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Smart-UPS XL Supplement

990-7022B, Revision 2 9/98

When used with external battery packs, the extended run (XL) UPS offers longer run times than a standard UPS and extra load protection during battery replacement. When replacing the batteries either in the UPS or battery pack(s), the UPS can still respond to a power disturbance using the remaining connected batteries. Please refer to the *User's Manual* for basic information about the UPS. This supplement provides additional information needed to use extended run versions of the UPS.

English

Installation
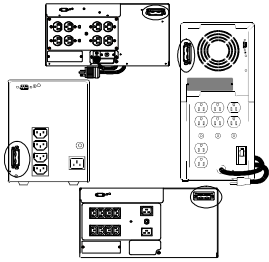
This figure shows the location of the battery pack connector on the 5U SU1400RMXL (top), the SU3000 tower unit (right), the 5U SU3000RM (bottom), and the SU1000XL tower unit (left). Some UPS models have the battery pack connector in different positions, but the size and shape of the connector is always the same.

Battery pack connectors are color coded as shown in the table below. Battery pack connectors are also keyed to prevent improper connection. Do not try to install battery packs with connectors that are a different color from the battery pack connector in the UPS.

| This UPS	Voltage	works with this Battery Pack (connector color)	Maximum number of Battery Packs
SU700XL SU1000XL	24 VDC	SU24XLBP (gray)	10
SU1400XLT SU2200XL SU2200XLT	48 VDC	SU48XLBP (blue)	10
SU3000 SU3000T SU3000RM	48 VDC	SU48BP (red)	1
SU1400RMXL SU1400RMXLT SU2200RMXL SU2200RMXLT	48 VDC	SU48RMXLBP(blue)	5

Install up to the maximum number of battery packs per XL model UPS following the instructions below. **Note: The 3000 VA UPS accepts only one battery pack.**
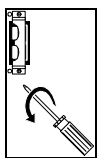
1. Prepare the UPS to connect the battery pack(s). Note the holes used to attach the battery pack connector clamp (near the center of the connector opening). Use a #2 Phillips head screwdriver to remove the battery pack connector clamp from the back of the UPS.
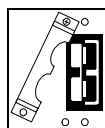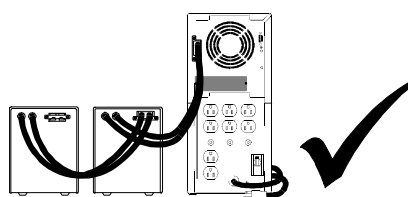

2. Turn the clamp over and loosely attach one end at the edge of the connector opening in the UPS.
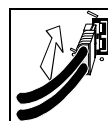
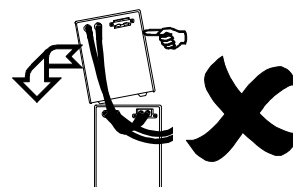3. Holding the clamp aside, insert the battery pack connector into the UPS.

4. Secure the connector clamp.

For additional battery packs, repeat this procedure using the battery pack connectors on the battery packs. **Note: Do not stack battery packs. Stacking results in a tipping hazard.**

Correctly completed XL installation with two battery packs.

Smart-UPS Battery Protocol

Smart-UPS XL models are not designed to know how many external battery packs are connected to them. A customer must program the Smart-UPS XL with the appropriate number of external batteries in one of four ways.

It is important to follow these instructions. The number of batteries affects the runtime calculations which Smart-UPS performs when it is running on battery power.

Use the Smart-UPS Battery Pack Utility (BATTPACK)

This program can be used with DOS or at a Windows DOS prompt.

BATTPACK cannot be used with a DOS emulator or VDM (virtual DOS machine) like those in Windows 95, Windows 98, or Windows NT.

The APC UPS Link cable must be used to communicate to the UPS. There are two black cables which can be used; part numbers 940-0024C or 940-1524C.

> **Note: For the purposes of this formula, 1 rackmount battery pack (SU48RMXLBP) = 2 stand-alone battery packs.**

At the DOS prompt, type: **battpack com[X] [Y]** where:

[X] represents the available serial port that Battery Pack Utility uses to access the Smart-UPS.

[Y] represents the number of external battery packs.

For example: C:> **battpack com1 4**

The black cable is attached to communication port 1. There are four external battery packs. The program confirms that the update is successful.

Use PowerChute® *plus* version 5.x for Windows 95, Windows 98, Windows NT.

PowerChute® *plus* 5.x for Windows NT is compatible with NT 3.5.1 SP5, NT 4.0 Workstation (at least SP1), or NT 4.0 Server (at least SP1).

Install the software per the instructions on the CD.

After rebooting the computer, access the PowerChute® *plus* graphical user interface.

1. Click on **Configuration**.

2. Click on **UPS Operating Parameters**.

3. Adjust the **External Battery Pack** field to the appropriate number of external batteries.

4. Click **OK**.

Use the Terminal Program to change the number of external battery packs

Terminal is used in Windows 3.1x, Windows for Workgroups, and Windows NT 3.51.

1. EXIT out of the **PowerChute® *plus* Server**. In the case of Windows NT, the UPS Service must be stopped.

2. Go to: **Program Manager** > **Accessories** > **Terminal**. Double-click on the **Terminal** icon.

3. Select the COM port to which the black-colored interface cable is attached as the Connector.

4. The COM port settings are 2400 baud, 8 data bits, 1 stop bit, no parity, flow control is Xon/Xoff.

5. Click **OK**.

6. Continue with the table in Step 7, below.

Use the HyperTerminal Program to change the number of external battery packs

HyperTerminal is used for Windows 95, Windows 98, and Windows NT 4.0

1. EXIT out of the **PowerChute® *plus* Server**. In the case of Windows NT, the UPS service must be stopped.

2. From the Desktop, go to: **Start** => **Programs** => **Accessories** => **HyperTerminal**. Double-click on the **HyperTerminal** icon.

3. You are prompted to choose a name and select an icon. Give any name and then click **OK**. If a message appears which reads "...must install a modem," disregard it and continue.

4. The port settings are 2400 baud, 8 data bits, 1 stop bit, no parity, flow control is Xon/Xoff.

5. Click on **Advanced** and ensure the box labeled **FIFO buffer** is NOT checked.

6. Click **OK** twice. Continue with the table in Step 7, below.

7. Once the terminal/hyperterminal window is open, follow these steps:

Step #	Type	Produced Effect
Step 1	**Y**	Produces **SM**
Step 2	>	To see the number of external packs. (A new unit will display **000**.)
Step 3	+	Adds a battery pack.
Step 4	>	To see the change in number of external battery packs.
Step 5	-	Subtracts a battery pack.
Step 6	>	To see the change in number of external battery packs.

Battery Charge and Run Times

The tables below show both the time required for charging UPS and battery pack batteries for rated protection and typical run times.

Notes:
Run times for the SU3000 are given in the *User's Manual*.
For the purposes of these tables, 1 rackmount battery pack (SU48RMXLBP) = 2 stand-alone battery packs.

Typical Maximum Recharge Times (In Hours) To 90% Of Rated Capacity											
	Internal Battery	With 1 battery pack	With 2 battery packs	With 3 battery packs	With 4 battery packs	With 5 battery packs	With 6 battery packs	With 7 battery packs	With 8 battery packs	With 9 battery packs	With 10 battery packs
SU700XL and 1000XL	1.7	5.1	8.5	12	15	19	22	25	29	32	36
SU1400XL and SU2200XL	1.7	3.1	4.8	6.5	8.2	9.9	11.6	13.3	15	16.7	18.4

XL Typical On-battery Run Times											
Model / Load VA	Internal Battery	With 1 battery pack	With 2 battery packs	With 3 battery packs	With 4 battery packs	With 5 battery packs	With 6 battery packs	With 7 battery packs	With 8 battery packs	With 9 battery packs	With 10 battery packs
700/1000											
350	43.5 min.	3.1 hr.	5.7 hr.	8.3 hr.	11 hr.	13.8 hr.	16.6 hr.	19.5 hr.	22.2 hr.	25 hr.	27.9 hr
500	27 min.	2 hr.	3.8 hr.	5.6 hr.	7.5 hr.	9.3 hr.	11.3 hr.	13.3 hr.	15.3 hr.	17.3 hr.	19.3 hr.
700	17 min.	1.2 hr.	2.5 hr.	3.8 hr.	5.1 hr.	6.5 hr	7.8 hr.	9.1 hr.	10.6 hr.	12 hr.	13.5 hr.
1000											
1000	10 min.	48 min.	1.6 hr.	2.5 hr.	3.5 hr.	4.3 hr.	5.3 hr.	6.3 hr.	7.1 hr.	8.1 hr.	9 hr.
1400/2200											
700	41 min.	1.7 hr.	3 hr.	4.2 hr.	5.5 hr.	6.7 hr.	8 hr.	9.2 hr.	10.6 hr.	12 hr.	13.3 hr.
1100	23 min.	1 hr.	1.7 hr.	2.5 hr.	3.3 hr.	4.2 hr.	5 hr.	5.8 hr.	6.6 hr.	7.5 hr.	8.3 hr.
1400	16 min.	42 min.	1.2 hr.	1.8 hr.	2.5 hr.	3 hr.	3.7 hr.	4.4 hr.	5 hr.	5.6 hr.	6.2 hr.
2200											
2200	8 min.	21 min.	38 min.	56 min.	1.2 hr.	1.6 hr.	2 hr.	2.4 hr.	2.8 hr.	3.1 hr.	3.5 hr.