Altronix®

AL400UL3
AL400UL3X
Triple Output
Power Supply/Charger

Installation Guide

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

MEA Approved

Rev. 102512

Overview:

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

Specifications:

Agency Listings:

- UL Listed for Access Control System Units (UL 294), UL Listed for Power Supplies for Use with Burglar-Alarm Systems (UL 603), UL Listed Hospital Signaling and Nurse Call Equipment (UL 1069) and UL Listed Standard for Safety for Fire Protective Signaling Systems (UL 1481).
- MEA - NYC Department of Buildings Approved.
- CSFM - California State Fire Marshal Approved.
- NFPA 72 Compliant (Fire-Protective Signaling Service).

Input:

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

Output:

- Class 2 Rated power-limited output(s).
- 1.75 amp continuous supply current at 5VDC.
- 1.75 amp continuous supply current at 12VDC.
- 1.5 amp 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 *(cont'd.)*:

- Short circuit and thermal overload protection.
- Output fuse rated at 15A/32V.

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 0.7 amp.
- 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.
- AC input and DC output LED indicators.

Enclosure dimensions (HxWxD):
AL400UL3 - accommodates up to two (2) 12VDC/7AH batteries.
13.5" x 13" x 3.25" (342.9mm x 330.2mm x 82.55mm)
AL400UL3X - accommodates up to two (2) 12VDC/12AH batteries
15.5" x 12" x 4.5" (393.7mm x 304.8mm x 114.3mm)

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

Output	4 hr. of Stand-by & 5 Minutes of Alarm	24 hr. of Stand-by & 5 Minutes of Alarm	60 hr. of Stand-by & 5 Minutes of Alarm
24VDC / 12AH Battery	—	Stand-by = 200mA Alarm = 3.0 amp	—
24VDC / 40AH Battery	Stand-by = 3.0 amp Alarm = 3.0 amp	Stand-by = 1.0 amp Alarm = 3.0 amp	Stand-by = 300mA Alarm = 3.0 amp

*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. 6-7)*. 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.

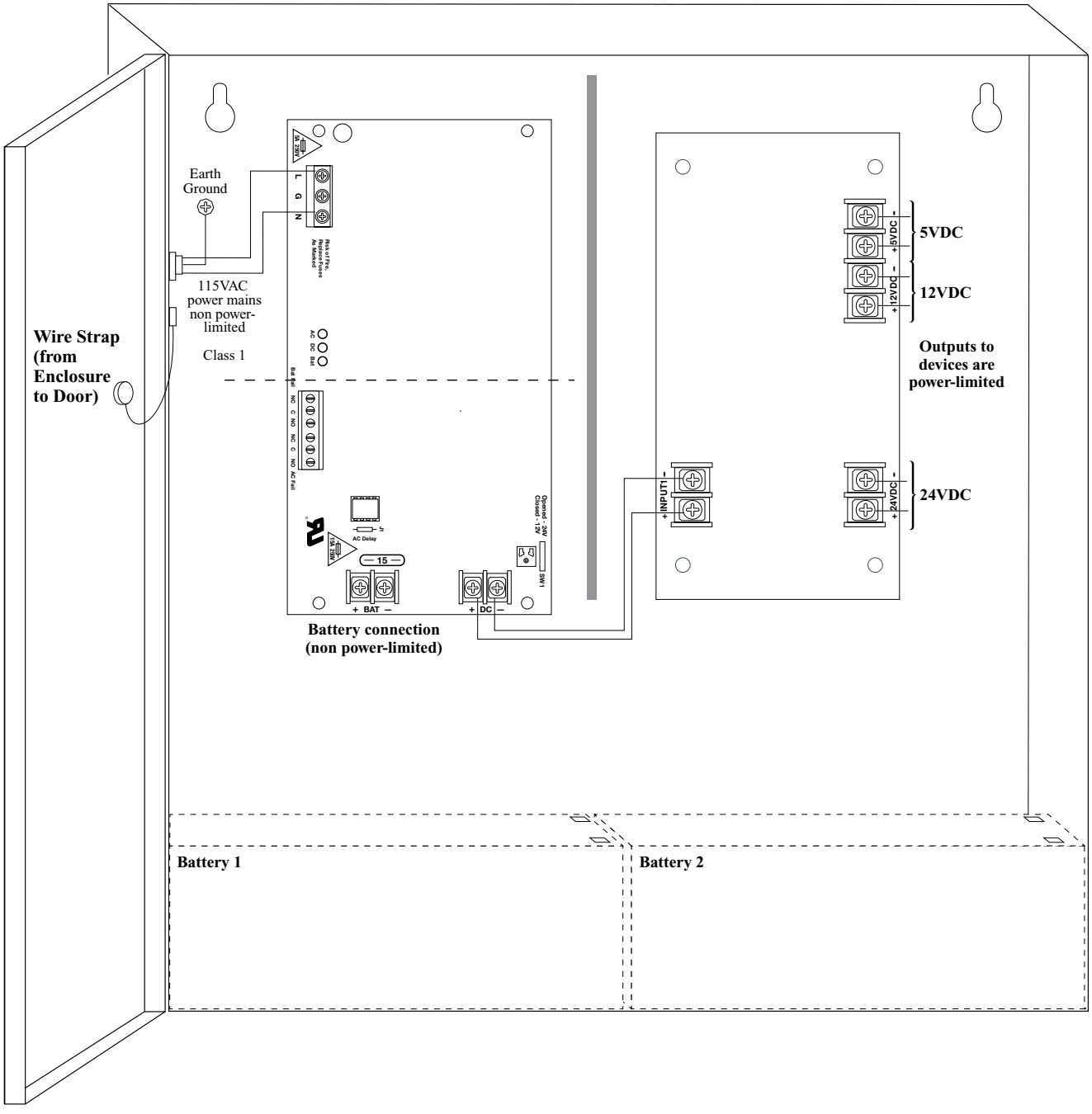
   Carefully review:

   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. 3)*. 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. 5)*.
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. Two (2) 12V Stand-by batteries connected in series to the terminals marked [+ BAT –] *(Fig. 1 , pg. 3)*.

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.



8. It is required connect supervisory trouble reporting devices to outputs marked [AC FAIL, LOW BAT] *(Fig. 1, pg. 3)*. Use 22 AWG to 18 AWG for AC Fail & 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 6 hours cut "AC Delay" jumper *(Fig. 1b, pg. 3)*.
9. Please ensure that the cover is secured with the provided Key Lock.

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 *(see Terminal Identification Tables)*.
Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage at the battery terminals and at the board terminals marked [+ BAT –] to ensure that there is no break in the battery connection wires.
Note: Maximum charge current under discharge is 0.7 amp.
Note: Expected battery life is 5 years, however it is recommended changing batteries in 4 years or less if necessary.

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 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 @ 3 amp 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 1 amp @ 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 1 amp @ 28VDC. Low battery threshold: 24VDC output threshold is set approximately @ 21VDC
+BAT –	Stand-by battery connections. Maximum charge current 0.7 amp.

ALX3B - Power Output Module

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

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

* Contact manufacturer for current draws.

A.2 Relays

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

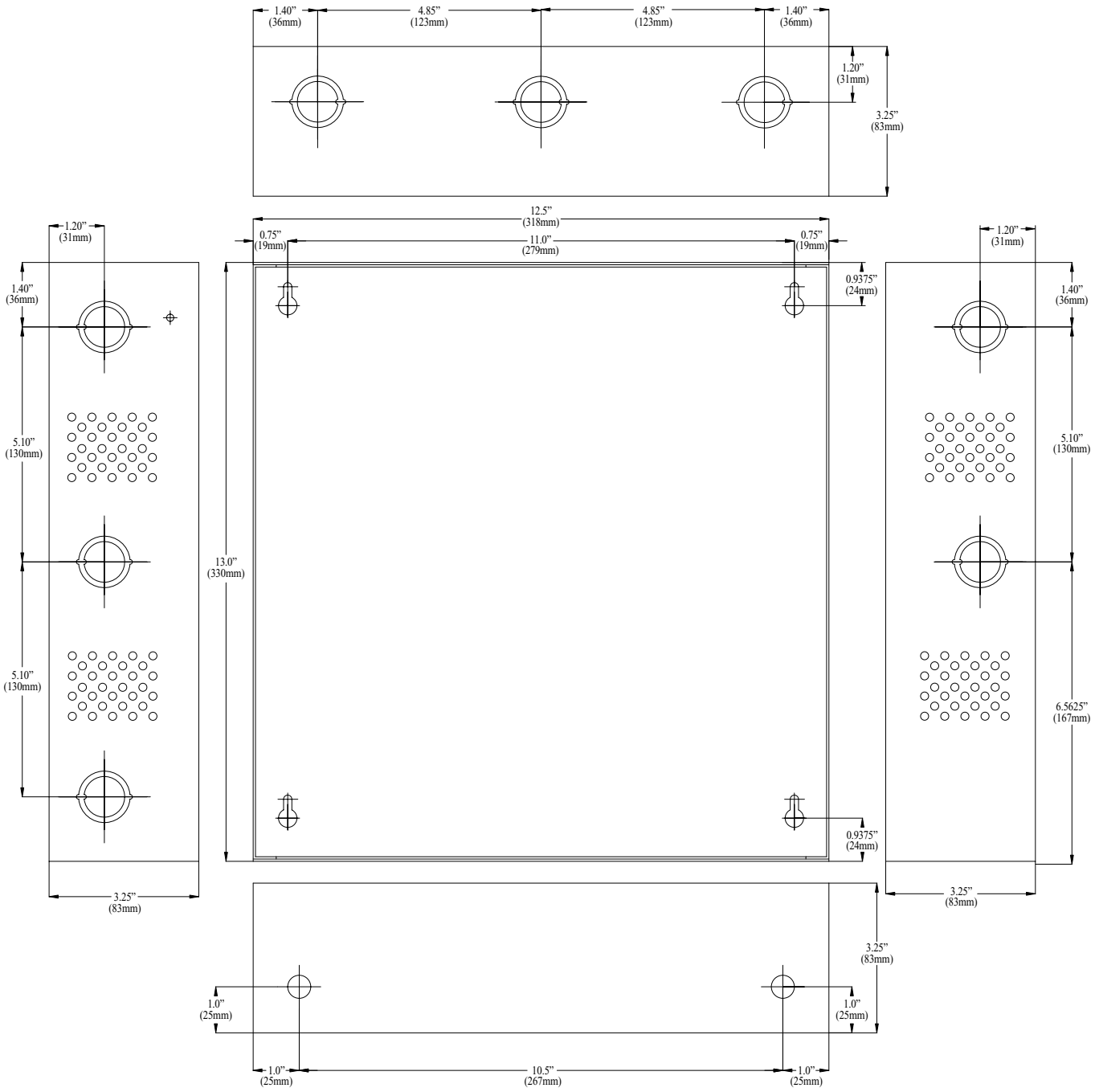
Manufacturer	Model	Operating Voltage	Current (mA)
System Sensor	PR-1		15
	PR-2		30
	PR-3		30
	EOLR-1		30
	R-10T		23
	R-14T		23

Manufacturer	Model	Operating Voltage	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

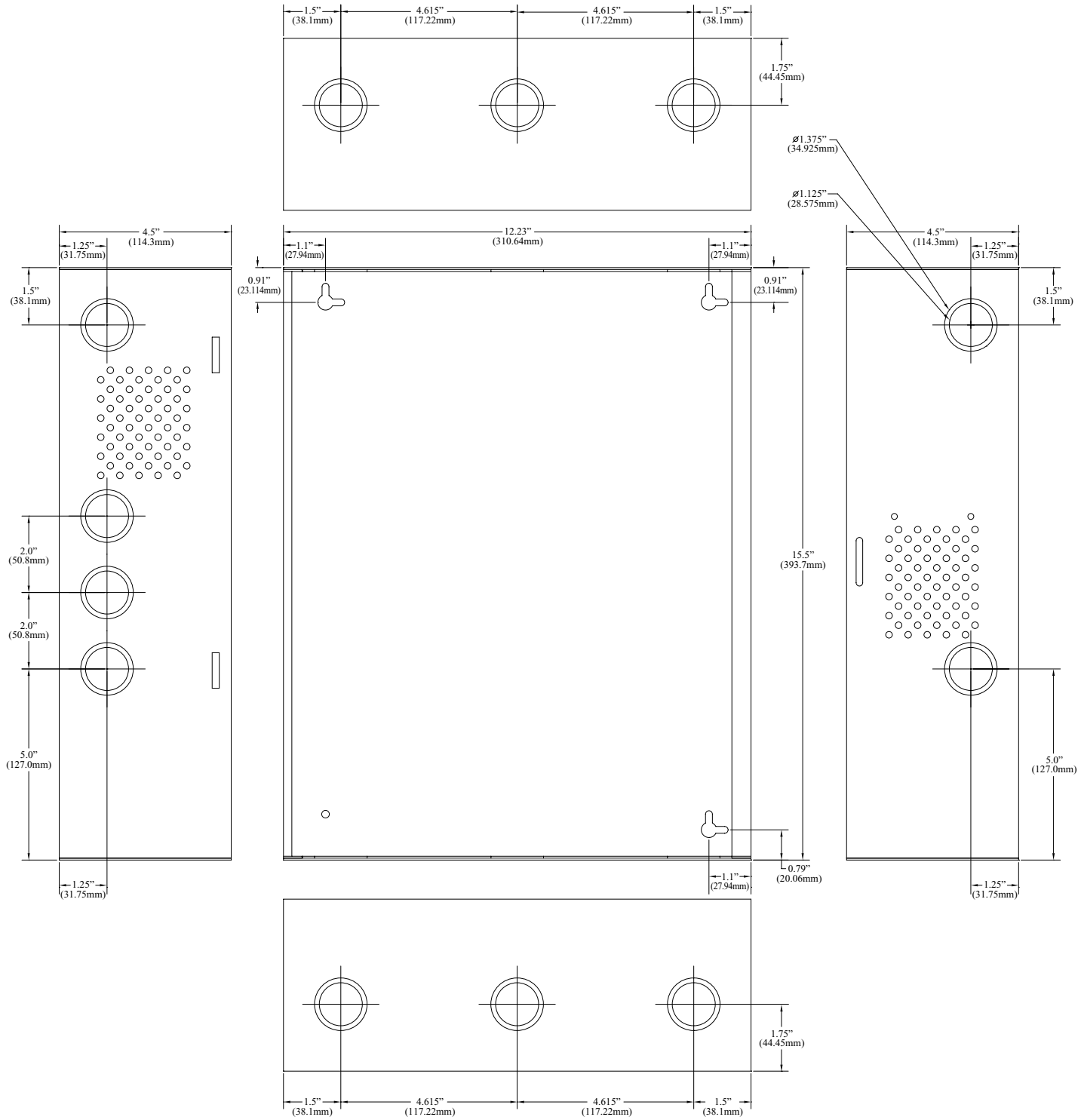
13.5” x 13” x 3.25” (342.9mm x 330.2mm x 82.55mm)



Enclosure Dimensions *(BC400)**:***

AL400UL3X

15.5” x 12” x 4.5” (393.7mm x 304.8mm x 114.3mm)



Notes:

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web site: www.altronix.com, e-mail: info@altronix.com, Lifetime Warranty, Made in U.S.A.