

Total Access™ 750/850 AC/DC Power Supply and Battery Charger Installation and Maintenance

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1. GENERAL

This practice provides installation and maintenance procedures for the ADTRAN™ Total Access 750/850 Power Supply/Battery Charger. **Figure 1** is a front and back illustration of the PS/BC.

Revision History

This is the initial release of this document. Future revisions will be made in this subsection.

Features

The Total Access 750/850 PS/BC, P/N 1175043L2, features include the following:

- Compact design.
- Versatile mounting arrangements.
- All mounting hardware included.
- Built-in Fuse.
- Multi-feature status LED.
- Modular connections.
- Positive ground.
- Uninterrupted power output if battery backup connected.
- FCC and UL 1950 compliant.

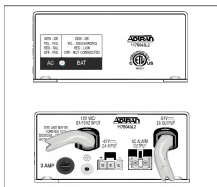


Figure 1. TA 750/850 PS/BC, Front and Back

2. DESCRIPTION

The AC/DC Power Supply/Battery Charger provides -54 VDC to the Power Supply Unit in the TA 750/850 Chassis. The PS/BC receives 115 VAC through a standard plug and wall socket. The unit works in conjunction with an optional ADTRAN backup battery pack, P/N 1175044L1, L2, L3. In this arrangement, the PS/BC maintains the battery at peak charge of -54V. If AC power is lost, the unit automatically transfers power from the battery pack without interrupting service. When AC power returns, the unit switches back to AC power and recharges the battery to peak charge.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2), this device must accept any interference that may cause undesired operation.

Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.

Alarm and Battery Disconnect Relays

Two relays support Power Supply operation:

- Alarm relay
- Battery disconnect relay

ALARM RELAY AND ALARM SIGNAL

The Alarm relay is provided for customer use. In normal operation the contact alarm relay is open. If an AC power failure occurs and the unit defaults to the battery backup, the relay will cycle open/closed once per second (that is one second open then one second closed). The tolerance on this cycle time is 25 percent.

This indicates the battery is discharging in support of the load. If battery voltage decreases to 45V the relay stays closed to indicate the battery is becoming depleted. The relay will open automatically when normal AC voltage is restored. **Table 1** summarizes alarm relay operation.

Table 1. Alarm Relay Operation

Condition	Alarm Relay
Normal	Open
AC Power Failure/Battery Backup engaged	Cycles open/closed once per second
Battery voltage is less than 40V	Stays closed

An alarm signal that cycles synchronously with the alarm relay is provided on the output cable. This signal, which is open during normal operation, cycles between open and ground during battery backup (as described for the alarm relay), and is ground when the battery voltage falls below 45V.

BATTERY FAIL ALARM

For battery backup systems that employ the optional Battery Test Assembly (P/N 1175044L3) an alarm signal is provided to the TA 750/850 L2 Power Supply that indicates a failed battery (in need of immediate replacement). This signal is passed to the Alarm Relay and Output Alarm Signal. When a failed battery is detected, it is indicated by the Alarm Relay cycling open for 450 ms, then closed for 450 ms. Battery failure is also indicated by the output alarm signal cycling open to ground at the same rate.

BATTERY DISCONNECT RELAY

The battery disconnect relay disconnects the battery pack from the system if the battery voltage falls below 40 VDC. This feature prevents damage to the

batteries. The batteries will be recharged when normal AC voltage is restored and the relay will close when the battery voltage exceeds 40V.

Certain alarm features on the power supply are still powered by the battery after the disconnect relay is opened. These features slowly drain the battery. If it is known that AC power will be unavailable for an extended period (greater than a week), ADTRAN recommends that the battery be disconnected from the power supply to prevent over-discharge.

The batteries used in ADTRAN's battery backup system are designed to withstand occasional over-discharge. While it is not recommended, the batteries can recover their full capacity under normal charging conditions, even when they have been subjected to extreme over-discharge.

Fuse

A 3-amp fuse on the back panel protects the unit from over current. The fuse isolates the AC input from the power supply in the event of a fault. The fuse is replaced by twisting the black cap to the left and pulling the fuse out. After the new fuse is inserted, the cap is pushed back in and turned to the right.

Status LED

A single multi-feature LED on the front panel provides AC operation or battery operation power status. Refer to **Table 2** for indication descriptions.

Table 2. LED Indication

AC Power Operation		Battery Operation	
Green	OK	Green	OK (charging)
Yellow	Power Fail	Yellow	Discharging
Red	Power Fail	Red	Low (<40V)
Off	Power Fail	Off	Disconnected

3. INSTALLATION



After unpacking the unit, inspect it for damage. If damage is noted, file a claim with the carrier then notify ADTRAN Customer Service.

There are three installation arrangements:

- Wallmount.
- Mounted to TA 750/850 chassis.
- Mounted to backup Battery Pack (L1 only).

Wallmounting

For the wallmount arrangement, the PS/BC is normally installed on the designated 3/4-inch or thicker plywood with four #6 by 3/4-inch flat-head wood screws.

Refer to **Figure 2**. Installation is as follows:

1. Determine the preferred layout and ensure the socket-outlet is located near the equipment and easily accessible.
2. Ensure the unit is plumb then mark through the four screw holes to identify where the pilot holes will be drilled.
3. Using a 1/16-inch bit, drill pilot holes at the marked locations.
4. Mount the unit using the pan-head screws.
5. Route and connect all cabling to the appropriate device. Use cable tie-downs as needed.
6. Connect the ground stud using the most direct route to a known equipment ground source.

Optional Mounting Locations

As an optional installation arrangement, the PS/BC unit can mount on either side of the TA 750/850 chassis, or the top of the battery pack (wall or rack orientation) which has space for two PS/BCs. These locations all have pre-threaded inserts designed for the PS/BC. For installation, four #6-32 by 3/8-inch machine screws are provided.

CAUTION

When mounting to the battery pack, using screws longer than 3/8-inch could damage batteries.

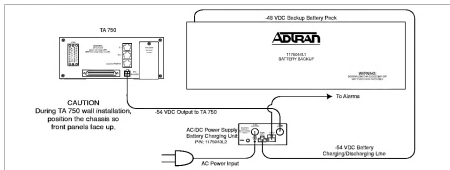


Figure 2. AC/DC Power Supply Battery Charger Layout

Refer to **Figure 3** for optional mounting arrangements.

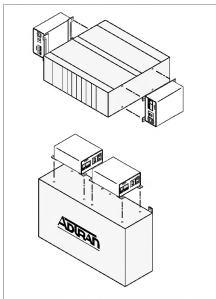


Figure 3. Alternate Mounting Arrangements

Grounding

The ground connector on the PS/BC provides an additional ground reference (the third prong of the AC plug is also grounded) and may be connected to "ground bus" or "ground wire" in a customer equipment room. 18 AWG or larger ground wire is recommended.

4. SPECIFICATIONS

Refer to **Table 3** for specifications.

5. MAINTENANCE

The AC/DC Power Supply/Battery Charger does not require routine maintenance for design operation.

ADTRAN does not recommend that repairs be attempted in the field. Repair services are obtained by returning the defective unit to ADTRAN Customer Service.

6. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within 10

Table 3. Specifications

Electrical	
AC Input:	115 Volts nominal
Range:	88 to 132 VAC
DC Output:	-54 Volts, 60 Watts average 100 Watts peak
Battery charging:	16 hr nominal, 24 hr maximum
Battery discharge:	Up to 8 hours
Physical	
Dimensions:	3 1/2" W x 1 3/4" H x 7" L (including mounting tabs)
Weight:	1 lb. 8 Oz.
Environmental	
Operating temperature:	0° to 50° C (32° to 122° F)
Storage temperature:	-40° to 85° C (-40° to 185° F)
Relative humidity:	95% non-condensing

years from the date of shipment if it does not meet its published specifications or fails while in service (see: *ADTRAN Equipment Warranty, Repair, and Return Policy and Procedure*, document: 60000087-10A).

Contact Customer And Product Service (CAPS) prior to returning equipment to ADTRAN.

For service, CAPS requests, or further information, contact one of the following numbers:

ADTRAN Sales

Pricing and availability
(888) 4-ADTRAN

ADTRAN Technical Support

Presales Applications / Post-sale Technical Assistance
(800) 726-8663

Standard support hours:
Monday-Friday, 7 a.m. - 7 p.m. CST

Emergency support: 7 days/week, 24 hours/day

ADTRAN Repair/CAPS

Return for repair / upgrade
(256) 963-8722

Repair and Return Address:

ADTRAN, Inc.
Customer and Product Support (CAPS)
901 Explorer Boulevard
Huntsville, Alabama 35806-2807