



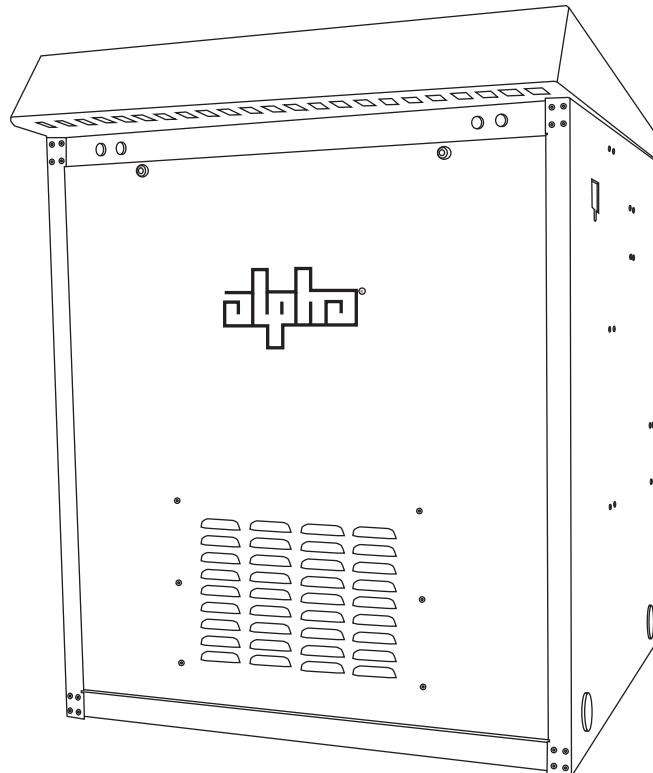
an EnerSys® company

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# Fiber Power Enclosure (FPE) w/ Integrated Fiber Patch Panel Installation Manual

Effective: December 2021



## **Safety Notes**

Alpha Technologies Services, Inc. considers customer safety and satisfaction its most important priority. To reduce the risk of injury or death, and to ensure continual safe operation of this product, Alpha® adheres to ANSI® Z535 and encourages the customer to pay special attention and care to information presented in each safety notification.

Each section in this manual contains important safety information that must be followed during the installation and maintenance of the equipment and batteries. Read all of the instructions before installing or operating the equipment and save this manual for future reference.



### **WARNING! GENERAL HAZARD**

GENERAL HAZARD WARNING provides safety information to PREVENT INJURY OR DEATH to the technician or user.



### **WARNING! ELECTRICAL HAZARD**

ELECTRICAL HAZARD WARNING provides electrical safety information to PREVENT INJURY OR DEATH to the technician or user.



### **WARNING! FUMES HAZARD**

FUMES HAZARD WARNING provides fumes safety information to PREVENT INJURY OR DEATH to the technician or user.



### **WARNING! FIRE HAZARD**

FIRE HAZARD WARNING provides flammability safety information to PREVENT INJURY OR DEATH to the technician or user.

There may be multiple warnings associated with the call out. Example:



### **WARNING! ELECTRICAL & FIRE HAZARD**

This WARNING provides safety information for both Electrical AND Fire Hazards



### **CAUTION!**

CAUTION provides safety information intended to PREVENT DAMAGE to material or equipment.



### **NOTICE:**

NOTICE provides additional information to help complete a specific task or procedure.

### **ATTENTION:**

ATTENTION provides specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.

# Fiber Power Enclosure (FPE) w/ Integrated Fiber Patch Panel

## Installation Manual

031-148-C3-001, Rev. A

Effective Date: December 2021  
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### Disclaimer

Images contained in this manual are for illustrative purposes only. These images may not match your installation.

Operator is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the safe operation of this powering system, please contact Alpha Technologies Services, Inc. or your nearest Alpha® representative.

Alpha Technologies Services, Inc. shall not be held liable for any damage or injury involving its enclosures, power supplies, generators, batteries or other hardware if used or operated in any manner or subject to any condition not consistent with its intended purpose or is installed or operated in an unapproved manner or improperly maintained.

#### Notice of FCC Compliance

##### **Per FCC 47 CFR 15.21:**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

##### **Per FCC 47 CFR 15.105:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

### Contact Information

Sales information and customer service in USA  
(7AM to 5PM, Pacific Time):

+1 800 322 5742

Complete technical support in USA  
(7AM to 5PM, Pacific Time or 24/7 emergency support):

+1 800 863 3364

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+1 888 462 7487

Website:

[www.alpha.com](http://www.alpha.com)

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# FPE Safety Notes

The manufacturer cannot anticipate every circumstance that may involve a hazard, therefore, these warnings are not comprehensive.

## Mechanical Safety



### WARNING! GENERAL HAZARD

- Keep hands and tools clear of fans. Fans are thermostatically controlled and may turn on automatically.
- Power supplies can reach extreme temperatures under load.
- Use caution around sheet metal components and sharp edges.



### WARNING! ELECTRICAL HAZARD

- Lethal voltages are present within the power supply and electrical boxes. Prior to any installation or removal procedure, always check the circuit with a volt meter with respect to the grounded portion of the enclosure (both AC and DC).
- A licensed electrician is required to install permanently wired equipment.
- Input voltages can range up to 240 Vac. Ensure that utility power is disabled before beginning installation or removal.
- Ensure no liquids or wet clothes contact internal components.
- Hazardous electrically live parts inside this unit are energized from batteries even when the AC input power is disconnected.

## Battery Maintenance Guidelines

Follow all battery manufacturer's instructions for battery transportation, installation, storage or maintenance. To prevent damage, inspect batteries every 3 months.



### CAUTION!

- Electrolyte (battery emission) is corrosive and may cause injury or equipment damage. Clean and remove all electrolyte in accordance with all federal, state, and local regulations or codes.
- Only trained, authorized personnel should diagnose, service, and replace batteries or battery components.
- Replace batteries that show signs of cracking, leaking or swelling with one of the identical type and rating.
- Replace battery cables showing signs of damage (e.g. fraying, corrosion, etc.).
- Correctly torque and connect all battery connection hardware per manufacturer's recommendations.
- Apply battery manufacturer's specified antioxidant compound on all exposed connections.
- Verify all battery terminals and exposed connection hardware is not within 2" of a conductive surface.
- Ensure adequate enclosure ventilation to prevent an accumulation of potentially dangerous gas.
- Always transport batteries per the manufacturer's specifications.
- Never install old or untested batteries.

## Recycling and Disposal Instructions

### ATTENTION:

Spent or damaged batteries are considered environmentally unsafe. Always recycle used batteries or dispose of the batteries in accordance with all federal, state and local regulations.

# 1.0 Overview

## 1.1 Introduction

The Alpha® Fiber Power Enclosure (FPE) Series is flexible and provides modular expandability for Cable TV powering applications. The FPE is designed for one CableUPS® power supply (compatible with the XM3.1-HP, 3 and 5 Amp models) and up to two batteries for a 12VDC system.

The FPE is a solution for the customers who choose to co-locate an optical (fiber) node and/or a splice enclosure with the power supply.

Enclosure Specifications	
Dimensions	42"H x 36"W x 32"D (1067 mm x 914 mm x 813 mm) With Pre-Installed Pedestal Mount - 56"H x 36"W x 32"D (1422 mm x 914 mm x 813 mm)
Weight	145 lbs (66 kg) With Pre-installed Pedestal Mount - 173 lbs (78 kg)
Color	Sea Foam Green, Pine Green, White, Gray
Standard Features	Enclosure, system ground bar and removable / lockable doors, and module tray
Options	Strand mount bar and universal mounting bracket for optical node, fiber-loop kit, built in star pattern, and fan kit
Finish	Durable powder coat exterior
Material	Aluminum

Table 1-1, Enclosure Specifications

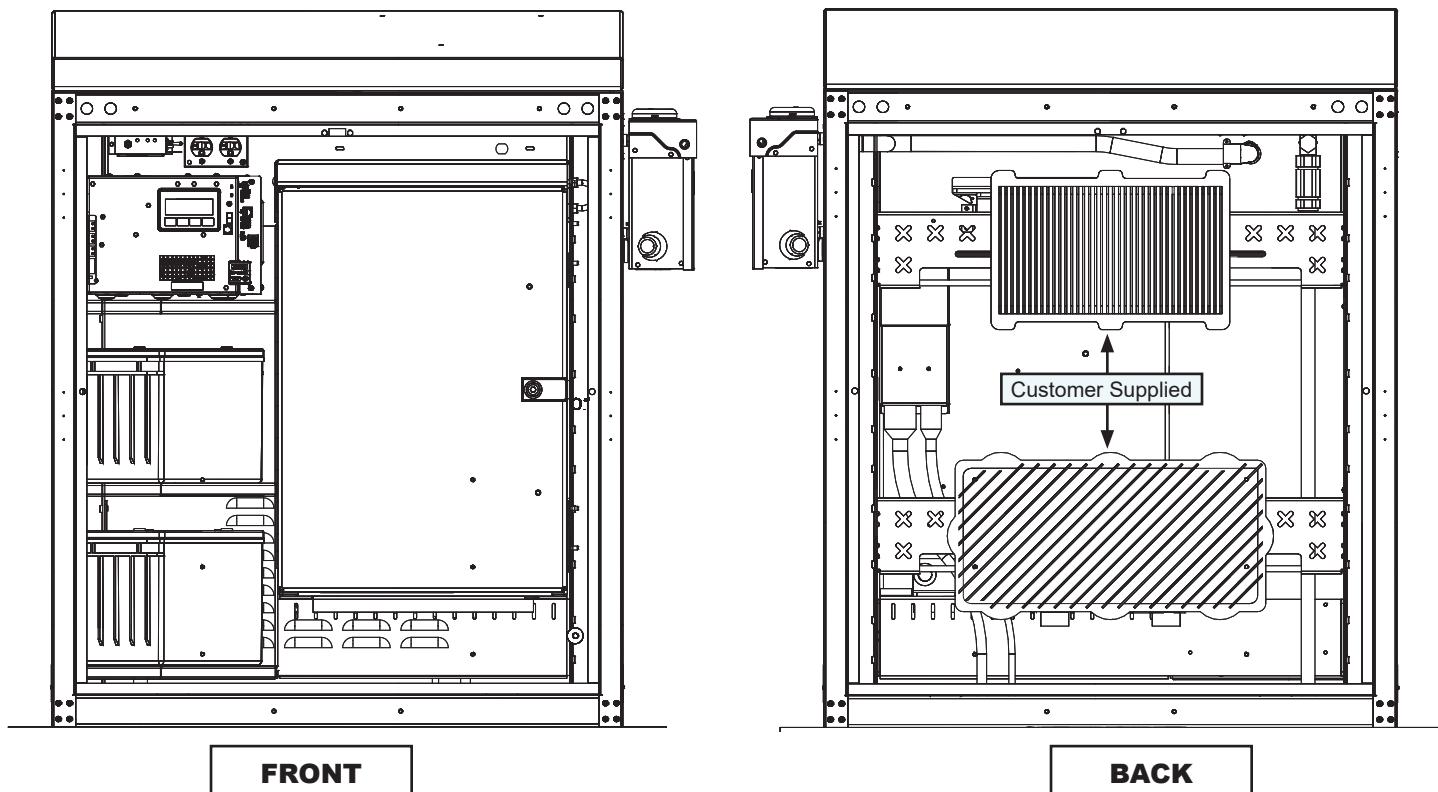


Fig. 1-1, Front and Back View, with Door Removed

## 1.0 Overview

### 1.2 Enclosure System and Options

**NOTICE:**

For additional information on the Corning® OptiTect® Local Convergence Cabinet, Gen III Series (fiber patch panel), contact the manufacturer.

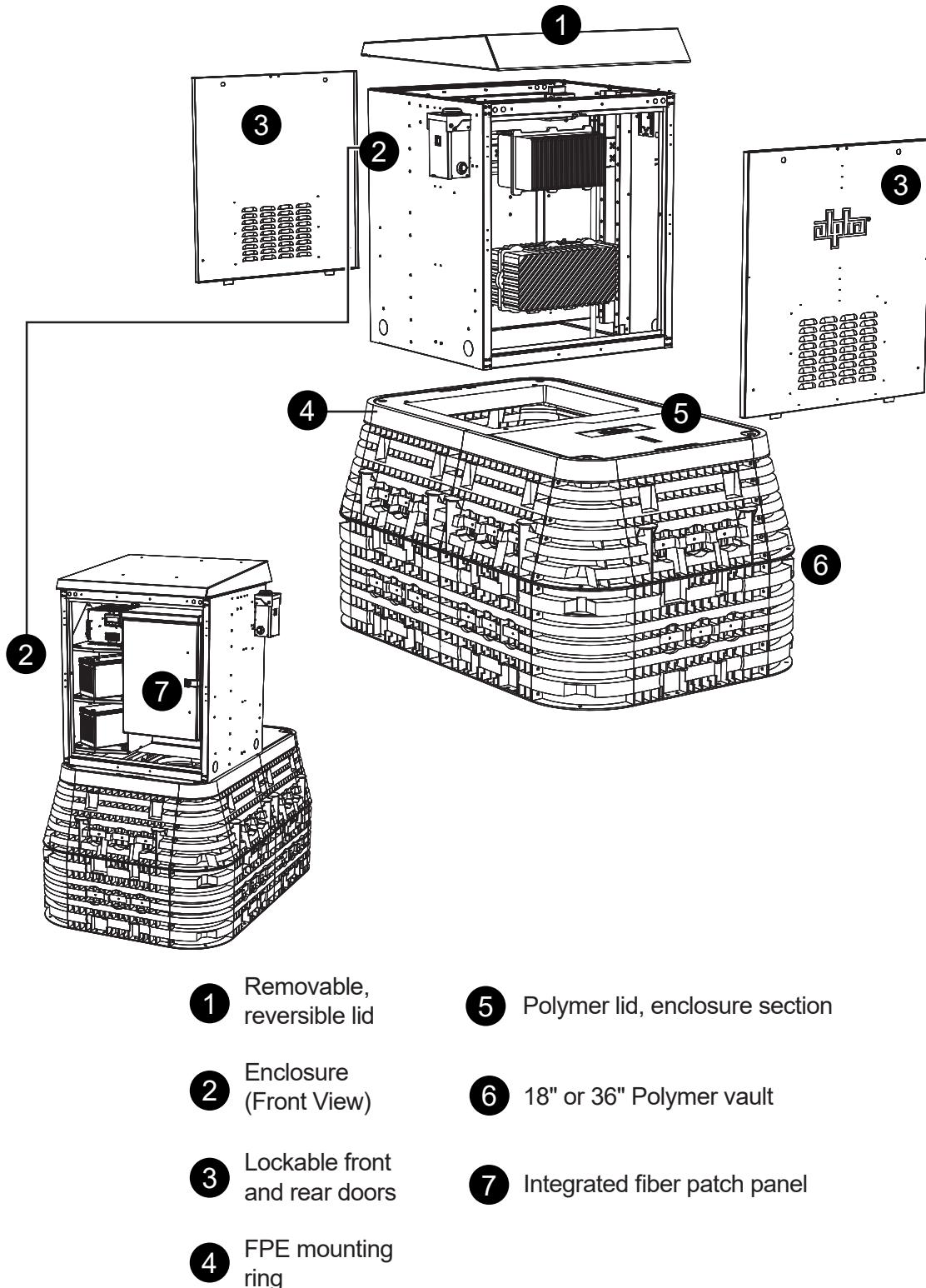


Fig. 1-2, Enclosure System and Options

## 2.0 Pre-Installation

### 2.1 Site Considerations

Plan the site to ensure the enclosure receives the necessary air flow. If possible, in areas of extreme heat, position the enclosure so that it will be shaded from the sun. In areas of prevailing winds, the sides of the cabinet should face the winds instead of the doors. This will greatly reduce the buildup of sand or snow against the enclosure's air vents.

In areas of potential flooding, place the concrete pad on a geographical site located above the flood plain.

Place the enclosure where it will be free of obstructions, allowing easy access to the doors for service or equipment access. For ventilation and maintenance, allow a minimum work space of 40 inches in the front and 40 inches in the rear, between the enclosure and other solid structures.

Place the enclosure well away from ground level sources of forced water, such as underground sprinkler systems and direct roadway splash.

The concrete pad drawing provided in this manual contains all of the required mounting details, including electrical service and cable plant entrances.

The vapor barrier material (such as 30 lb felt, neoprene pond liner, or heavy grade tar paper) must initially extend at least 6" (152.4 mm) in all directions around the perimeter of the enclosure when installed on concrete, and be trimmed closer to the enclosure after installation.



#### **WARNING! ELECTRICAL & FIRE HAZARD**

Install batteries AFTER the enclosure is installed on site. Transporting the unit with batteries installed may cause a short circuit, fire, explosion, and/or damage to the battery pack, enclosure and installed equipment. Damage caused by improper shipping or transporting a unit with batteries installed is not covered by the warranty.

## 2.2 Underground Vault Installation

### Hardware Recommendations

- 3/8-16 × 1.25" Stainless Steel Hex Head Bolts (x4)
- Lock washer (x4)
- Flat Washer (x4)

### Site Preparation

1. Excavate an area approximately 12" to 16" longer and wider, and 6" to 8" deeper than the dimensions of the enclosure. Ensure the excavation floor is flat and level.

### Installation

1. Add a 6" to 8" deep base of  $\frac{3}{4}$ " and smaller, crushed stone to the excavated hole. The base material must be crushed, angular stone, not 'river rock or round stone,' and should be free of soil and organic material. Use a mechanical or hand tamper to tamp down the crushed stone to be flat and level.
2. Set the vault into the excavated hole. Adjust the height to grade. Be sure the vault is level, centered in the hole, and is parallel with the sidewalk or curb if applicable.
3. Install bracing within the vault to protect the sides from bowing during backfilling. Suitable bracing could be one or multiple wooden 2×4's cut to length and installed snug against the inside walls of the vault (see Fig. 2-1). Install the cover and bolts to prevent debris from entering the enclosure and help maintain box rigidity during the backfilling procedure.

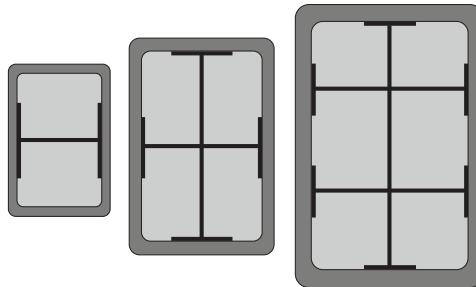


Fig. 2-1, Vault Bracing Configurations

4. Utilize the excavated material to backfill along the open, outer sides of the excavated hole. Remove any stones 3" or larger from the backfill material. Alternatively, a 1:10 ratio of Portland cement and crushed rock can be used as backfill. This higher strength alternative is useful where known traffic is anticipated around the vault that could cause vehicular surcharge loading.

- Tamp the soil around the enclosure with hand tamping tools. Soil in the immediate vicinity should be tamped and sloped away from the enclosure. Be sure not to slope the grade towards the enclosure as debris could make the cover difficult to remove.

 **NOTICE:**

DO NOT use mechanical tamping tools such as a tamping ram or plate compactor, or heavy equipment such as backhoes when tamping the backfill material around the vault to prevent bowing. Mechanical compactors can increase the soil density by as much as 200% and may cause damage.

- Remove the internal bracing and replace the cover and bolts to complete the installation.
- Using the recommended hardware, attach the enclosure to the vault. See **Section 3.3, Enclosure Installation** for detail.

 **NOTICE:**

Always ensure the product load rating matches the anticipated load rating of the application.

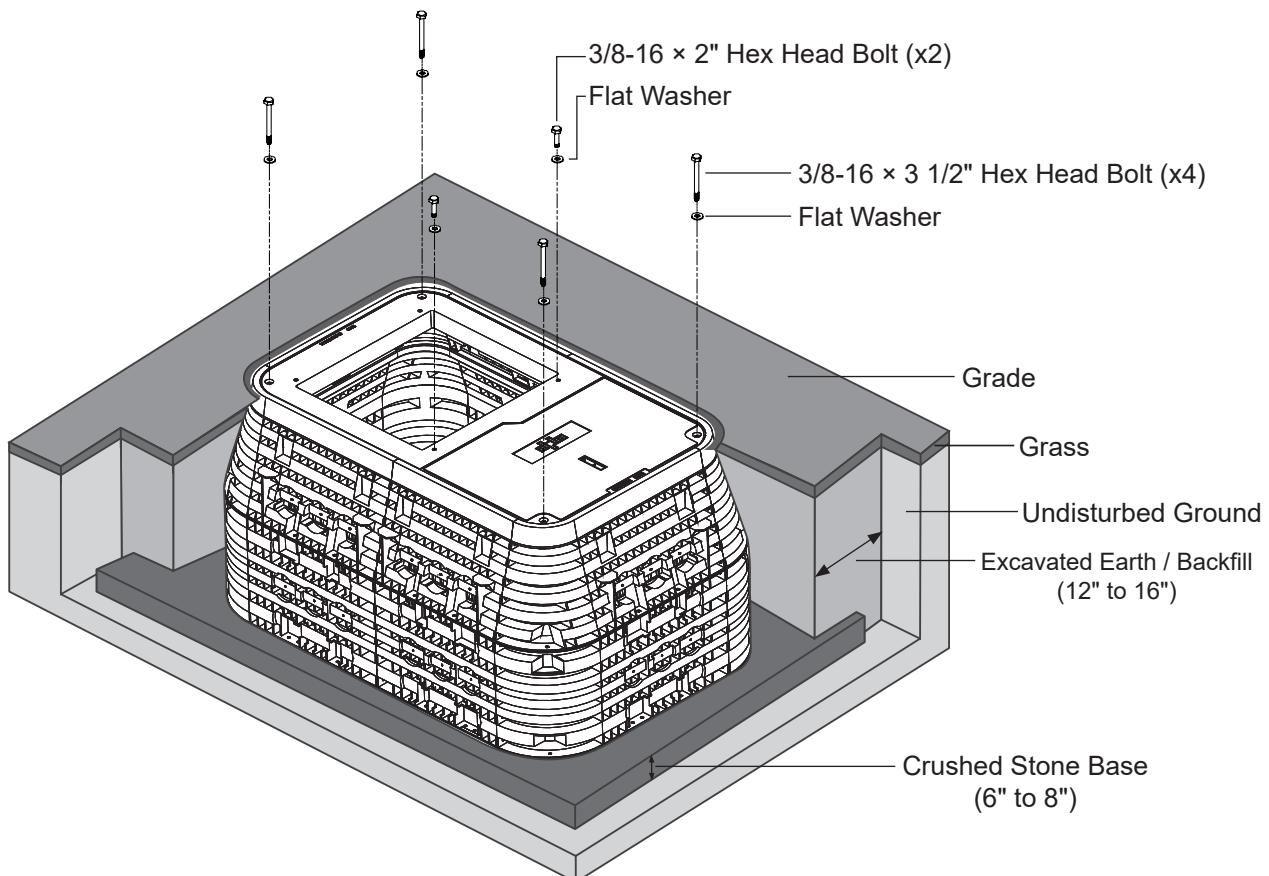


Fig. 2-2, Typical Underground Vault Installation

## 2.3 Grounding and Earth Connection



### WARNING! ELECTRICAL HAZARD

Electrical shock can kill. An ungrounded or improperly grounded system increases the risk of electrical shock. Make all ground rod connections with a listed grounding clamp suitable for direct burial or exothermic welding.

A grounding and Earthing system is necessary for the safety of service personnel, operation and protection of the power supply equipment within the network. Lightning strikes, grid switching or other power aberrations on the power line and/or communication cable may endanger service personnel and damage the power and communication systems. An effective ground and Earthing system diverts these unwanted high-energy transients along a low-impedance path to Earth. This prevents such aberrations from reaching high voltage levels, which pose a threat to personnel and equipment.

Lightning protection is best achieved by single-point grounding, meaning components of the grounding system act as a single point of uniform impedance. Ground connection in the enclosure should be a single, bonded electrical connection for all equipment to the enclosure. This point should then be connected to the Earth system where all ground rods are properly bonded.

#### 2.3.1 Safety Ground and Earth Connection

The safety ground and Earth is a two-part system, comprised of the utility service and the Alpha® system.

##### 1. Utility service:

As a minimum requirement for the protection of Alpha equipment, the local utility service must provide a low-impedance path for fault current return. In addition, there must be a low impedance bonded path between the Alpha power supply and the enclosure.

##### 2. The Alpha grounding system:

The Alpha grounding system consists of a low-impedance connection between the enclosure and an Earth ground (located at least 6' (1.828 m) away from the Utility Earth connection).

This impedance between the enclosure and Earth must be 5 ohms or less at 60 hertz as measured by AMPROBE® Model DGC-1000 or equivalent. The measurement should be made on the wire or ground rod after it exits the enclosure.

Local soil conditions dictate the complexity of the grounding system required to meet the 25 ohm (maximum) resistance. For example, a single 8' (2.438 m) ground rod may be sufficient to meet the requirement. In some cases, a more elaborate system may be required such as multiple ground rods connected by a #6 AWG solid copper cable buried 8-12" (0.202–0.305 m) below the surface. Where this is not possible, contact a local grounding system expert for alternate methods that will meet the 25 ohm (maximum) specification.

#### 2.3.2 Power Output Return

For proper operation, the Service Power Inserter (SPI) must be securely bonded to the enclosure.

#### 2.3.3 Communications Grounding

For an external status monitoring transponder, the transponder chassis is typically bonded via a separate ground wire to the enclosure. For systems using an embedded transponder, the grounding connection is typically made either through a separate chassis ground block bonded to the enclosure or by means of the internal mounting hardware which bonds the transponder through the CableUPS®. Please refer to the appropriate communications product manual for installation procedures. Alpha strongly recommends the use of a surge arresting device (*Alpha p/n 162-028-10 or equivalent*) on communication cables electrically bonded to the Alpha® enclosure.

### 2.3.4 Typical Site Grounding



#### WARNING! ELECTRICAL HAZARD

Electrical shock can kill. An ungrounded or improperly grounded system increases the risk of electrical shock. Make all ground rod connections with a listed grounding clamp suitable for direct burial or exothermic welding.

#### NOTICE:

- Alpha® generally recommends using the grounding method illustrated below. However, the grounding method appropriate for a particular site depends on local codes, the NEC® (National Electric Code®), and other site-specific characteristics.
- Alpha recommends 5 Ohms minimum ground resistance between enclosure and ground rods, in accordance with IEEE® 1100-1999 Powering and Grounding Electronic Equipment.
- Alpha assumes no responsibility or liability for failure of the installer to comply with the requirements of all applicable local and national codes. Where allowed, exothermic welding may be used as an alternative to Burndy® clamps and connectors.

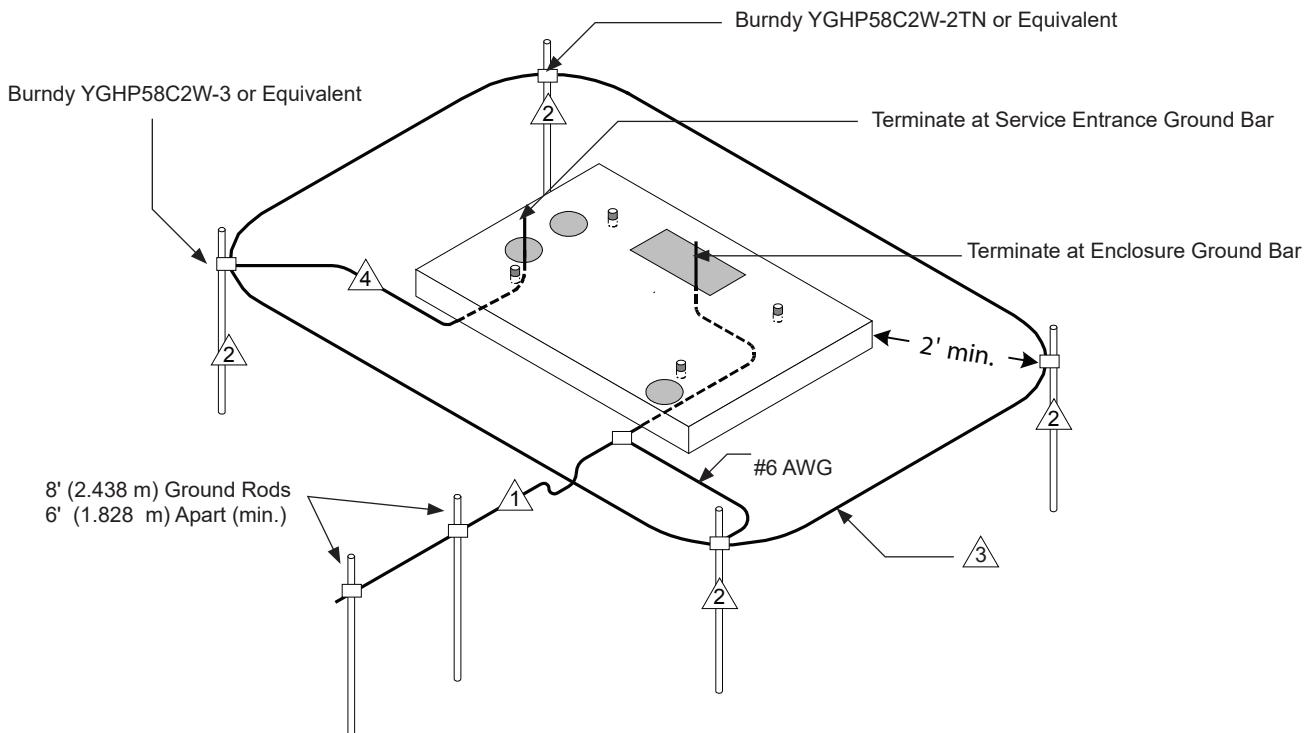


Fig. 2-3, Suggested Grounding  
(Image for reference only)

#### Service Grounding (required):

- 1** #6 bare copper wire from service entrance ground bar, with two 1/2" (12.7 mm) × 8' (2.438 m) copper ground rods, driven at least six feet apart.

#### Lightning Protection (optional):

- 2** Four 1/2" (12.7 mm) × 8' (2.438 m) copper ground rods, driven at least two feet from pad.

- 3** #6 bare copper wire loop, at least 30" (762 mm) below grade, and terminated at each ground rod.

- 4** #6 bare copper wire from loop to enclosure ground bar in service entrance.

## 3.0 Installation

### 3.1 Enclosure Protection

Alpha Technologies Services, Inc. cannot anticipate all of the ways a vehicle may potentially threaten an installed system or the specific type of protection that is appropriate for a particular location. The determination of the threat to the equipment and the means of protection are the responsibility of the end user of the equipment and the authority having jurisdiction. The following installation drawing for Alpha's Standby Power systems are general recommendations and not intended to be a specific guideline for protecting the equipment. The numbers of bollard posts (or other protection devices) depend upon equipment locations, site surveys, and traffic patterns

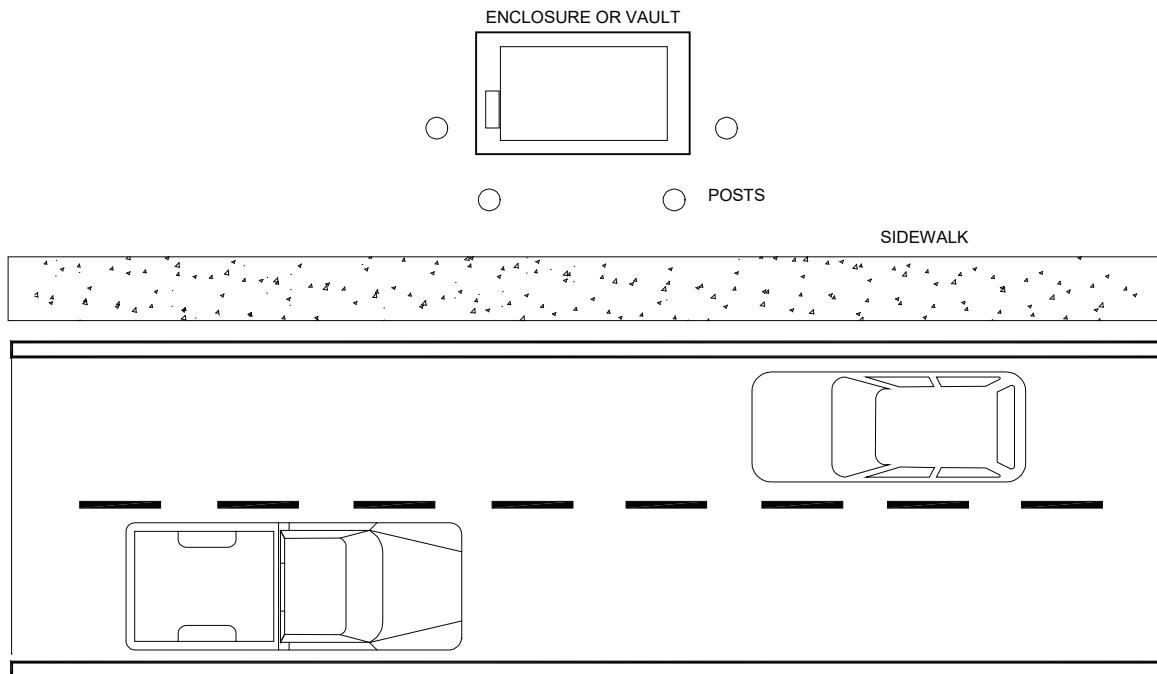


Fig. 3-1, Enclosure Protection

### 3.2 Transportation and Lifting

The FPE cabinet with integrated fiber patch panel as shipped weighs approximately 215 lbs (97.52 kg). A safe means of transportation to the site and a safe procedure for unloading the enclosure is necessary. Do not transport or lift with a device that may not be able to bear the unit's weight, and do not place the unit upon a surface that will not be able to fully support it.

 **NOTICE:**

Enclosure must always remain in the upright position during the shipping, storage and installation process. Damage may result from enclosure being shipped or stored on its side. Electronic modules, batteries or other components must not be installed until the enclosure is securely set in place at its permanent location.

## 3.3 Enclosure Installation

### 3.3.1 Attaching Enclosure to the Pad

**Tools and Materials Required:**

- Ratchet set with 6" (152.4 mm) extension
- Vapor Barrier
- Utility Knife

 **NOTICE:**

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Some FPE configurations have a pre-installed pedestal mount (*Alpha p/n 746-617-20*). The enclosure installation method for this pre-installed pedestal mount is identical to the normal installation. The panels on the pre-installed pedestal mount can be removed for service access.

**Procedure:**

1. Unwrap the enclosure and inspect the contents. If items are missing or damaged, contact Alpha Technologies Services, Inc. and the shipper immediately.
2. Place the vapor barrier material on the pad.

 **NOTICE:**

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A 25+ year *continuous vapor barrier* must be used between the enclosure and pad to prevent moisture ingress and possible corrosion caused by metal to concrete contact. The vapor barrier material (such as 30 lb (13.608 kg) felt, neoprene pond liner, or heavy grade tar paper) should initially extended at least 6" (152.4 mm) all directions around the perimeter of the enclosure.

3. Unbolt the enclosure from the shipping pallet.
4. Using an appropriate crane and spreader bar, lift the enclosure off the shipping pallet, and place over the mounting studs on the pad.
5. Secure the enclosure to the pad using four stainless steel flat washers, lock washers, and nuts.
6. Trim the vapor barrier material flush with the enclosure.

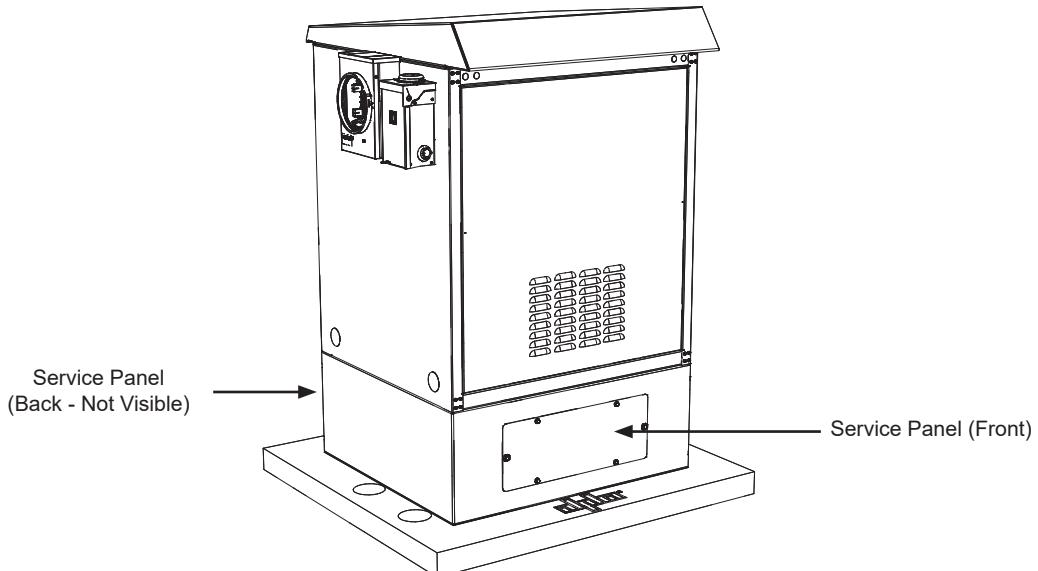


Fig. 3-2, FPE Pedestal Mount

## 3.4 Utility Powering

### 3.4.1 Electrical Service Connection



#### WARNING! ELECTRICAL HAZARD

Electrical shock can KILL. All electrical service connections must be made by an authorized, trained personnel.



#### CAUTION!

The following should be performed only by qualified service personnel and in compliance with local electrical codes.

- Verify electrical codes prior to installation. Codes may vary and contain specific conduit and wire sizes for connection to the service entrance.
- Connection to utility power must be approved by the local utility before installing the power supply.
- The enclosure can be equipped with a Square D, rainproof service entrance (SUSE rated). The service entrance is equipped with a 20/15 Amp circuit breaker for a 120/240 VAC, split phase, 3 wire w/GND source.

The XM3.1-HP (3 and 5 Amp) Power Supplies are powered by 120VAC (120 grounded neutral), attached to an external service entrance. The size of the service conductors must be based upon the actual size of the utility service and be in accordance with applicable electrical code requirements.

The utility conduit may be placed in two locations, depending upon the utility service entrance requirements. Note the optional conduit location for use with meter base and the standard location for entry directly to the load center.

Proper grounding is critical. The enclosure MUST have a hard wired ground to the service entrance. A qualified electrician should verify that grounding is in compliance with applicable electrical codes.



#### **NOTICE:**

Soil conditions vary and may affect the integrity of the pad. Alpha® recommends that proper steps be taken to ensure that the soil supporting the pad is stable. Improper installation of the pad may cause uneven settling or cracking which is not covered under warranty.

Both standard and EUSERC style meter bases are available for some configurations. Consult Alpha Technologies Services Inc. or your local representative regarding compatibility with your specific application.

#### **Materials Required:**

- 1" (25.4 mm) diameter conduit - PVC or Galvanized Steel (threaded)
- #6 AWG - Red /stranded insulated wire
- #6 AWG - Black / stranded insulated wire
- #6 AWG - White / stranded insulated wire
- #2 AWG or larger - Stranded copper ground wire

**Tools Needed:**

- No. 2 Flat Head Screwdriver
- Adjustable Pliers

**Procedure:**

1. Locate the service entrance panel on the enclosure (exterior). Remove the cover to access the circuit breaker assembly. If this service panel is to be used as the primary service entrance, neutral must be bonded to ground.
2. Connect one of the black #6 wires to the top of the left circuit breaker (L1), and the remaining black (or red) #6 wire to the top of the right circuit breaker (L2).
3. Connect the #6 white wire to the top of the neutral bus to the right of the circuit breakers.
4. Connect the #6 green ground wire to the large terminal on the ground bar.
5. Notify the electrical inspector to approve the service entrance wiring. Once approved, contact the local power utility for electrical service.

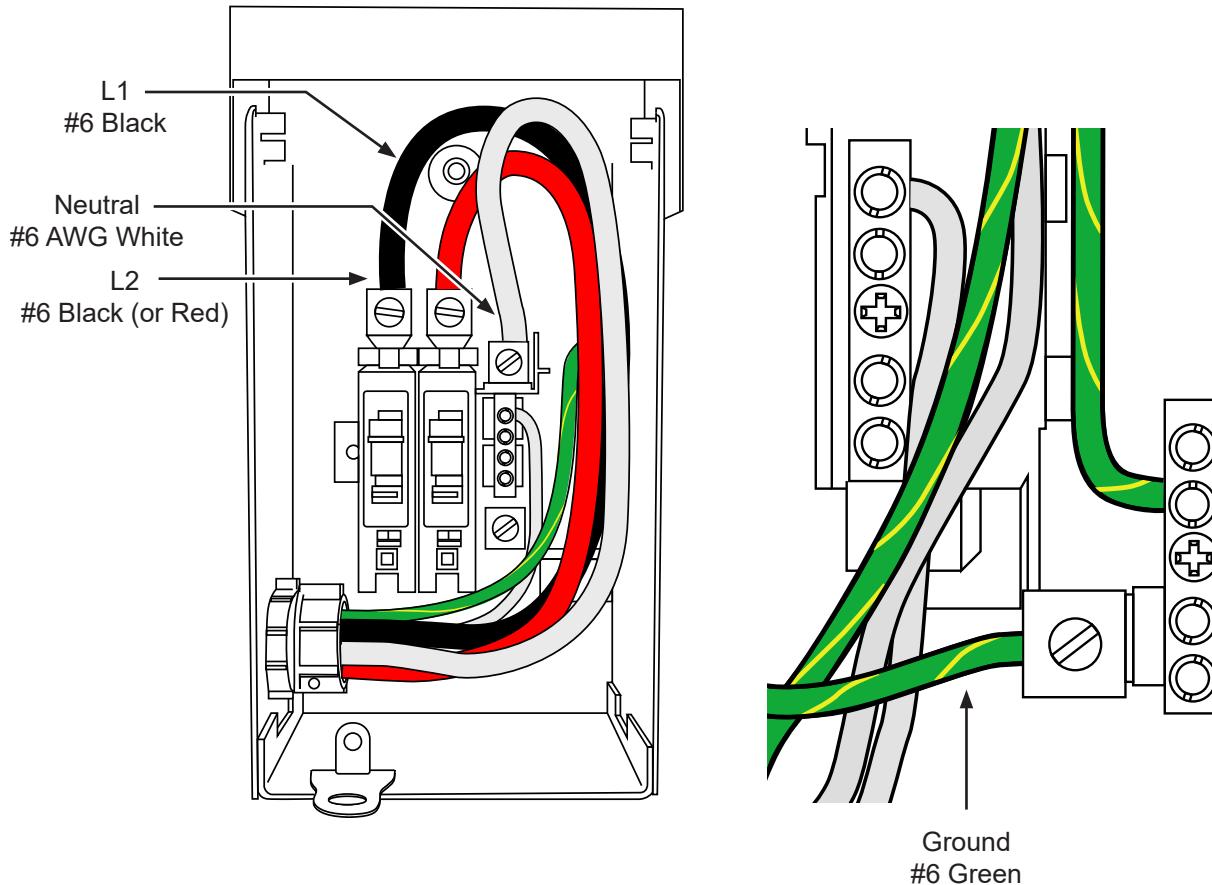


Fig. 3-3, Wiring the Service Entrance

### 3.5 Service Power Inserter

1. The SPI box(es) are mounted on the back wall of the power supply shelf.
2. Remove the two screws on the face of the SPI and lift off the cover to gain access to the seizure screw assembly. (Fig. 3-4)
3. Loosen the seizure screw several turns so that the stinger will pass through the clamp.
4. Insert the coaxial termination into the output port on the bottom of the SPI. Ensure that the stinger goes through the seizure screw assembly. (Fig. 3-5)
5. Tighten the coaxial termination.
6. Tighten the seizure screw to 35.0 in-lb (47.5 N-m). Replace the SPI cover and screws.
7. Ensure that the switch on the top or the SPI is in the **ON** position, the **AUX** position is used only when an alternate power source is connected to the ALT connection on the SPI.

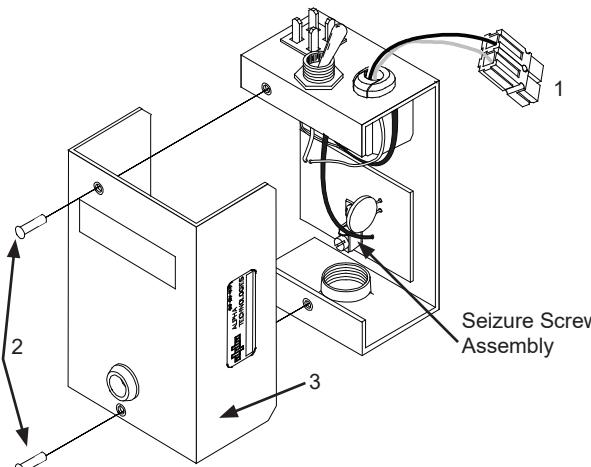


Fig. 3-4, SPI Cover Removal

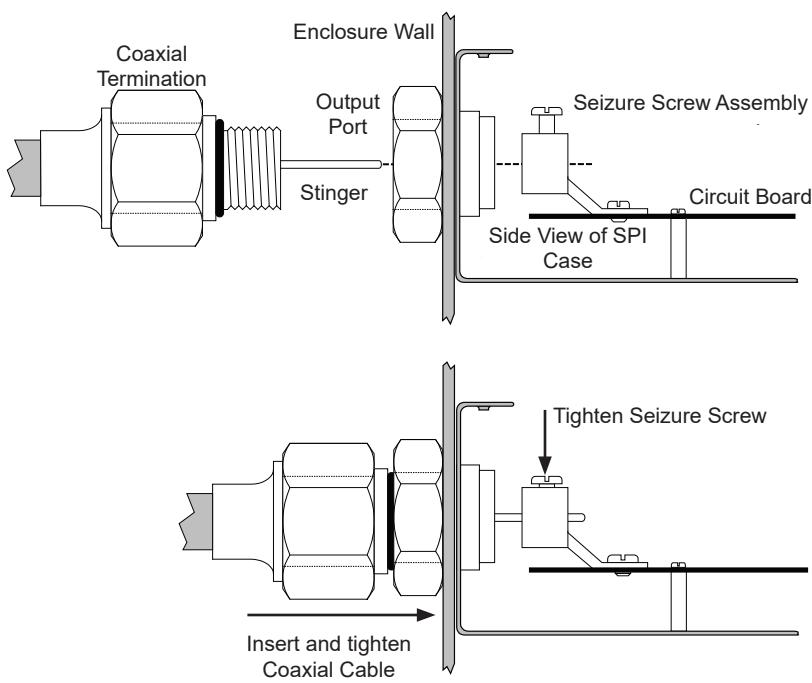


Fig. 3-5, Connecting Coax to SPI Output Port

## 3.6 Battery Installation



### WARNING! ELECTRICAL HAZARD

Batteries can deliver LETHAL VOLTAGES. Battery installation, maintenance and data collection should be performed by authorized, trained personnel only.

#### 3.6.1. Battery Safety

Battery systems represent a risk of electrical shock and high short circuit currents. The following precautions must be observed when maintaining batteries:

- Remove all personal metal objects (watches, rings, etc.)
- Use insulated tools.
- Wear eye protection and rubber gloves.
- Observe circuit polarities.
- Do not make or break live circuits.
- Do not lay metal tools and hardware on top of the batteries.

#### 3.6.2 Battery Identification

Each battery will be marked with a date code on the label. This 4-digit code indicates the month and year of manufacture (MM/YY format). Record this code in the maintenance log (*MAINTENANCE* manual). If batteries other than those installed by Alpha® are used, consult the battery's manufacturers' documentation for date code type and placement.

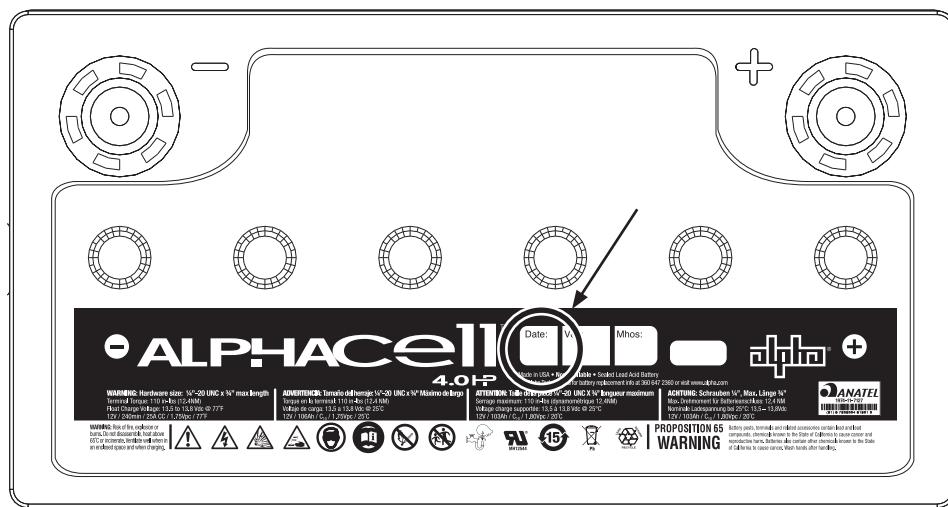


Fig. 3-6, Battery Date Code Location

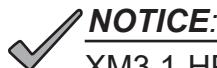
### 3.6.3 Battery Terminal Connections

Various types of batteries with different mounting styles and hardware may be shipped with the system. ALWAYS refer to the battery manufacturers' specifications for correct mounting hardware and torque requirements. During maintenance procedures, refer to the manufacturers' specifications for the maintenance torque requirements.

For AlphaCell® batteries, use 110 in-lb (149 N-m).

For the AlphaCell® 85GXL, use 25 in-lb (33.86 N-m).

Mounting hardware requirements may vary with battery manufacturers. Use only the hardware recommended by the battery manufacturer. For AlphaCell® battery hardware, see Fig. 3-7.



**NOTICE:**  
XM3.1-HP Precision Temperature Sensor (PTS) connects to the negative terminal of the first battery.

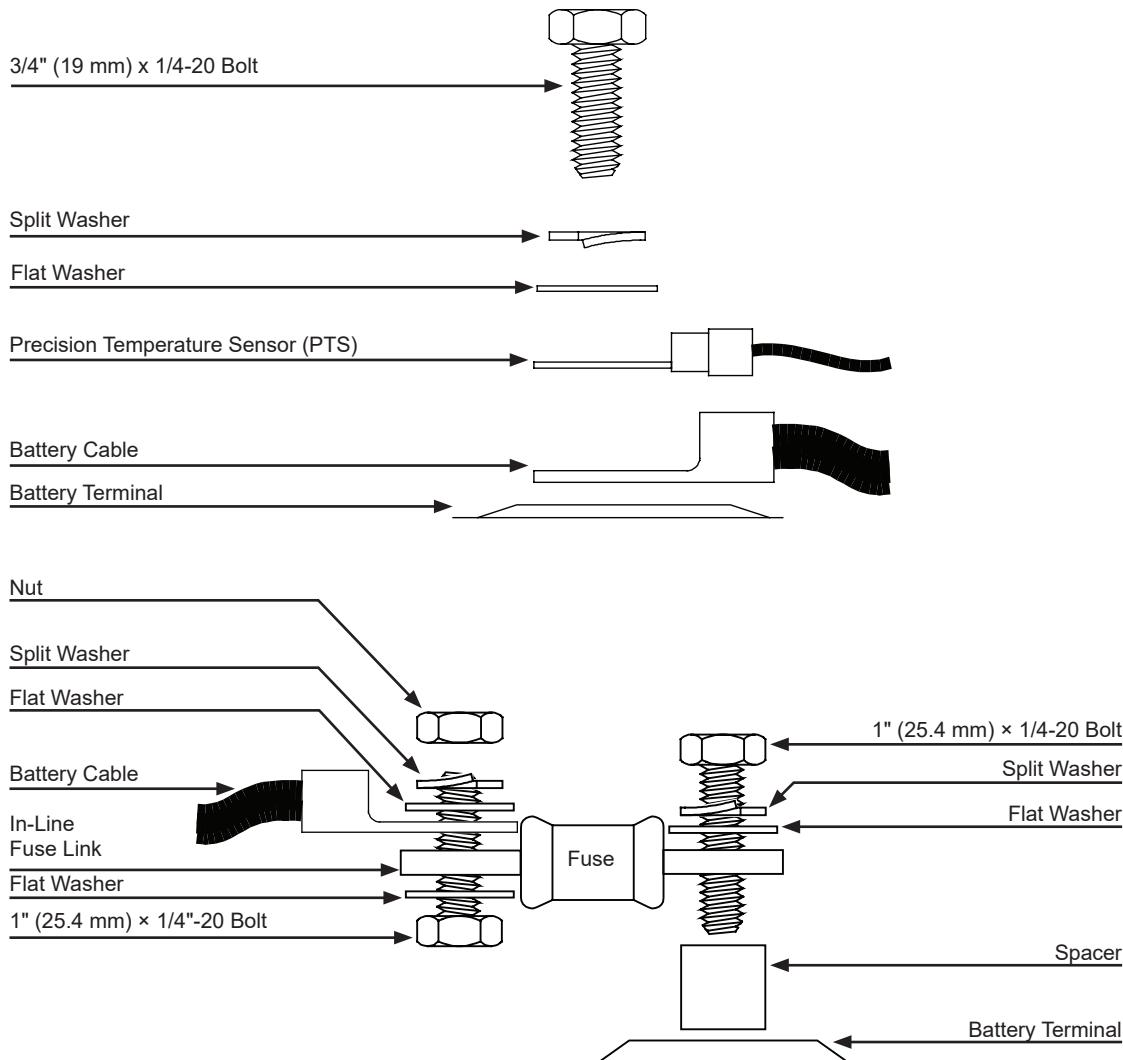


Fig. 3-7, Battery Terminal Assembly

### 3.6.4 Battery Connection

#### Tools Needed:

- (2) 7/16" open end wrenches
- Torque wrench

#### Procedure:

1. Connect the battery strings, as shown in Fig. 3-8.

**NOTICE:**

This section is for reference only. Follow instructions included with the battery cable kit. For XM3.1-HP (3 and 5 Amp models) power supplies, the Precision Temperature Sensor (PTS) connects to the negative terminal of the first battery (labeled A in Fig. 3-8).

**NOTICE:**

Battery B is optional. A second battery may be used for extended runtime.

2. Insert the PTS into the Battery Temp port and the battery cable into the Battery Input port on the XM3.1-HP (Fig. 3-9).

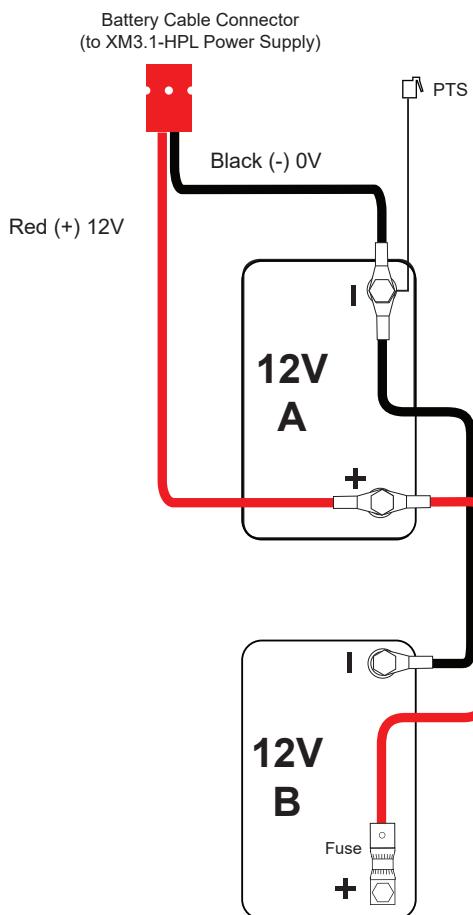


Fig. 3-8, 12VDC Battery String Wiring

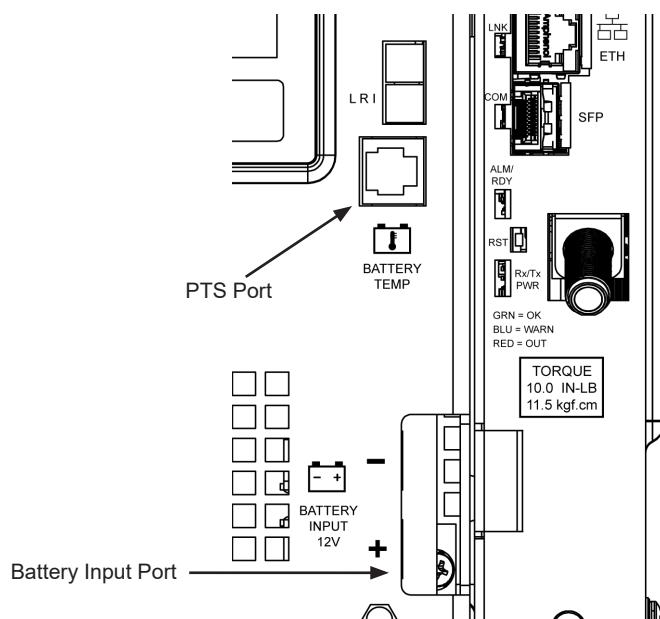


Fig. 3-9 XM3.1-HP Series Precision Temperature Sensor (PTS) Port and Battery Input Port Locations



Fig. 3-10, Precision Temperature Sensor

## 3.7 Power Supply Installation

### 3.7.1 Power Supply Installation

Pictures shown are of the XM3.1-HP (3 and 5 Amp models) Power Supply.

**Procedure:**

1. The power supply is placed on the left side of the top tray.

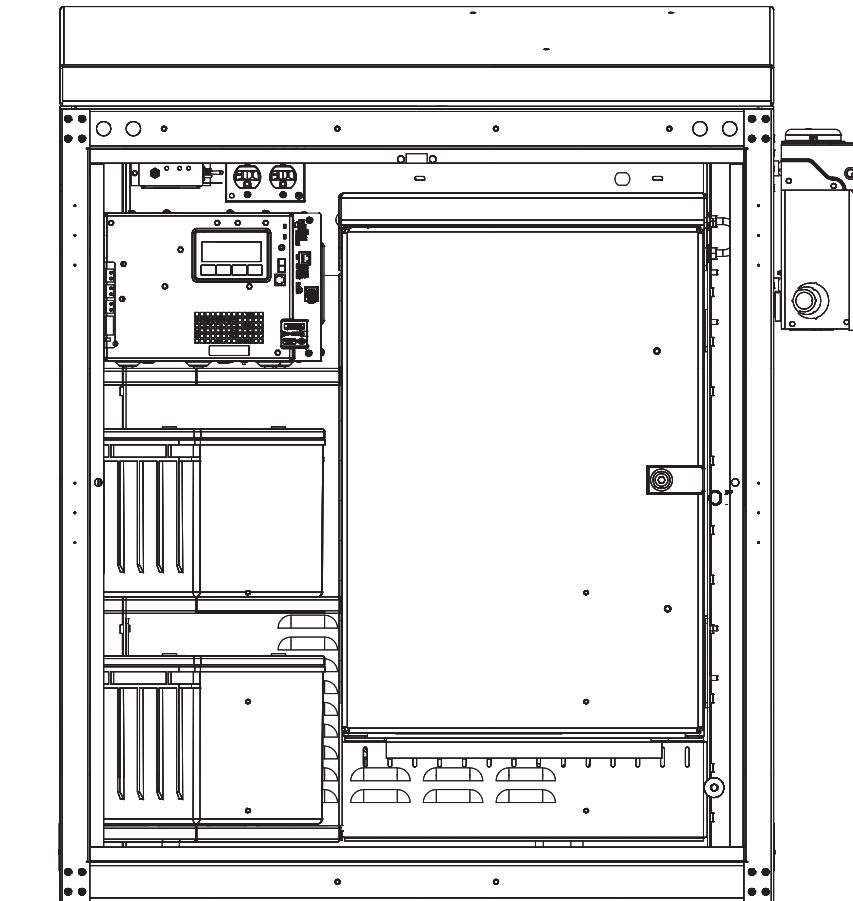


Fig. 3-11, Power Supply Placement

 **NOTICE:**

XM3.1-HP applications depicted in Figures 3-12 and 3-13.

2. Verify that the Battery Circuit Breaker is in the OFF position. Connect the red and black battery cable to the BATTERY INPUT connection.

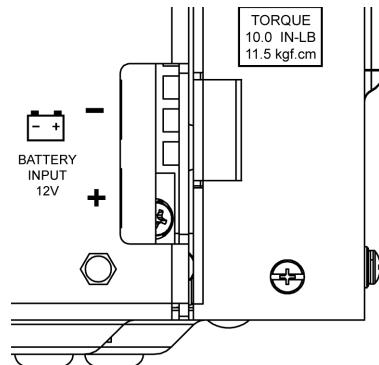


Fig. 3-12, Battery Circuit Breaker and Battery Input Locations

3. Connect the black and white wire to the OUTPUT 1 connection. If a second SPI is installed, connect it to OUTPUT 2. OUTPUT 2 is available when the optional XM3.1-HP Dual Output Control (Alpha DOC) is installed.

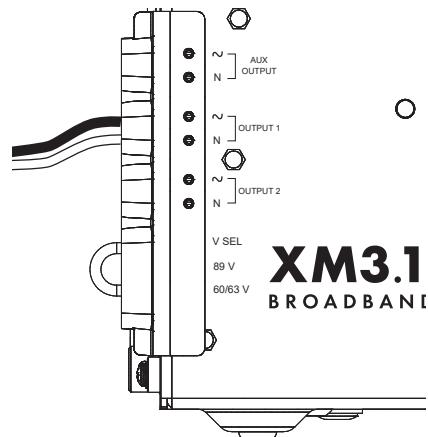


Fig. 3-13, Output Connection

4. Verify that the Input Circuit Breaker in the Service Disconnect Box is in the OFF position. Connect the XM3.1-HP (3 or 5 Amp model) AC power cord to the AC power distribution box on the left wall of the enclosure.

 **NOTICE:**

XM3.1-HP applications depicted in Figure 3-14.

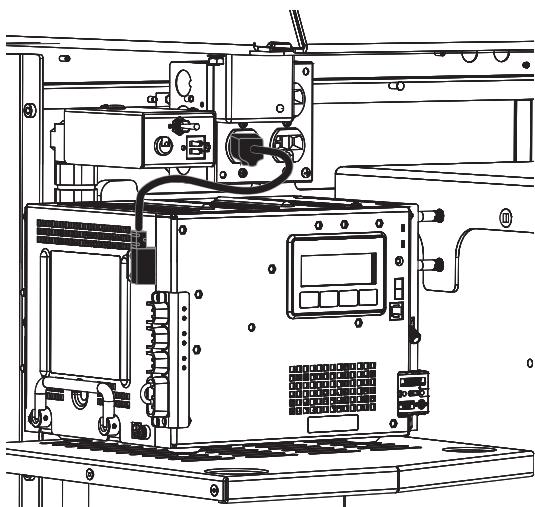


Fig. 3-14, Power Cord Connection

### 3.8 Cooling Fan Intake Filter

The Cooling Fan kit includes two intake filters, located inside the front and rear doors of the enclosure behind the ventilation louvers. The enclosure filters should be inspected every and cleaned when needed as part of the power supply preventative maintenance program.



#### CAUTION!

If the filters become blocked, thermal failure of the power supply may result.

### 3.9 Fiber Node Installation

**Procedure:**



#### NOTICE:

The strand bar intended for the fiber node stands further away from the sidewall of the enclosure.

1. HD node mounting brackets are adjustable and can be mounted in multiple positions to accommodate multiple configurations.
2. Refer to node manufacturer's installation instructions.

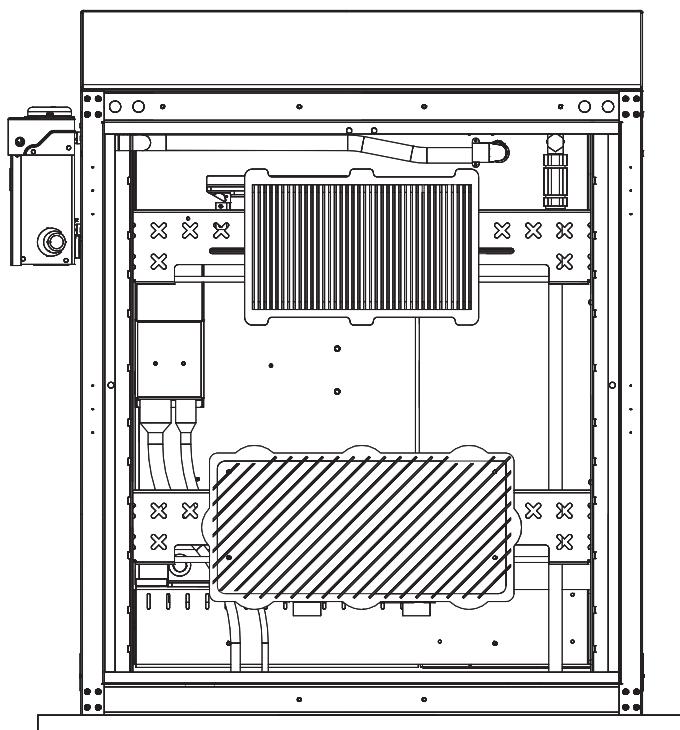


Fig. 3-15, Fiber Node Placement

### 3.10 Optional Lightning Arrester

The Lightning Arrester is available in 120VAC and 240VAC, and is installed by plugging into an Input Power Panel or Duplex Receptacle.

The unit is operating properly when the green LED is lit (Fig. 3-17).

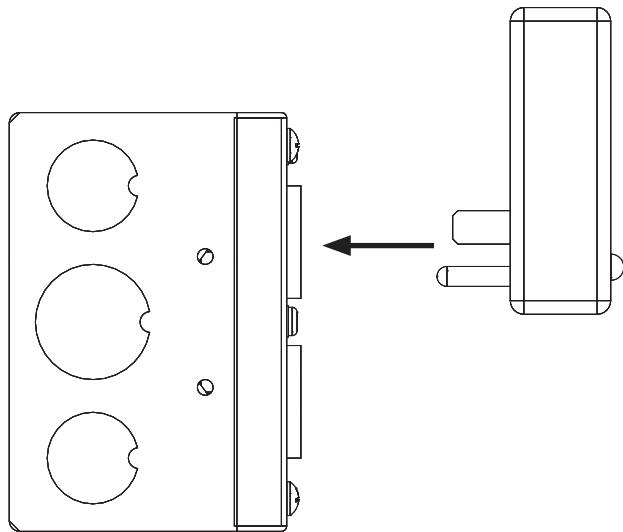


Fig. 3-16, LA-P+ Installed in Duplex Receptacle

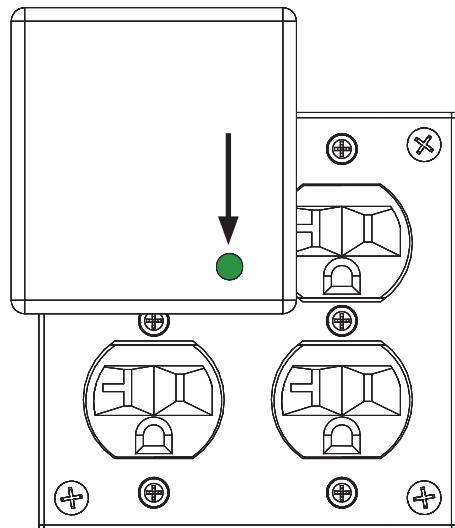


Fig. 3-17, Location of LED on LA-P+.

## 3.11 Optional Equipment

Item	Part Number
<b>Enclosure Options</b>	
Kit, Security Bar, FPE, Grey	746-613-30
Kit, Security Bar, FPE, Seafoam Green	746-613-31
Kit, Security Bar, FPE, White	746-613-32
Kit, Security Bar, FPE, Pine Green	746-613-33
Kit, Pedestal, 14"	746-617-20
Polymer Vault, 18"	565-205-10
Polymer Vault, 36"	649-00004-10
<b>Enclosure Cooling</b>	
Cooling Fan Kit	746-189-20
Replacement Fuse	460-025-10
Replacement Filter	561-234-10
<b>Lightning Arrester</b>	
LA-P+ 120V (L-N, L-G, N-G)	020-098-24
LA-P-120T 120V	162-046-10
LA-PE+ 240V (L1-L2, L1-G, L2-G)	020-098-25
<b>SPI Options</b>	
SPI-RF	021-080-20
SPI-20A	744-279-22
SP-25A	744-789-21

Table 3-1, Enclosure Equipment Options

 **NOTICE:**

Alpha® part numbers are correct at the time of printing. As part numbers are subject to change, please contact your Alpha representative prior to ordering to ensure that numbers are correct.

 **NOTICE:**

For Security Bar installation, refer to the Installation Template in the Security Bar Kit.

### 3.0 Installation

#### 3.12 Dimensions



##### **NOTICE:**

The FPE is 14" taller if it is pre-installed with the FPE Pedestal Mount (*Alpha p/n 746-617-20*).

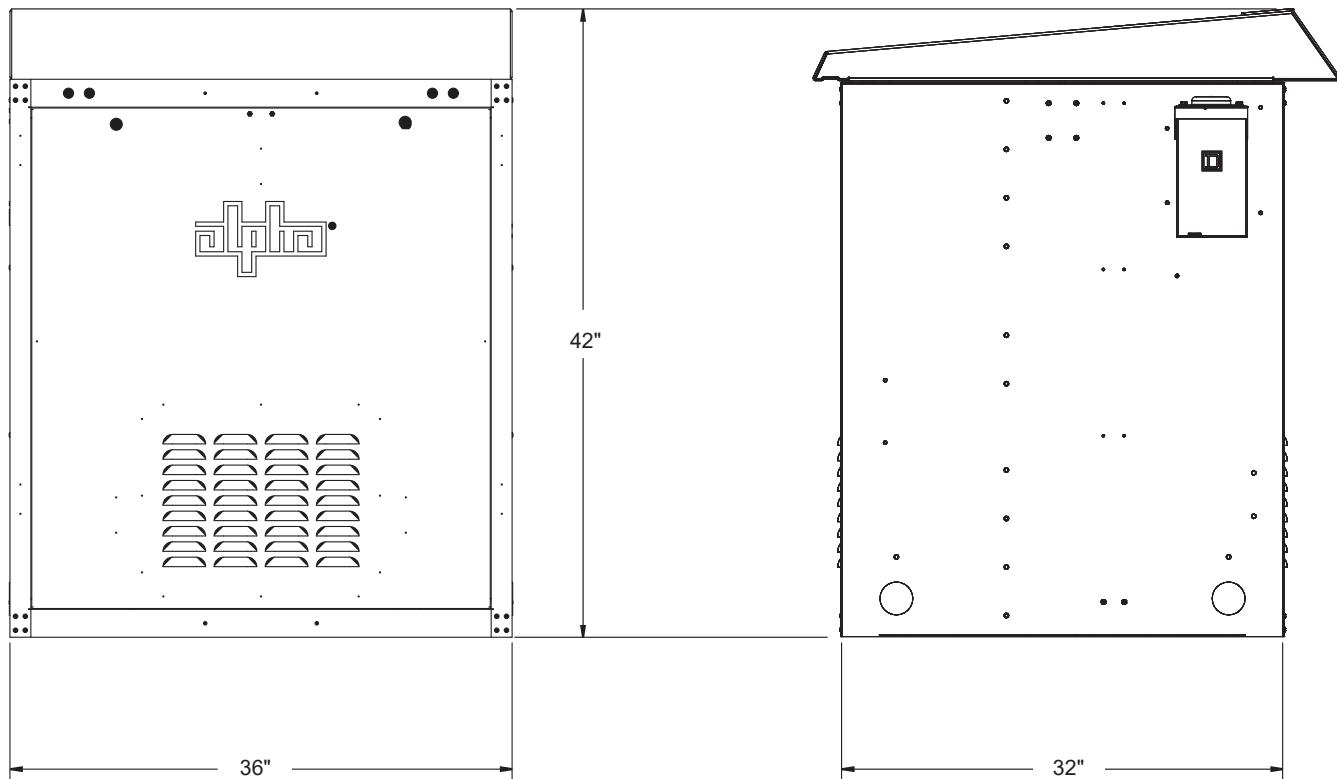


Fig. 3-18, FPE Dimensions



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