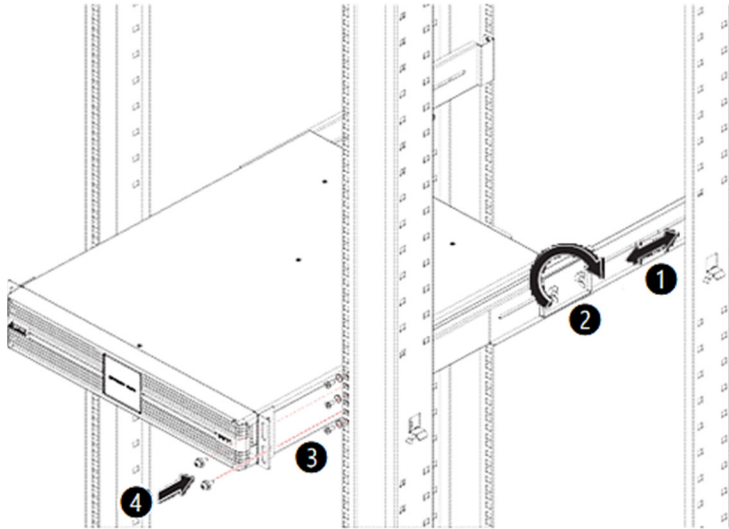
Step ① : Adjust the length of the rails according to your rack.

Step ② : Tighten the rail nuts.

Step ③ : Fix the rails on your rack.

Step ④ : Insert the Delta lithium-ion battery pack in your rack and tighten the

provided screws.



(Figure 5-2: Insert the Delta Lithium-ion Battery Pack to Your Rack)



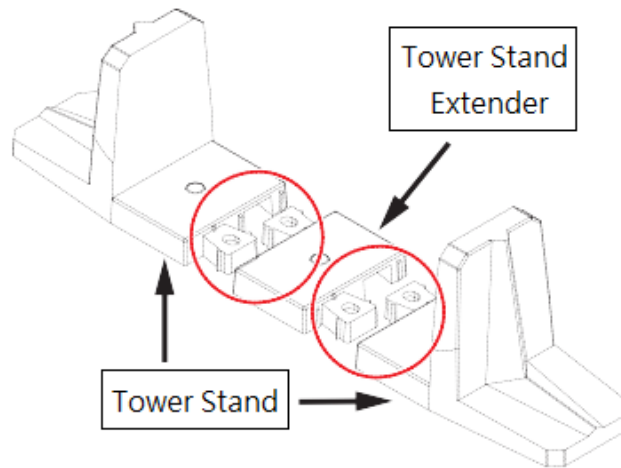
NOTE:

If you want to use a non-Delta rail kit, please only follow step ④.

5.2 Tower Mounting

You can tower-mount the UPS and the Delta lithium-ion battery pack in an upright position. The UPS and the Delta lithium-ion battery pack should adopt the same mounting kits and mounting procedures. The instructions below mainly show the rack mounting of the Delta lithium-ion battery pack. If you want to check the tower mounting procedures of the UPS, please refer to the **User Manual** of the Delta Amplon RT Series UPS.

Step 1: Connect the provided tower stand extenders with the tower stands provided in the UPS package (please take the UPS and the Delta lithium-ion battery pack's size into consideration). See **Figure 5-3**.



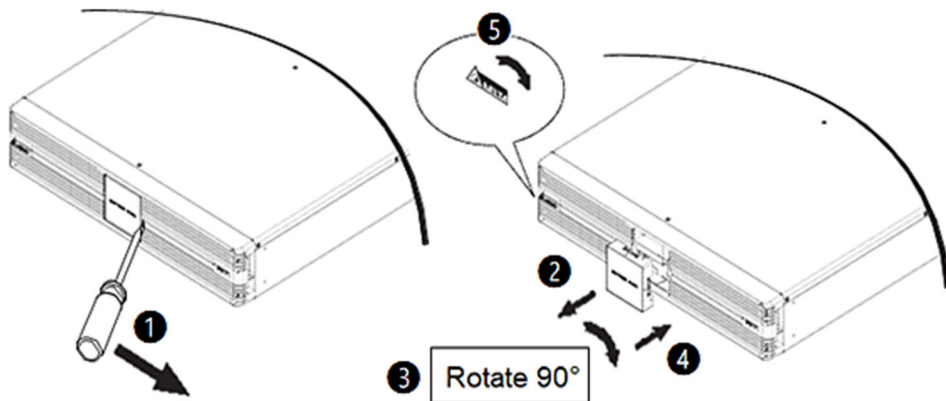
(Figure 5-3: Connect the Tower Stand Extenders with the Tower Stands Provided in the UPS Package)



NOTE:

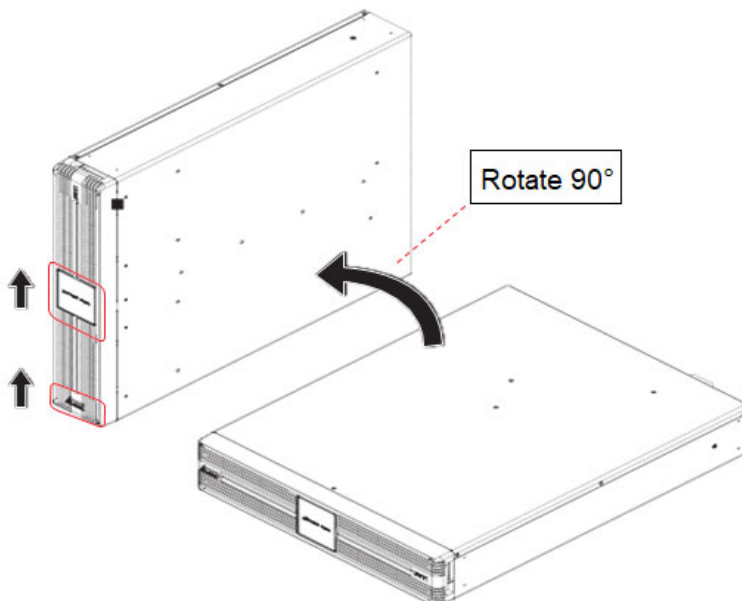
The package of the Delta lithium-ion battery pack does not include any tower stands. The tower stands are only provided in the UPS package.

Step 2: Pull out the Delta lithium-ion battery pack's panel (❶ & ❷), rotate it 90° clockwise (❸) and re-insert the panel (❹). After that, rotate the Delta logo nameplate 90° clockwise (❺). See **Figure 5-4**.



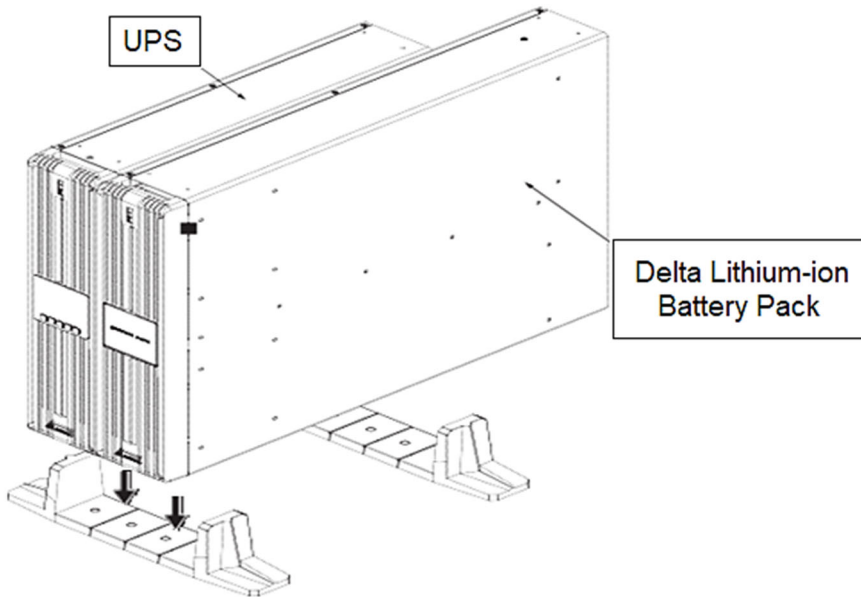
(Figure 5-4: Rotate the Delta Lithium-ion Battery Pack's Panel & Delta Logo Nameplate 90° Clockwise)

Step 3: Carefully lift the Delta lithium-ion battery pack upright with its panel and the Delta logo nameplate facing up. At least two people are required. See **Figure 5-5**.



(Figure 5-5: Lift the Delta Lithium-ion Battery Pack Upright)

Step 4: Place the Delta lithium-ion battery pack and the UPS inside the tower stands. See **Figure 5-6**.



(Figure 5-6: Place the Delta Lithium-ion Battery Pack and the UPS inside the Tower Stands)

Chapter 6 : Connection



NOTE:

1. For the connection of the Delta RT 15/ 20kVA UPS with the Delta lithium-ion battery pack (RT-20K-LIB), you have to replace the rear panel of the UPS because the original rear panel of the UPS is only matched with the Delta lead-acid battery pack.
2. For the connection of the Delta RT 5-10kVA UPS with the Delta lithium-ion battery pack (RT-10K-LIB), you have to connect them with the provided battery cable only. There is no need to replace the rear panel of the UPS.

6.1 The Connection of the Delta Lithium-ion Battery Pack (RT-20K-LIB) with the Delta RT 15/ 20kVA UPS

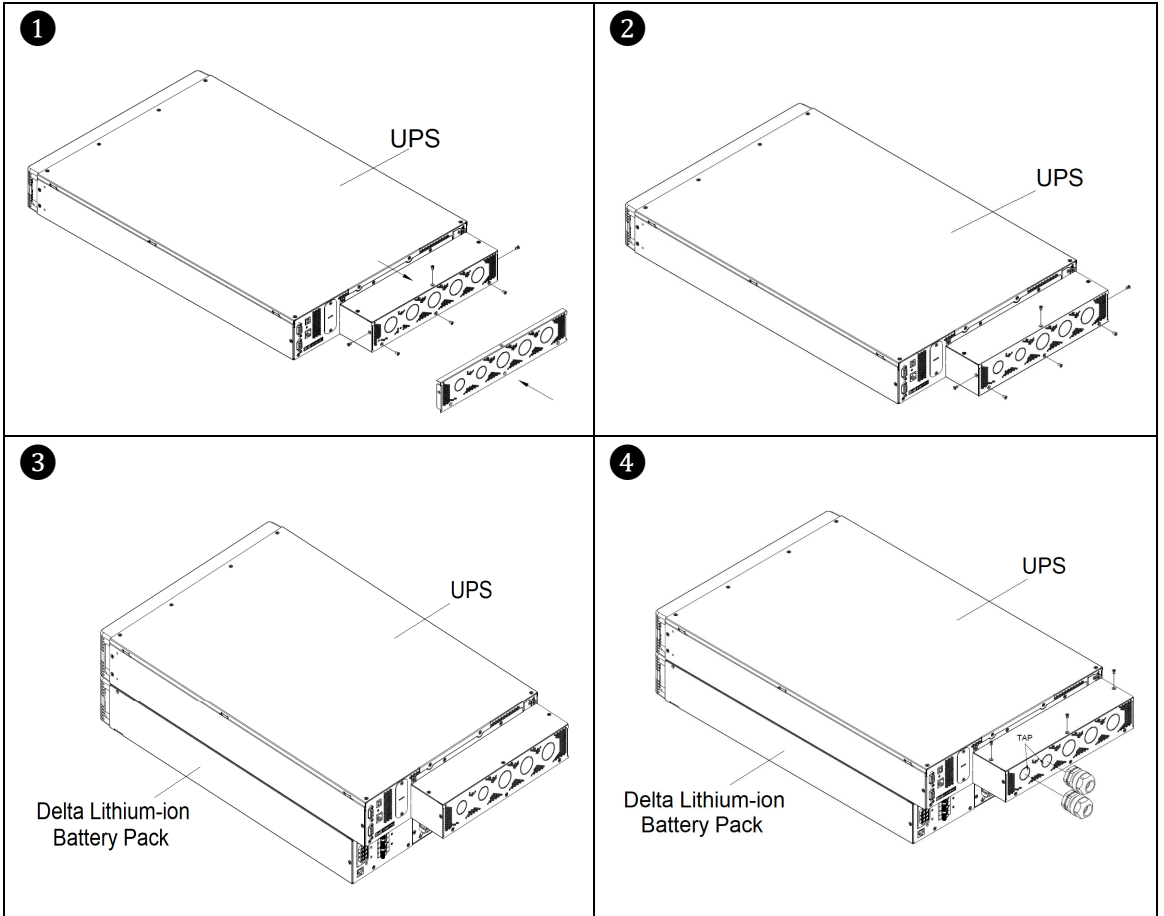
1. Before connecting the Delta lithium-ion battery pack (RT-20K-LIB) to the Delta RT 15/ 20kVA UPS, please follow steps ① ~ ④ in **Figure 6-1** to replace the original rear panel of the UPS with the rear panel provided in the package of the Delta lithium-ion battery pack (RT-20K-LIB).

Step ① : Replace the original rear panel of the UPS with the rear panel provided in the package of the Delta lithium-ion battery pack.

Step ② : Tighten the screws.

Step ③ : Put the Delta lithium-ion battery pack under the UPS.

Step ④ : Install the cable glands.



(Figure 6-1: the Connection of the Delta Lithium-ion Battery Pack (RT-20K-LIB) with the Delta RT 15/ 20kVA UPS_ Steps ① ~ ④)

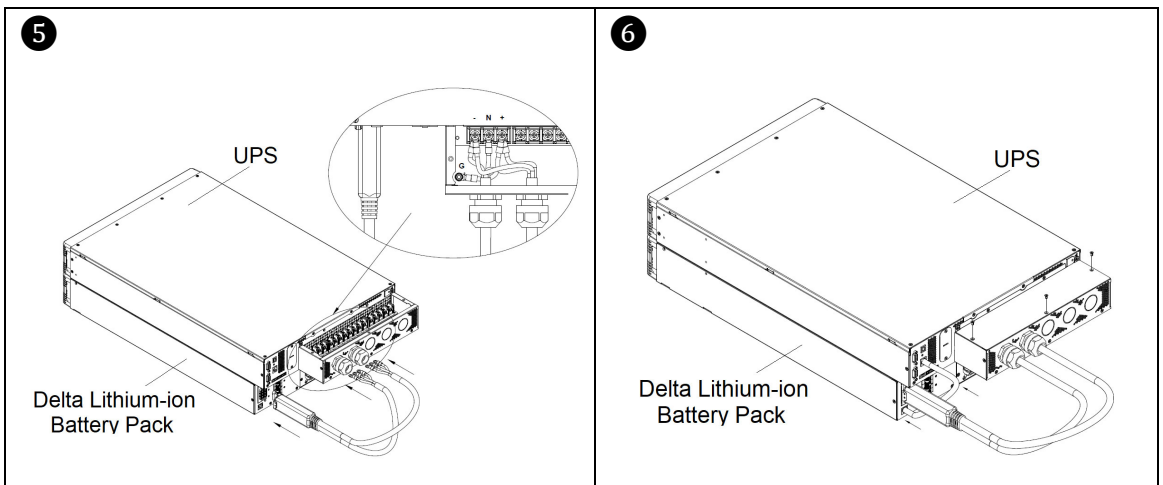
2. Connect one end of the provided battery cable to the battery terminals on the UPS. Make sure that the positive pole (+) of the battery cable connects to the battery terminal (+), the negative pole (-) of the battery cable connects to the battery terminal (-), and the neutral pole (N) of the battery cable connects to the battery terminal (N). Then, connect the other end of the provided battery cable to the external battery connector on the Delta lithium-ion battery pack. See step ⑤ in **Figure 6-2**.



NOTE:

You have to remove the upper cover at the rear of the UPS to see the wiring terminals and to conduct the connection. For the terminal cover location and the UPS wiring terminals, please refer to the ***User Manual*** of the Delta Amplon RT Series UPS.

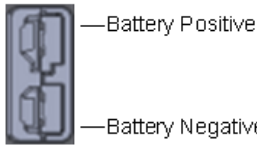
3. Insert the two ends of the provided RS-485 cable to the two RS-485 ports located respectively at the rear panel of the UPS and at the rear panel of Delta lithium-ion battery pack. Please see step ⑤ in ***Figure 6-2***.



(Figure 6-2: the Connection of the Delta Lithium-ion Battery Pack (RT-20K-LIB) with the Delta RT 15/ 20kVA UPS_ Steps ⑤ ~ ⑥)

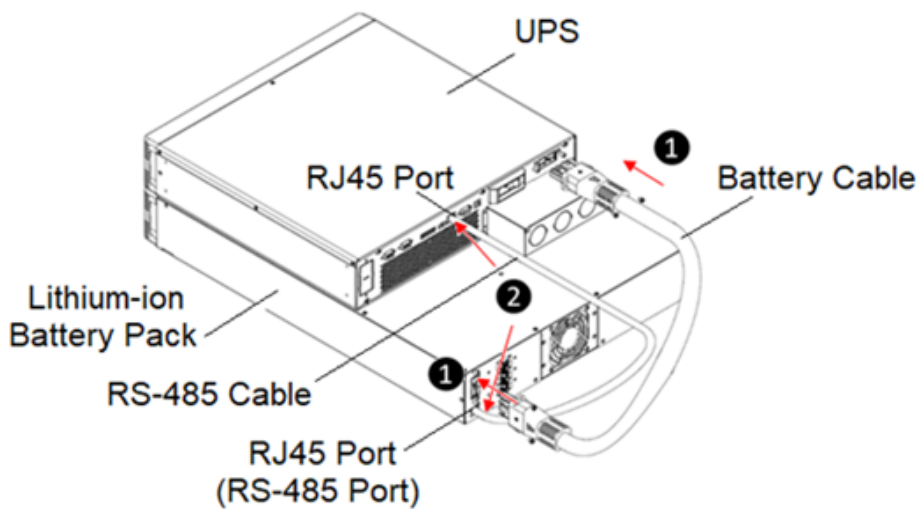
6.2 The Connection of the Delta Lithium-ion Battery Pack (RT-10K-LIB) with the Delta RT 5-10kVA UPS

1. Connect one end of the provided battery cable to the external battery connector on the UPS, and connect the other end to the external battery



connector () on the Delta lithium-ion battery pack. Make sure that the positive cable (+) connects to the positive pole (+), the negative cable (-) connects to the negative pole (-). See step ① in **Figure 6-3**.

2. Insert the two ends of the provided RS-485 cable to the two RS-485 ports located respectively at the rear panel of the UPS and at the rear panel of Delta lithium-ion battery pack. Please see step ② in **Figure 6-3**.



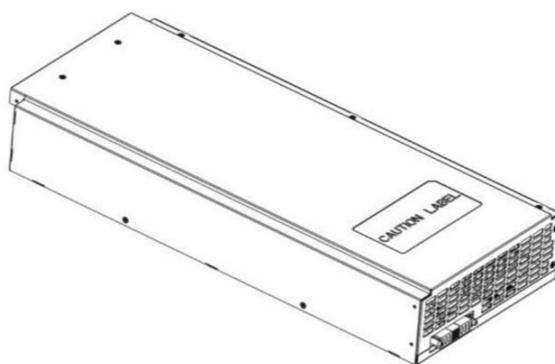
(Figure 6-3: the Connection of the Delta Lithium-ion Battery Pack (RT-10K-LIB) with the Delta RT 5-10kVA UPS)

Chapter 7 : Installation of Lithium-ion Battery Module



NOTE:

1. The battery module is optional. Refer to **Figure 7-1** to see the appearance of the battery module.
2. For the Delta RT-10K-LIB, the number of the battery module can be 1 or 2, depending on the discharging time you need. However, for the Delta RT-20K-LIB, you must install 2 battery modules.



(Figure 7-1: The Lithium-ion Battery Module)

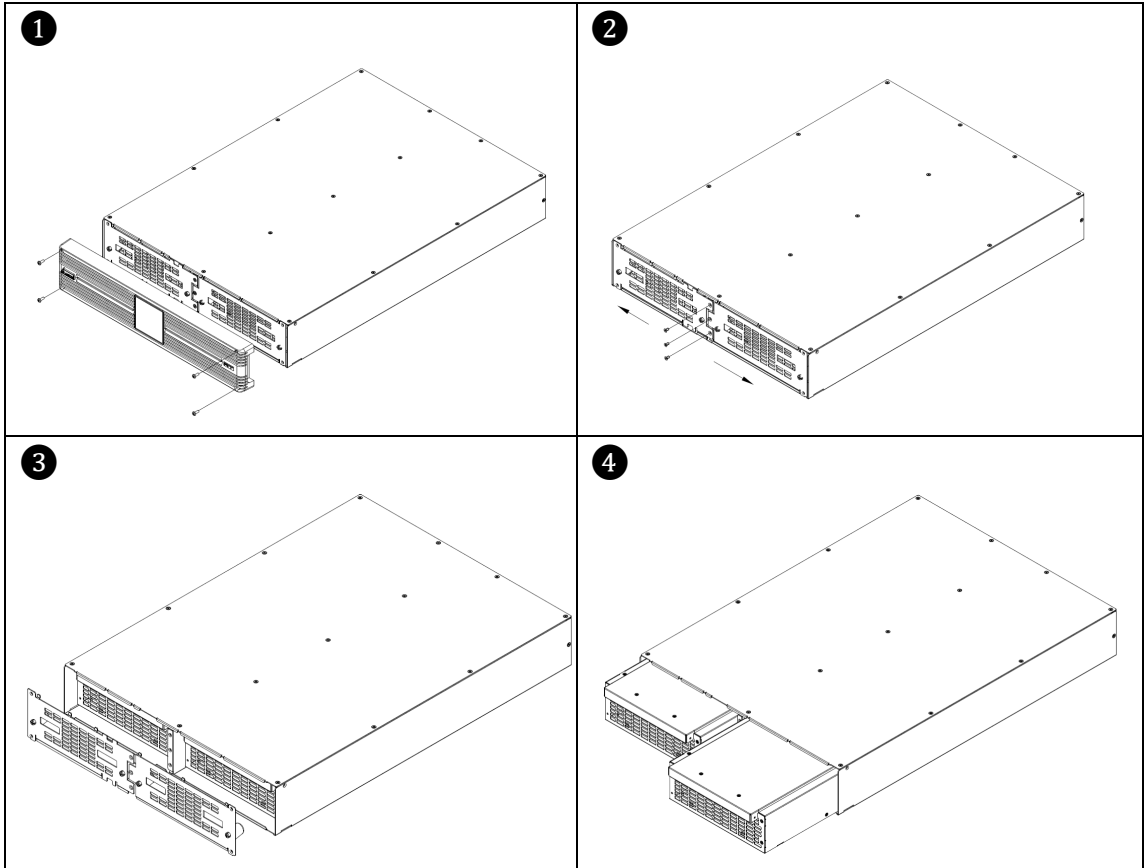
1. Follow steps ❶ ~ ❹ in **Figure 7-2** to install the lithium-ion battery module in the Delta lithium-ion battery pack.

Step ❶ : Unscrew the screws and remove the battery pack's front cover.

Step ❷ : Use the Phillips screwdriver to remove the screws on the protective cover in front of the battery module.

Step ❸ : Remove the protective cover.

Step ❹ : Extract the battery module from the left battery compartment and then insert a new battery.



(Figure 7-2: Install the Lithium-ion Battery Module)



NOTE :

1. If the MBB (The Delta Maintenance Bypass Box) is installed behind the Delta lithium-ion battery pack, please keep the MBB at least 1 cm away from the Delta lithium-ion battery pack.
2. If you install 2 battery modules and there is any fault in one of the 2 modules, it is suggested to replace both of the modules at the same time.
3. Follow the same procedures to replace the battery module in the right battery compartment and reassemble the battery pack in reverse order of the removal steps (the steps ④ → ③ → ② → ① shown in **Figure 7-2**).

Chapter 8 : Operation Procedures

1. Follow **Chapter 5: Installation Procedures** to connect the UPS and the Delta lithium-ion battery pack.
2. After making sure that the UPS and the Delta lithium-ion battery pack have been connected by the battery cable and the communication (RS- 485) cable, turn on the Delta lithium-ion battery pack's breaker and the UPS's input breaker.
3. Follow the **User Manual** of the Delta Amplon RT Series UPS to turn on the UPS.



NOTE :

After usage, you can turn off the Delta lithium-ion battery pack safely by following the steps below:

- Step ① : Turn off the breaker.
- Step ② : Disconnect the communication cable.
- Step ③ : Disconnect the battery cable.

Appendix 1 : Technical Specifications

Model		RT-10K-LIB	RT-20K-LIB
Battery Type		NMC	
Battery Module Rated Capacity		4.4Ah	
Max. Discharging Power		1 battery module: 11kW 2 battery modules: 22kW	22kW
Nominal Voltage		189Vdc	±189Vdc
Nominal Current		60A	
Connection		Battery Connector	Battery Connector
Breaker		63A ±250Vdc 3P	
Charging	Max. Charging Voltage	216Vdc	
	Max. Charging Current	5.5A	
Communication Interfaces		RS-485 Port x1	
Physical	Dimensions (W x D x H)	External battery pack 17.3" x 25.5" x 3.5" (440mm x 646mm x 88mm) Battery module 8.3" x 19.9" x 3.0" (212mm x 506mm x 76.8mm)	
	Weight	External battery pack (without battery modules) 30.2lb (13.7kg) Battery module 26.5lb (12.0kg)	

Model		RT-10K-LIB	RT-20K-LIB
Environment	Operating Altitude	0 ~ 10000ft (0 ~ 3000m); 0 ~ 3300ft (0 ~ 1000m) (without derating)	
	Operating Temperature	32°F ~ 113°F (0°C ~ 45°C)	
	Storage Temperature	5°F ~122°F (-15°C ~ 50°C)	
	Relative Humidity	5% ~ 95% (non-condensing)	

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.

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