



# SE48-1616 Outdoor Enclosure

## Installation Manual

*Effective: 12/2010*





# SE48-1616 Outdoor Enclosure

**NOTE:**

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

**NOTE:**

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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, contact Alpha Technologies or your nearest Alpha representative.

**NOTE:**

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Alpha 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 inconsistent with its intended purpose, or if installed or operated in an unapproved manner, or improperly maintained.

For technical support, contact Alpha Technologies:

Canada and USA: **1-888-462-7487**

International: **+1-604-436-5547**

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# 1. Product Safety Information

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## IMPORTANT SAFETY INSTRUCTIONS

**SAVE THESE INSTRUCTIONS:** This manual contains important safety instructions that must be followed during the installation, servicing and maintenance of the product. Keep it in a safe place.

### General Warnings and Cautions



#### WARNING

You must read and understand the following warnings before installing the Alpha Outdoor Enclosure Side Mount 6 (referred to as Side Mount 6 hereafter) and its components. Failure to do so could result in personal injury or death.

- Read and follow all instructions included in this manual.
- Do not work alone under hazardous conditions.
- Only qualified personnel are allowed to install, operate, and service the Side Mount 6 and its components.
- Observe all applicable national and local electrical codes when installing the Side Mount 6.
- Always assume electrical connections or conductors are live. Turn off all circuit breakers and double-check with a voltmeter before performing installation or maintenance.
- The Side Mount 6 does NOT have an on/off switch to de-energize the line output. Whenever it is connected to line or generator, power is present at the output. Use extreme caution at all times.
- Before installation, verify that the input voltage and current requirements of the load are within the specifications of the UPS module within the Side Mount 6. See the nameplate of the UPS.
- Keep tools away from walk areas where you or others could fall over them.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.

- To prevent accidental shorts, shocks or electrocutions, never let water from rain, a hose, tap or a sprinkler's output, road splash or other water sources enter the enclosure of the Side Mount 6

## Certifications and Compliances

The Side Mount 6 has been designed, manufactured, and tested to the requirements of the following national and international safety standards:

- ☑ CAN/CSA-C22.2 No. 94-M91 (R2006) – Special Purpose Enclosures
- ☑ UL 50 – Enclosures for Electrical Equipment, Non-Environment considerations

## 2. Introduction

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### What This Manual Covers

This manual provides full procedures for the safe and proper installation, operation, maintenance, and troubleshooting of the Side Mount 6.

### Who Should Read This Manual

This manual is intended for qualified installers – trained electricians or technicians who are fully educated on the hazards of installing electrical equipment such as uninterruptible power supplies and their associated batteries and accessories. The Product Safety Information chapter and the Operation chapter are intended for anyone who will be operating the Side Mount 6. as a non-technical user.

### How to Use This Manual

Before you begin installing the Side Mount 6, please ensure that you are familiar with all the warnings and cautions described in this manual (see “Product Safety Information” on page 1). Once you are aware of all the safety issues, then you can start to plan the installation according to “Installation” on page 9. After you have completed the installation, you can start learning how to operate the system to meet the needs of your application.

### Symbols Used in This Manual

This section explains the warning, caution and information symbols used in this manual.



#### **WARNING**

Warnings draw special attention to anything that could injure or kill you (the operator) or somebody else, and explain how to avoid these situations. They are placed before the step in the procedure to which they apply. Warnings display the “attention” icon, followed by the word “WARNING” (in bold uppercase) highlighted in gray as shown in this example.



### **Caution**

Cautions draw special attention to anything that could damage equipment or cause the loss of data, and provide information on how to avoid these situations. They are placed before the step in the procedure to which they apply. Cautions display the “attention” icon, followed by the word “Caution” in bold title case as shown in this example.



### **Note**

Notes contain information or options you should remember for future use – something that may seem minor or inconsequential but will be important in the future. Notes display the “push pin” icon, followed by the word “Note” in title case as shown in this example.

## **Symbols Used on The Product**

The following symbol appears on various internal components of the Side Mount 6:



Risk of electric shock.

## **Related Documents**

- FXM UPS Operator’s Manual (Doc# 017-201-B0)
- Universal Automatic Transfer Switch/Universal Generator Transfer Switch Installation Manual (Doc# 020-165-B0)
- Local electrical codes (e.g. National Electrical Code, or NFPA 70 in the United States, Canadian Electrical Code or CSA C22.1 in Canada)



## 3. Overview

---

### Introduction

The Alpha Outdoor Enclosure Side Mount 6 (hereafter referred to as Side Mount 6) is a 6 cubic foot NEMA 3R rated enclosure designed to protect its internal electrical equipment from harsh outdoor environments.

The Side Mount 6 is designed to be mounted as a standalone enclosure or on the side of most Traffic Controller Cabinets. With a generous 6 cubic feet of internal space, the Side Mount 6 can easily accommodate a wide selection of Alpha Uninterruptible Power Supplies (UPS), transfer or bypass switches, and AlphaCell™ batteries.

A description of the enclosure is given in Figures 3.1 to 3.3. The optional factory-installed generator connector (Figure 3.2) allows critical loads to be powered even if the utility power is lost and the backup batteries become discharged through extended use.

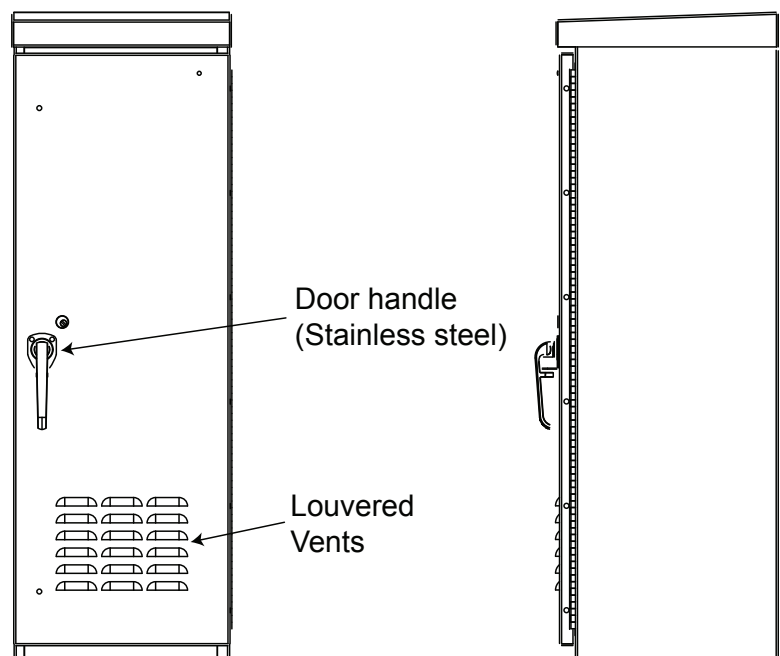


Figure 3.1 – Front and side views

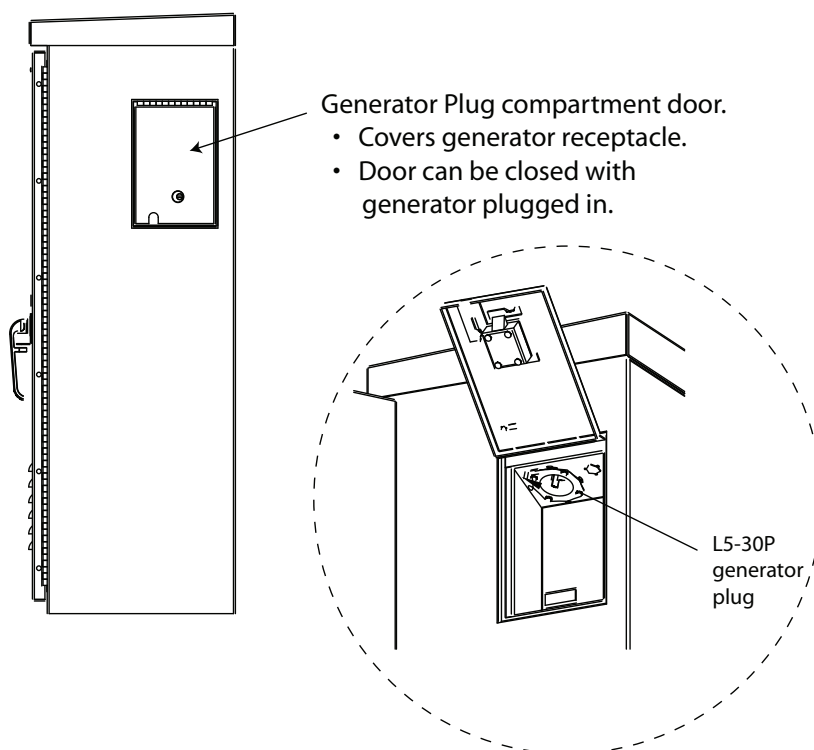


Figure 3.2 – Side view (shown with optional generator plug compartment)

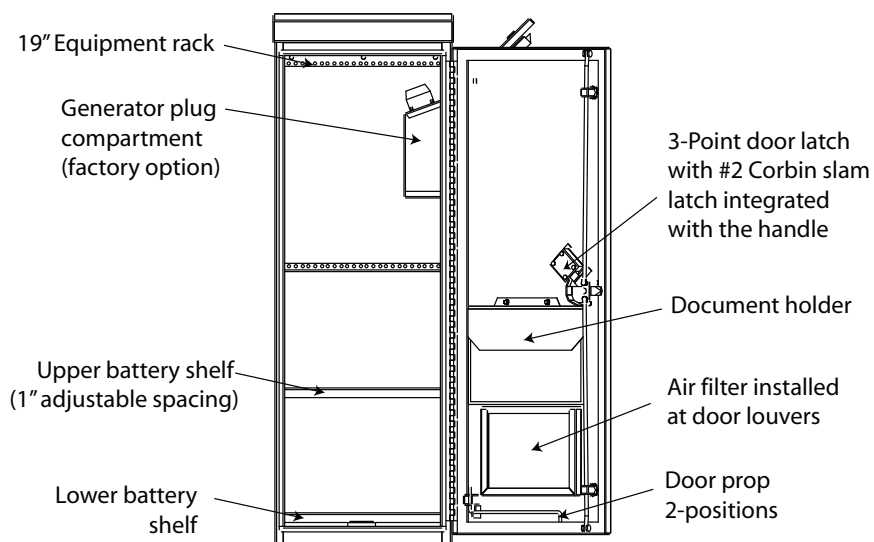


Figure 3.3 – Front view (shown with door opened)

# 4. Unpacking the Side Mount 6

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## Opening the Package

The Side Mount 6 is covered with a poly bag, wrapped with cardboard and strapped to a 42”X48” standard size pallet, with a maximum of 4 per pallet. Ship packaging is designed to meet International Safe Transit Association (ISTA) requirements.

## Checking the Package Contents

Before you begin installation, inspect the package contents and make sure the following standard items as well as purchased options are included. Use the form provided on the inside back cover to keep a record of your product purchase.

Standard items	
Qty	Item
1	Alpha Outdoor Enclosure Side Mount 6
1	Installation Manual
6	1/4"-20 18-8 stainless steel hex head bolts, nuts, with lock and plain washers for side mounting to host enclosure
8	#10-32 clip nut for equipment rack

## Optional Items

### Optional items, if ordered.

Accessories that can be used with Side Mount 6:

Rack Mounting Accessory Shelf for Universal Automatic Transfer Switch (UATS)/Universal Generator Transfer Switch (UGTS)

External "On Battery" lamp

Internal fluorescent light with door switch

Door ajar switch - mounting studs provided on the top right of door jam.

Alpha UPS module (shipped separately)

AlphaCell™ 210GXL battery – maximum of 4 (2 for each battery shelf, shipped separately)

AlphaGuard

Accessories\* for mounting the Side Mount 6:

**Concrete Pad Pedestal Riser:** 8" high pedestal with hardware mounting the Side Mount 6 enclosure to the pedestal (hardware for mounting the pedestal to the concrete pad not supplied) (p/n 740-787-21, gray; 740-787-22, natural aluminum)

**336 Concrete Pad Pedestal Riser:** 8" high pedestal with hardware mounting the Side Mount 6 enclosure to a standard 336 traffic light concrete pad (hardware for mounting the pedestal to the concrete pad not supplied) (p/n 740-757-21, natural aluminum; 740-757-22, gray)

**Pole Mount - Wood Kit option, p/n: 740-765-22 & 744-670-20:**

Pole mount strap kit (740-765-22) includes 2 pole mount straps and hardware.

Wood pole mount kit (744-670-20) includes 2 pole mount brackets for a wooden pole)

**Pole Mount - Steel/Concrete Kit option, p/n 740-765-22 & 591-557-20:**

Pole mount strap kit (740-765-22) includes 2 pole mount straps and hardware.

Steel/Concrete pole mount kit (591-557-20) includes 2 pole mount brackets for steel/concrete pole.

\* Contact your Alpha representative to order the above accessories.

## 5. Installation

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### WARNING

**Grounding:** The Side Mount 6 MUST be correctly grounded for proper operation.

### Tools and Equipment Required for Installation

- Ratchet set with 6" extension
- #2 phillips screwdriver
- 1/8" slot head screwdriver to fit the terminal blocks
- 16 ounce hammer (for removing knockouts)
- 5" long punch or chisel (for removing knockouts)
- Electric / cordless drill (for side or pole mounting)

### Mounting the Side Mount 6

The Side Mount 6 can be mounted in one of the four following ways:

1. Side Mount to an existing enclosure such as a traffic light cabinet. Mounting holes must be drilled on site and mounted with 6 sets of 1/4"-20 18-8 stainless steel hex head bolts and nuts assembly (supplied).
2. Stand-alone using 4 x 1" knock outs for base mount to concrete pad with 3/4" screw anchors (not supplied). See Figure 5.1 for mounting pad hole patterns.
3. Stand-alone using 4 x 1/2" knock outs for mounting to optional pedestal kit with 3/8" screws (supplied in pedestal kit). See Figure 5.1 for mounting pad hole patterns.
4. Pole mount to either a wooden or steel/concrete pole, using the optional pole mount kit. Holes must be drilled on site and the mounting kit attached with the supplied hardware.

## Existing and Standalone installations

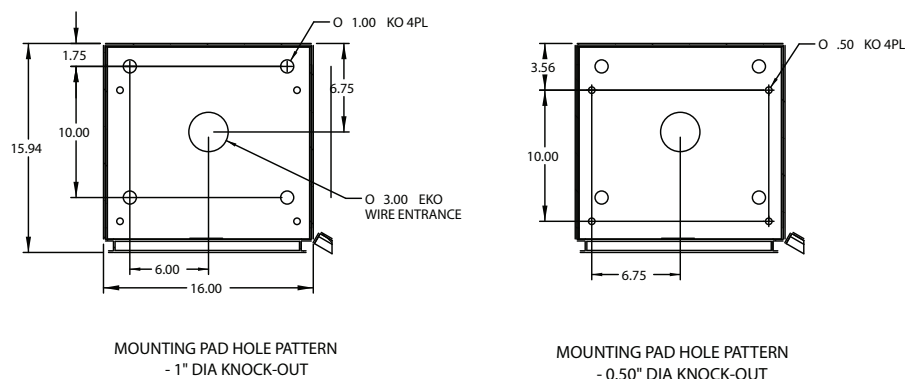


Figure 5.1 – Mounting pad hole patterns



### Note

To get access to the mounting pad holes, remove the lower battery shelf by undoing 4 screws on the shelf.

## Mounting to a pole

If you are mounting the enclosure to a wood, steel/concrete pole, you need to install two optional pole mount strap kits to the rear panel of the enclosure according to the following instructions. When this is done, you can install the appropriate mounting brackets to the pole.

### Installing the pole mount strap kit

Materials required

- **1** pole mount strap kit, which includes 2 pole mount straps, 8 sets of 1/4-20 x 3/4" S/S carriage bolts, 1/4" S/S flat washers & 1/4" S/S locknuts and 1 3/8-16 x 1" cap screw.

### Procedure

1. Using a 9/32" drill bit, drill through the 8 half-shears shown in Figure 5.2.

Note: These are not knockouts. Do not attempt to punch them out.

2. Secure the two pole mount straps to the enclosure with the supplied carriage bolts, nuts and flat washers. (Figure 5.3).
3. Install the 3/8-16 x 1" cap screw loosely into the bottom pole mount strap. Do not tighten until after the enclosure has been seated onto the pole/wall mounting brackets.

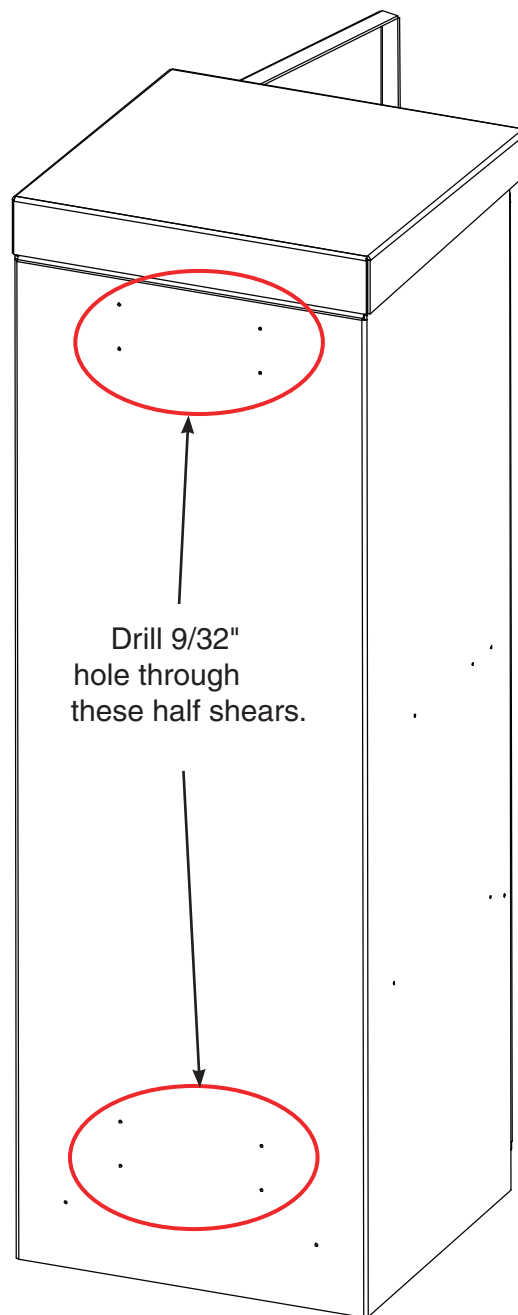


Figure 5.2 – Drilling the cabinet

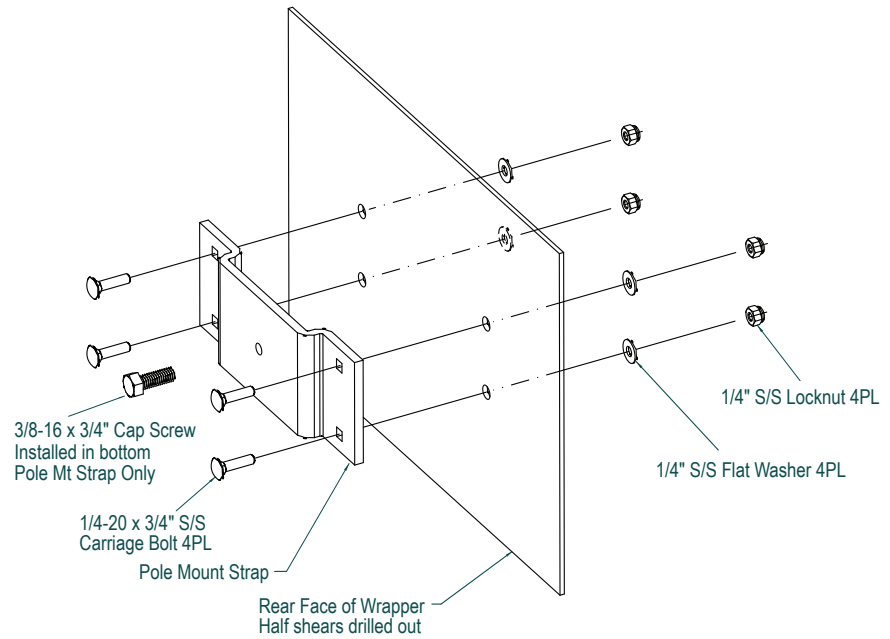


Figure 5.3 – Attaching the strap mount brackets

## Mounting to a wooden pole

### Tools required

- Auger or drill for boring 3/4" diameter holes in the wooden pole
- Assorted sockets or wrenches

### Materials required

- **2** wood pole mount brackets (provided in the kit)
- **2** 5/8" diameter machine bolts (UNC threaded), SAE (Grade 5 or better), length to suit pole
- **2** 5/8" diameter zinc-plated flat washers
- **2** 5/8" diameter hex nuts (UNC threaded)



### WARNING

Alpha recommends positioning the enclosure on the opposite side of the pole from oncoming traffic to reduce the danger of falling equipment in the event that a pole is struck by an automobile.

### Procedure

1. Install the two pole mount straps on the rear panel of the enclosure. Refer to the instructions given on page 10.
2. Mark drilling locations for the upper and lower mounting brackets on the utility pole. Use a plumb line to check for plumbness. Their centres should be 37.00 inches apart.



3. Drill two 3/4" diameter holes completely through the pole at the marked locations.

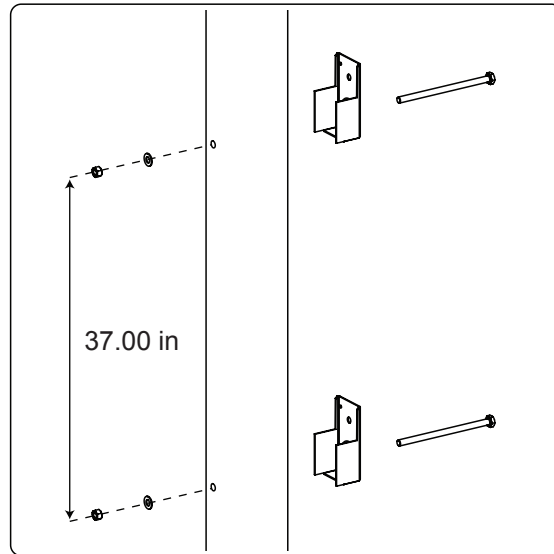


Figure 5.4- Installing the mounting brackets

4. Secure each bracket to the pole with a 5/8" machine bolt, washer and nut (Figure 5.4) (to be supplied by the installer). Do not fully tighten the bolts at this time.
5. Position the enclosure so that the upper and lower straps are aligned to be seated onto the mounting brackets. It may be necessary to slightly rock the enclosure and pull downward to properly seat it onto the brackets (Figure 5.5).
6. Tighten the machine bolts to secure the enclosure to the pole.

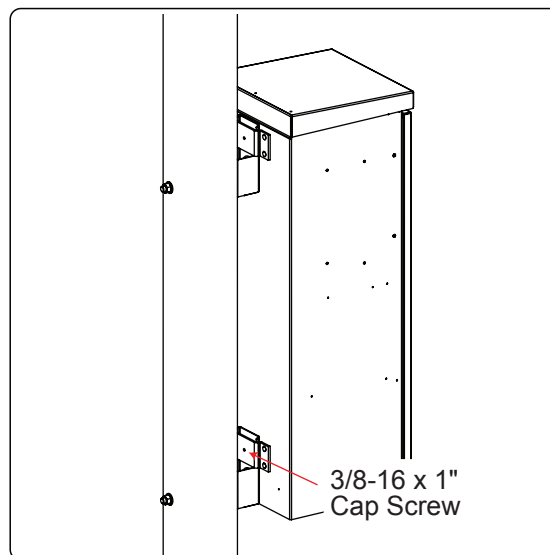


Figure 5.5 - Completed installation

7. Tighten the cap screw at the lower pole mount strap to secure the enclosure to the pole mount bracket.

## Mounting to a steel or concrete pole

### Tools required

- Assorted sockets or wrenches

### Materials required

- **2** steel/concrete pole mount brackets (provided in the kit)
- **2** steel bands (to be supplied by the installer, rated to support the loaded enclosure and sized for the pole diameter)



### WARNING

Alpha recommends positioning the enclosure on the opposite side of the pole from oncoming traffic to reduce the danger of falling equipment in the event that a pole is struck by an automobile.

### Procedure

1. Install the two pole mount straps to the rear panel of the enclosure. Refer to the instructions given on page 10.
2. Mark the locations for the upper and lower mounting brackets on the utility pole. Use a plumb line to check for plumbness. Their centres should be 37.00 inches apart.
3. Loosely attach the mounting brackets with steel bands to the pole at the marked locations. Do not fully tighten the steel bands at this time (Figure 5.6).
4. Position the enclosure so that the upper and lower straps are aligned to be seated onto the mounting brackets. It may be necessary to slightly rock the enclosure and pull downward to properly seat it onto the brackets.
5. Tighten the steel bands to secure the enclosure to the pole.

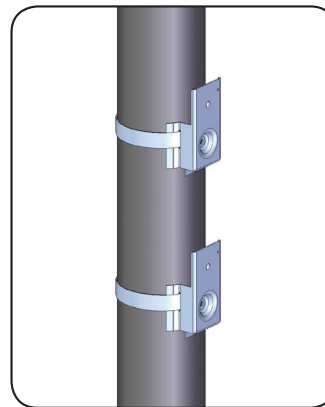


Figure 5.6 – Steel pole mounting brackets

6. Tighten the cap screw at the lower pole mount strap to secure the enclosure to the pole mount bracket.

7. Position the enclosure so that the upper and lower straps are aligned to be seated onto the mounting brackets. It may be necessary to slightly rock the enclosure and pull downward to properly seat it onto the brackets.
8. Tighten the cap screw at the lower pole mount strap to secure the enclosure to the pole mount bracket.

## Wiring the Side Mount 6



### WARNING

All electrical wiring must ONLY be performed by qualified service personnel and in compliance with local electrical codes and common safety practices. Connection to utility power must be approved by the local utility before installing the power supply.

The Side Mount 6 with Generator Plug compartment option, when ordered with UATS/UGTS Accessory Shelf, should have the generator transfer switch pre-wired. Refer to the wiring of the UATS/UGTS Manual Transfer Plate in the Installation chapter of the UATS/UGTS Installation Manual if necessary. See Related Documents on page 4.

With or without Generator Box option, the Side Mount 6 is ready for wiring once the UPS and/or the UATS/UGTS Accessory Shelf are installed. Refer to the UPS and the UATS/UGTS manuals for wiring details. See Related Documents on page 4.



Figure 5.7 – Typical Side Mount 6 configuration

If you have the factory installed UATS/UGTS Accessory Shelf, you can also install additional accessories. Although you can customize the placement of accessories in the UATS/UGTS Accessory Shelf, Alpha recommends the preferred factory-installed configurations described in the UATS/UGTS Installation Manual. A typical installed configuration is shown in Figure 5.7.

## Wiring the Side Mount 6 components

### Thermostat controlled 48 VDC Fan

Connect the black (common) wire of the DC fan to the center (common) terminal of the connector as shown in Figure 5.8. Connect the red (positive) wire to the left terminal. Plug the connector into dry contact C6 on the Alpha FXM UPS.



#### Note

If you have a 24 VDC system which require a 24 VDC fan, please contact Alpha Technical Support.

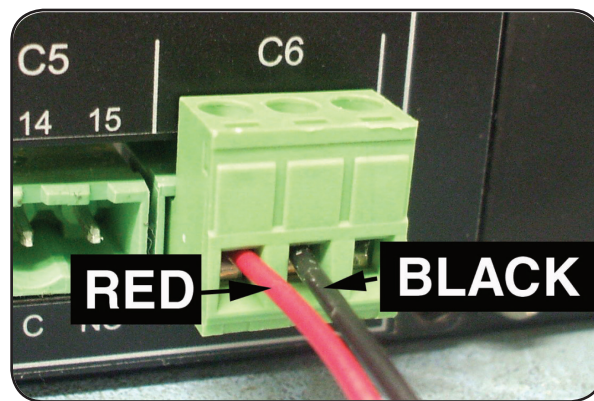


Figure 5.8 – Connecting the DC fan to dry contact C6 on the Alpha FXM UPS

### On Battery Lamp (48 VDC) (optional on some models)

This optional lamp turns on when the UPS is operating in the battery backup mode (inverter mode). Connect the lamp wiring to dry contact C8 on the Alpha FXM UPS as shown in Figure 5.9.



#### Caution

The dry contact C8 can only be used for Alpha specified accessories.

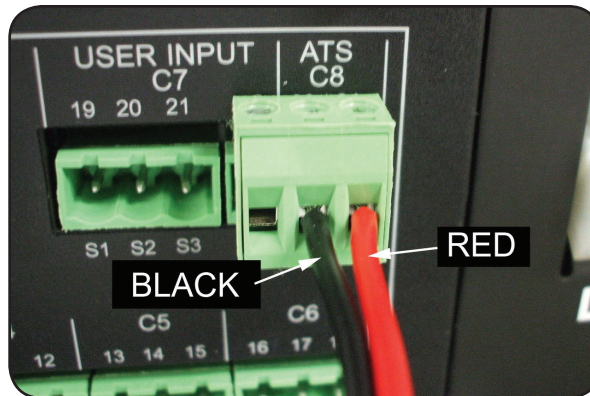


Figure 5.9 – Connecting the On Battery Lamp to dry contact C8 on the Alpha FXM UPS

### **Door Ajar Switch (optional on some models)**

The switch closes when the door is opened. It is used to trigger one of the user programmable inputs of the Alpha FXM UPS (typically C7 is used) and program the input as an Intrusion Alarm. See the Alpha FXM UPS Operator's Manual for details.

### **Internal Fluorescent Lamp with Light Switch (120VAC) (optional on some models)**

Connect to the terminal block marked "Lamp" in the Receptacle plate of the UATS/UGTS Accessory Shelf. See UATS/UGTS manual for details.

## 6. Operation

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Operation of the Side Mount 6 is determined by the final installed configuration in the end system for the intended application. Please refer to the applicable equipment product manuals listed in Related Documents on page 4.

## 7. Maintenance

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### Preventative Maintenance

Preventative maintenance should be performed on the Side Mount 6 together with the UPS module or system every 6 to 12 months. For mission critical applications, more frequent maintenance should be planned. Proper implementation of the following procedure will ensure that your system continues to provide reliable backup power in the event of a utility power failure.

Alpha can provide this service if you prefer. Contact your Alpha representative for details and pricing, or see Service and Technical Support below.



#### **WARNING**

Always assume electrical connections or conductors are live. Turn off all circuit breakers and double-check with a voltmeter before performing installation or maintenance. Make sure that you have read and understood the “Product Safety Information” chapter on page 5 before performing the following procedure.

#### **Procedure**

1. Inspect the Side Mount 6 and wiring for any physical damage. Repair or replace as required.
2. Verify that all connections are securely fastened. Tighten if necessary.
3. Re-tighten all battery terminal bolts to the manufacturers specifications.
4. Inspect louvered vents at door, vent slots at top front and the bug screen for blockage.
5. Inspect the filter and clean or replace if necessary.
6. For installed equipment such as UPS module, UATS/UGTS transfer switches and batteries, follow the instructions in the maintenance chapters of the applicable product manuals.



## Service and Technical Support

Alpha Technologies is committed to the support of Alpha products throughout their life. Alpha provides a full range of service products including extended warranties, on-site service plans and battery renewal programs. Parts, supplies and replacement or upgraded battery packs are also available. To discuss any of your after-sales needs, please call toll free 1-888-462-7487 in Canada and USA. Customers outside Canada and the USA, call +1-604-436-5547

# Appendix A: Specifications

*Due to ongoing product improvements, specifications are subject to change without notice.*

## SE48-1616 – Mechanical Specifications

<b>Enclosure type</b>	Outdoor Nema 3R
<b>Dimensions, in (mm)</b> <b>H x W x D</b>	48" X 16.5" X 16.5" (122 x 42 x 42)
<b>Weight, lb (kg)</b>	Unit: 65 (30) Shipping: 70 (32)
<b>Material</b>	Aluminum construction, main body 0.125" thick 5052-H32 Aluminium; all welds, where possible, are inside the enclosure.
<b>Color</b>	Alpha A6 bare aluminum finish (also available in gray)
<b>Mounting options</b>	<ul style="list-style-type: none"> <li>• Side Mount to an existing traffic light enclosure: holes to be drilled on site and mount with 6 x 1/4"-20 18-8 Stainless Steel Hex Head bolts and nuts assembly (supplied)</li> <li>• 4 x 1" knock outs for Base Mount to concrete pad with 3/4" screw anchors (not supplied)</li> <li>• 4 x 1/2" knock outs for mounting to optional pedestal mount with 3/8" screws (supplied in pedestal kit)</li> <li>• Pole Mount using the optional pole mount kit</li> </ul>
<b>Equipment rack</b>	<ul style="list-style-type: none"> <li>• Horizontal 19" rack mount rails, EIA spacing, 8 RU wide</li> </ul>
<b>Battery shelves</b>	<p>Two battery shelves, each capable of supporting 2 AlphaCell™ 210GXL batteries or a wide variety of AlphaCell™ batteries. Talk to your Alpha representative to determine which battery best meets your needs.</p> <ul style="list-style-type: none"> <li>• Fixed weld-on upper battery shelf</li> <li>• Removable lower battery shelf for accessing service wire and mounting holes</li> </ul>
<b>Ventilation</b>	<ul style="list-style-type: none"> <li>• Louvered vents at door and vent slots at top front</li> <li>• Air inlet filter install at door louvers, fixed in all three dimensions</li> <li>• Air filter size: 9.75" (W) x 8.0" (H) x 0.875" (thick)</li> <li>• Air filter type: re-usable and washable</li> <li>• Bug screen inside vent slots at top</li> </ul>
<b>Cooling</b>	Thermostat controlled 48 VDC fan, 100 CFM or better; thermostat turns fan on at 49°C (120°F) and turns fan off at 32°C (90°F).
<b>Door</b>	<ul style="list-style-type: none"> <li>• Latch: 3-point latch with #2 Corbin slam latch integrated with the handle</li> <li>• Handle: stainless steel, traffic light industry standard</li> <li>• Prop: 1/4" bare aluminum rod, two positions. Holes located in tab mounted at the front of bottom pan providing 90° and 150° door holding positions</li> <li>• Hinge: stainless steel piano hinge, reverse swaged, 1.5" (W), 0.075 (thick), 0.188 Dia. pin, 0.500" knuckles</li> <li>• Document holder on inside door</li> </ul>

**SE48-1616 – Electrical Specifications**

Per Electrical Specifications of Alpha FXM UPS and UATS/UGTS products. See Related Documents on page 8.

DC fan	48 Vdc, 100 CFM or better. Thermostat controlled.
Internal Fluorescent Lamp	120 Vac, 9 W
On Battery Lamp	48 Vdc LED
Generator Plug	NEMA L5-30P
Manual Transfer Switch	250 V, 40 A

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## WARRANTY

### Warranty

Alpha Technologies Ltd. warrants all equipment manufactured by it to be free from defects in parts and labor, for a period of two years from the date of shipment from the factory. The warranty provides for repairing, replacing or issuing credit (at Alpha's discretion) for any equipment manufactured by it and returned by the customer to the factory or other authorized location during the warranty period. There are limitations to this warranty coverage. The warranty does not provide to the customer or other parties any remedies other than the above. It does not provide coverage for any loss of profits, loss of use, costs for removal or installation of defective equipment, damages or consequential damages based upon equipment failure during or after the warranty period. No other obligations are expressed or implied. Warranty also does not cover damage or equipment failure due to cause(s) external to the unit including, but not limited to, environmental conditions, water damage, power surges or any other external influence.

The customer is responsible for all shipping and handling charges. Where products are covered under warranty Alpha will pay the cost of shipping the repaired or replacement unit back to the customer.

### Battery Warranty

Note that battery warranty terms and conditions vary by battery and by intended use. The most common battery warranty provided by Alpha is a two year full replacement warranty with a pro-rated warranty for the following three years. Pro rated warranty provides a credit applicable toward the purchase of new batteries from Alpha. The credit is calculated as the purchase price multiplied by the percentage of the battery life that was not available (in months). Battery warranty coverage is lost where the battery charge is not maintained for 6 months. Contact your Alpha sales representative or the Technical Support team at the above number to understand your entitlements under Battery Warranty.

For more information, visit <http://www.alpha.ca/web2/services-and-support/warranty.html>.

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# Emergency Shutdown Procedure

In an emergency, Line power may be disconnected at the service entrance or main electrical panel to protect emergency personnel, but there can still be AC power present at the UPS output. You must always turn OFF the battery circuit breaker.

1. Turn OFF the Battery Circuit Breaker of the UPS.
2. Turn OFF the Generator (if connected).
3. Turn OFF the Input Circuit Breaker of the UPS.
4. Disconnect the AC Input power to the UPS.
5. Disconnect the battery string from the UPS.

**For emergency technical support 7 days a week/24 hours a day:**

**In Canada and USA, call toll free 1-888-462-7487**

**Customers outside Canada and the USA, call: +1-604-436-5547**

**Complete the following for your records:**

Serial # \_\_\_\_\_

Options \_\_\_\_\_

Purchase Date \_\_\_\_\_

**This unit was purchased from:**

Dealer \_\_\_\_\_

City \_\_\_\_\_

State/Province \_\_\_\_\_

Zip/Postal Code \_\_\_\_\_

Country \_\_\_\_\_

Telephone # \_\_\_\_\_

Fax # \_\_\_\_\_

E Mail Address \_\_\_\_\_

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