

APC Back-UPS ES 750

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Overview

Model: Back-UPS ES 750



Battery Details

Specification	Detail
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Image	
Part	AJC-D7S
Voltage	12v
Capacity	7Ah
Type	Sealed Lead Acid (AGM)
Terminals	F2
Length	5.94 in / 150.9 mm
Width	2.56 in / 65 mm
Height	3.7 in / 94 mm
Weight	4.5 lbs

Lithium Iron Phosphate Battery Replacement

I ordered this LiFePO4 battery off amazon which is the exact same size as the original.

Cost: \$63 CA plus Taxes.

NASTIMA 12V 8Ah Rechargeable Lithium Iron Phosphate Battery,Built-in BMS, 4000+ Cycles LiFePO4 Battery Pack, 10A Max Output.

https://www.amazon.ca/dp/B0B5WBHDDN?smid=A32QMQUJWY3FO&ref_=chk_typ_imgToDp&th=1

Asus Hub	~5W
Total Power	240W (~ 2A @120V)
Battery Amperage	20A @12V

Ok, so battery has a 10A max output, which is 1A at 120V.

Lets figure out what are real power usage is....

Item	Actual Power	Amperage
QNAP TS251 Network Attached Storage	20W	0.16A
HP Compaq Elite 8300 SFF	76W	0.63A
Dell PowerEdge T150	-	-
Raspberry Pi 1	24W	0.2A
Asus RT-AC56U Router		
Smart/RG DSL Modem		
Asus Hub		
Total	120W	1.0A (10A @12V)

It looks like this will work if we don't have the Dell PowerEdge on the UPS.

So, 10A is beyond the 1C, so ideally **we should aim for a max of 8A discharge.**

Based on this information, this battery is insufficient for our load.

Testing the battery with a 10A load, the battery quickly dropped to 11.6V which the UPS would consider to be 0% left!

Solution

Two items were identified:

- I was trying to pull more amperage than the replacement LiFePO4 battery would support. (Max 10A@12V or 1A@120V). Reduced number of protected devices on UPS.
- Battery/UPS could be reset by using the Powerchute software. Marked the battery as replaced and ran a quick battery test.

Configuring the UPS

List Commands

```
> upscmd -l ups@localhost

Instant commands supported on UPS [ups]:

beeper.disable - Disable the UPS beeper
beeper.enable - Enable the UPS beeper
beeper.mute - Temporarily mute the UPS beeper
beeper.off - Obsolete (use beeper.disable or beeper.mute)
beeper.on - Obsolete (use beeper.enable)
load.off - Turn off the load immediately
load.off.delay - Turn off the load with a delay (seconds)
shutdown.reboot - Shut down the load briefly while rebooting the UPS
shutdown.stop - Stop a shutdown in progress
test.battery.start.deep - Start a deep battery test
test.battery.start.quick - Start a quick battery test
test.battery.stop - Stop the battery test
test.panel.start - Start testing the UPS panel
test.panel.stop - Stop a UPS panel test
```

Issue Command

```
>upscmd ups@localhost beeper.disable
Username (root): admin
Password: 123456
OK
```

Test

```
>upscmd ups@localhost test.battery.start.quick

>upscmd ups@localhost ups.test.result
```

Runtime Calibration

Please make sure that you have charged the batteries for 24 hours before doing this.

Runtime Calibration:

- Stop the APC software running on your computer and disconnect the USB cable.
- **Remove all critical loads on your UPS and make sure that you have at least 30% load on it.**
- Unplug the UPS from the power source and let it run On Battery until it discharges completely.
- Once the UPS is completely discharged, reconnect it back to the power source to recharge.
- Reconnect the load and cables back to the UPS and check the APC software for the runtime.

I just got my problem solved and very excited. Here are the steps i have taken:

1. Uninstalled APC PowerChute Personal Edition Version 2.2 downloaded from the site.
2. Managed to get hold of my previous APC PowerChute Personal Edition Version 1.3.1 for Windows 98/Me/2000/2003/XP that shipped with the UPS.
3. After the installation, I found the following option under Monitor System>Run Self Test:
To Help PowerChute to keep track of battery life, please click [HERE](#) when you replace battery on clicking it the following popup appeared **Are you sure that you want to update your battery's replacement date now.** On clicking, it instantly reported the estimated battery time as 45 Min!!!!.

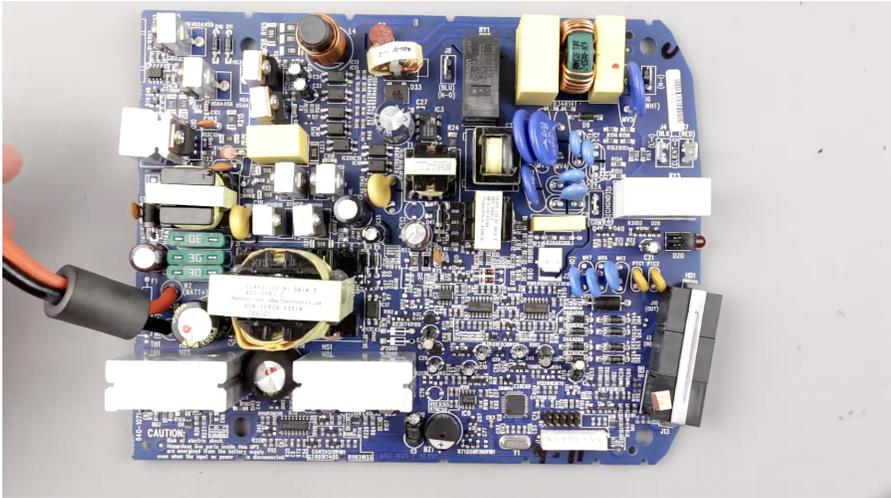
Resetting

I couldn't find anyway to do this. Marking the battery as replaces and running a quick test seems to be the only way.

Teardown

<https://www.youtube.com/watch?v=6UerOTuV6R4>

Circuit Board



References

Reference	URL
Manual	SCON-89HM8Q_R4_EN.pdf
Specifications	DFAH-8GLQ3H_R0_EN.pdf
DIY Replacement Battery 12V 18650 Li-ion For APC Back-UPS 650	https://www.yousun.org/archives/101
Replace battery	https://www.youtube.com/watch?v=_dydIRHFjrc
Details	https://www.yousun.org/archives/660
Teardown Video	https://www.youtube.com/watch?v=6UerOTuV6R4