



Maximal EV Series

Expandable Power Systems

Models Include:

Maximal11EV

- Power Supply 1: 12VDC @ 4A or 24VDC @ 3A.
- Power Supply 2: 12VDC @ 4A or 24VDC @ 3A.

Maximal13EV

- Power Supply 1: 12VDC or 24VDC @ 6A.
- Power Supply 2: 12VDC @ 4A or 24VDC @ 3A.

Maximal33EV

- Power Supply 1: 12VDC or 24VDC @ 6A.
- Power Supply 2: 12VDC or 24VDC @ 6A.

Maximal35EV

- Power Supply 1: 12VDC or 24VDC @ 6A.
- Power Supply 2: 12VDC @ 10A.

Maximal37EV

- Power Supply 1: 24VDC @ 10A.
- Power Supply 2: 12VDC or 24VDC @ 6A.

Maximal55EV

- Power Supply 1: 12VDC @ 10A.
- Power Supply 2: 12VDC @ 10A.

Maximal75EV

- Power Supply 1: 24VDC @ 10A.
- Power Supply 2: 12VDC @ 10A.

Maximal77EV

- Power Supply 1: 24VDC @ 10A.
- Power Supply 2: 24VDC @ 10A.

Installation Guide



More than just power.™

Rev. MEV090710

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

MaximalEV Overview:

Altronix Maximal Expandable Power Systems provide system designers and installers with maximum power choices and the highest levels of versatility. They provide 12VDC, 24VDC, or 12VDC and 24VDC simultaneously via two (2) single output power supply/chargers. Include AC fail, low battery, and battery presence monitoring. Custom enclosures accommodate up to four (4) 12VDC/12AH batteries.

MaximalEV Series Configuration Chart:

Altronix Model Number	Output Voltage Options		Outputs	220VAC 50/60Hz Input Current Draw	Power Supply Board Input Fuse Rating
	Power Supply 1	Power Supply 2			
Maximal11EV	AL400XB2V	AL400XB2V	2	2.25A	5A/250V
	12VDC @ 4A	12VDC @ 4A			
	12VDC @ 4A	24VDC @ 3A			
	24VDC @ 3A	24VDC @ 3A			
Maximal13EV	AL400XB2V	AL600XB220	2	2.5A	5A/250V
	12VDC @ 4A	12VDC @ 6A			
	12VDC @ 4A	24VDC @ 6A			
	24VDC @ 3A	12VDC @ 6A			
	24VDC @ 3A	24VDC @ 6A			
Maximal33EV	AL600XB220	AL600XB220	2	3.5A	5A/250V
	12VDC @ 6A	12VDC @ 6A			
	12VDC @ 6A	24VDC @ 6A			
	24VDC @ 6A	24VDC @ 6A			
Maximal35EV	AL600XB220	AL1012XB220	2	3A	5A/250V
	12VDC @ 6A	12VDC @ 10A			
	24VDC @ 6A	12VDC @ 10A			
Maximal37EV	AL600XB220	AL1024XB2V	2	5A	5A/250V
	12VDC @ 6A	24VDC @ 10A			
	24VDC @ 6A	24VDC @ 10A			
Maximal55EV	AL1012XB220	AL1012XB220	2	3A	5A/250V
	12VDC @ 10A	12VDC @ 10A			
Maximal75EV	AL1012XB220	AL1024XB2V	2	5A	5A/250V
	12VDC @ 10A	24VDC @ 10A			
Maximal77EV	AL1024XB2V	AL1024XB2V	2	6.25A	5A/250V
	24VDC @ 10A	24VDC @ 10A			

MaximalEV Features:

Output:

- Filtered and electronically regulated outputs (built-in power supply).
- Short circuit and thermal overload protection with auto reset.

Supervision:

- AC fail supervision (form "C" contacts).
- Low battery and battery presence supervision (form "C" contact).

Visual Indicators:

- AC input and DC output LED indicators.

Battery Backup:

- Built-in charger for sealed lead acid or gel type batteries.

Battery Backup (cont'd):

- Maximum charge current:
AL400XB2V, AL600XB220 and AL1012XB220 (Power Supply Board): **0.7A**
AL1024XB2V (Power Supply Board): **3.6A**
- Automatic switch over to stand-by battery when AC fails.
- Zero voltage drop when unit switches over to battery backup (AC failure condition).

Enclosure Dimensions (approximate H x W x D):

- 26" x 19" x 6.25"
(660.4mm x 482.6mm x 158.8mm)
- Enclosure accommodates up to four (4) 12VDC/12AH batteries.

MaximalEV Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/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 three keyholes in the enclosure. Install three upper fasteners and screws in the wall with the screw heads protruding. Place the enclosure's upper keyholes over the three upper screws, level and secure. Mark the position of the lower three holes. Remove the enclosure. Drill the lower holes and install the three fasteners. Place the enclosure's upper keyholes over the three upper screws. Install the three lower screws and make sure to tighten all screws (*Enclosure Dimensions, pg. 12*).
2. Connect unswitched AC power (220VAC, 50/60Hz) to the terminals marked [L, N] on both power supply boards. Green branch wire connects to earth (safety) ground lug. Use 14 AWG or larger for all power connections. (*Fig. 2, pg. 6*).

Keep power-limited wiring separate from non power-limited wiring.

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.

3. Select desired DC output voltage by setting SW1 to the appropriate position (Maximal11EV, Maximal13EV, Maximal33EV, Maximal35EV and Maximal37EV) (*Fig. 1, pg. 5*).
Maximal55EV power supplies are factory set at 12VDC.
Maximal77EV power supplies are factory set at 24VDC.
Maximal75EV power supplies are factory set at 12VDC and 24VDC (*Power Supply Board Stand-by Battery Specifications, pg. 5*).
4. Measure the output voltage of the unit before connecting any devices to ensure proper operation. Improper or high voltage will damage these devices.
5. Connect devices to be powered to the terminals marked [+ DC -] (*Fig. 2, pg. 6*).
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 the terminals marked [+ BAT -] (*Figs. 2-7, pgs. 6-11*).
Use two (2) 12VDC batteries connected in series for 24VDC operation (battery leads included).
7. Battery and AC Supervision outputs: It is required to connect supervisory trouble reporting devices to outputs marked [AC FAIL, BAT FAIL] supervisory relay outputs marked [NC, C, NO] to appropriate visual notification devices. Use 22 AWG to 18 AWG for AC Fail & Low/No Battery reporting (*Fig. 2a, pg. 6*).
8. Mount UL Listed tamper switch (not included) (Altronix Model TS112 or equivalent) at the top of the enclosure. Slide the tamper switch bracket onto the edge of the enclosure approximately 2" from the right side (*Fig. 2b, pg. 6*). Connect tamper switch wiring to the Access Control Panel input or the appropriate UL Listed reporting device. To activate alarm signal open the door of the enclosure.
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 (*Power Supply Stand-by Battery Specifications, pg. 5*).

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: AL400XB2V, AL600XB220 and AL1012XB220 (Power Supply Board) maximum charge current is 0.7A.
AL1024XB2V (Power Supply Board) maximum charge current is 3.6A.

Expected battery life is 5 years, however it is recommended to change batteries within 4 years or less if necessary.

Power Supply Board LED Diagnostics:

LED		Power Supply Status
Red (DC)	Green (AC)	
ON	ON	Normal operating condition.
ON	OFF	Loss of AC. Stand-by battery supplying power.
OFF	ON	No DC output. Short circuit or thermal overload condition.
OFF	OFF	No DC output. Loss of AC. Discharged battery.

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

Power Supply Board Terminal Identification:

Terminal Legend	Function/Description
L, G, N	Connect 220VAC, 50/60Hz to these terminals: L to hot, N to neutral.
+ DC –	<i>Refer to MaximalEV Series Configuration Chart, pg. 3.</i>
AC FAIL NC, C, NO	Indicates loss of AC power. Relay normally energized when AC power is present. Contact rating 1A @ 28VDC. AC or brownout fail is reported within 1 minute of event.
BAT FAIL NC, C, NO	Indicates 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 5 minutes. Battery reconnection is reported within 1 minute. Low battery threshold: 12VDC output threshold set @ approximately 10.5VDC. 24VDC output threshold set @ approximately 21VDC.
+ BAT –	Stand-by battery connections. AL400XB2V, AL600XB220 and AL1012XB220 (Power Supply Board) maximum charge current is 0.7A. AL1024XB2V (Power Supply Board) maximum charge current is 3.6A.

Power Supply Board Stand-by Battery Specifications

Altronix Model	Power Supply Board	Battery	20 min. of Backup	4 hr. of Backup	24 hr. of Backup	60 hr. of Backup
Maximal11EV Maximal13EV	AL400XB2V <i>(Refer to Fig. 1a, 1b on pg. 5 for Switch [SW1] location and position)</i>	12VDC/40AH*	N/A	4A	1A	300mA
		24VDC/12AH	N/A	200mA	N/A	N/A
		24VDC/40AH*	N/A	3A	1A	300mA
Maximal13EV Maximal33EV Maximal35EV Maximal37EV	AL600XB220 <i>(Refer to Fig. 1a, 1b on pg. 5 for Switch [SW1] location and position)</i>	12VDC/40AH*	N/A	6A	1A	300mA
		24VDC/12AH	N/A	200mA	N/A	N/A
		24VDC/40AH*	N/A	6A	1A	300mA
Maximal35EV Maximal55EV Maximal75EV	AL1012XB220 <i>(Factory set at 12VDC)</i>	12VDC/12AH	10A	Battery capacity for emergency stand-by at least 20 mins.	N/A	N/A
Maximal37EV Maximal75EV Maximal77EV	AL1024XB2V <i>(Factory set at 24VDC)</i>	24VDC/12AH	8A	1.5A	200mA	100mA
		24VDC/65AH*	N/A	8A	1.5A	500mA

* Note: Additional battery enclosure required (Figs. 3-7, pgs. 7-11).

Power Supply Board Output Voltage Settings:

Fig. 1

Fig. 1a - AL400XB2V / AL600XB220 Power Supply Board

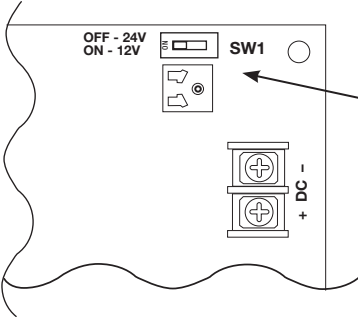


Fig. 1b

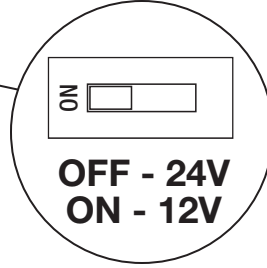
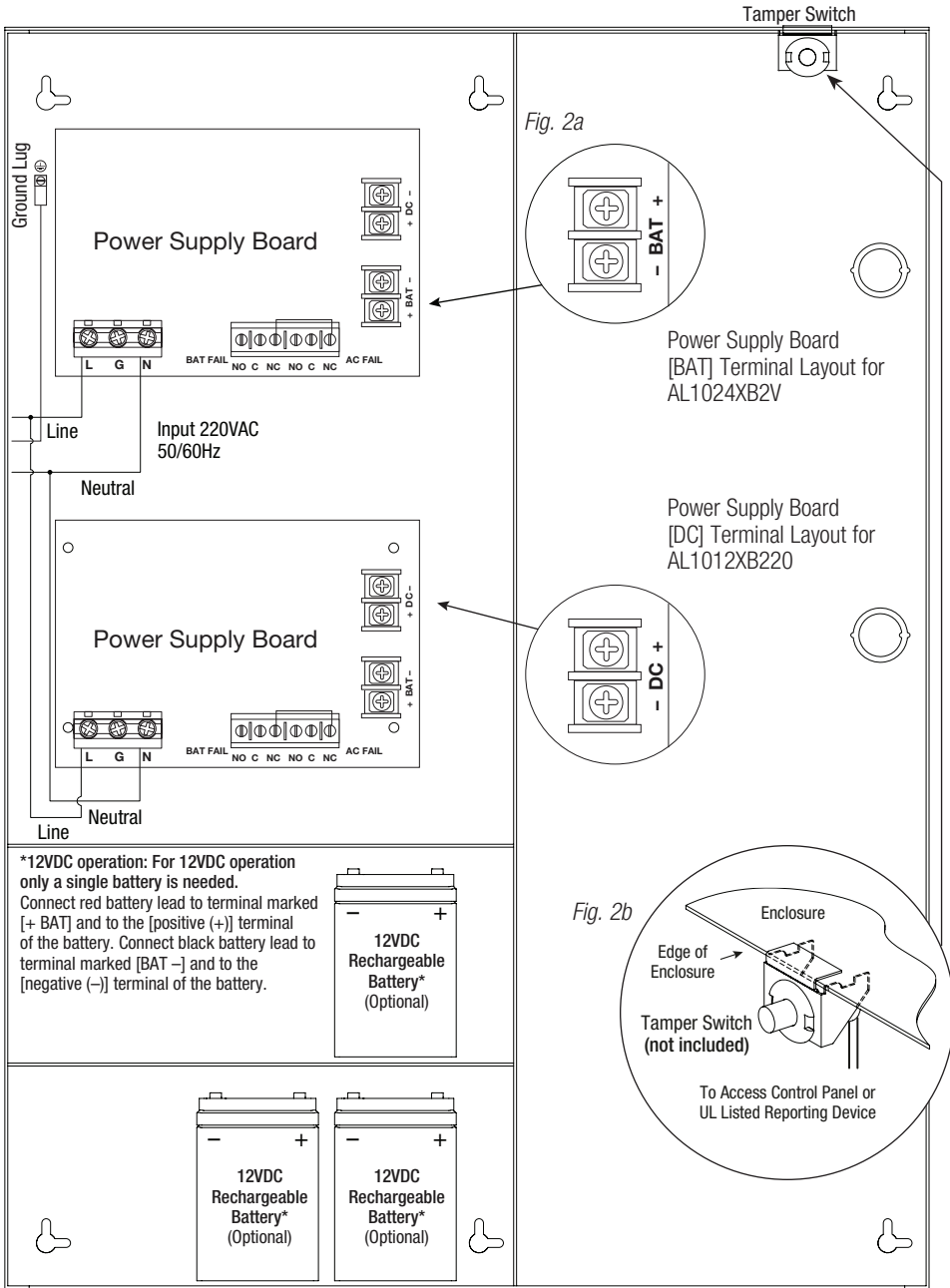


Fig. 2 - MaximalEV Series



NEC Power-Limited Wiring Requirements for Maximal11EV:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications, use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute).

Note: Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire (*Fig. 3a*).

Fig. 3

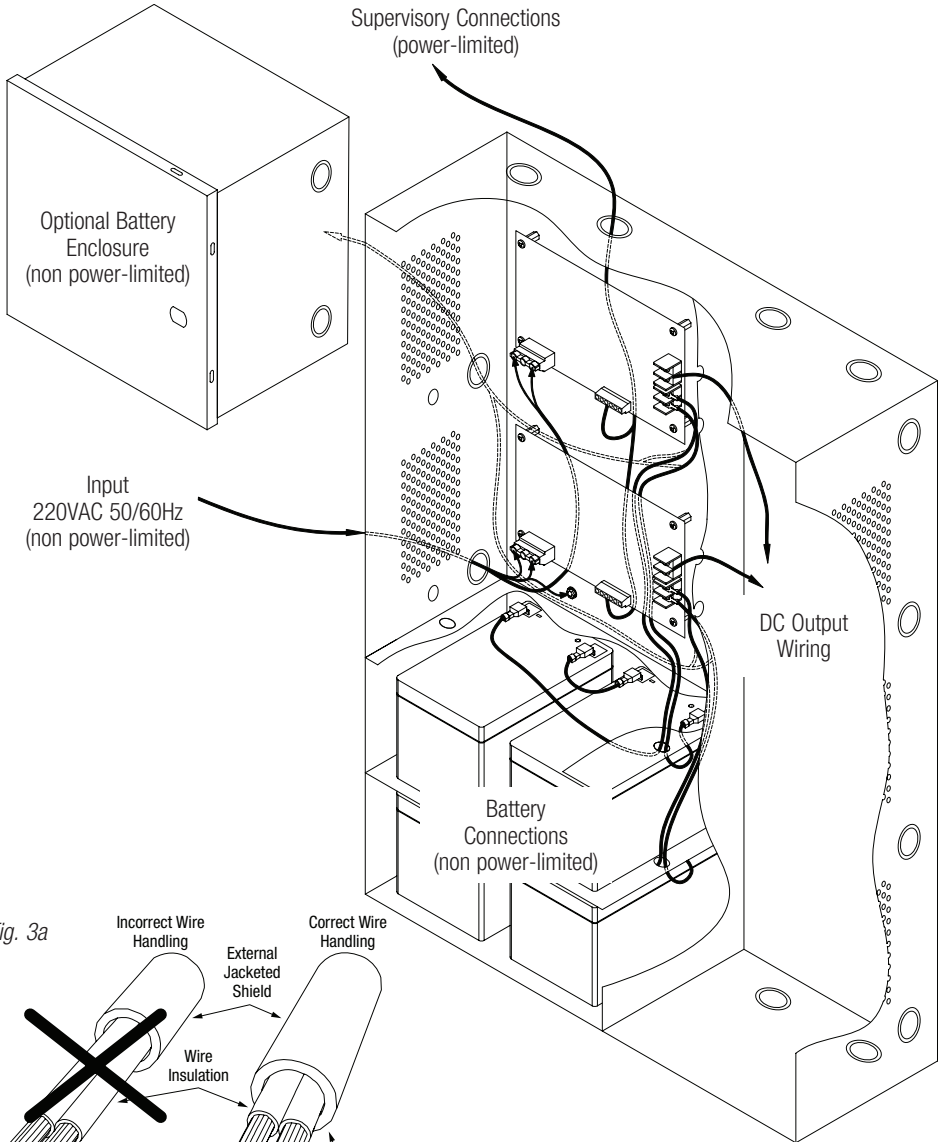
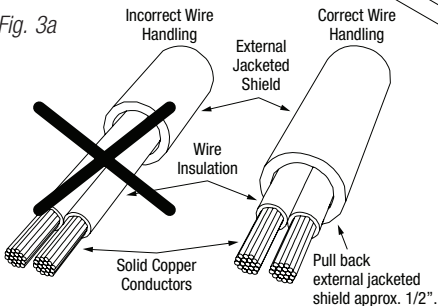


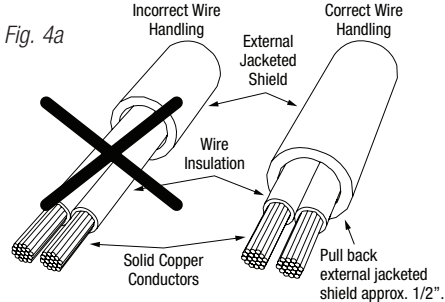
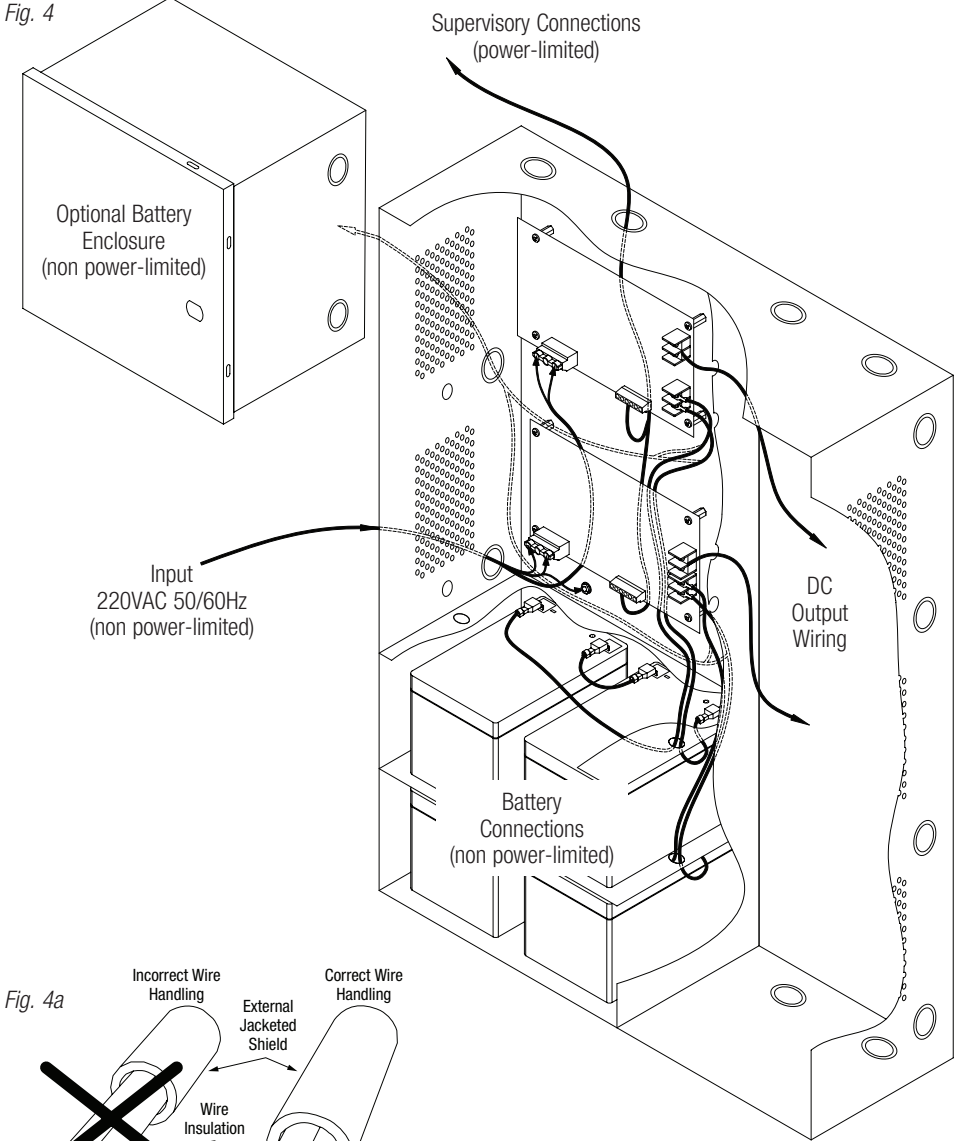
Fig. 3a



NEC Power-Limited Wiring Requirements for Maximal13EV:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications, use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute).

Note: Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire (Fig. 4a).



NEC Power-Limited Wiring Requirements for Maximal33EV, Maximal35EV, and Maximal55EV:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute). **Note:** Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire (Fig. 5a).

Fig. 5

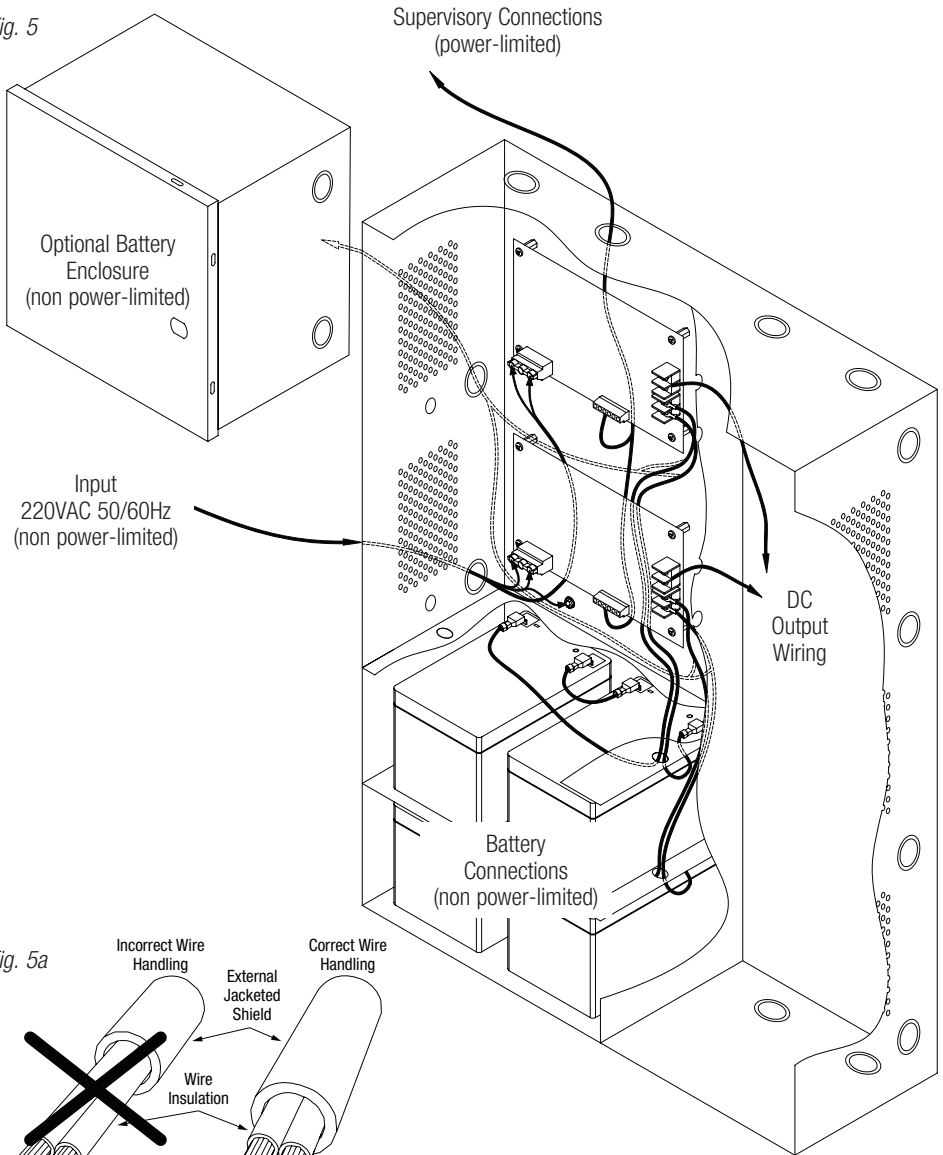
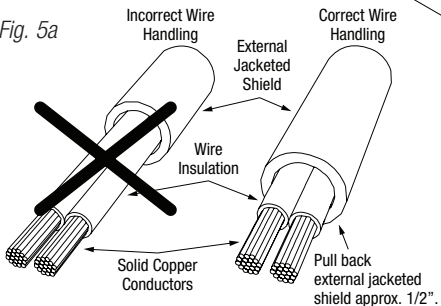


Fig. 5a



NEC Power-Limited Wiring Requirements for Maximal37EV and Maximal75EV:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute). **Note:** Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire (Fig. 6a).

Fig. 6

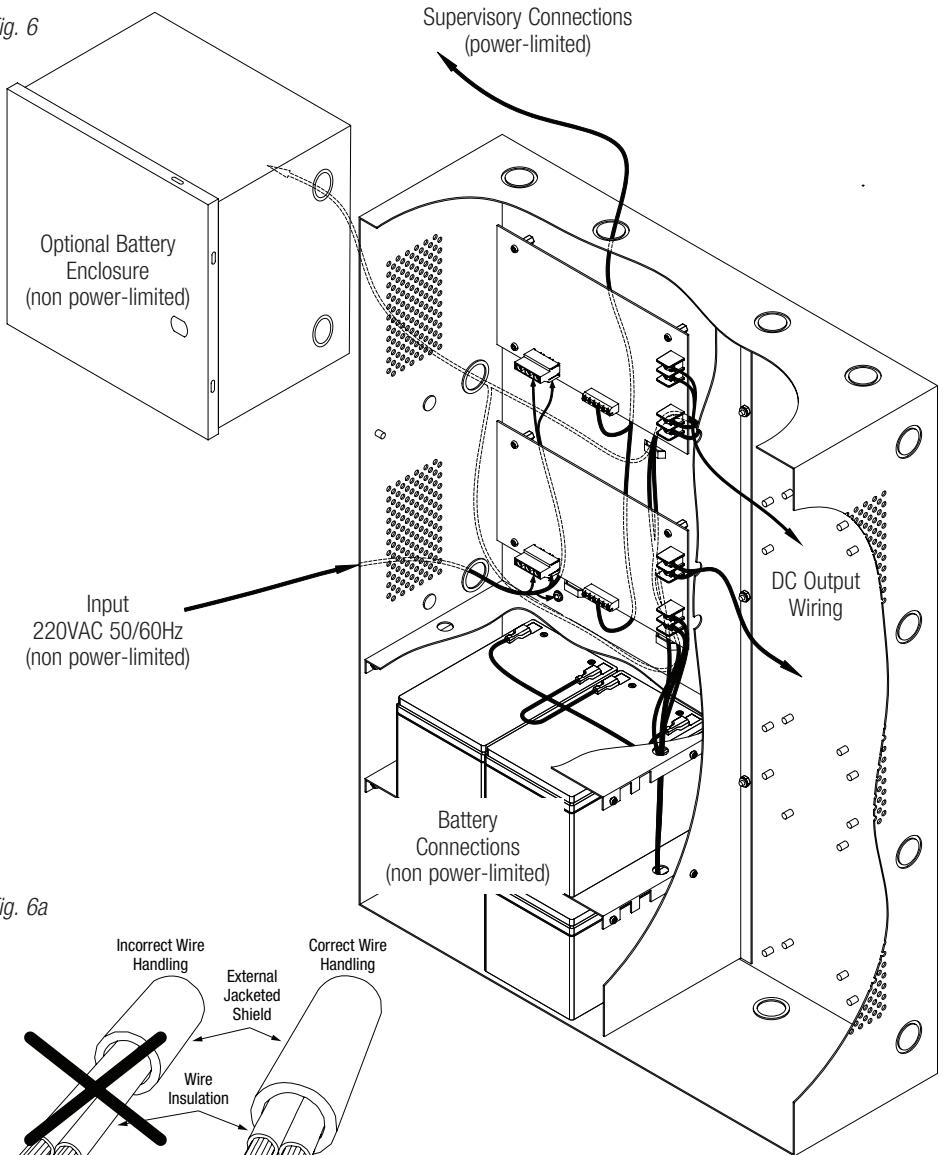
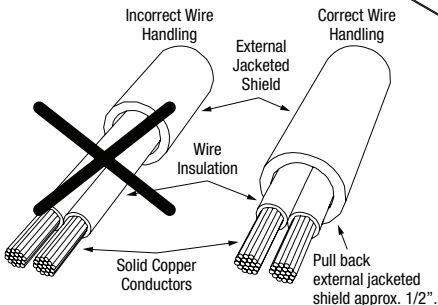


Fig. 6a



NEC Power-Limited Wiring Requirements for Maximal77EV:

Power-limited and non power-limited circuit wiring must remain separated in the cabinet. All power-limited wiring must remain at least 0.25" away from any non power-limited circuit wiring. Furthermore, all power-limited circuit wiring and non power-limited circuit wiring must enter and exit the cabinet through different conduits. One such example of this is shown below. Your specific application may require different conduit knockouts to be used. Any conduit knockouts may be used. For power-limited applications use of conduit is optional. All field wiring connections must be made employing suitable gauge CM or FPL jacketed wire (or equivalent substitute).

Note: Refer to wire handling drawing below for the proper way to install the CM or FPL jacketed wire (*Fig. 7a*).

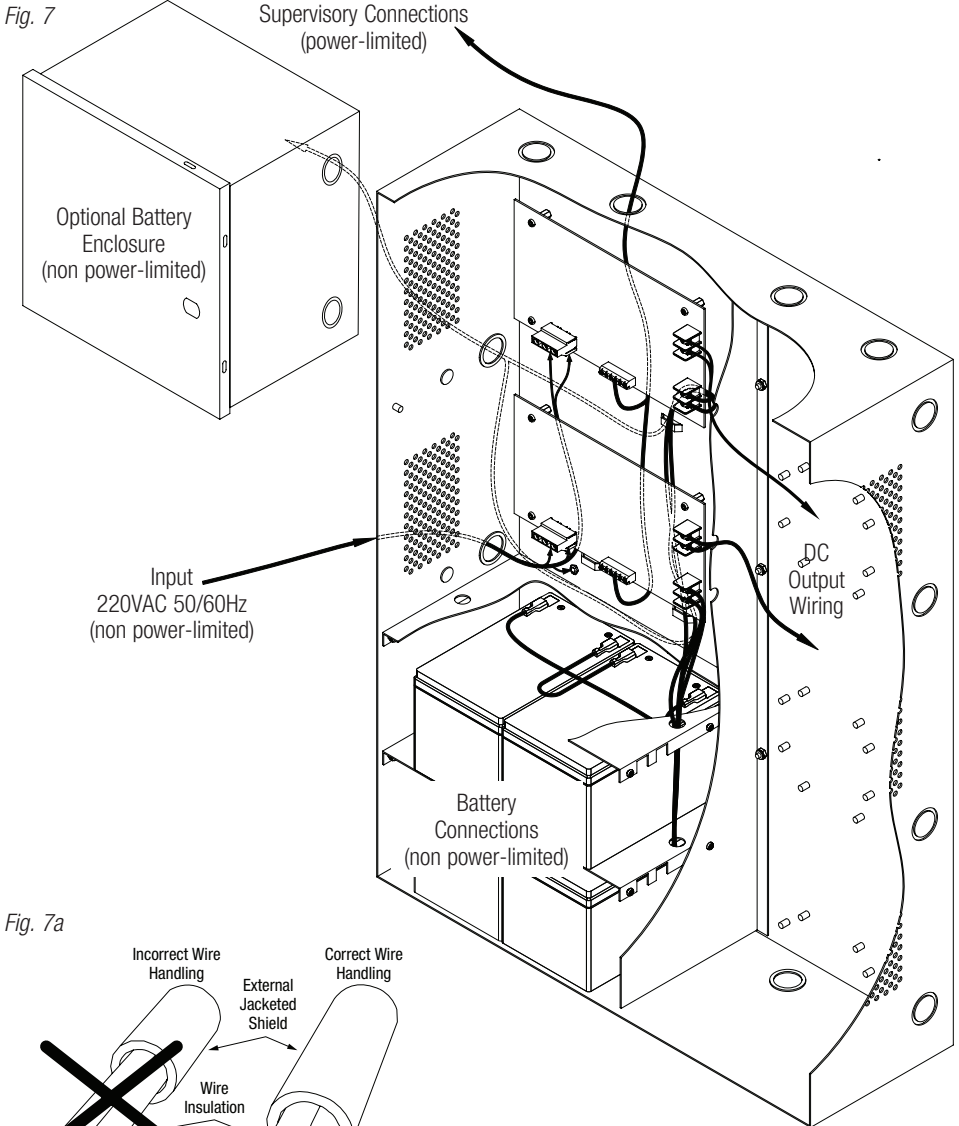
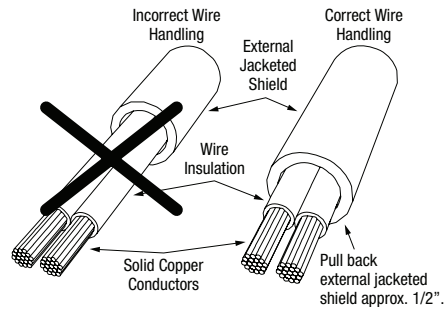
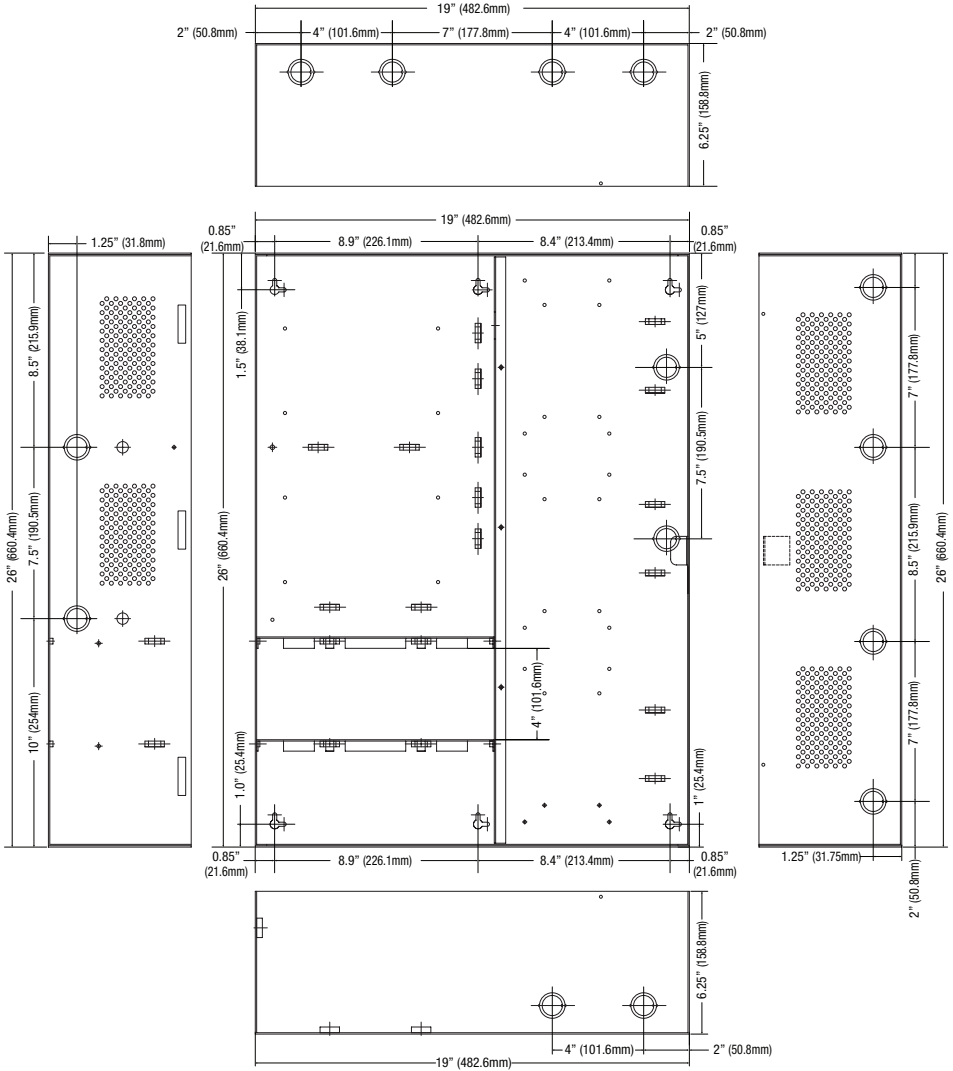


Fig. 7a



Enclosure Dimensions (H x W x D approximate):

26" x 19" x 6.25" (660.4mm x 482.6mm x 158.8mm)



Altronix is not responsible for any typographical errors.

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