Altronix® Power Supply/Charger Boards Installation Guide

Overview:

These power supply/chargers convert a 115VAC / 60Hz input to a 12VDC or 24VDC output.

Specifications:

Altronix Model Nuber	Input Rating 115VAC 60Hz	Output Voltage (Current)		Power-Limited Output	Maximum Charge Current
		12VDC	24VDC		
AL400ULXB2	3.5A	4A	3A	✓	0.7A
AL600ULXB	3.5A	6A	6A	—*	0.7A
AL1012ULXB	2.6A	10A	—	—*	0.7A
AL1024ULXB2	4.2A	—	10A	—*	3.6A

All of the above UL Listed Sub-Assembly Power Supply/Chargers can be installed in Trove1 and Trove2 Access and Power Integration Systems and Maximal Series.

*For UL603 applications, or if a power-limited output is required in the end-product application, the DC output from the power supply must be connected to a separately Listed control unit or accessory board that provides power-limited outputs. The product(s) providing the power-limited output(s) must be listed as appropriate for the particular end-product application (fire alarm, burglar alarm, access control) and wired in accordance with the products installation instructions. Class 1 wiring methods, separation of circuits, and proper fire-rated enclosures all must be considered when connecting the DC output of the power supply to the end-product devices.

The auxiliary outputs of these units are power-limited.

Agency Listings:

Altronix Model Nuber	UL Listed Sub-Assembly for US Installations				UL Listed Sub-Assembly for Canadian Installations
	UL294 Access Control	UL603 Burglar Alarm	UL1069 Hospital Signaling and Nurse Call	UL1481 Fire Alarm	CSA C22.2 No.205-M1983 Signal Equipment
AL400ULXB2	✓	✓	✓	✓	✓
AL600ULXB			N/A		
AL1012ULXB		N/A	N/A	N/A	
AL1024ULXB2		✓	N/A	✓	

Output:

- Filtered and electronically regulated output.

Battery Backup:

- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- Zero voltage drop when switched over to battery backup.

Visual Indicators:

- AC input, DC output and BAT trouble LED indicators.

Supervision:

- AC fail supervision (form “C” contacts).
- Low battery and battery presence supervision (form “C” contacts).

Additional Features:

- Short circuit and thermal overload protection.

Board Dimensions *(L x W x H approximate)*:

AL400ULXB2
7.1” x 4.5” x 1.44” (180mm x 114mm x 37mm).

AL600ULXB
7.1” x 4.5” x 2” (180.34 mm x 114.3 mm x 50.8 mm).

AL1012ULXB
7.25” x 4.5” x 1.75” (184.15mm x 114.3mm x 44.45mm).

AL1024ULXB2
8.4” x 4.5” x 1.9” (213.36mm x 114.3mm x 48.26mm).

Stand-by Specifications:

AL400ULXB2:

Output	Burg. Application 4 hr. of Stand-by/ 5 min. of Alarm	Fire Applications 24 hr. of Stand-by/ 5 min. of Alarm	60 hr. of Stand-by/ 5 min. of Alarm*	Access Control Applications Stand-by
12VDC / 40AH Battery	Stand-by = 4.0A Alarm = 4.0A	Stand-by = 1.0A Alarm = 4.0A	Stand-by = 300mA Alarm = 4.0A	4 hrs./4A
24VDC / 12AH Battery	————	Stand-by = 200mA Alarm = 3.0A	————	————
24VDC / 40AH Battery	Stand-by = 3.0A Alarm = 3.0A	Stand-by = 1.0A Alarm = 3.0A	Stand-by = 300mA Alarm = 3.0A	4 hrs./3A

AL600ULXB:

Output	Burg. Applications 4 hr. of Stand-by/ 5 min. of Alarm	Fire Applications 24 hr. of Stand-by/ 5 min. of Alarm	60 hr. of Stand-by/ 5 min. of Alarm*	Access Control Applications Stand-by
12VDC / 40AH Battery	Stand-by = 6.0A Alarm = 6.0A	Stand-by = 1.0A Alarm = 6.0A	Stand-by = 300mA Alarm = 6.0A	4 hrs./6A
24VDC / 12AH Battery	————	Stand-by = 200mA Alarm = 6.0A	————	————
24VDC / 40AH Battery	Stand-by = 6.0A Alarm = 6.0A	Stand-by = 1.0A Alarm = 6.0A	Stand-by = 300mA Alarm = 6.0A	4 hrs./6A

AL1012ULXB:

Output	Access Control Applications Stand-by
12VDC / 12AH Battery	30 minutes of backup @ 10A

AL1024ULXB2:

Output	15 min. of Stand-by/ 5 min. of Alarm	Burg. Applications 4 hr. of Stand-by/ 5 min. of Alarm	Fire Applications 24 hr. of Stand-by/ 5 min. of Alarm	60 hr. of Stand-by/ 5 min. of Alarm*	Access Control Applications Stand-by
24VDC / 12AH Battery	Stand-By = 8A Alarm = 10A	Stand-By = 1.5A Alarm = 10A	Stand-By = 200mA Alarm = 10A	Stand-By = 100mA Alarm = 10A	20 mins./8A
Output	**15 min. of Stand-by/ 5 min. of Alarm**	**Burg. Applications 4 hr. of Stand-by/ 5 min. of Alarm**	**Fire Applications 24 hr. of Stand-by/ 15 min. of Alarm**	**60 hr. of Stand-by/ 15 min. of Alarm***	**Access Control Applications Stand-by**
24VDC / 65AH Battery	————	Stand-By = 8.0A Alarm = 10A	Stand-By = 1.5A Alarm = 10A	Stand-By = 500mA Alarm = 10A	4 hrs./8A

*Not evaluated by UL.

Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/NFPA 72/ANSI, the Canadian Electrical Code and with all local codes and authorities having jurisdiction. Product is intended for indoor use only.

1. Refer to Sub-Assembly Installation Instructions for mounting Rev. MS050913.
2. Set desired DC output voltage by setting SW1 to the appropriate position on the power supply board *(Fig. 1e, pg. 4)*.
3. Connect unswitched AC power (115VAC 60Hz) to the terminals marked [L, N] *(Fig. 1a, pg. 4)*. Use 14 AWG or larger for all power connections (Battery, AC input, DC output). Use 22 AWG to 18 AWG for power-limited circuits (AC Fail/Low Battery reporting).
   Keep power-limited wiring separate from non power-limited wiring (115VAC / 60Hz Input, DC Output *(refer to specification chart pg. 1)*, Battery Wires). Minimum 0.25" spacing must be provided.
   CAUTION: Do not touch exposed metal parts. Shut branch circuit power before installing or servicing equipment. There are no user serviceable parts inside. Refer installation and servicing to qualified service personnel.
4. Measure output voltage before connecting devices. This helps avoiding potential damage.
5. Connect devices to be powered to the terminals marked [+ DC –] *(Fig. 1d, pg. 4)*.
6. For Access Control applications batteries are optional. When batteries are not used, a loss of AC will result in the loss of output voltage. When the use of stand-by batteries is desired, they must be lead acid or gel type. Connect battery to terminals marked [– BAT +] *(Fig. 1c, pg. 4)*.
   Note: Separate enclosure must be used for housing 40AH or 65AH batteries.

7. It is required to connect appropriate signaling notification devices to [AC FAIL] & [BAT FAIL] *(Fig. 1b, pg. 4)* supervisory relay outputs. Use 22AWG to 18AWG wires. AC fail will report in 5 minutes.
   To delay report for 6 hours cut "AC Delay" jumper *(Fig. 1, pg. 4)*.

Wiring:

Use 18 AWG or larger for all low voltage power connections.
Note: Take care to keep power-limited circuits separate from non power-limited wiring (120VAC, Battery).

Maintenance:

Unit should be tested at least once a year for the proper operation as follows:

Output Voltage Test: Under normal load conditions, the DC output voltage should be checked for proper voltage level.

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage (12VDC @ 13.2 or 24VDC @ 26.4) both at the battery terminal and at the board terminals marked [– BAT +] to ensure that there is no break in the battery connection wires.

Replacing Batteries: Disconnect existing batteries. Connect battery to the terminals marked [– BAT +].
Use two (2) 12VDC batteries connected in series for 24VDC operation.

LED Diagnostics *(AL400ULXB2 and AL600ULXB)*:

Red (DC)	Green (AC)	Red (BAT)	Power Supply Status
ON	ON	ON	Normal operating condition.
ON	OFF	ON	Loss of AC. Stand-by battery supplying power.
OFF	ON	OFF	No DC output, Battery Trouble.
OFF	OFF	OFF	Loss of AC. Discharged or no stand-by battery. No DC output.
ON	ON	OFF	Battery missing / Low.

LED Diagnostics *(AL1012ULXB and AL1024ULXB2)*:

Red (DC)	Green (AC)	Power Supply Status
ON	ON	Normal operating condition.
ON	OFF	Loss of AC. Stand-by battery supplying power.
OFF	ON	No DC output.
OFF	OFF	Loss of AC. Discharged or no stand-by battery. No DC output.

Terminal Identification:

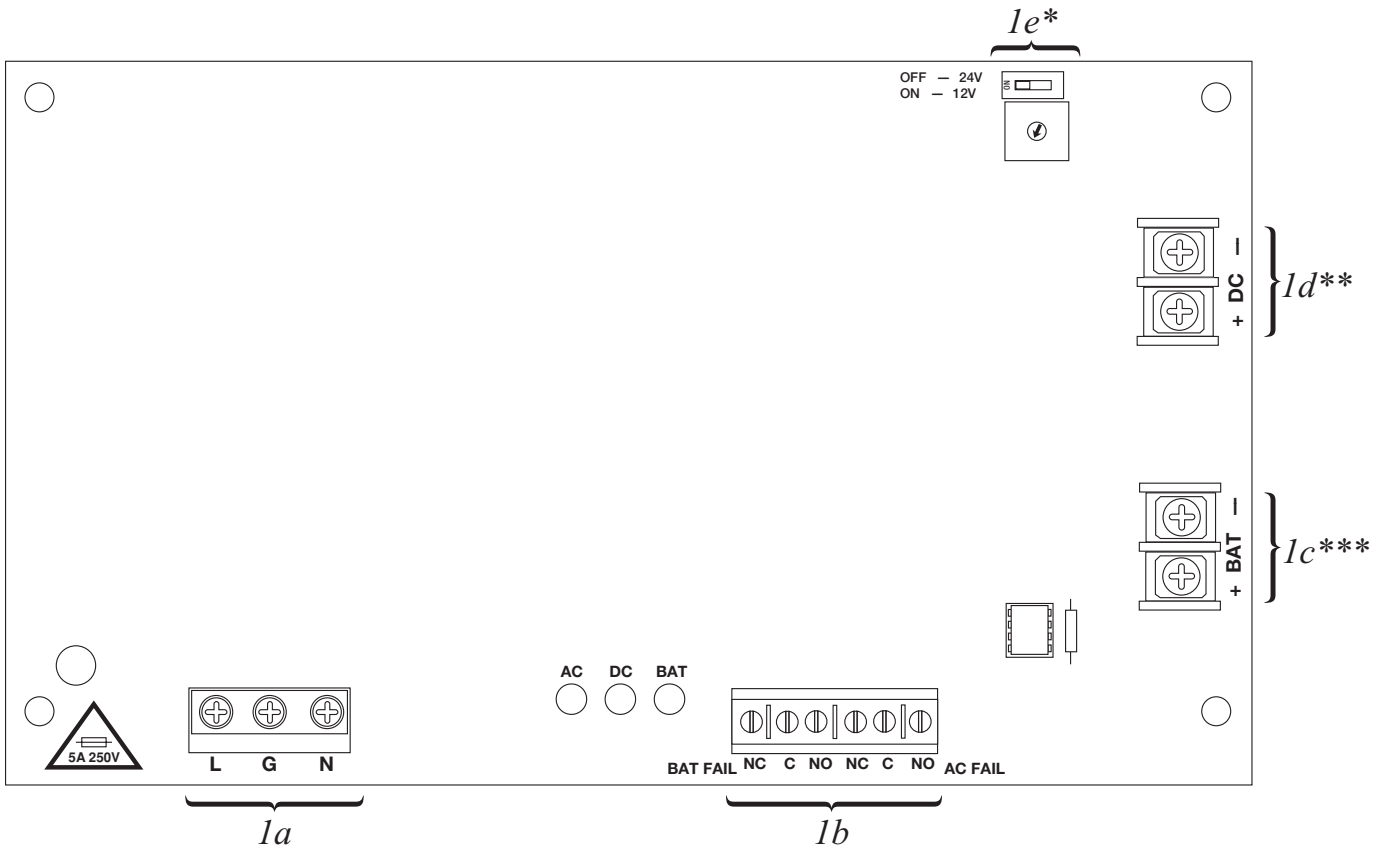
Terminal Legend	Function/Description
L, G, N	Connect 115VAC to these terminals: L to hot, N to neutral *(Fig. 1a, pg. 4)*.
+ DC – **	**AL400ULXB2:** 12VDC @ 4A or 24VDC @ 3A continuous output (Power-Limited output) *(Fig. 1d, pg. 4)*. **AL600ULXB:** 12VDC or 24VDC @ 6A continuous output (Non Power-Limited output) *(Fig. 1d, pg. 4)*. **AL1012ULXB:** 12VDC @ 10A continuous output (Non Power-Limited output) *(Fig. 1d, pg. 4)*. **AL1024ULXB2:** 24VDC @ 8A continuous, 10A in alarm non power-limited output (UL1481). 24VDC @ 10A (UL294) *(Fig. 1d, pg. 4)*.
AC FAIL NO, C, NC	Used to notify loss of AC power, e.g.connect to audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1A @ 28VDC. AC or brownout fail is reported within 1 minute of event. To delay reporting for up to 6 hrs., cut "AC Delay" jumper and reset power to unit *(Fig. 1b, pg. 4)*.
BAT FAIL NO, C, NC	Used to indicate low battery condition, e.g. connect to alarm panel. Relay normally energized when DC power is present. Contact rating 1A @ 28VDC. A removed battery is reported within 1 minute. Battery reconnection is reported within 1 minute. Low battery threshold: approximately 21VDC *(Fig. 1b, pg. 4)*.
+ BAT – ***	Stand-by battery connections *(Fig. 1c, pg. 4)*. AL400ULXB2, AL600ULXB, AL1012ULXB maximum charge current 0.7A. AL1024ULXB2 maximum charge current 3.6A.

**AL1012ULXB terminals marked [– DC +]
***AL1024ULXB2 terminals marked [– BAT +]

UL Model Reference Chart:

UL Listed Sub-Assembly Board	Power Supply Series		Enclosures
AL400ULXB2	AL400ULX	Maximal11	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
AL600ULXB	AL600ULX	Maximal33	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
AL1012ULXB	AL1012ULX	Maximal55	BC300, BC400, BC800 (Maximal), Trove1 and Trove2
AL1024ULXB2	AL1024ULX	Maximal77	BC300, BC400, BC800 (Maximal), Trove1 and Trove2

Fig. 1 - ULXB configuration



*Output Voltage Selection Dip Switch. Not applicable for AL1012ULXB and AL1024ULXB2.
**AL1012ULXB terminals marked [– DC +]
***AL1024ULXB2 terminals marked [– BAT +]