AL400UL3
AL400UL3X

Triple Output Power Supply/Charger

Installation Guide

For a red enclosure add an "R" suffix to the part #, e.g. AL400UL3XR

SECURITY SIGNALING

UL LISTED

c UL LISTED

MEA Approved

Altronix®

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Rev. 030619

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

Overview:

Altronix AL400UL3/AL400UL3X multi-output power supply/charger is specifically designed for use with access control, burglar alarm, fire and nurse call systems and accessories. AL400UL3/AL400UL3X converts a 115VAC 60Hz input into three (3) individual power-limited outputs (see specifications).

Features:

Agency Listings:

- **UL Listed:**
  - **UL294*** Access Control Systems
  - **UL603** Power Supplies for use with Burglar-Alarm Systems,
  - **UL1069** Hospital Signaling and Nurse Call Equipment,
  - **UL1481** Power Supplies for Fire Protective Signaling Systems.
- **cUL Listed:** CSA Standard C22.2 No.205-M1983, Signal Equipment.
- **MEA** - NYC Department of Buildings Approved.
- **CSFM** - California State Fire Marshal Approved.
- **NFPA 72 Compliant** (Fire-Protective Signaling Service).

Input:

- Input 115VAC, 60Hz, 3.5A.
- Input fuse rated @ 5A/250V.

Output:

- Class 2 Rated power-limited auto-resettable output(s).
- 1.75A continuous supply current at 5VDC.
- 1.75A continuous supply current at 12VDC.
- 1.5A continuous supply current at 24VDC. Burglar Alarm Applications (UL 603): 12VDC = 10VDC-13.2VDC. 24VDC = 20VDC-26.4VDC.
- 100 mV p/p output ripple.
- Output fuse rated @ 15A/32V.
- Filtered and electronically regulated output(s).
- Short circuit and thermal overload protection.

LED Indicators:

- AC input, DC output and Battery LED indicators.

Battery Backup:

- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- Maximum charge current 0.7A.
- Zero voltage drop when switched over to battery backup.

Supervision:

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

Additional Features:

- Power supply, enclosure, cam lock and battery leads.

Enclosure Dimensions (H x W x D):

AL400UL3:
13” x 12.5” x 3.25”
(330.2mm x 317.5mm x 82.6mm).
Accommodates up to two (2) 12VDC/7AH batteries.

AL400UL3X:
15.5” x 12.23” x 4.5”
(393.7mm x 310.6mm x 114.3mm).
Accommodates up to two (2) 12VDC/12AH batteries.

***Access Control Performance Levels:** Destructive Attack - I; Endurance - IV; Line Security - I; Stand-by Power - II.

Stand-by Specifications (total current shown)**:

Battery	30 Minutes of Alarm (for Access Control)	4 hr. of Stand-by and 5 Minutes of Alarm	24 hr. of Stand-by and 5 Minutes of Alarm	60 hr. of Stand-by and 5 Minutes of Alarm
7AH	Stand-by = 3.0A Alarm = 3.0A	–	–	–
12AH	–	–	Stand-by = 200mA Alarm = 3.0A	–
40AH	–	Stand-by = 3.0A Alarm = 3.0A	Stand-by = 1.0A Alarm = 3.0A	Stand-by = 300mA Alarm = 3.0A

** Current is measured between power supply and ALX3B board.

Installation Instructions:

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

1. Mount unit in the desired location. Mark and predrill holes in the wall to line up with the top two keyholes in the enclosure. Install two upper fasteners and screws in the wall with the screw heads protruding. Place the enclosure's upper keyholes over the two upper screws, level and secure. Mark the position of the lower two holes. Remove the enclosure. Drill the lower holes and install the three fasteners. Place the enclosure's upper keyholes over the two upper screws. Install the two lower screws and make sure to tighten all screws *(Enclosure Dimensions, pgs. 7-8)*. Secure enclosure to earth ground.
   It is recommended to first review the following tables for screw terminals, switch selection and LED status indications. This will greatly facilitate installation hook-up.
   Carefully review:
   Stand-by Specifications (pg. 2)
   LED Diagnostics (pg. 4)
   Terminal Identification Table (pg. 4)
2. Connect AC power (115VAC 60Hz) to the terminals marked [L, N] *(Fig. 1, pg. 5)*. Green "AC" LED on power supply board will turn on. This light can be seen through the LED lens on the door of the enclosure. Use 14 AWG or larger for all power connections. Secure green wire lead to earth ground.
   Use 18 AWG or larger for all power connections (Battery, DC output, AC input).
   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, Battery Wires). Minimum 0.25" spacing must be provided.
   For Fire Alarm applications the outputs are "Special Applications" only, see list *(refer to Appendix A, pg. 6)*.
3. Measure output voltage before connecting devices. This helps avoiding potential damage.
4. Connect devices to be powered at 5VDC to the terminals marked [+ 5VDC –].
5. Connect devices to be powered at 12VDC to the terminals marked [+ 12VDC –].
6. Connect devices to be powered at 24VDC to the terminals marked [+ 24VDC –].
7. Connect two (2) 12V Stand-by batteries.
   Note: For Access Control applications batteries are optional. When batteries are not used, a loss of AC will result in the loss of output voltage. Batteries must be lead acid or gel type if used.
   Use two (2) 12V stand-by batteries connected in series to the terminals marked [+ BAT –] *(Fig. 1 , pg. 5)*.
8. It is required to connect supervisory trouble reporting devices to outputs marked [AC FAIL, LOW BAT] *(Fig. 1, pg. 5)*.
   Use 22 AWG to 18 AWG for AC Fail and Low Battery reporting. AC Failure will report in 5 minutes.
   Note: When used in fire alarm, burglar alarm or access control applications, "AC Fail" relay should be utilized to visually indicate that AC power is on. To delay report for 6 hours cut "AC Delay" jumper *(Fig. 1, pg. 5)*.
9. Please ensure that the cover is secured with the provided key lock.

Wiring:

Use 14 AWG or larger for all power connections.
Note: Take care to keep power-limited circuits separate from non power-limited wiring (115VAC, 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 (*refer to Power Supply Voltage Output Specifications chart*).

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage both at the battery terminal and at the board terminals marked [+ BAT –] to ensure that there is no break in the battery connection wires.
Note: Maximum charging current under discharge is 0.7A.
Note: Expected battery life is 5 years, however it is recommended changing batteries in 4 years or less if needed.

LED Diagnostics:

AL400ULXB2 - Power Supply

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

Red (Bat)	Battery Status
ON	Normal operating condition.
OFF	Battery fail/low battery.

Terminal Identification:

AL400ULXB2 - Power Supply

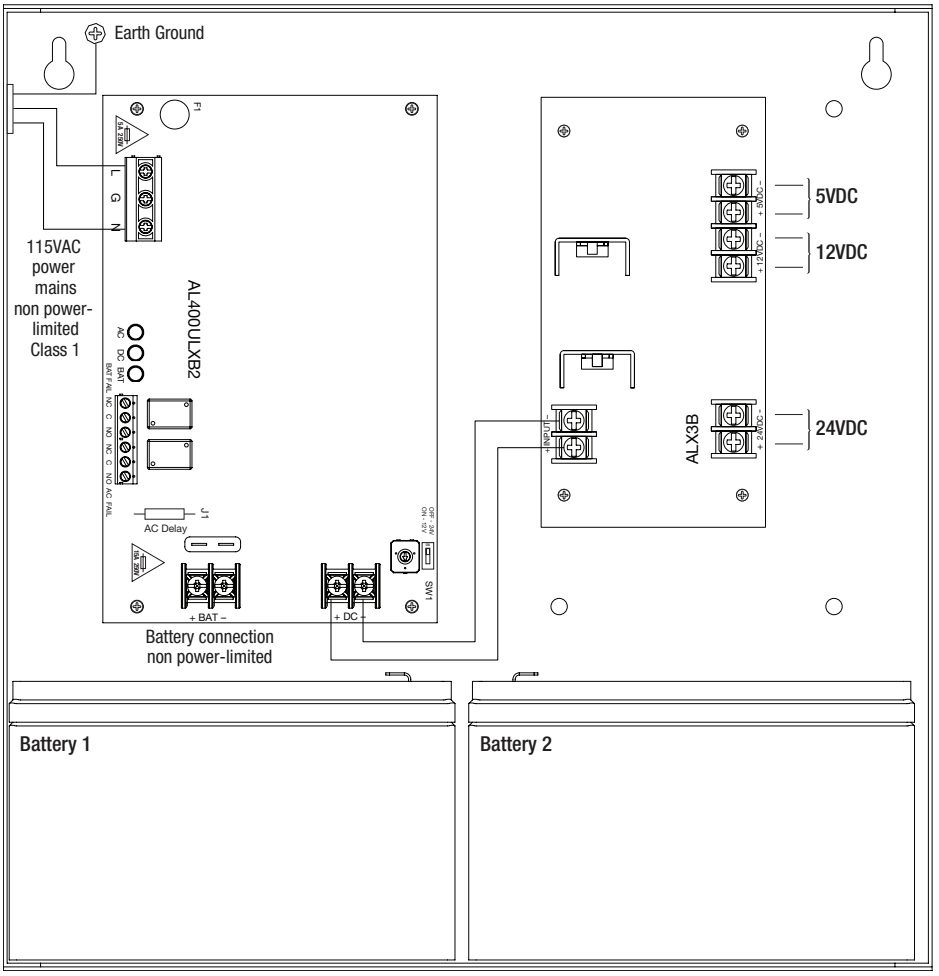
Terminal Legend	Function/Description
L, N	115VAC, 60 Hz
+DC –	24VDC @ 3A total continuous output (supplies power to ALX3B).
AC Fail NC, C, NO	Indicates loss of AC power, e.g. connect to audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1A @ 28VDC.
Bat Fail NC, C, NO	Indicates low battery condition, e.g. no battery presence. Relay normally energized when DC power is present. Contact rating 1A @ 28VDC. Low battery threshold: 24VDC. Output threshold is set approximately @ 21VDC
+BAT –	Stand-by battery connections. Maximum charge current 0.7A.

ALX3B - Power Output Module

Terminal Legend	Function/Description
+ INPUT –	24VDC from power supply (AL400ULXB2).
+ 24VDC –	24VDC @ 1.5A continuous power-limited output
+ 12VDC –	12VDC @ 1.75A continuous power-limited output.
+ 5VDC –	5VDC @ 1.75A continuous power-limited output.

Fig. 1

CAUTION: De-energize unit prior to servicing.
For continued protection against risk of electric shock and fire hazard replace fuse with the same type and rating.
Do not expose to rain or moisture.



Appendix A - UL Listed Compatible Devices

A.1 Four (4) Wire Smoke Detectors

Table A-1 below lists four (4) wire smoke detectors compatible with **AL400UL3/AL400UL3X** output.

System Sensor Smoke Detector/Base	Detector Type	Max Stand-by Current (mA)	Alarm Current (mA)
B112LP	Base	0.12	36
B114LP	Base	*	*
B404B	Base	*	*
DH100ACDC	Photoelectric	0.15	0.70
DH100ACDCLP	Photoelectric	0.15	0.70
DH100ACDCLPW	Photoelectric	0.15	0.70
DH400ACDCI	Ionization Duct	25	95
DH400ACDCP	Photoelectric Duct	25	95
1112/24/D	Ionization	0.05	50
1424	Ionization	0.10	41
1451 (w/B402B Base)	Ionization	0.10	39
2112/24ATR	Photoelectric	0.50	60/70
2112/24AITR	Photoelectric	0.50	60/70
2112/24/D	Photoelectric	0.05	50
2112/24T/D	Photoelectric w/135° Thermal	0.05	50
2112/24TSRB	Photoelectric w/135° Thermal Supervisory Relay	15	45
2312/24TB	Photoelectric	0.12	50
2412 (12 volt)	Photoelectric	0.12	77
2424	Photoelectric	0.10	41
2451	Photoelectric	0.10	39
2451TH (with/B402B Base)	Photoelectric	0.10	39
2W-MOD	Loop Test/Maintenance Mod.	30	50
4W-B (12/24 volt)	Photoelectric I^3	0.05	23
4WT-B (12/24 volt)	Photoelectric I^3 w/Therm	0.05	23
4WTA-B (12/24 volt)	I^3 Photo w/Therm/Sounder	0.05	35
4WTR-B (12/24 volt)	I^3 Photo w/Therm/Relay	0.05	35
4WITAR-B (12/24 volt)	I^3 Photo w/Isolated Therm/Sounder/Relay	0.05	50
2W-MOD2	I^3 Loop Test/Maintenance Mod.	0.05	*
RRS-MOD	I^3 Reversing Relay/Sync Module	0.05	*
6424	Projected Beam	10	28.4
Beam 1224(S)	Projected Beam	17	38.5

* Contact manufacturer for current draws.

A.2 Relays

Table A-2 below lists relays compatible with **AL400UL3/AL400UL3X** output.

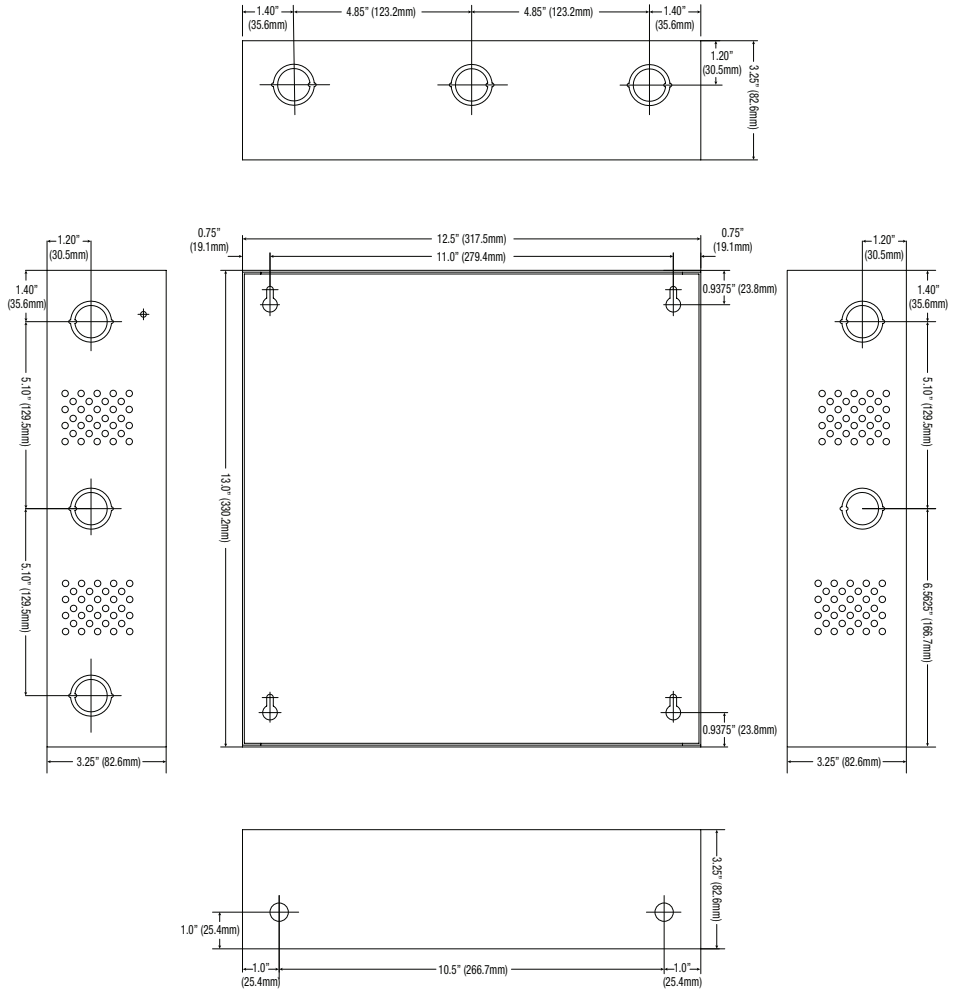
Manufacturer	Model	Current (mA)
System Sensor	PR-1	15
	PR-2	30
	PR-3	30
	EOLR-1	30
	R-10T	23
	R-14T	23

Manufacturer	Model	Current (mA)
System Sensor	R-20T	40
	R-24T	40
	R-10E	23
	R-14E	23
	R-20E	40
	R-24E	40

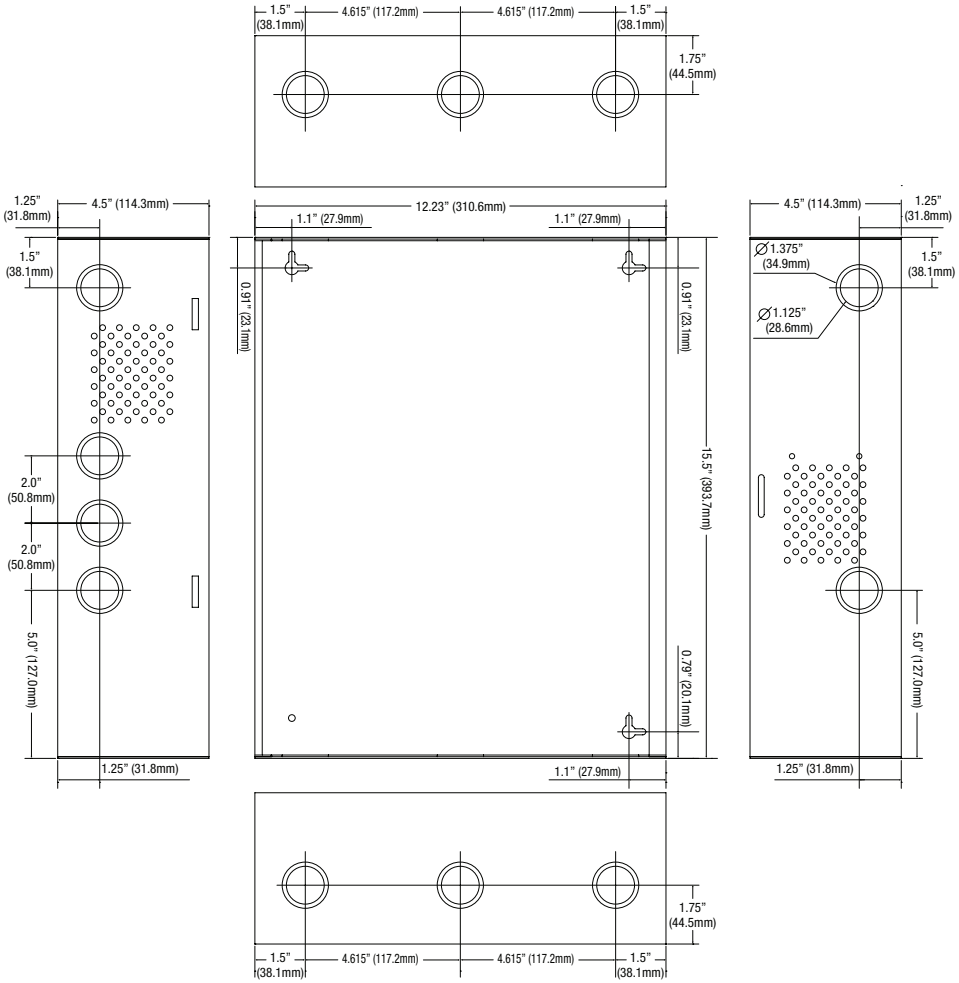
Enclosure Dimensions (BC300)**:**

AL400UL3

13” x 12.5” x 3.25” (330.2mm x 317.5mm x 82.6mm)



Enclosure Dimensions (BC400)**:**

AL400UL3X

15.5" x 12.23" x 4.5" (393.7mm x 310.6mm x 114.3mm)