



| an EnerSys® company

# **SE41-2722/2730**

## **Multipurpose Enclosure Series**

Technical Guide: 0290002-J0

Effective: 07/2020




# SE41-2722/2730

## Multipurpose Enclosure Series

 **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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# 1. Safety

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**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. Review the drawings and illustrations contained in this manual before proceeding. If there are any questions regarding the safe installation or operation of this product, contact Alpha Technologies or the nearest Alpha representative.

## 1.1 Safety Symbols

To reduce the risk of injury or death, and to ensure the continued safe operation of this product, the following symbols have been placed throughout this manual. Where these symbols appear, use extra care and attention.

The use of **ATTENTION** indicates specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.



### **NOTE:**

**A NOTE provides additional information to help complete a specific task or procedure. Notes are designated with a checkmark, the word NOTE, and a rule beneath which the information appears**



### **CAUTION!**

**CAUTION indicates safety information intended to PREVENT DAMAGE to material or equipment. Cautions are designated with a yellow warning triangle, the word CAUTION, and a rule beneath which the information appears.**



### **WARNING!**

**WARNING presents safety information to PREVENT INJURY OR DEATH to personnel. Warnings are indicated by a shock hazard icon, the word WARNING, and a rule beneath which the information appears.**



### **HOT!**

**The use of HOT presents safety information to PREVENT BURNS to the technician or user.**

## 1.2 General Warning and Cautions



### **WARNING!**

**You must read and understand the following warnings before installing the enclosure and its component. Failure to do so could result in personal injury or death.**

- Read and follow all instructions included in this manual.
- Only trained personnel are qualified to install or replace this equipment and its components.
- Use proper lifting techniques whenever handling equipment, parts, or batteries.

## 1.3 Electrical Safety

### WARNING!

**Hazardous voltages and/or energy levels can be present at the input of power systems. The DC output from rectifiers and batteries, though not dangerous in voltage, has a high short-circuit current capacity that may cause severe burns and electrical arcing.**

Before working with any live battery or power system, follow these precautions:

- a. Remove all metallic jewelry, such as watches, rings, metal rimmed glasses, or necklaces.
- b. Wear safety glasses with side shields at all times during the installation.
- c. Use OSHA approved insulated hand tools. Do not rest tools on top of batteries.

### WARNING!

**Lethal voltages are present within the power system. Always assume that an electrical connection or conductor is energized. Check the circuit with a voltmeter with respect to the grounded portion of the enclosure (both AC and DC) before performing any installation or removal procedure.**

- Do not work alone under hazardous conditions.
- A licensed electrician is required to install permanently wired equipment. Input voltages can range up to 240 Vac. Ensure that the utility power is disconnected and locked out before performing any installation or removal procedure.
- Ensure that no liquids or wet clothes come into contact with internal components.
- Hazardous electrically live parts inside this unit are energized from the batteries even when the AC input power is disconnected.
- The enclosure which contains the DC or AC power system along with customer installed radios must remain locked at all times, except when authorized service personnel are present.
- Always assume electrical connections or conductors are live. Turn off all circuit breakers and double-check with a voltmeter before performing installation or maintenance.
- Place a warning label on the utility panel to warn emergency personnel that a reserve battery source is present which will power the loads in a power outage condition or if the AC disconnect breaker is turned off.
- At high ambient temperature conditions, the internal temperature can be hot so use caution when touching the equipment.

## 1.4 Battery Safety

- Never transport an enclosure with batteries installed. Batteries must ONLY be installed after the enclosure has been securely set in place at its permanent installation location. Transporting the unit with batteries installed may cause a short circuit, fire, explosion, and/or damage to the battery pack, enclosure and installed equipment.
- Servicing and connection of batteries must be performed by, or under the direct supervision of, personnel knowledgeable of batteries and the required safety precautions.
- Batteries contain or emit chemicals known to cause cancer and birth defects or other reproductive harm. Battery post terminals and related accessories contain lead and lead compounds. Wash your hands after handling batteries.

### WARNING!

**Follow battery manufacturer's safety recommendations when working around battery systems. Do not smoke or introduce an open flame when batteries (especially vented batteries) are charging. When charging, batteries vent hydrogen gas, which can explode.**

- Batteries are hazardous to the environment and should be disposed at a recycling facility. Consult the battery manufacturer for recommended local authorized recyclers.

## 2. Introduction

### 2.1 Product Overview

The Alpha SE41 is a NEMA 3R multipurpose outdoor enclosure. The SE41 is available with the following options:

- AC, DC, or line power system
- 22" or 30" depth
- Expansion battery enclosure
- Generator inlet and manual transfer switch
- TVSS
- One or two battery trays
- Battery heater mats
- Thermal management options: fan, heat exchanger or air conditioner
- Enclosure heater

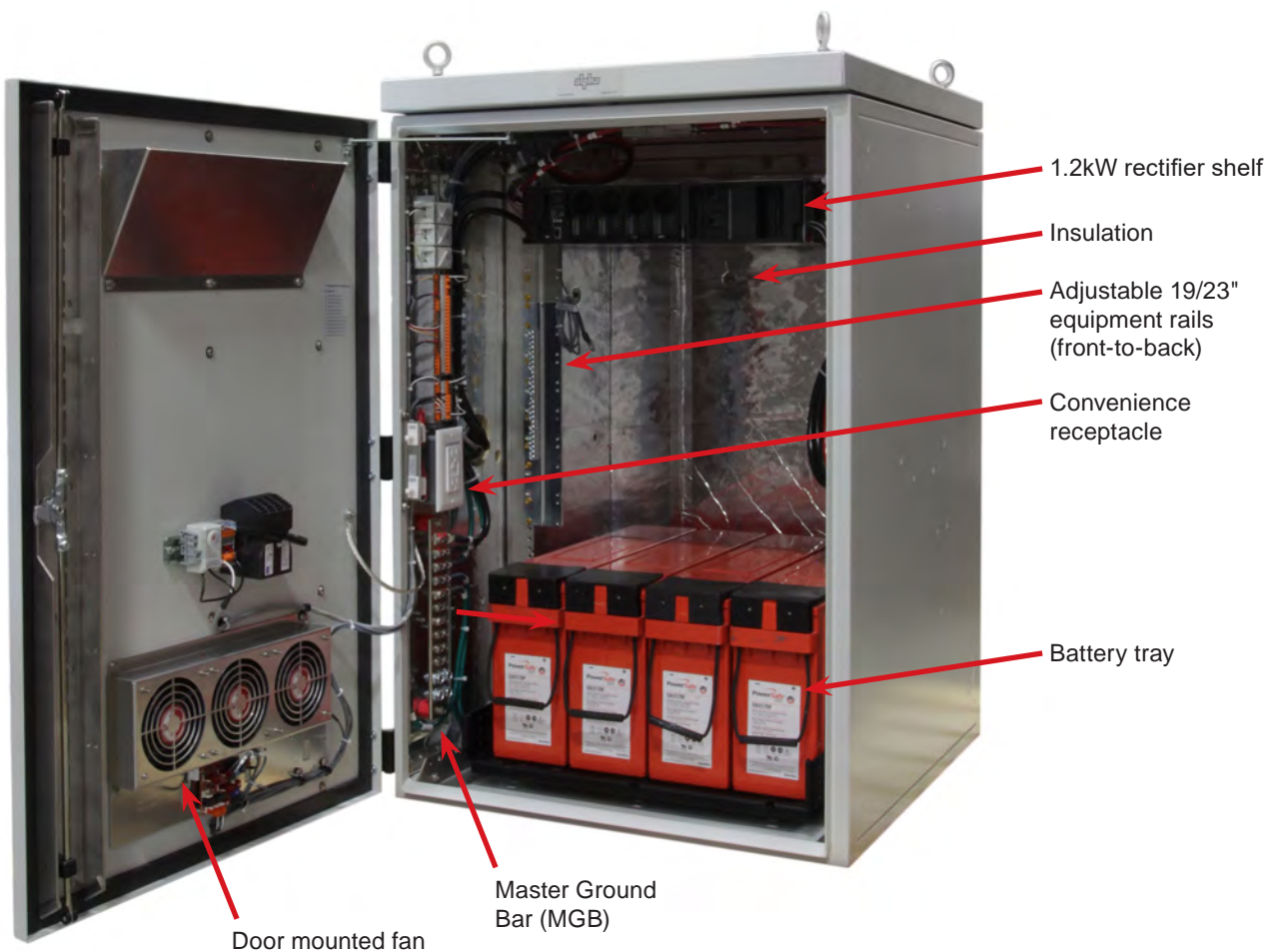


Figure 1 — Alpha SE41 Interior View



### 3. Specifications

Table A — Specifications				
Electrical				
<b>AC Input</b>				
<b>AC load center option:</b>	120/240V, 100A maximum, 60Hz, 1PH, 3W+PE			
<b>Generator supply option:</b>	120/240V, 30A maximum, 60Hz, 1PH, 3W+PE			
<b>Internal power options:</b>	<b>CXRF 48-1.2kW rectifier shelf:</b> 120/240V, 57A maximum, 60Hz, 1PH <b>CXPS-E3 system:</b> 120/240V, 75A maximum, 60Hz, 1PH <b>FXM 650-24:</b> 8.7/4.5 @ 120/230 Vac <b>FXM 650-48:</b> 10.5 @ 120 Vac <b>FXM 1100:</b> 15.5/8 @ 120/230 Vac <b>FXM 2000:</b> 20/12 @ 120/230 Vac			
<b>Internal cooling options:</b>	2000 BTU air conditioner: 120V, 7A maximum, 60Hz, 1PH 4000 BTU air conditioner: 120V, 13.8A maximum, 60Hz, 1PH			
<b>Internal heating options:</b>	Enclosure fan heater: 120V, 3.5A maximum, 60Hz, 1PH Enclosure heater mat: 120V, 1.5A maximum, 60Hz, 1PH			
<b>Output</b>				
<b>DC options:</b>	<b>CXRF 48-1.2kW rectifier shelf:</b> 42-58V (48V nominal), 4.8kW maximum <b>CXPS-E3 system:</b> 42-58V, (48V nominal), 14.4kW maximum <b>LPS36 converter shelf:</b> ±190V, 3.6kW maximum (per shelf)			
<b>Convenience receptacle:</b>	120V, 15A, 60Hz, 1PH			
<b>UPS:</b>	FXM650, FXM1100, FXM2000: 120V, 60Hz, 1PH			
Mechanical				
<b>Dimensions (H x W x D):</b>	SE41-2722 (footprint) 1041mm x 686mm x 559mm (41in x 27in x 22in) SE41-2730 (footprint) 1041mm x 686mm x 762mm (41in x 27in x 30in)			
<b>Weight:</b>	<b>Fan</b>	<b>Heat Exchanger</b>	<b>2000BTU Air Conditioner</b>	<b>4000BTU Air Conditioner</b>
	SE41-2722	63.5kg (140lbs)	78kg (172lbs)	87kg (192lbs)
	SE41-2730	71kg (155lbs)	85kg (187lbs)	94kg (207lbs)
<b>Mounting:</b>	Plinth/Pad/Wall/Pole			
<b>Construction / Finish:</b>	5052-H32 aluminum / Powder coat			
<b>Insulation:</b>	Standard			
<b>Equipment rails:</b>	23" adjustable front to back (23" to 19" adapter plates available as option)			
<b>Equipment space:</b>	20RU			
<b>Cable entrance:</b>	Knockouts located on sides, bottom and rear of enclosure			
<b>Hinge type:</b>	3-position lift-off hinge			
<b>Door prop:</b>	Wind-stop with automatic lock			
<b>Door latch:</b>	3-point latch with L-handle for padlocking			
<b>Installation access:</b>	Full front access as well as rear access with a removable gland plate			
HVAC				
<b>Cooling options:</b>	<ul style="list-style-type: none"> <li>• Thermostat-controlled filtered fan cooling</li> <li>• 2000 BTU air conditioner</li> <li>• 4000 BTU air conditioner</li> <li>• 50W/°C heat exchanger</li> </ul>			
<b>Heating options:</b>	500W heater integrated with air conditioner External 400W fan heater			
Environmental				
<b>Operating temperature:</b>	-40 to 46°C (-40 to 115°F)			
<b>Storage temperature:</b>	-40 to 85°C (-40 to 185°F)			
Compliance				
<b>NEMA rating:</b>	3R			
<b>UPS Products:</b>	UL 1778 and CSA C22.2 107.3			
<b>DC Products:</b>	UL 60950-1 & CSA C22.2 No. 60950-1			
<b>Remote Power Feeding:</b>	UL 60950-21 & CSA C22.2 No. 60950-21			

# 4. Features

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## 4.1 AC and DC Power Options

The following options are available for the SE41-2722 and SE41-2730 enclosure. Contact your representative for system configuration or part numbers.

### Basic Enclosure Options

- SE41-2722; Dimensions: H41" x W27" x D22"
- SE41-2730 Dimensions: H41" x W27" x D30"

### Power System Options

- Cordex® HP 48-1.2kW Front Access Rectifier Shelf
- Line Power System; LPS 36
- AC UPS; FXM 650
- AC UPS; FXM 1100
- AC UPS; FXM 2000

### Cooling and Heating Options

- Heat Exchanger, 50w / deg C, Thermostat Controlled
- 2000 BTU Air Conditioner
- 4000 BTU Air Conditioner
- Fan Cooled, Thermostat Controlled, MERV 6 Filter
- Heater; 400 Watt AC Powered Heater

### AC Input Options

- AC Load Center, 100A 120/240Vac (L-N-L +G) with Main Lug
- AC Load Center, 100A 120/240Vac (L-N-L +G) with 100A 2P Main Circuit Breaker
- Transient Voltage Surge Suppressor: 120/240VAC Split Phase, 40k AIC
- Generator Receptacle: 30A AC Twist Lock, NEMA L14-30, Hubbel HBL2715SW

### Battery Trays / Enclosure Options

- One Battery Tray
- Two Battery Tray
- Battery Base with One Battery Tray

### Accessories

- Pole Mount Kit
- Wall Mount Kit
- Plinth, 4"
- Concrete Barrier
- Battery Heater Mat

# 5. Site Evaluation and Pre-Installation

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## 5.1 Site Selection

Consider the following before selecting a mounting site:

- The Alpha SE41 enclosure is designed for front and rear access. Only front access is required for maintenance.
- Avoid areas that may be subjected to hot air exhaust from nearby equipment or buildings.
- Find out if your intended area is subjected to architectural controls or environmental restrictions.
- Avoid areas that are prone to flooding

The SE41 outdoor power enclosure has the following mounting options:

- Plinth, mounted on an at-grade concrete slab
- Pole mount
- Wall mount
- Pad mount spacer
- Refer to ordering guide for a list of mounting options and accessories.

## 5.2 Tools Required

Various insulated tools are essential for the installation. Use this list as a guide:

- Battery lifting apparatus if required
- Electric drill with hammer action, 1/2" capacity
- Various crimping tools and dies to match lugs used in installation
- Load bank of sufficient capacity to load largest rectifier to its current limit
- Digital voltmeter equipped with test leads
- Cable cutters
- Torque wrench: 1/4" drive, 0 - 150 in-lb.
- Torque wrench: 3/8" drive, 0 - 100 ft-lb.
- Insulating canvases as required (2' x 2', 1' x 1', 3' x 3', etc.)
- Various insulated hand tools including:
  - Combination wrenches - Ratchet and socket set
  - Various screwdrivers
  - Electricians knife
- Battery safety spill kit required for wet cells:
  - Protective clothing
  - Face shields
  - Gloves
  - Baking soda
  - Eye wash equipment
- Cutters and wire strippers (#14 to #22 AWG) [2.5 to 0.34 mm<sup>2</sup>].

# 6. Installation

Only qualified personnel should install and connect the power components within the Alpha power system. For the battery installation, refer primarily to the manufacturer’s manual.

## 6.1 Safety Precautions

Refer to the Safety section near the front of this manual.

## 6.2 Plinth Mount Kit for Concrete Pad

### 6.2.1 Mounting the Plinth to the Concrete Floor

The mounting site must be built in accordance with local building practices and codes to handle the maximum weight of the enclosure, equipment, and batteries.

Concrete pad installation requiring seismic compliance requires approval by the appropriate engineering discipline, e.g., civil or structural. Cast-in-place or pre-cast concrete slabs can be used.

Use the template in Figure 2 to place the anchor bolts. Follow the specific recommendations from the fastener manufacturer to ensure that the securing device achieves its full structural capacity.

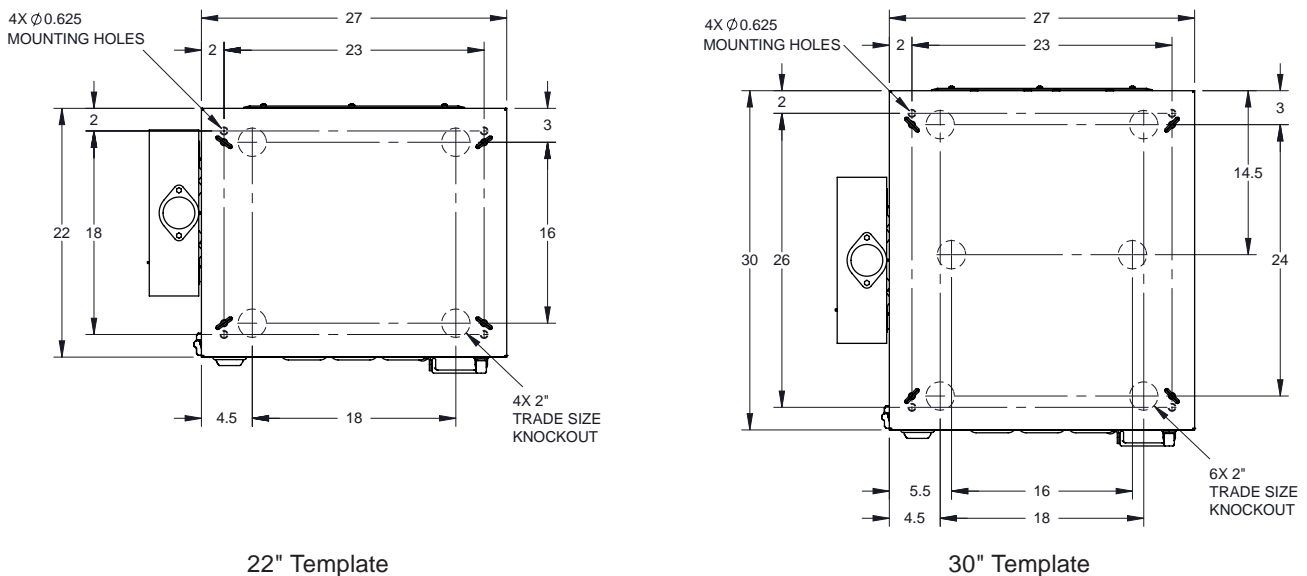


Figure 2 — Plinth Template for Mounting Bolts



### NOTE:

**If using a rubber isolation mat, place the mat onto the pad and orient the mat so the mounting holes line up. If the rubber mat is ribbed the ribs should sit against the concrete.**

1. Place the plinth in position over the anchor holes.
1. Install the anchoring hardware for each anchor FINGER TIGHT.
2. Check that the plinth is level front-to-back and side-to-side.
3. Add shims as needed under one or two of the corners of the plinth, placing the shims as close as possible to the bolts.
4. Once the plinth is level, tighten all bolts to the appropriate torque.

Recommended torque values	
1/4"	8.8 ft-lbs
3/8"	32.5 ft-lbs
1/2"	73 ft-lbs

## 6.2.2 Unpacking the Enclosure



### CAUTION!

**Do not hoist/lift the enclosure with batteries installed.**

1. Remove the protective covering from the system. The doors are designed to be locked with a padlock and are secured with tie-wraps for shipping. Cut the tie-wraps and open the doors.
1. Inspect the packing slip to verify that you have received all the equipment that you ordered.
  - All documentation is packed inside the equipment compartment.
  - Inspect all moving parts, hardware, connectors, and other equipment.
2. Report any damage to the shipper and Alpha Technologies.

## 6.2.3 Mounting the Enclosure to the Plinth

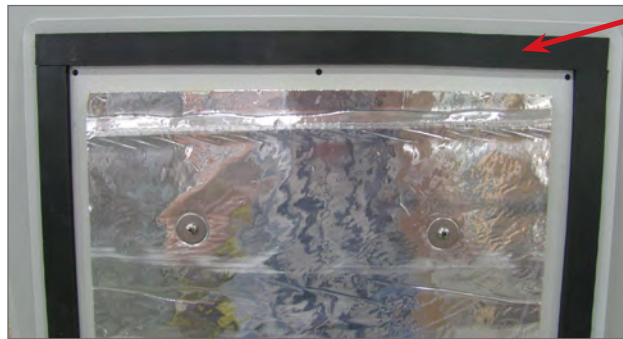
1. Unbolt the enclosure from the shipping pallet.
2. Lift the enclosure onto the plinth.
3. Secure the enclosure to the plinth with the four 1/2" x 1-1/4" bolts included with the plinth.

### NOTE:

Depending on the internal system configuration, you may need to remove the rear panel to gain access to the enclosure base rear mounting holes.

Remove the ten security screws and sealing washers of rear panel using a driver and the supplied T-25 security bit.

When reinstalling the rear panel, ensure the panel edge with the gasket that runs the full width of the panel is located at the top of the rear enclosure opening.



Edge with gasket spanning full width of rear panel

## 6.2.4 Replacing the Lift Eyebolts

### NOTE:

Theft of the eyebolts and solar shield is a common occurrence in some areas. It is recommended to replace them with stainless steel hex bolts.

1. Remove all four lift eyebolts.
2. Replace with the four 3/8-16 x 1" flange bolts provided with the enclosure.
3. Torque the bolts to a maximum of 32.5 ft-lbs.

### 6.3 Wall Mounting the Enclosure

The wall mounting brackets facilitate easy mounting to walls. The SE41 enclosure can be mounted to metal or concrete surfaces. The maximum total weight of the enclosure and equipment must be less than 833lbs.



**NOTE:**

**Ensure the wall construction can support the bracket and the weight.**

1. Align the bottom holes in each bracket to the thread holes in the back of the enclosure (Figure 3).
2. Attach the brackets to the enclosure using the hardware in the mounting kit.

Recommended torque values	
1/4"	8.8 ft-lbs
3/8"	32.5 ft-lbs
1/2"	73 ft-lbs

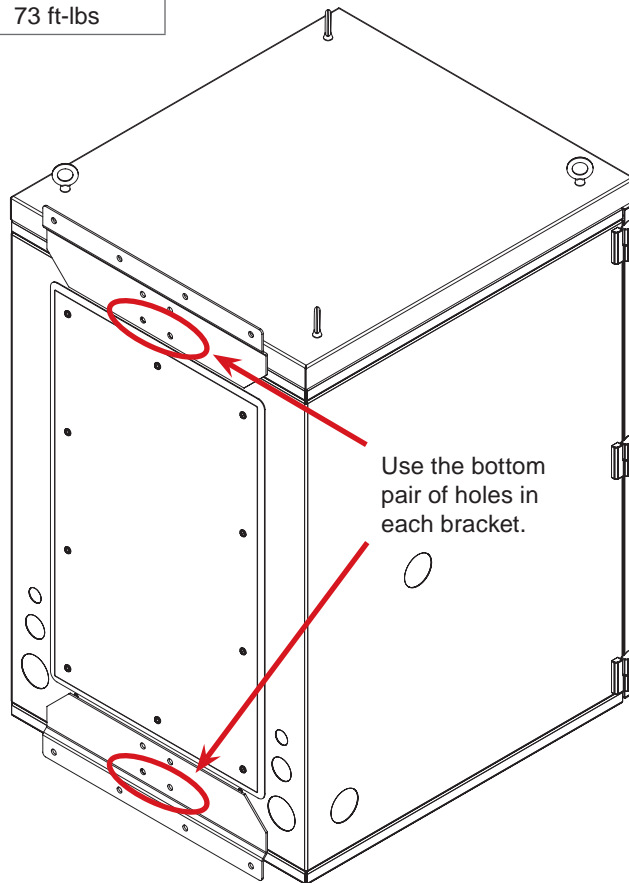


Figure 3 — Preparing Enclosure for Wall Mounting

3. Mount horizontally on a vertical surface using fastening hardware that is appropriate for the chosen surface: four 3/8" screws in each bracket.

## 6.4 Pole Mounting the Enclosure

Pole mount kits are available in bolt or strap versions. Refer to the ordering guide for more information.

### 6.4.1 Attaching the Brackets to the Rail

1. Bolt the pole mount rail to the cabinet brackets as follows:
  - a. Orient the top cabinet bracket as shown in Figure 4.
  - b. Align the holes in the top bracket with the holes in the pole mount rail.
  - c. Bolt the bracket to the rail with the mounting hardware included with the bracket. Torque to 32.5 ft-lbs.
2. Repeat for the bottom bracket reversing the orientation of the bracket.

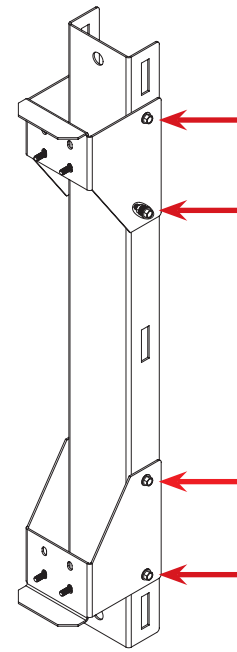


Figure 4 — Bolting the Pole Mount Rail to the Cabinet Brackets

### 6.4.2 Mounting the SE41 to the Pole - Strapping Method

**Note:** the bracket can support up to 1500lbs when strapped to the pole.

1. Mount the bracket/rail combination to the pole.
2. Use a total of six bands, two bands at each of the three slot locations on the bracket. Straps must be stainless or galvanized – see below for specifications.

Recommended strapping for the SE41 pole mount:

- Maximum of two bands at each of the three slots
- Strap size 3/4" x 0.023", 1,500lbs rating each

### 6.4.4 Mounting the SE41 to the Pole - Bolt Through Method

**Note:** the bracket can support up to 1000lbs when bolted to the pole.

1. Mark drilling locations of the upper and lower mounting rail bolt-through holes on the utility pole.
2. Drill two 1" holes completely through the pole at the marked locations.
3. Secure the bracket/rail combination to the pole with 3/4" threaded rod, washers, and nuts (not supplied). All hardware must be stainless.

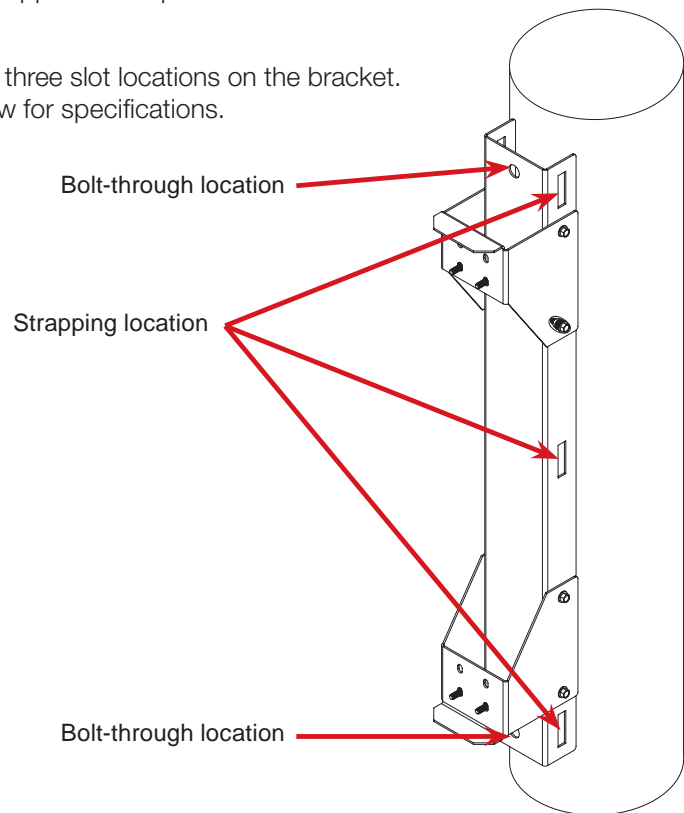


Figure 5 — Mounting the Bracket/Rail to the Pole

### 6.4.3 Mounting the Cabinet to the Pole

1. Use the lift eyes to raise the cabinet to the pole.
2. Attach the upper and lower bracket to the cabinet with the mounting hardware. Torque to 32.5 ft-lbs.

# 7. Wiring

Only qualified personnel should install and connect the power components. For the battery installation, refer primarily to the manufacturer’s manual.

## 7.1 Grounding the Enclosure



### WARNING!

**An enclosure that is not properly grounded presents an electrical hazard.**

A proper grounding system that meets or exceeds the specifications of the equipment must be designed and installed prior to or in conjunction with the construction of the mounting method. The ground system must be bonded to the enclosure to ensure a “common” or “single-point” ground. Refer to local building codes.

1. Locate the enclosure master ground bar at the front of the enclosure.

**NOTE:** Chassis ground is connected to the enclosure frame and is terminated at the master ground bar within the enclosure.

1. Remove a suitable knockout for the external site ground wire connection. The knockouts are located on the sides, bottom and rear of the enclosure.
2. Route the wire into the enclosure using the appropriate conduit and fittings.
3. Connect the site ground wire to an open position of the enclosure MGB. The master ground bar accepts lugs with either 1/4" holes on 5/8" centers or 3/8" holes on 1" centers.



Figure 6 — Enclosure MGB and Chassis Ground



## 7.2 AC Input Wiring to the Load Center

The enclosure AC load center is available with either a main circuit breaker or main lugs. The recommended wire size is #2 AWG TYP.

Wire Color	Connection Terminal
BLACK - Line 1	L1
RED - Line 2	L2
WHITE - Neutral	N
GREEN - Ground	Protective Earth

**NOTE:**  
**Service Rating Main Breaker:** The main breaker is not provided as a service rated disconnect. Please check with local codes to see if the unit may be used if a service rating is required.

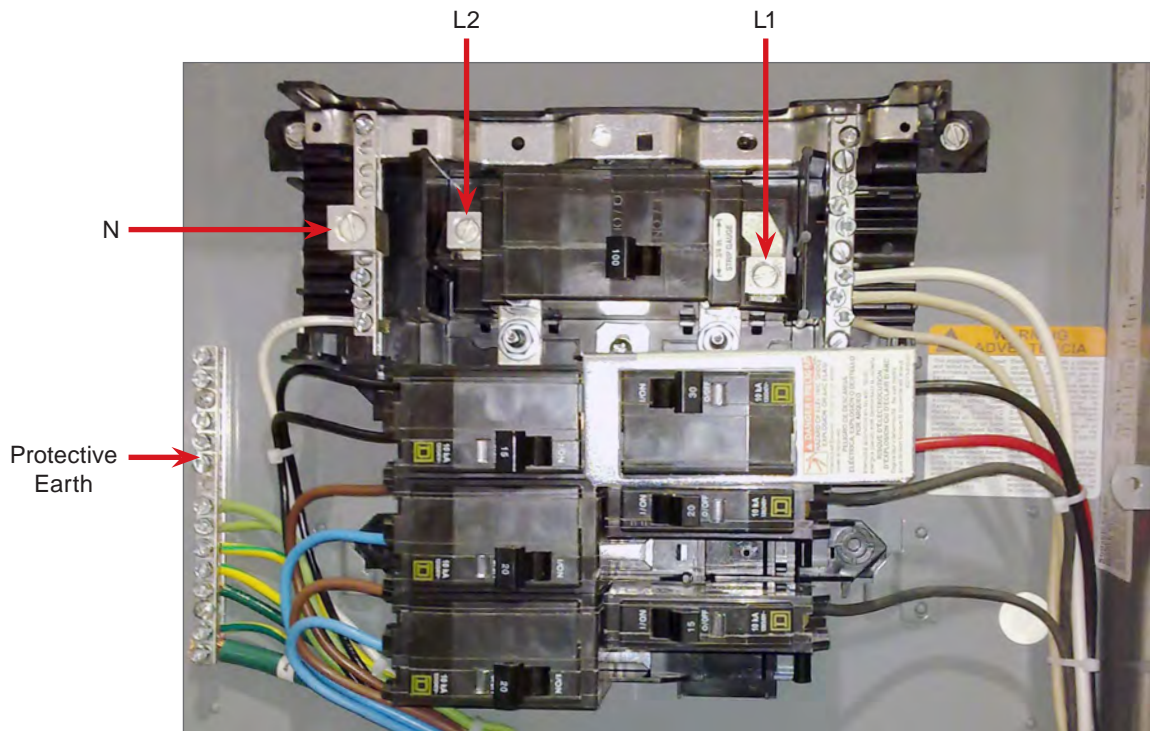


Figure 7 — Main Breaker Load Center Wiring

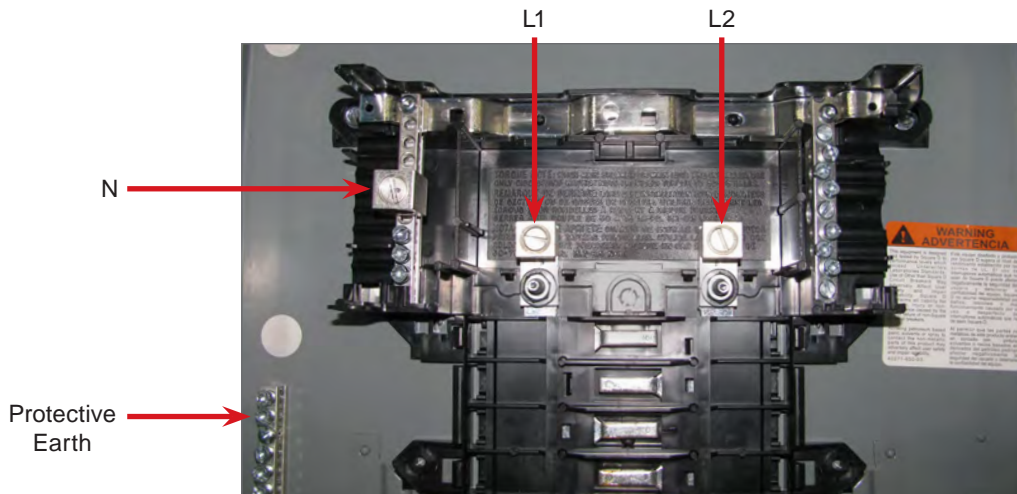


Figure 8 — Main Lug Load Center Wiring



## 7.2.1 Generator Connection (Option)

### CAUTION!

**When using the generator inlet receptacle, the system loading must be limited to not exceed the generator supply 30A rated circuit breaker.**

If equipped, the generator inlet receptacle is located below the AC load center and is wired to the generator circuit breaker at the factory.

To connect a generator:

1. Connect the generator cable harness to the generator inlet receptacle.
2. Start the generator and allow to stabilize. Refer to the generator manufacturer's instructions.
3. Turn the main breaker on the AC load center to the **OFF** position.
4. Slide the interlock bracket to release the generator circuit breaker.
5. Turn the generator AC circuit breaker to the **ON** position.

## 7.2.2 Power Enclosure Alarm Wiring Block

The alarm wiring block, located on the left side wall in the enclosure, uses Phoenix style blocks. Connect to the local alarm-sending unit using wire gauges from #28 to #16 AWG (0.08 to 1.31 mm<sup>2</sup>). Wires do not need to be stripped when the connections are made.

Refer to drawing 0290002-000-05 at the rear of this manual for the alarm schedule that corresponds to the enclosure HVAC and power systems installed.

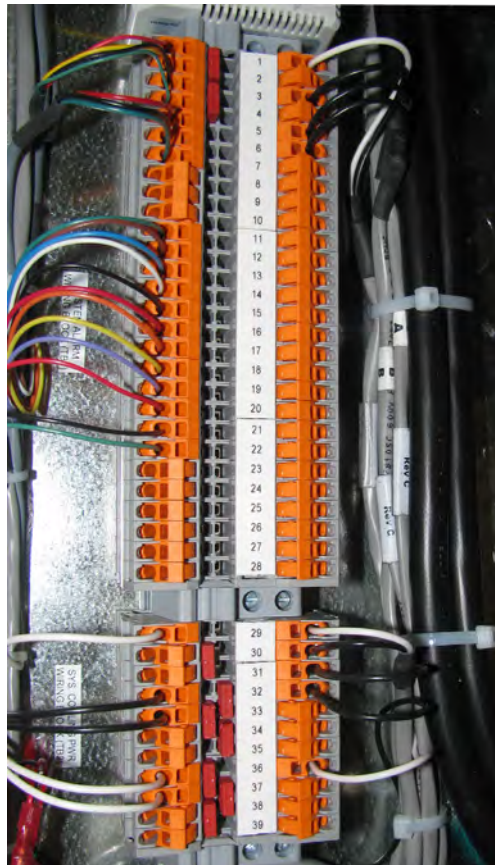


Figure 9 — Enclosure Alarm Block Wiring

# 8. Maintenance

Routine checks and adjustments are recommended to ensure optimum system performance. Qualified service personnel should conduct.

The following table lists a few maintenance procedures for this system. These procedures should be performed at least once a year.



## WARNING!

**Use extreme care when working inside the unit while the system is energized. Do not make contact with live components or parts.**

**Circuit cards, including RAM chips, can be damaged by static electricity. Always wear a grounded wrist strap when handling or installing circuit cards.**

**Ensure redundant modules or batteries are used to eliminate the threat of service interruptions while performing maintenance on the system’s alarms and control settings.**

**Table B — Sample maintenance log**

Procedure	Date Completed
Clean ventilation openings and rinse out the enclosure filters.	
Inspect all system connections. Re-torque if necessary.	
Verify alarm/control settings.	
Verify alarm relay operation.	
Verify HVAC operation	
Check for firmware/software updates for the controller and power modules	

**Table C — Replacement Parts**

Parts	Part Number	Description
Cooling system fan	7400144-001	Fan Assembly, w/Tach & Conn, Te45v2
Cooling system fan thermostat	171-002-10	Thermostat, Small, Bi-Metal, 0 to 60.C, NO
Cooling system GMT fuse (1.2kW system option)	460-084-10	Fu, Alm Ind (Sprng),5A 125Vac 60VDC
Cooling fan door filter	6480111-001	Filter, Door, Fan Cooled, SE41-2722/2730
AC surge protection device	162-023-10	Surge Suppressor,120/240VAC, 3W, Spt Ph, 50/60Hz
AC surge protection device circuit breaker	470-294-10	Circuit Breaker, 2 Pole, 15A 120Vac, Plug-on
Battery temperature compensation probe	747-028-20-071	Temperature Sensor, 1/4" Lug, 6ft Cable Assembly
SE41-2722 battery heater mat	189-304-10	Battery Heater Mat,120Vac 160W,Te25/xh
SE41-2730 battery heater mat	1890056-001	Battery Heater Mat, Silicone, 120Vac, 180W, 20.5x21
Field replacement door	0380588-xxx (refer to ordering guide for options)	Assembly, Door, SE41-2722/2730
Air conditioner	171-020-19	2000BTU Air conditioner
Air conditioner	171-024-19	4000BTU Air conditioner

## 8.1 Heat Exchanger Fan Test Procedure

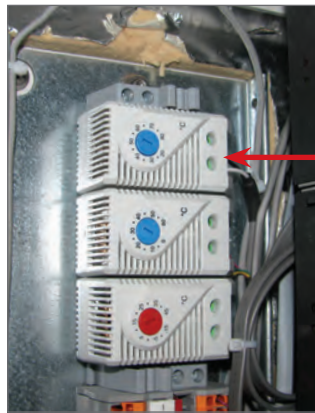
There are six heat exchanger fans. Three inner loop fans are located on the inside of the door and three outer loop fans on the outside of the door. Perform the following procedure to test the fans.

1. Pull out the plunger of the heat exchanger power door switch.



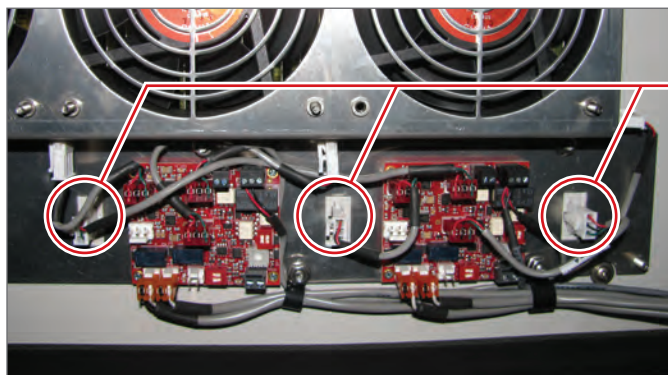
Heat exchanger door switch

2. If the fans do not turn on, carefully apply heat to the heat exchanger thermostat using a heat gun. The fans should turn on above 30°C (86°F). If the fans still do not turn on, check the status of the cooling system breaker or fuse.



Heat exchanger thermostat

3. Operation of the inner loop fans can be verified through visual inspection.
4. Unplug one of the outer loop fan connectors and listen for a noticeable drop in the sound level of the outside fans. Plug the fan connector back in.
5. Repeat Step 4 for the two other outer loop fans.



Outer loop fan connectors

## 8.2 Heat Exchanger Fan Replacement Procedure



### NOTE:

This procedure can be performed on a live system.

A Fan Fail alarm indicates failure of either an inner loop or outer loop fan. Perform the following procedures to replace a failed fan.

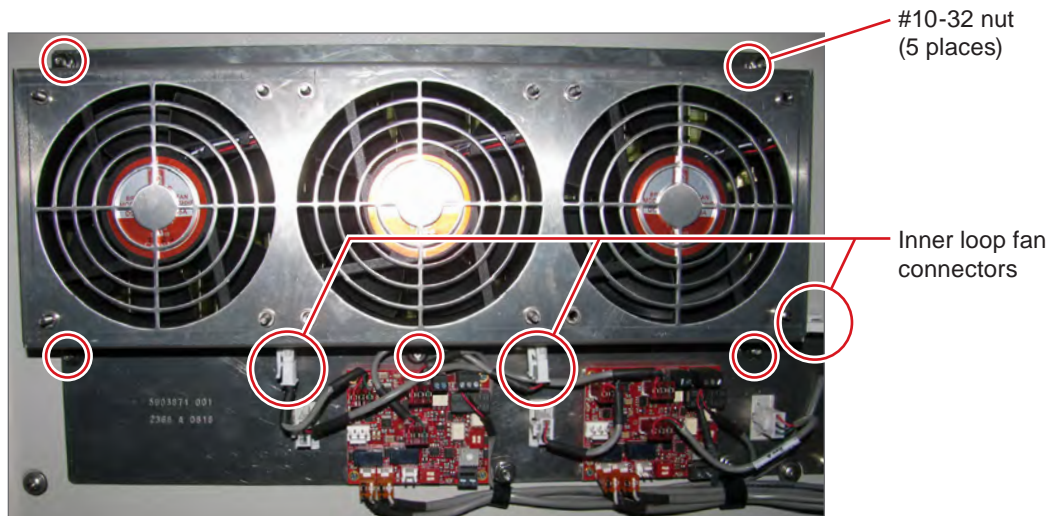
Tools required: #2 Phillips screwdriver

3/8" nut driver

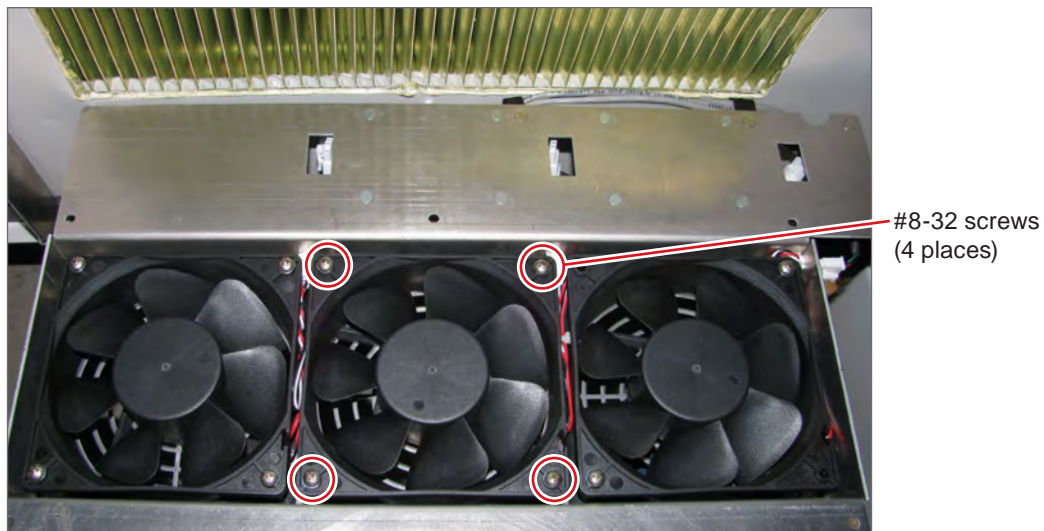
11/32" nut driver

### 8.2.1 Removing Inner Loop Fan

1. Perform the fan test procedure in section 8.1 to identify which interior fan has failed.
2. Push the plunger of the heat exchanger power door switch back to its normal resting position so all fans stop.
3. Unplug the three inner loop fan connectors.
4. Remove the five #10-32 nuts securing the inner loop fan mounting bracket to the door.



5. Carefully pull the mounting bracket off the door studs and flip the assembly down to expose the fans and fan mounting screws.
6. Remove the failed fan by removing the four #8-32 fan retaining screws securing the fan to the mounting bracket.



## 8.2.2 Removing Outer Loop Fan

1. Remove the four #10-32 Phillips head screws and rubber washers securing the outer heat exchanger shroud to the door.



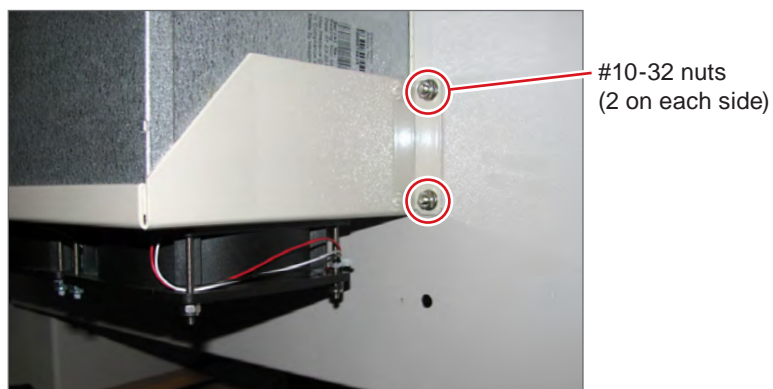
2. Remove the outer shroud to expose the heat exchanger core and outer loop fan mounting assembly below the core.
3. Perform the fan test procedure in section 8.1 to identify which exterior fan has failed and set aside.



### NOTE:

**Use extreme care when inspecting the rotating fans as there are no fan guards.**

4. Remove the four #10-32 nuts securing the fan mounting assembly.



5. Pull the assembly off the door studs to expose the fans and fan mounting hardware.



6. Unplug the failed fan connector on the inside of the door.
7. Remove the failed fan from the mounting bracket by removing the four #8-32 fan retaining screws and nuts.

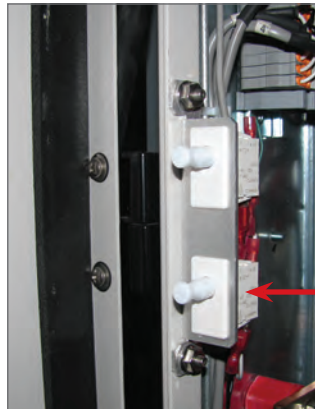
### 8.2.3 Replacing an Inner or Outer Loop Fan

1. Locate the airflow direction indicator on the side of the frame of the replacement fan.
2. Orient the arrow as follows:  
**Interior fan** – Arrow points out toward the inside of the enclosure  
**Exterior fan** – Arrow points up towards the inside of the heat exchanger core
3. Secure the replacement fan to the assembly using the existing hardware. Use one of the other installed fans as a guide for hardware installation.
4. Tighten hardware only to the point that it is snug and the fan bezel does not bend.
5. Perform the fan removal steps above in reverse order to re-assemble the heat exchanger.
6. Reconnect the fans and perform the fan test procedure in section 8.1 to verify all fans are rotating and that the fan fail alarm is not active.

## 8.3 Cooling Fan Test Procedure

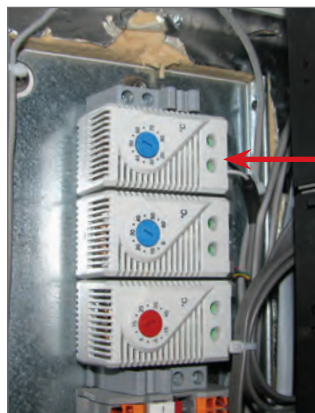
Your system may have two or three cooling fans. Perform the following procedure to test the fans.

1. Pull out the plunger of the cooling fan power door switch.



Cooling fan door switch

2. If the fans do not turn on, carefully apply heat to the heat exchanger thermostat using a heat gun. The fans should turn on above 30°C (86°F). If the fans still do not turn on, check the status of the cooling system breaker or fuse.



Cooling fan thermostat  
(Hi/Low temp thermostat not  
installed on FXM systems)

3. Operation of the fans can be verified through visual inspection.

## 8.4 Cooling Fan Replacement Procedure



### NOTE:

**This procedure can be performed on a live system.**

A Fan Fail alarm indicates failure of a cooling fan. The presence of the alarm can be identified by checking to see if there is a red LED illuminated on the fan fail board mounted to the door, and checking the state of the alarm contacts at the alarm wiring block. Perform the following procedures to replace a failed fan.

Tools required: #2 Phillips screwdriver

3/8" nut driver

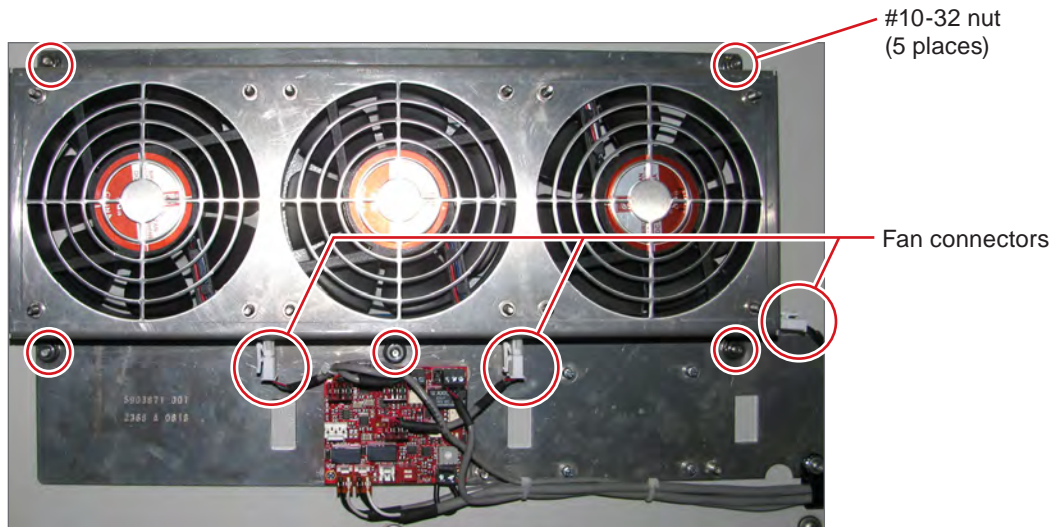
11/32" nut driver

### 8.4.1 Removing the Fan

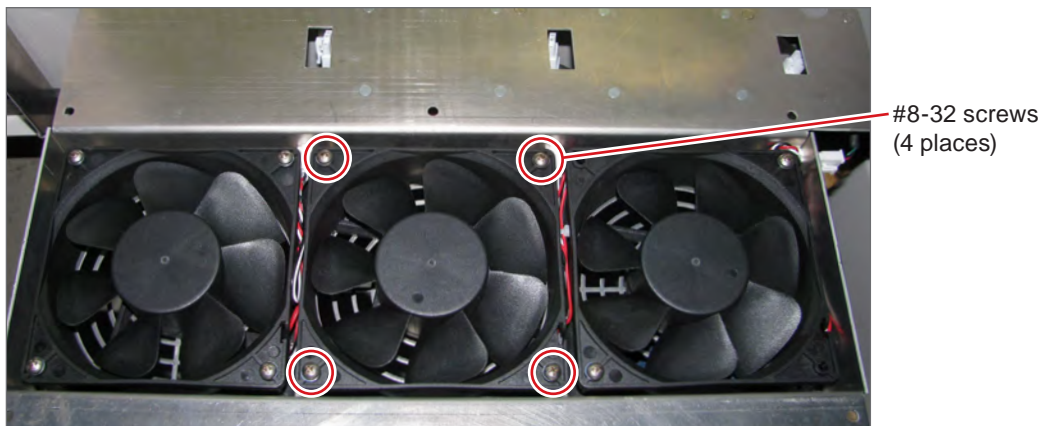
4. Perform the fan test procedure in section 8.3 to identify which interior fan has failed.
5. Push the plunger of the heat exchanger power door switch back to its normal resting position so all fans stop.
6. Unplug the three fan connectors from the fan mounting bracket.



7. Remove the five #10-32 nuts securing the inner loop fan mounting bracket to the door.



8. Carefully pull the mounting bracket off the door studs and flip the assembly down to expose the fans and fan mounting screws.
9. Remove the failed fan by removing the four #8-32 fan retaining screws securing the fan to the mounting bracket.



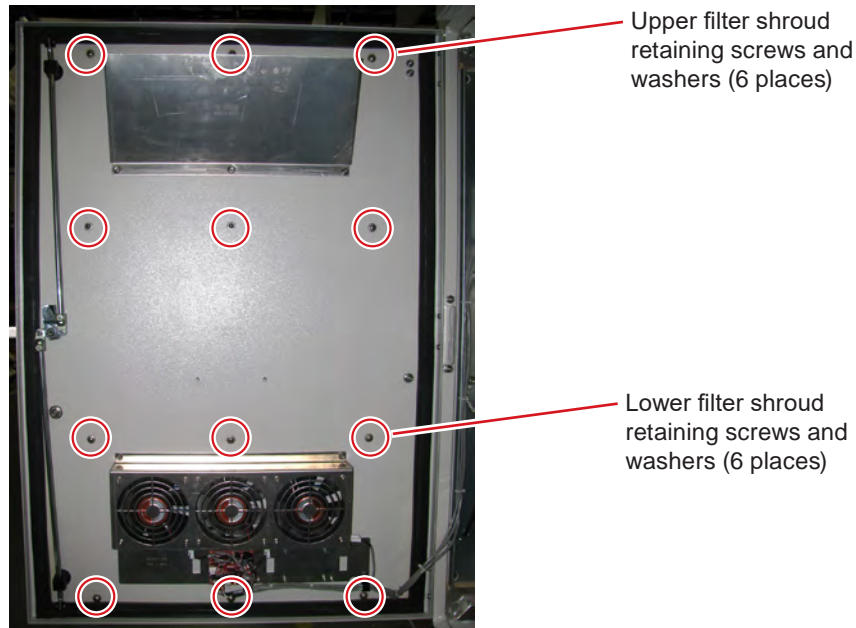
### 8.4.2 Replacing the Fan

1. Locate the airflow direction indicator on the side of the frame of the replacement fan.
2. Orient the fan so that the arrow points towards the inside of enclosure when the fan assembly is re-installed to the door.
3. Secure the replacement fan to the assembly using the existing hardware. Use one of the other installed fans as a guide for hardware installation.
4. Tighten hardware only to the point that it is snug and the fan bezel does not bend.
5. Perform the fan removal steps above in reverse order to re-install the fan assembly to the door.
6. Reconnect the fans and perform the fan test procedure in section 8.3 to verify all fans are rotating and that the fan fail alarm is not active.

### 8.4.3 Fan Air Filter Maintenance

There are two filters on the door that require periodic maintenance. The filters are washable and should not need to be replaced.

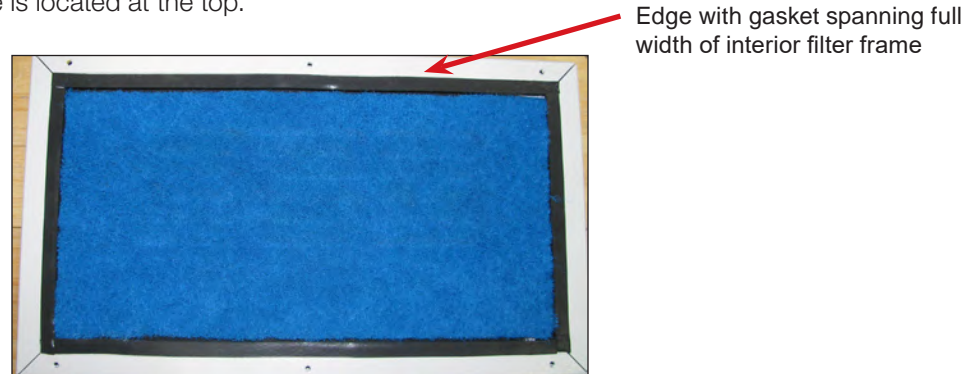
1. Remove the six interior retaining screws and sealing washers holding the exterior filter shroud to the enclosure door.



2. Remove the shroud then remove the filter.



3. Wash the filter thoroughly with water and drain off the excess.
4. Replace the filter in the shroud and re-install on the door using the fasteners from Step 1.
5. When reinstalling the shroud to the door, ensure that the edge of the shroud with the gasket that runs the full width of the inner filter frame is located at the top.



# 9. Warranty Statement and Service Information

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## 9.1 Technical Support

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

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

## 9.2 Warranty Statement

For full information details review Alpha's online Warranty Statement at [www.alpha.ca/support](http://www.alpha.ca/support).

## 9.3 Product Warranty

Alpha® warrants that for a period of two (2) years from the date of shipment its products shall be free from defects under normal authorized use consistent with the product specifications and Alpha's instructions, the terms of the manual will take precedence.

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.

## 9.4 Battery Warranty

Note that battery warranty terms and conditions vary by battery and by intended use. Contact your Alpha sales representative or the Technical Support team at the above number to understand your entitlements under Battery Warranty.

## 9.5 Warranty Claims

Any claim under this Limited Warranty must be made in writing to Alpha BEFORE sending material back. Alpha will provide Product return instructions upon approval of return request. A Service Repair Order (SRO) and / or Return Authorization (RA) number will be issued ensuring that your service needs are handled promptly and efficiently.

Claims must be made online at: [www.alpha.ca](http://www.alpha.ca).

## 9.6 Service Information

For a list of international service centers, refer to the Alpha website: [www.alpha.ca](http://www.alpha.ca)

## 10. Acronyms and Definitions

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AC	Alternating current
ANSI	American National Standards Institute
AWG	American Wire Gauge
BTU	British thermal unit
CAN	Controller area network
CEC	Canadian Electrical Code
CSA	Canadian Standards Association
CX	Cordex® series; e.g., CXC for Cordex System Controller
DC	Direct current
DHCP	Dynamic Host Configuration Protocol
EIA	Electronic Industries Alliance
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
ERM	Electromagnetic Compatibility and Radio Spectrum Matters
ESD	Electrostatic Discharge
FCC	Federal Communications Commission (for the USA)
GSM	Group Speciale Mobile (global system for mobile communications)
HVSD	High voltage shutdown
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
LED	Light emitting diode
LVD	Low voltage disconnect
MIL	One thousandth of an inch; used in expressing wire cross sectional area
MOV	Metal oxide varistor
MTBF	Mean time between failures
NC	Normally closed
NEC	National Electrical Code (for the USA)
NEMA	National Electrical Manufacturers Association
NO	Normally open
OSHA	Occupational Safety & Health Administration
OVP	Over voltage protection
RAM	Random access memory
RU	Rack unit (1.75")
TCP/IP	Transmission Control Protocol / Internet Protocol
THD	Total harmonic distortion
UL	Underwriters Laboratories
VRLA	Valve regulated lead acid

# 11. Certification

## About CSA and UL

CSA (Canadian Standards Association also known as CSA Group) was established in 1919 as an independent testing laboratory in Canada. CSA received its recognition as an NRTL (Nationally Recognized Testing Laboratory) in 1992 from OSHA (Occupational Safety and Health Administration) in the United States of America (Docket No. NRTL-2-92).

When these marks appear with the indicator “C and US” it means that the product is certified for both the US and Canadian markets, to the applicable US and Canadian standards. (1)

As part of the reciprocal, US/Canada agreement regarding testing laboratories, the Standards Council of Canada (Canada’s national accreditation body) granted Underwriters Laboratories (UL) authority to certify products for sale in Canada. (2)

Only Underwriters Laboratories may grant a licence for the use of this mark, which indicates compliance with both Canadian and US requirements. (3)



## NRTLs Capabilities

NRTLs are third party organizations recognized by OSHA, US Department of Labor, under the NRTL program.

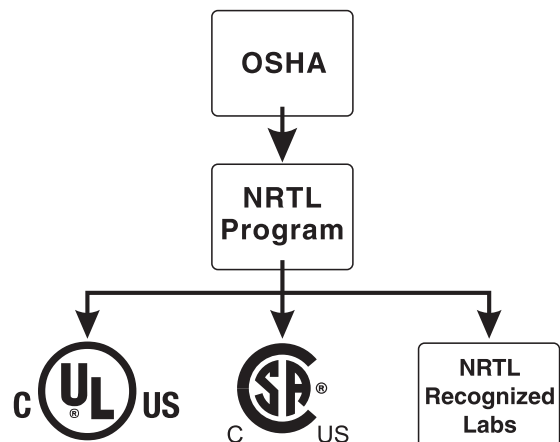
The testing and certifications are based on product safety standards developed by US based standards developing organizations and are often issued by the American National Standards Institute (ANSI). (4)

The NRTL determines that a product meets the requirements of an appropriate consensus-based product safety standard either by successfully testing the product itself, or by verifying that a contract laboratory has done so, and the NRTL certifies that the product meets the requirements of the product safety standard. (4)

## Governance of NRTL

The NRTL Program is both national and international in scope with foreign labs permitted.

- (1) [www.csagroup.org](http://www.csagroup.org)
- (2) [www.scc.ca](http://www.scc.ca)
- (3) [www.ulc.ca](http://www.ulc.ca)
- (4) [www.osha.gov](http://www.osha.gov)

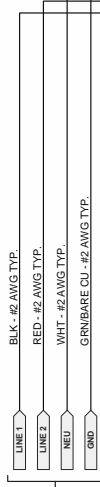


**LIST OPTIONS 801 & 721 - CORDEX 48-1.2kW RECTIFIER SHELF w/ MAIN BREAKER LOADCENTRE AC POWER DISTRIBUTION WIRING:**

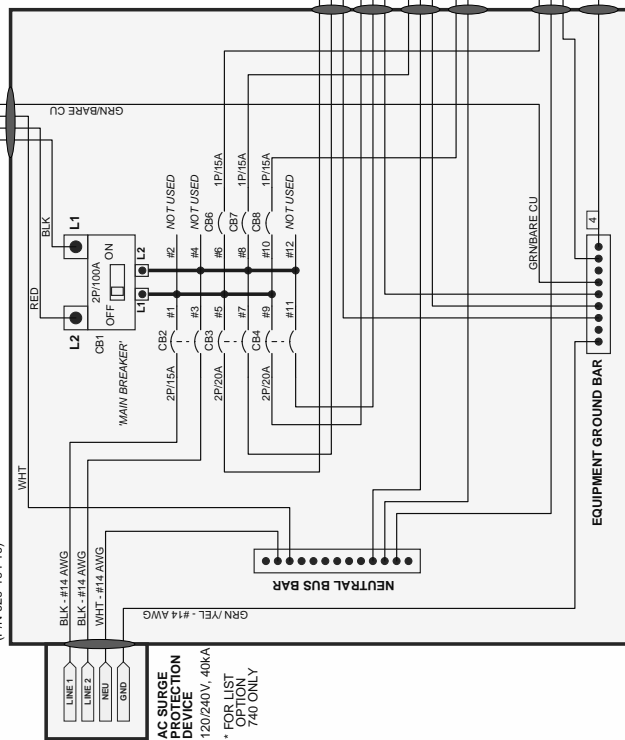
REV	DESCRIPTION	DATE	CHK

**AC POWER INPUT CONNECTION**

120/240V, 100 AMP, SINGLE PHASE, 60 HZ, 3 WIRE + GND (CUSTOMER CONNECTION)

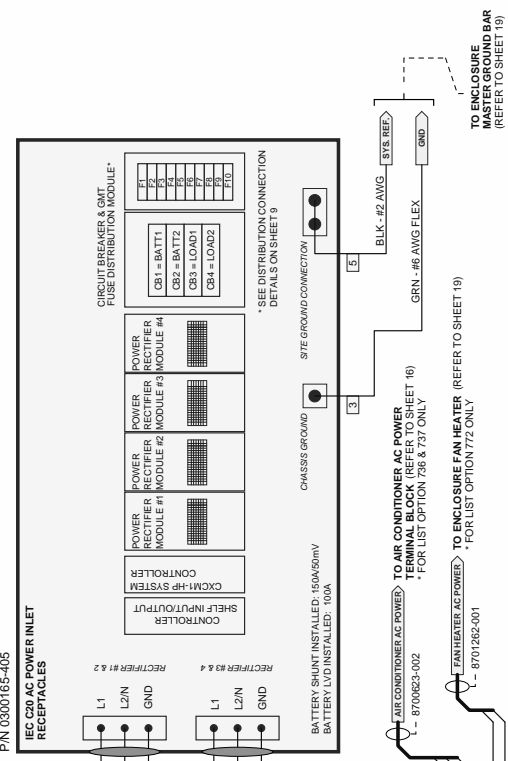


**AC LOADCENTRE, MAIN BREAKER, 12 POS., 120/240V, 100 AMP, SINGLE PHASE (PIN 020-404-10)**



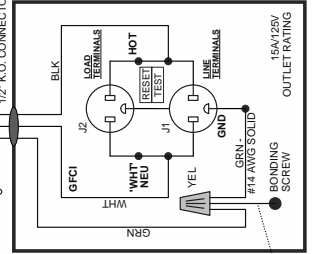
TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

**CORDEX 48V-1.2kW INTEGRATED 19" RECTIFIER SHELF SYSTEM w/ CXCM1 SYSTEM CONTROLLER, CIRCUIT BREAKER & GBT FUSE DISTRIBUTION**



TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

8560011



GRN - #14 AWG SOLID BONDING WIRE ASSEMBLY (PIN 875-027-61)

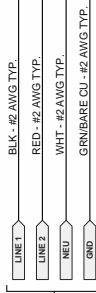
UTILITY BOX

		TITLE: SE41-2722 / 2730 POWER W/ CXCM1 SYSTEM W/ GBT FUSE DISTRIBUTION SCHEMATIC
DRAWN: JK	DATE: 2/19/07	SCALE: NTS
CHECKED: JL	DATE: 2/19/07	SHEET: 1 of 25
PWDG: NTS	SIZE: B	REV: A
© ALPHA TECHNOLOGIES LTD	0290002-000-005	REV: A

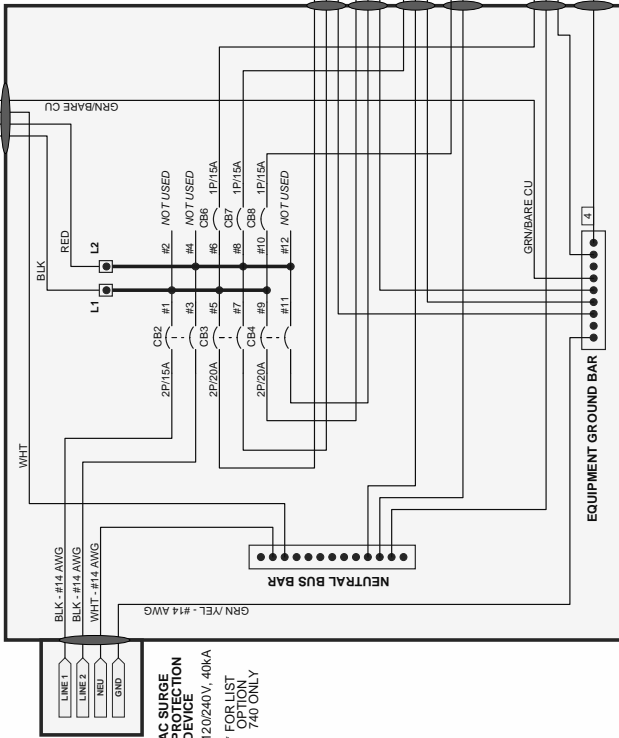
**LIST OPTIONS 801 & 720 - CORDEX 48-1.2kW RECTIFIER SHELF w/ MAIN LUGS LOADCENTRE AC POWER DISTRIBUTION WIRING:**

**AC POWER INPUT CONNECTION**

120/240V, 100 AMP, SINGLE PHASE, 60 HZ, 3 WIRE + GND (CUSTOMER CONNECTION)

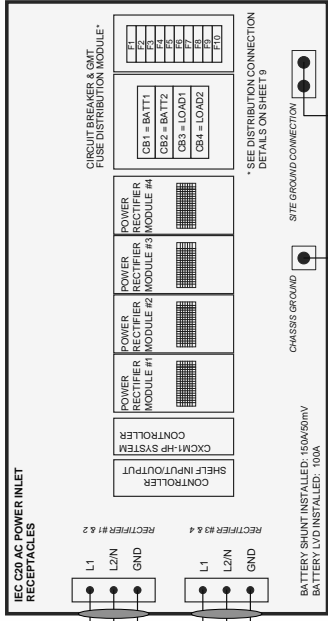


**AC LOADCENTRE, MAIN LUGS, 12 POS, 120/240V, 100 AMP, SINGLE PHASE (PIN 020-404-10)**



**AC SURGE PROTECTION DEVICE**  
120/240V, 40KA  
\* FOR LIST OPTION 740 ONLY

**CORDEX 48V-1.2kW INTEGRATED 19" RECTIFIER SHELF SYSTEM w/ CXCM1 SYSTEM CONTROLLER, CIRCUIT BREAKER & GBT FUSE DISTRIBUTION**



\* USE SUPPLIED 12/3 S.T POWER CORDSETS



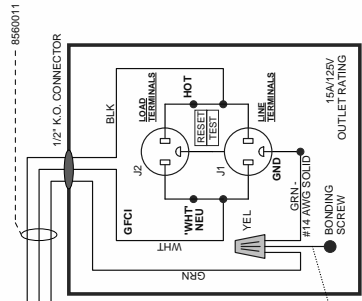
TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

TO ENCLOSURE FAN HEATER (REFER TO SHEET 19)

TO ENCLOSURE FAN HEATER AC POWER TERMINAL BLOCK (REFER TO SHEET 16)

TO ENCLOSURE FAN HEATER AC POWER (FOR LIST OPTION 798 & 797 ONLY)

TO ENCLOSURE FAN HEATER AC POWER (FOR LIST OPTION 772 ONLY)



**GFCI CONVENIENCE RECEPTACLE**

TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

GRN - #14 AWG SOLID BONDING WIRE ASSEMBLY (PIN 875-027-61)

15A/125V OUTLET RATING

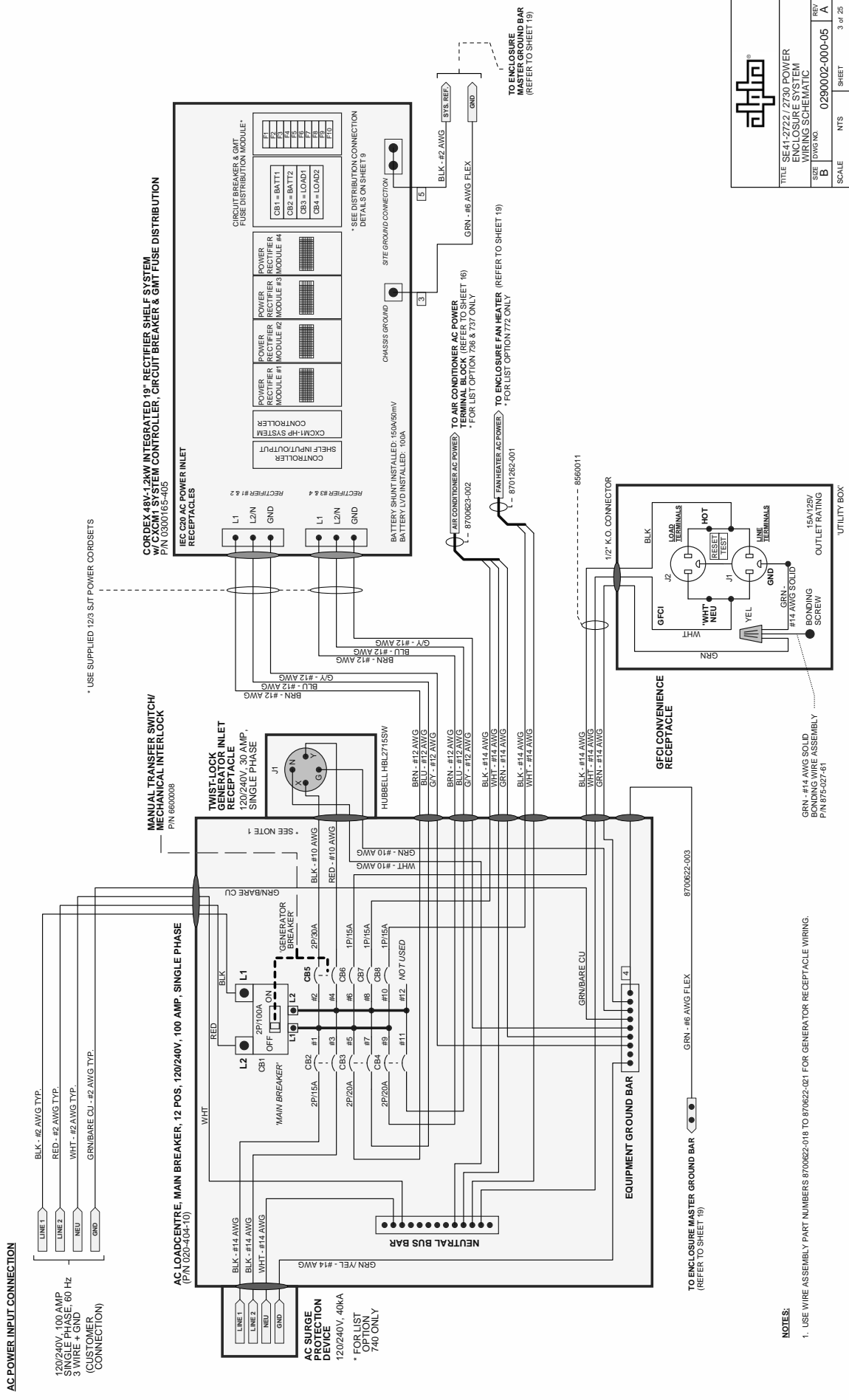
UTILITY BOX



TITLE SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC

SCALE	NTS	SHEET	2 of 25
SIZE	B	DWG NO.	0290002-000-05
REV	A		

**LIST OPTIONS 801 & 721 + 751 - CORDEX 48-1.2kW RECTIFIER SHELF w/ MAIN BREAKER LOADCENTRE AND GENERATOR RECEPTACLE/  
MANUAL TRANSFER SWITCH AC POWER DISTRIBUTION WIRING:**



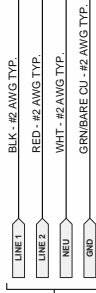
		TITLE	SE41-2722 / 2760 POWER ENCLOSURE SYSTEM
		SIZE	WIRING SCHEMATIC
SCALE	NTS	SHEET	3 of 25
PART NO.		0290002-000-05	



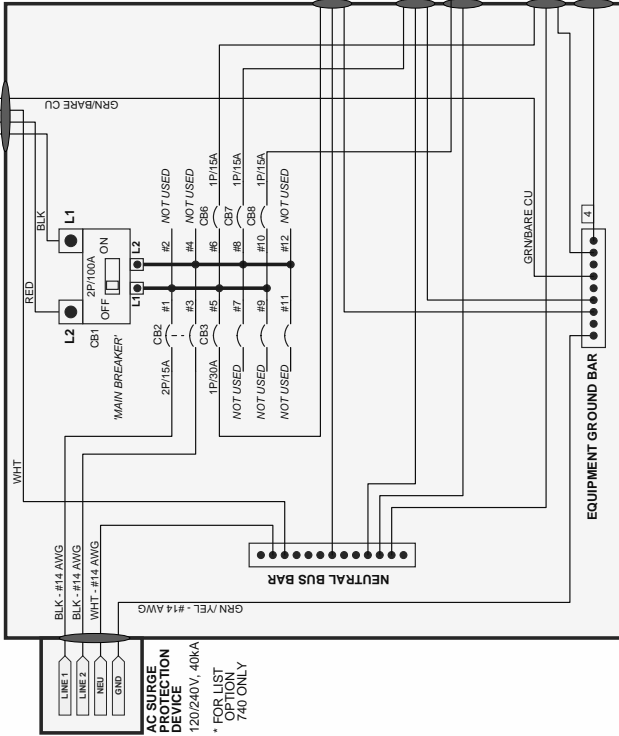
**LIST OPTIONS 703/704/705 & 721 - FXM 650/1100/2000 UPS MODULE w/ MAIN BREAKER LOADCENTRE AC POWER DISTRIBUTION WIRING:**

**AC POWER INPUT CONNECTION**

120/240V, 100 AMP, SINGLE PHASE, 60 HZ, 3 WIRE + GND (CUSTOMER CONNECTION)



**AC LOADCENTRE, MAIN BREAKER, 12 POS., 120/240V, 100 AMP, SINGLE PHASE**  
(PIN 020-404-10)



**AC SURGE PROTECTION DEVICE**  
120/240V, 40kA  
\* FOR LIST OPTION 740 ONLY

TO FXM 650/1100/2000 UPS MODULE AC POWER INPUT  
(REFER TO SHEET 10 OR 11)



BLK - #10 AWG

WHT - #10 AWG

GRN - #10 AWG

BLK - #14 AWG

WHT - #14 AWG

GRN - #14 AWG

WHT - #14 AWG

TO AIR CONDITIONER AC POWER TERMINAL BLOCK (REFER TO SHEET 16)  
\* FOR LIST OPTIONS 736 & 737 ONLY



TO ENCLOSURE FAN HEATER (REFER TO SHEET 19)  
\* FOR LIST OPTION 772 ONLY



BLK - #14 AWG

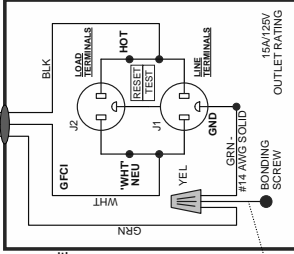
WHT - #14 AWG

GRN - #14 AWG



8560011

**GFCI CONVENIENCE RECEPTACLE**



GRN - #14 AWG SOLID BONDING WIRE ASSEMBLY (PIN 875-027-61)

TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)



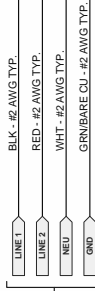
TITLE SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC

SCALE	NTS	SHEET	4 of 25
SIZE	B	DWG NO.	0290002-000-05
REV	A		

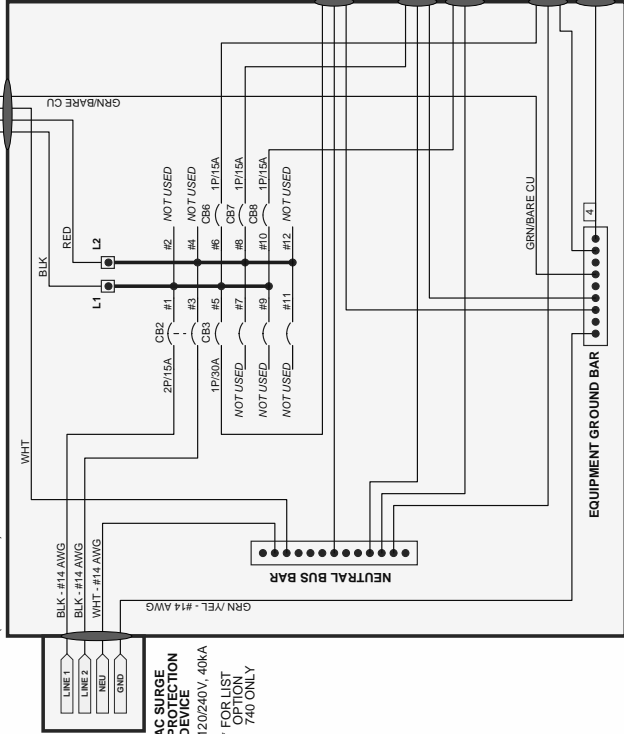
**LIST OPTIONS 703/704/705 & 720 - FXM 650/1100/2000 UPS MODULE w/ MAIN LUGS LOADCENTRE AC POWER DISTRIBUTION WIRING:**

**AC POWER INPUT CONNECTION**

120/240V, 100 AMP, SINGLE PHASE, 60 Hz, 3 WIRE + GND (CUSTOMER CONNECTION)



**AC LOADCENTRE, MAIN LUGS, 12 POS, 120/240V, 100 AMP, SINGLE PHASE**  
(PIN 020-404-10)



**AC SURGE PROTECTION DEVICE**  
120/240V, 40kA  
\* FOR LIST OPTION 740 ONLY

TO FXM 650/1100/2000 UPS MODULE AC POWER INPUT  
(REFER TO SHEET 10 OR 11)



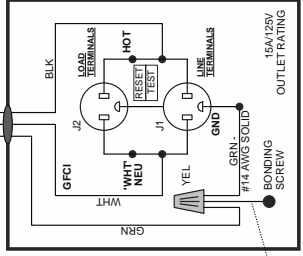
TO AIR CONDITIONER AC POWER TERMINAL BLOCK (REFER TO SHEET 16)  
\* FOR LIST OPTIONS 736 & 737 ONLY



TO ENCLOSURE FAN HEATER (REFER TO SHEET 19)  
\* FOR LIST OPTION 772 ONLY



**GFCI CONVENIENCE RECEPTACLE**

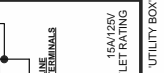


GRN - #14 AWG SOLID BONDING WIRE ASSEMBLY (PIN 875-027-61)

TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)



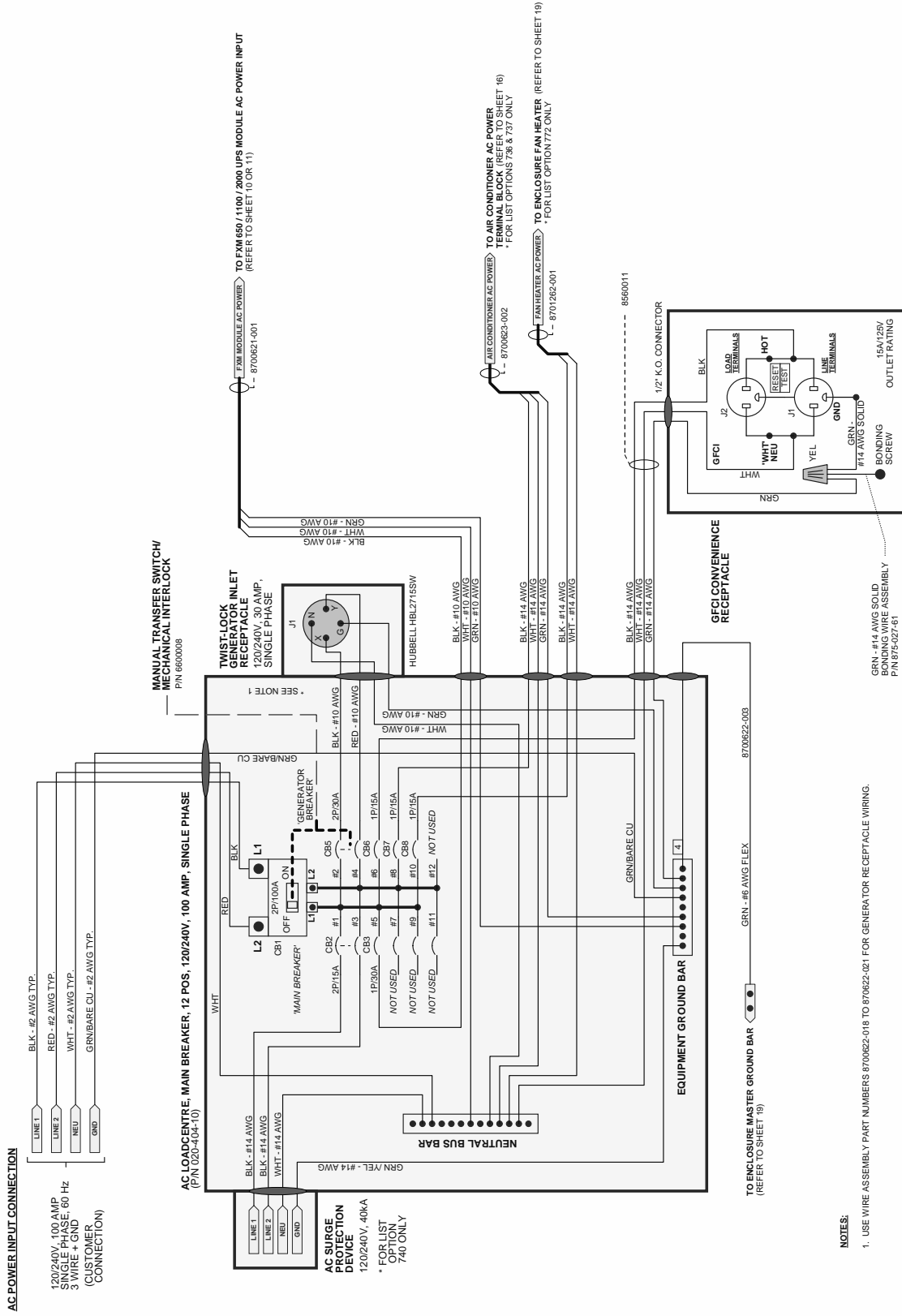
12V K.O. CONNECTOR



UTILITY BOX

TITLE SE41-2722/2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC	
SCALE	NTS
SIZE	B
DWG. NO.	0290002-000-05
REV	A
SHEET	6 of 25

**LIST OPTIONS 703/704/705 & 721 + 751 - FXM 650/1100/2000 UPS MODULE w/ MAIN BREAKER LOADCENTRE AND GENERATOR RECEPTACLE/  
MANUAL TRANSFER SWITCH AC POWER DISTRIBUTION WIRING:**



**NOTES:**

1. USE WIRE ASSEMBLY PART NUMBERS 870822-018 TO 870822-021 FOR GENERATOR RECEPTACLE WIRING.

TITLE SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC	
SIZE B	DWG NO. 0290002-000-05
SCALE	NTS
SHEET	6 of 25

**LIST OPTIONS 721 & 807 - CXPS-E3 2.4kW POWER SYSTEM w/ MAIN BREAKER LOADCENTRE AC POWER DISTRIBUTION WIRING:**

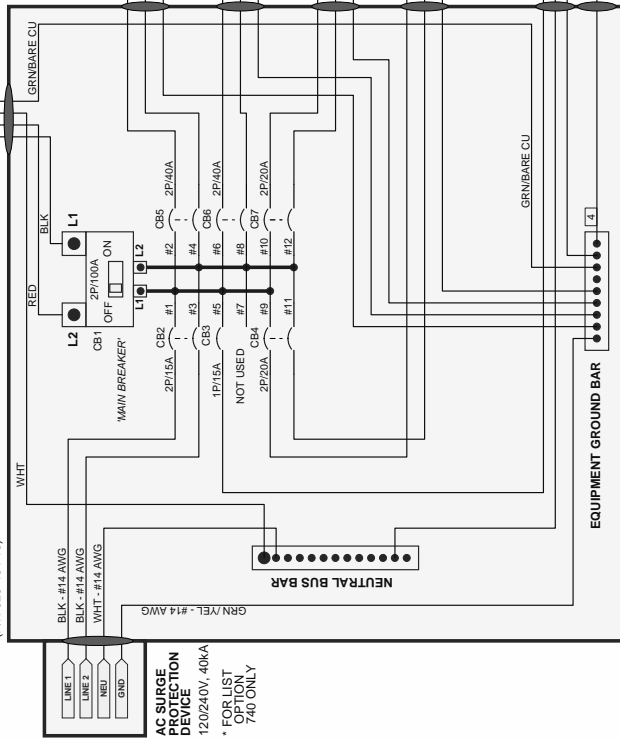
**AC POWER INPUT CONNECTION**

120/240V, 100 AMP  
SINGLE PHASE, 60 Hz  
3 WIRE + GND  
(CUSTOMER  
CONNECTION)

LINE 1  
LINE 2  
NEU  
GND

BLK - #2 AWG TYP.  
RED - #2 AWG TYP.  
WHT - #2 AWG TYP.  
GRNBARE CU - #2 AWG TYP.

AC LOADCENTRE, MAIN BREAKER, 12 POS, 120/240V, 100 AMP, SINGLE PHASE  
(P/N 020-404-10)



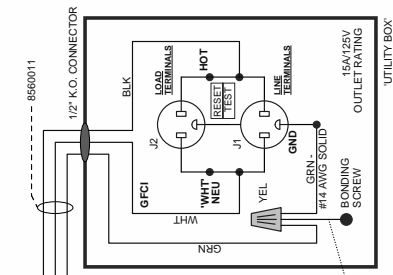
AC SURGE PROTECTION DEVICE  
120/240V, 40KA  
\* FOR LIST ONLY  
740 ONLY

TO RECTIFIER SHELF #1 BACKPLANE  
AC INPUT TB MODULE #1,2  
(REFER TO SHEET 20)

TO RECTIFIER SHELF #1 BACKPLANE  
AC INPUT TB MODULE #3,4  
(REFER TO SHEET 20)

TO RECTIFIER SHELF #1 BACKPLANE  
AC INPUT TB MODULE #5  
(REFER TO SHEET 20)

TO RECTIFIER SHELF #5 BACKPLANE  
AC INPUT TB MODULE #10  
(REFER TO SHEET 20)



GFCI CONVENIENCE RECEPTACLE

GRN - #14 AWG SOLID BONDING WIRE ASSEMBLY P/N 870-027-01

15A/125V OUTLET RATING

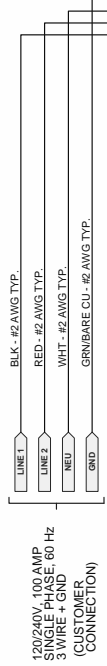
UTILITY BOX

TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

GRN - #6 AWG FLEX 8700622-003

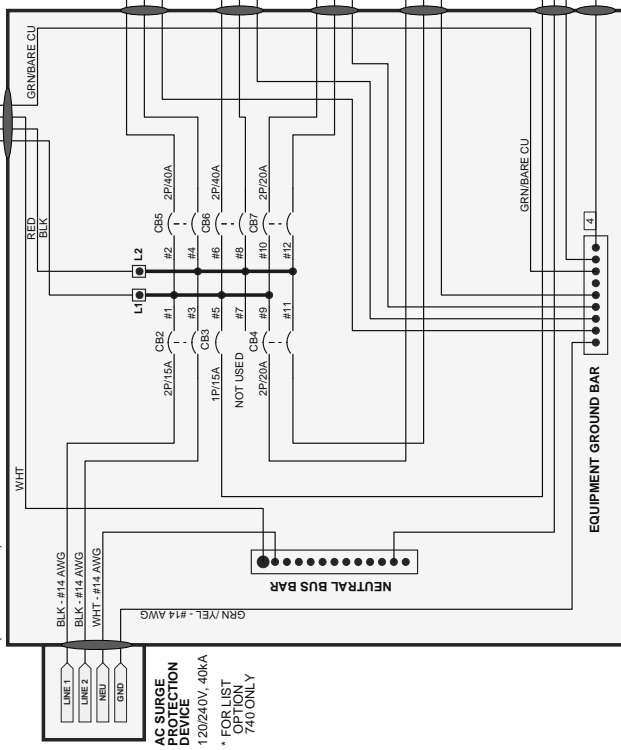
**LIST OPTIONS 720 & 807 - CXPS-E3 2.4kW POWER SYSTEM w/ MAIN LUG LOADCENTRE AC POWER DISTRIBUTION WIRING:**

**AC POWER INPUT CONNECTION**



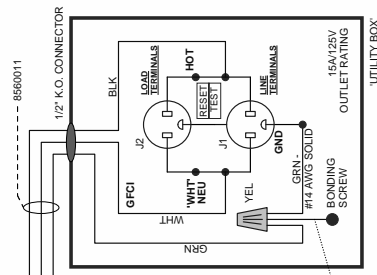
120/240V, 100 AMP SINGLE PHASE, 60 Hz 3 WIRE + GND (CUSTOMER CONNECTION)

**AC LOADCENTRE, MAIN BREAKER, 12 POS, 120/240V, 100 AMP, SINGLE PHASE (P/N 020-404-10)**

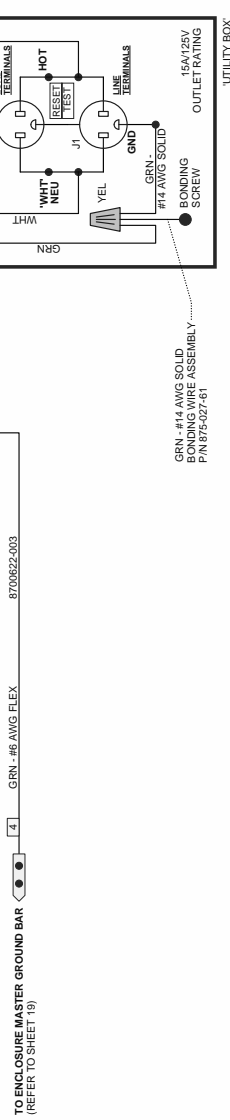


**AC SURGE PROTECTION DEVICE**  
120/240V, 40kA  
\* FOR LIST ONLY  
740 ONLY

- TO RECTIFIER SHELF #1 BACKPLANE AC INPUT TB MODULE #1,2 (REFER TO SHEET 20)
- TO RECTIFIER SHELF #1 BACKPLANE AC INPUT TB MODULE #3,4 (REFER TO SHEET 20)
- TO RECTIFIER SHELF #1 BACKPLANE AC INPUT TB MODULE #5 (REFER TO SHEET 20)
- TO RECTIFIER SHELF #5 BACKPLANE AC INPUT TB MODULE #10 (REFER TO SHEET 20)



**GFCI CONVENIENCE RECEPTACLE**



TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

**alpha**

TITLE SE41-2722 / 2760 POWER ENCLASURE SYSTEM WIRING SCHEMATIC

SIZE B DWG NO. 0290002-000-05

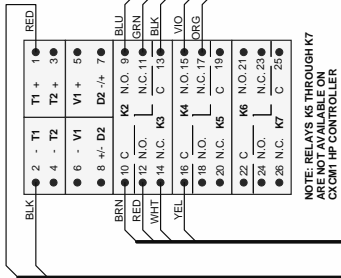
SCALE NTS SHEET 8 of 25

**LIST OPTION 801 - CORDEX 48-1.2kW RECTIFIER SHELF BREAKER AND FUSE DISTRIBUTION & CXCM1-HP SYSTEM CONTROLLER INPUT/OUTPUT WIRING:**

CORDEX 48V-1.2kW INTEGRATED 19" POWER RECTIFIER MODULE SHELF SYSTEM w/ CXCM1-HP SYSTEM CONTROLLER, 2 LOAD & 2 BATT BREAKER POS, BATTERY LVD AND 10 POS GMT FUSE DISTRIBUTION (P/N 0300165-405)

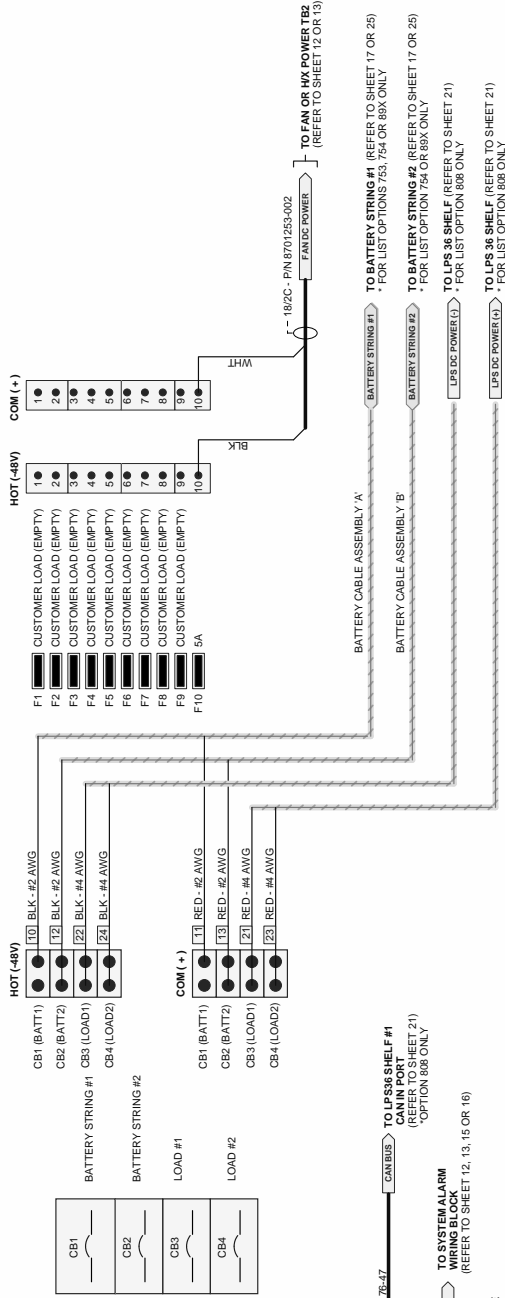
**CXCM1 SYSTEM CONTROLLER & SHELF I/O CONNECTIONS:**

CXCM1 I/O SIGNAL TERMINAL BLOCK CAN BUS COMMUNICATION JACK

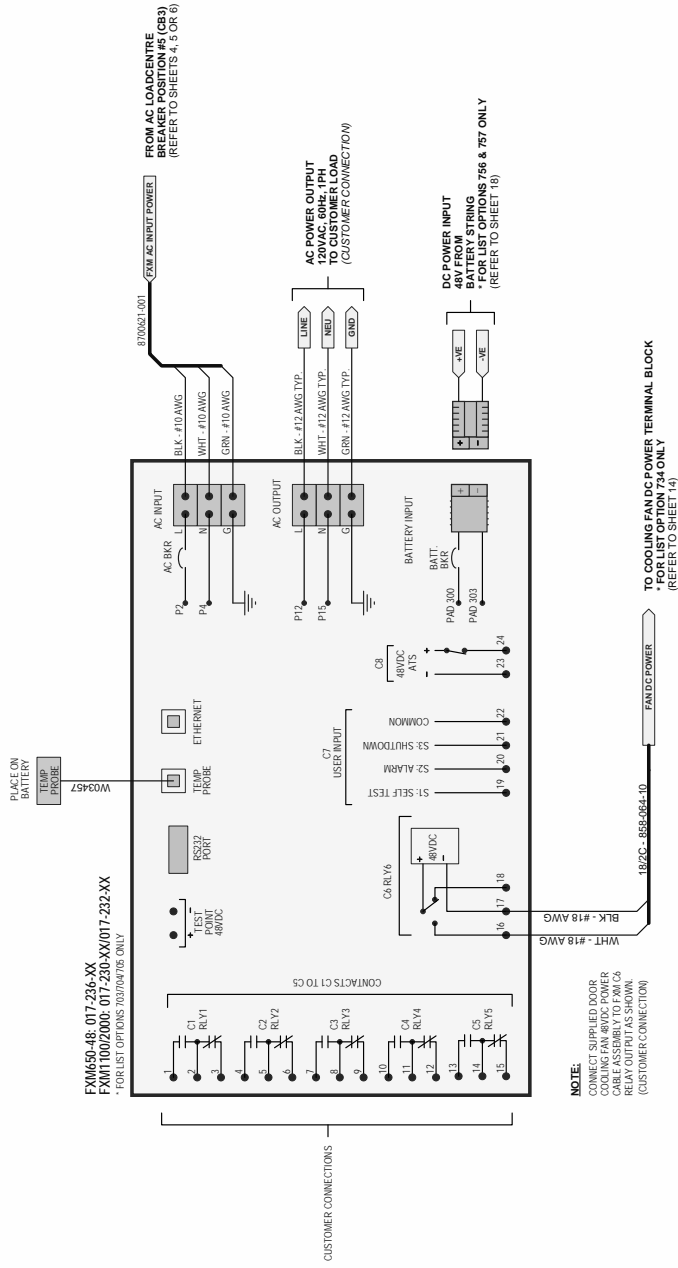


**CIRCUIT BREAKER & FUSE DISTRIBUTION DC OUTPUT POWER CONNECTIONS:**

LOAD & BATTERY BREAKER OUTPUT POWER TERMINALS LOAD GMT FUSE OUTPUT POWER TERMINAL BLOCKS

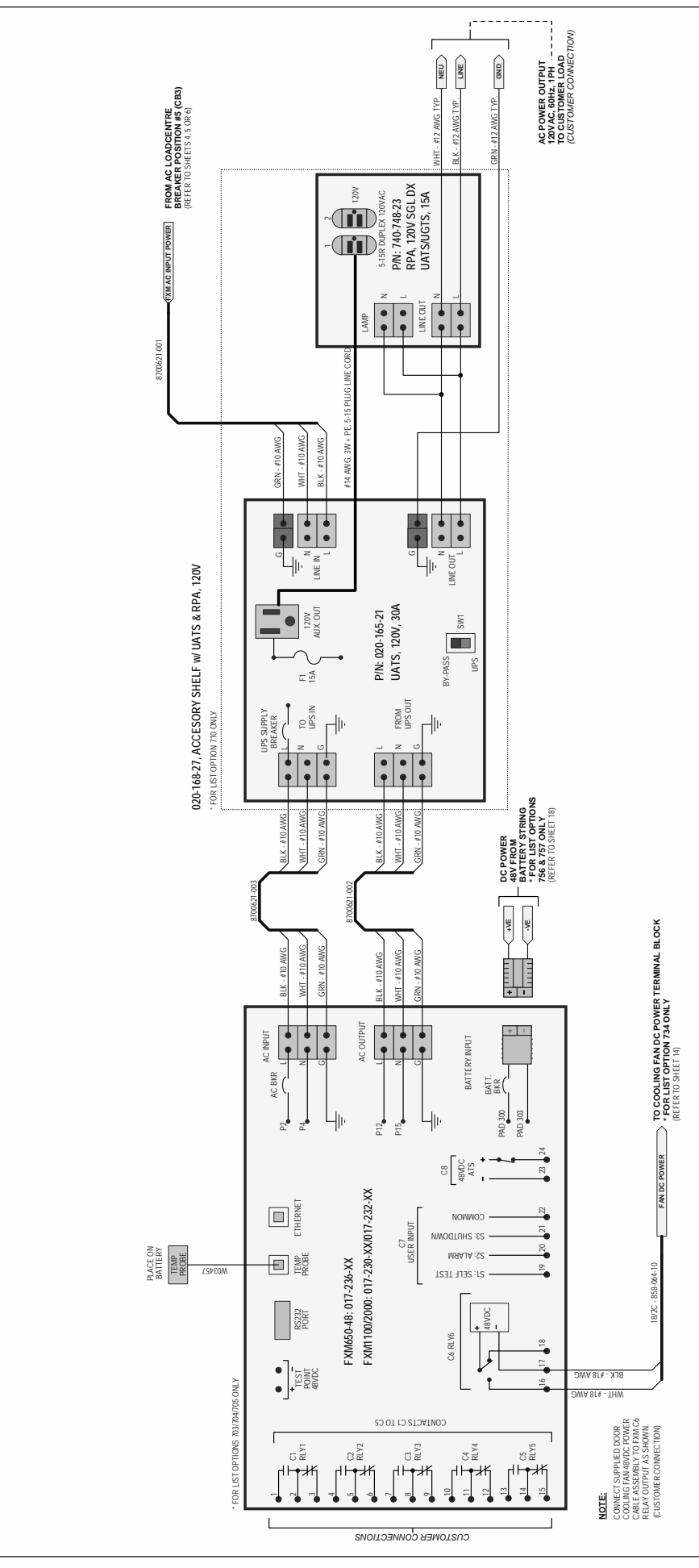


**LIST OPTIONS 703/04/705 + 734 + 756/757 - FXM 650/1100/2000 UPS MODULE AC POWER, COOLING FAN DC POWER AND BATTERY STRING & TEMPERATURE PROBE WIRING:**



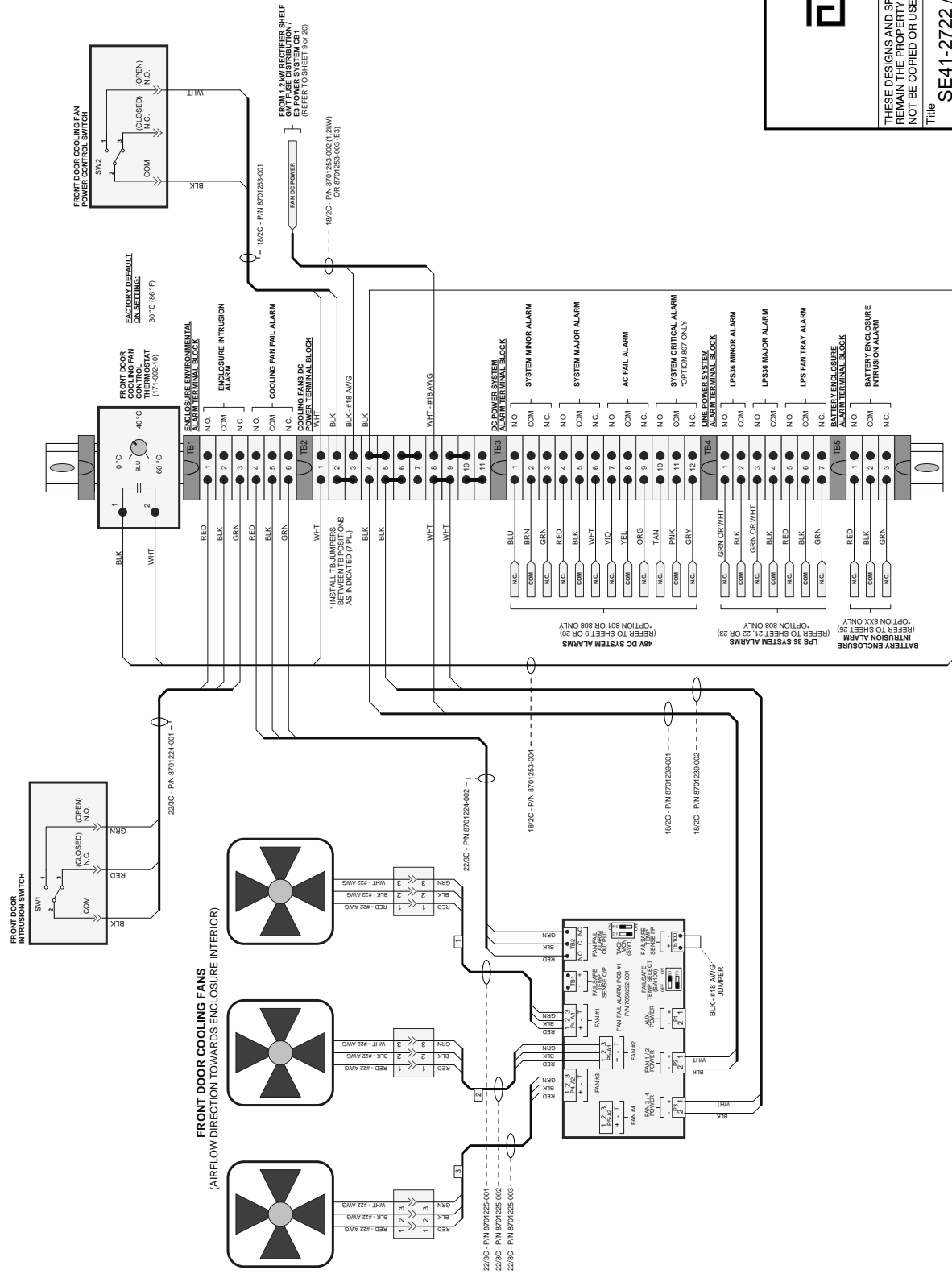
		TITLE SE41-2722/2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC	
		SIZE B	REV A
SCALE	NTS	SHEET	10 of 25


**LIST OPTIONS 703/704/705 + 710 + 734 + 756/757 - FXM 650/1100/2000 UPS MODULE e/w UATS & 120V RECEPTACLE PLATE  
ACCESSORY SHELF AC POWER, COOLING FAN DC POWER AND BATTERY STRING & TEMPERATURE PROBE WIRING:**



TITLE: SE41-2722/12760 POWER ENCLASURE SYSTEM WIRING SCHEMATIC	
SIZE: B	REV: A
DWG NO.: 0290002-000-05	SCALE: 11 of 25
NTS	SHEET







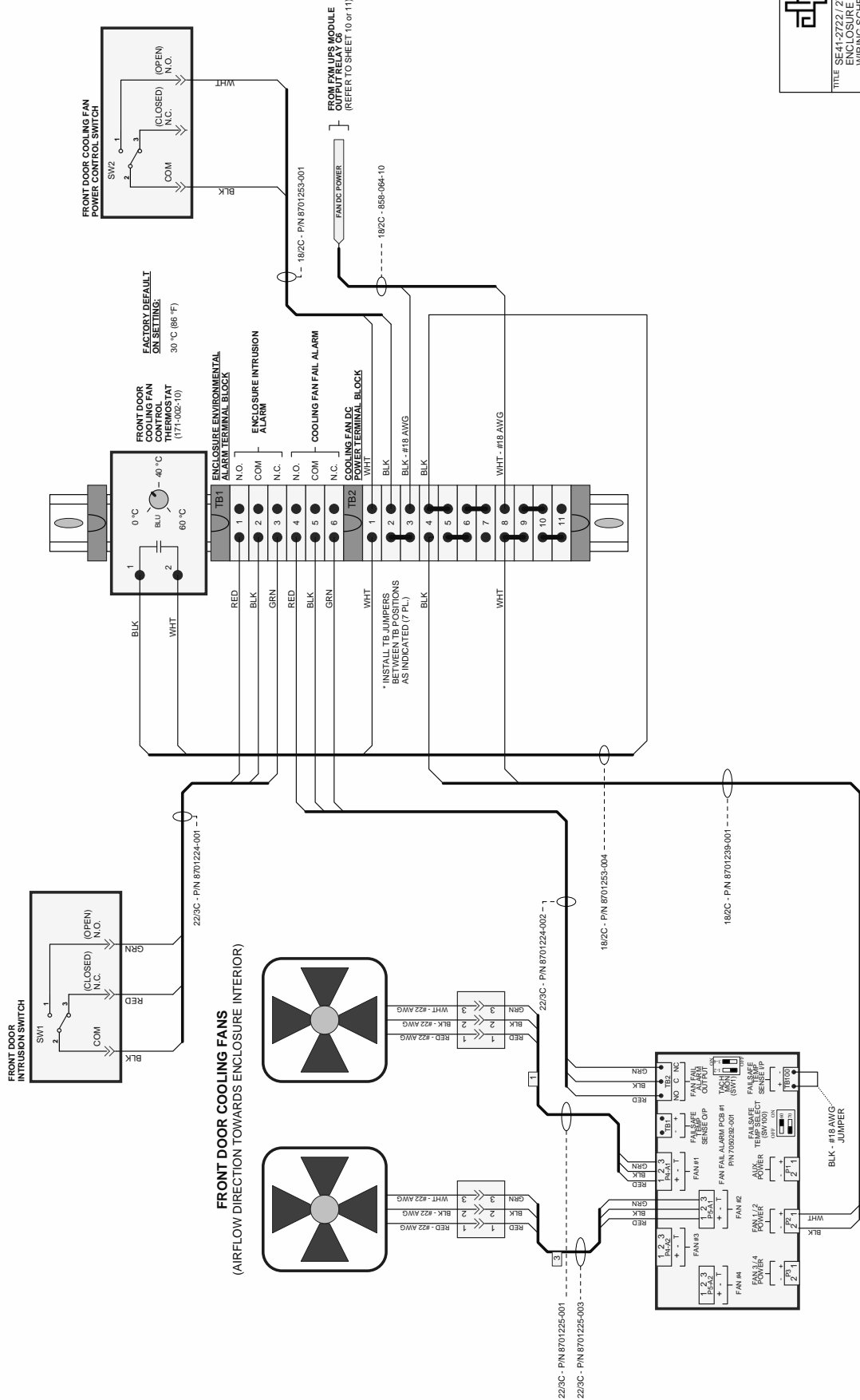
**SE41-2722 / 2730 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC**

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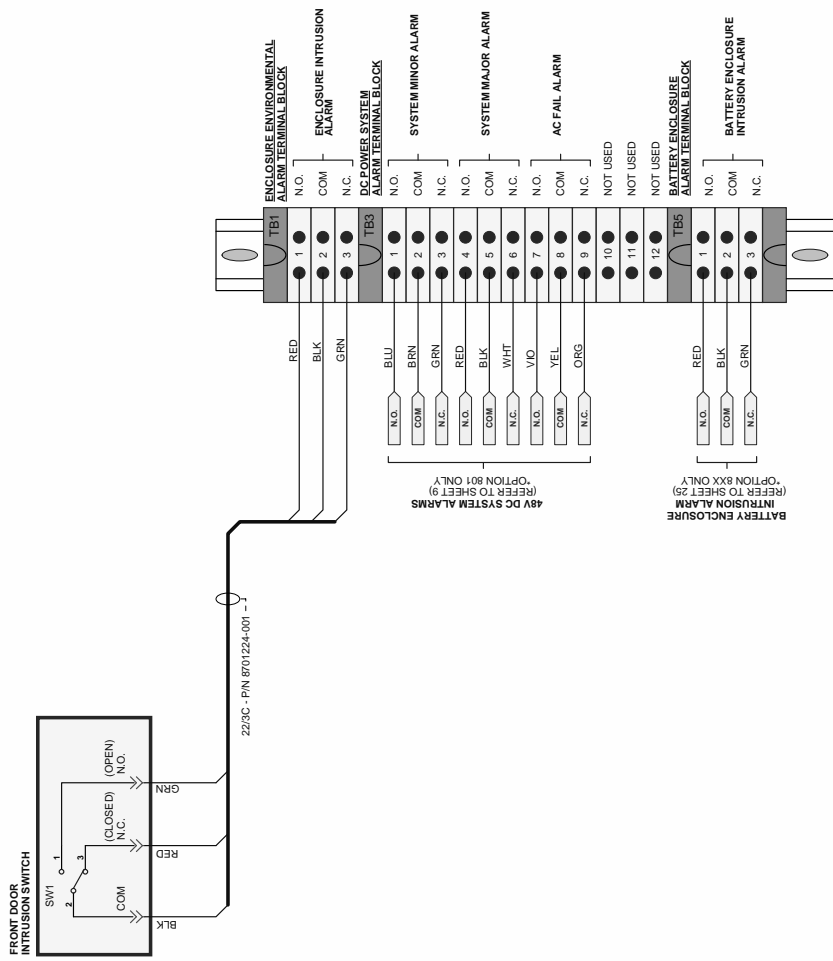
Title	Sheet 12 of 25
ISSUE DATE	Rev
SIZE TYPE DWG NO. C S5	0290002-000-05 A



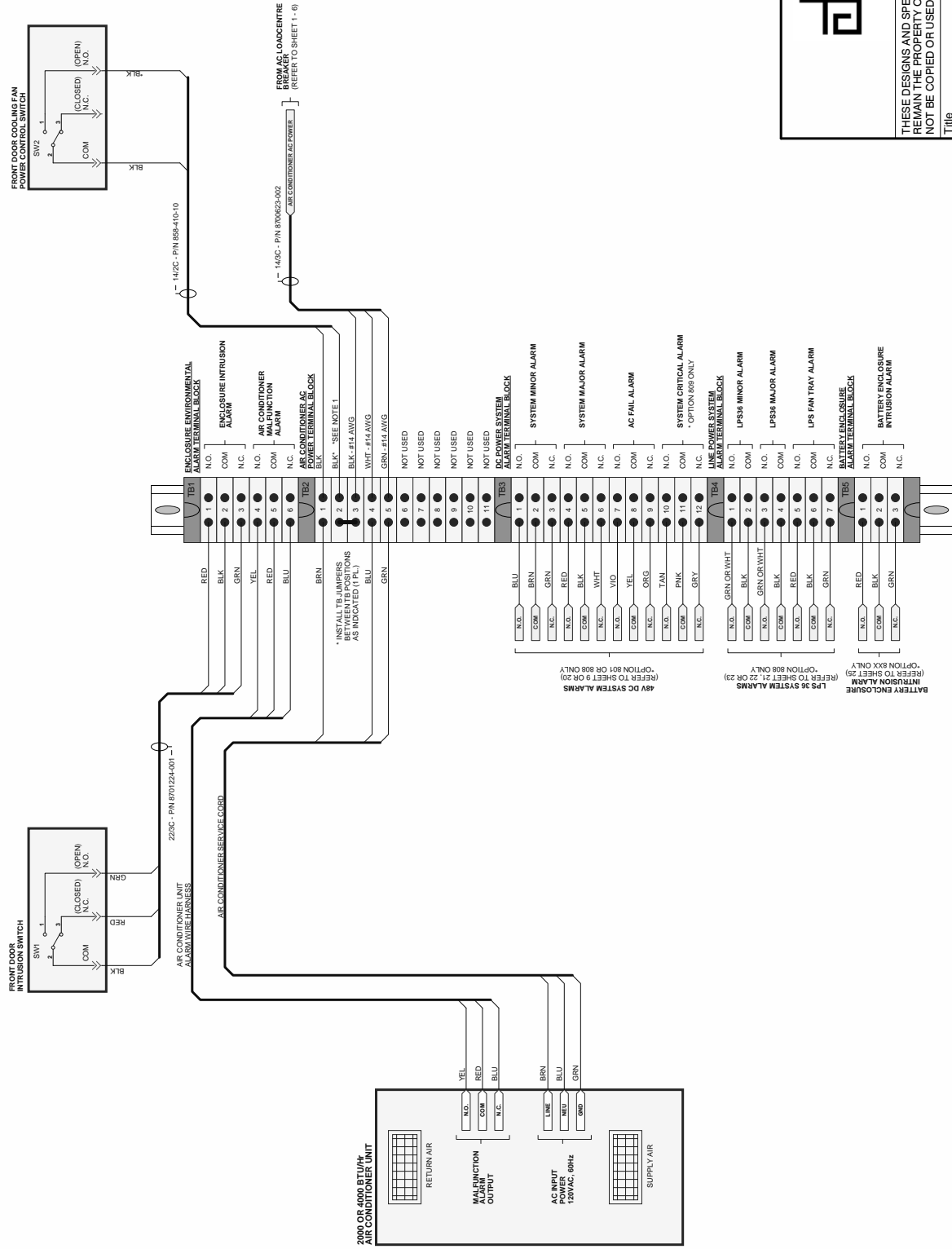
**LIST OPTION 734 - ENCLOSURE FXM FAN COOLING DC POWER & SYSTEM ALARM OUTPUT WIRING:**



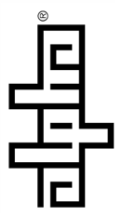
**LIST OPTION 840/841/880/881 - ENCLOSURE PASSIVE COOLING DC POWER & SYSTEM ALARM OUTPUT WIRING:**



**LIST OPTIONS 820/821/822/823/860/861/862/863 - ENCLOSURE AIR CONDITIONER POWER & ALARM OUTPUT WIRING:**



**NOTES:**  
1. WRAP BLACK ELECTRICAL TAPE AROUND ENDS OF WHITE WIRES TO REIDENTIFY THEM AS HOT CONDUCTORS.



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Title: **SE41-2722 / 2730 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC**

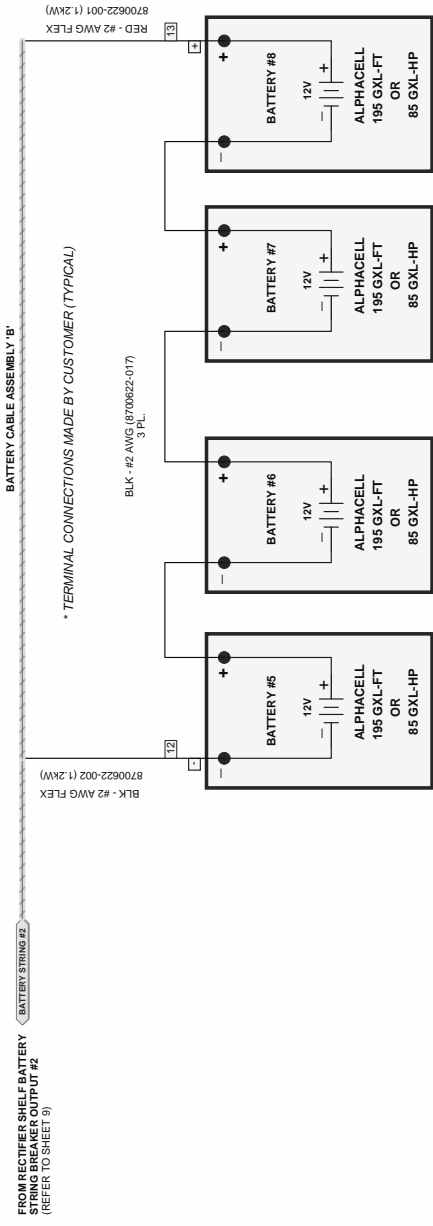
Sheet: 16 of 25

ISSUE DATE: C S5

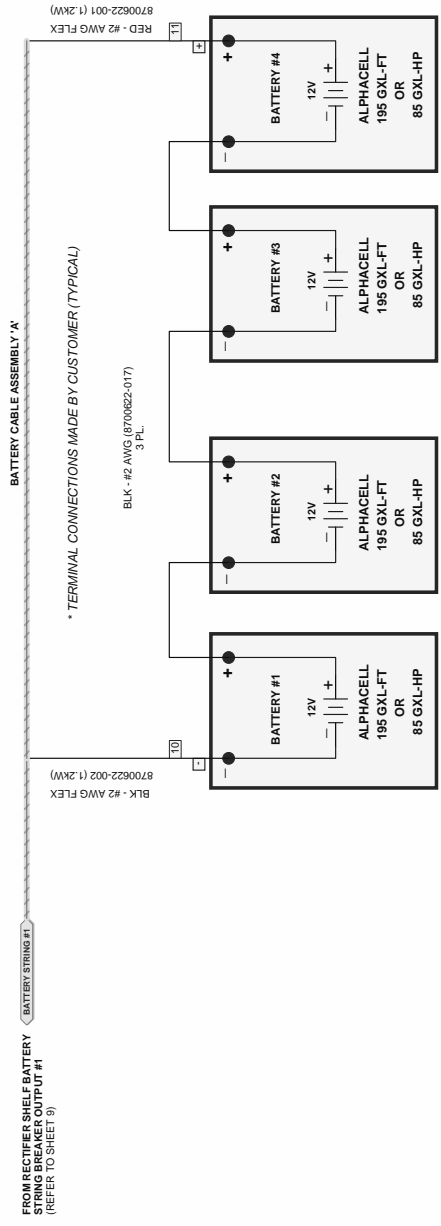
TYPE DWG NO.: 0290002-000-05

Rev: A

**LIST OPTIONS 753 OR 754 - SYSTEM 48V BATTERY STRING CABLING:**

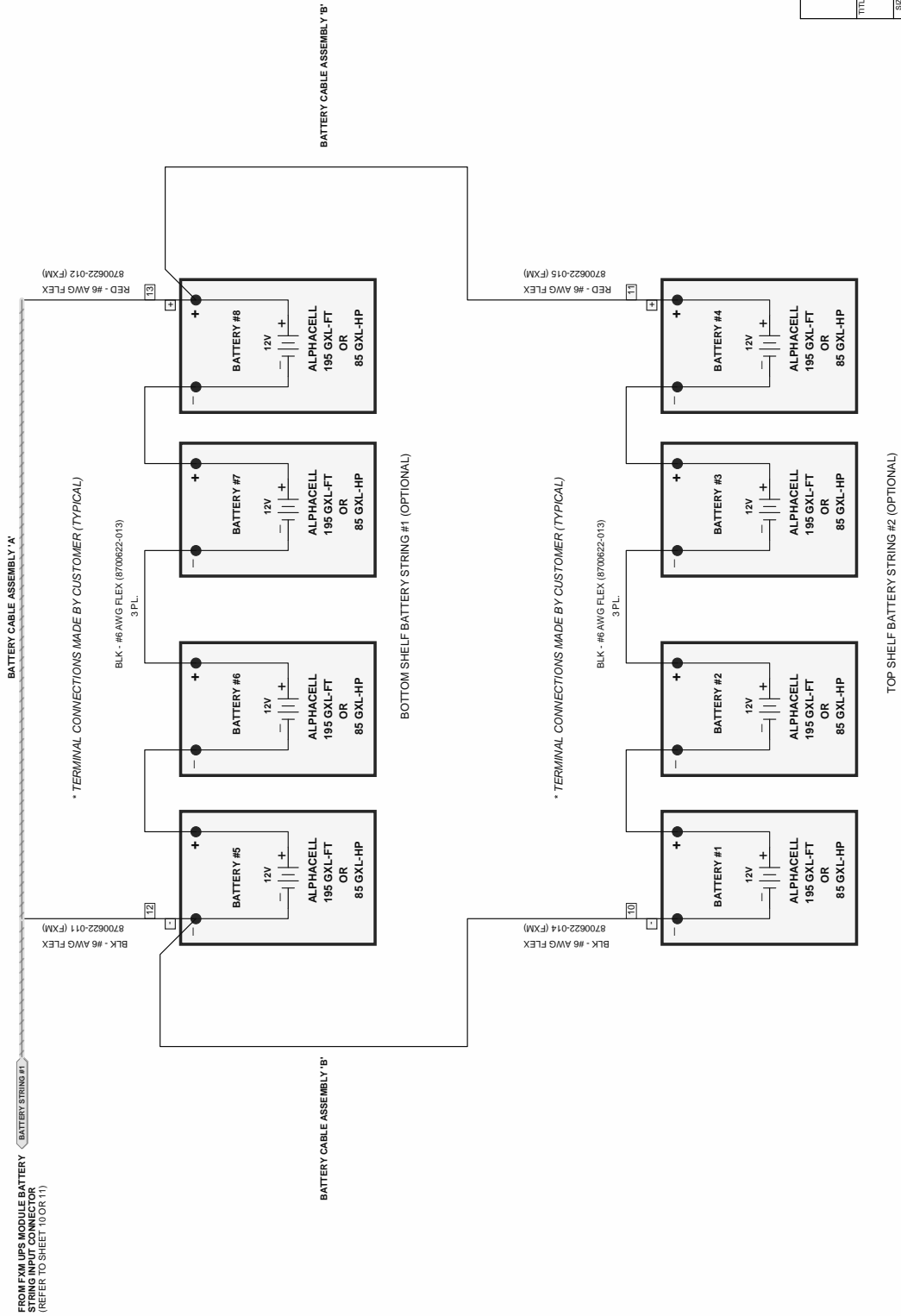


BATTERY STRING #2 (OPTIONAL)



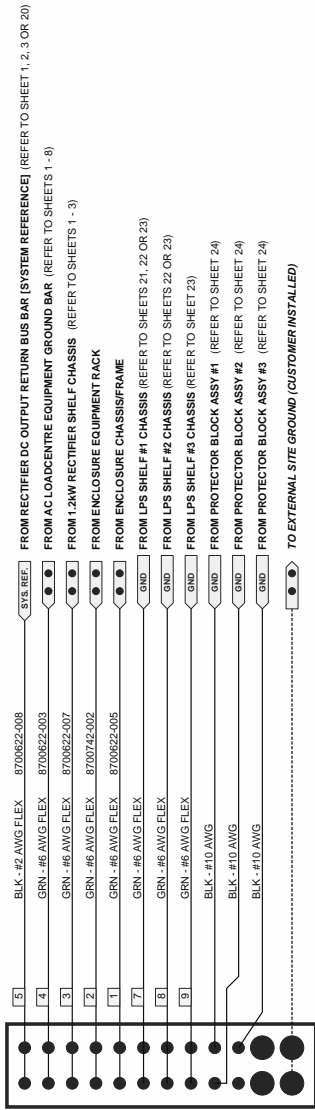
BATTERY STRING #1 (OPTIONAL)

**LIST OPTIONS 756 OR 757 - SYSTEM 48V BATTERY STRING CABLING:**

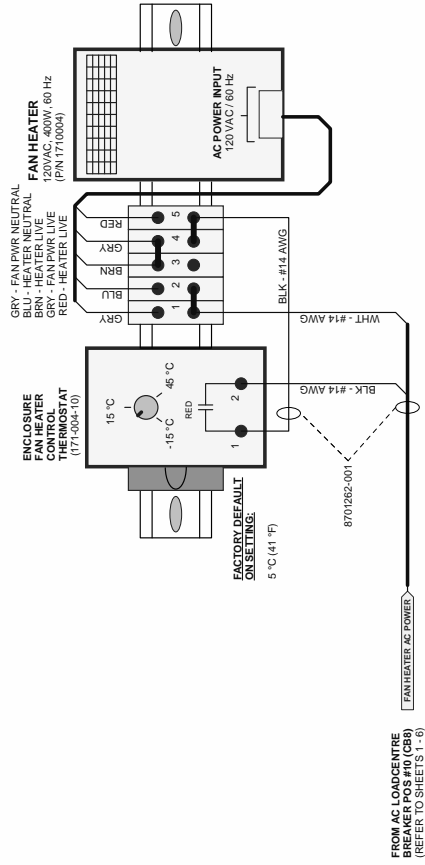


		TITLE SE41-2722 / 2760 POWER ENCLASURE SYSTEM WIRING SCHEMATIC	
		SIZE B	REV A
SCALE	NTS	SHEET	0290002-000-05
			18 of 25

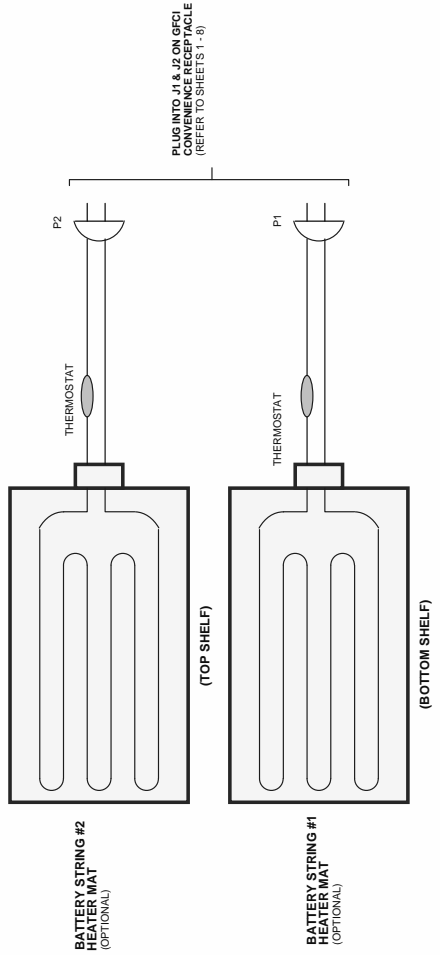
**ENCLOSURE 12 POSITION MASTER GROUND BAR TERMINATIONS:**



**LIST OPTION 772 - DOOR MOUNTED ENCLOSURE  
FAN HEATER AC POWER WIRING:**



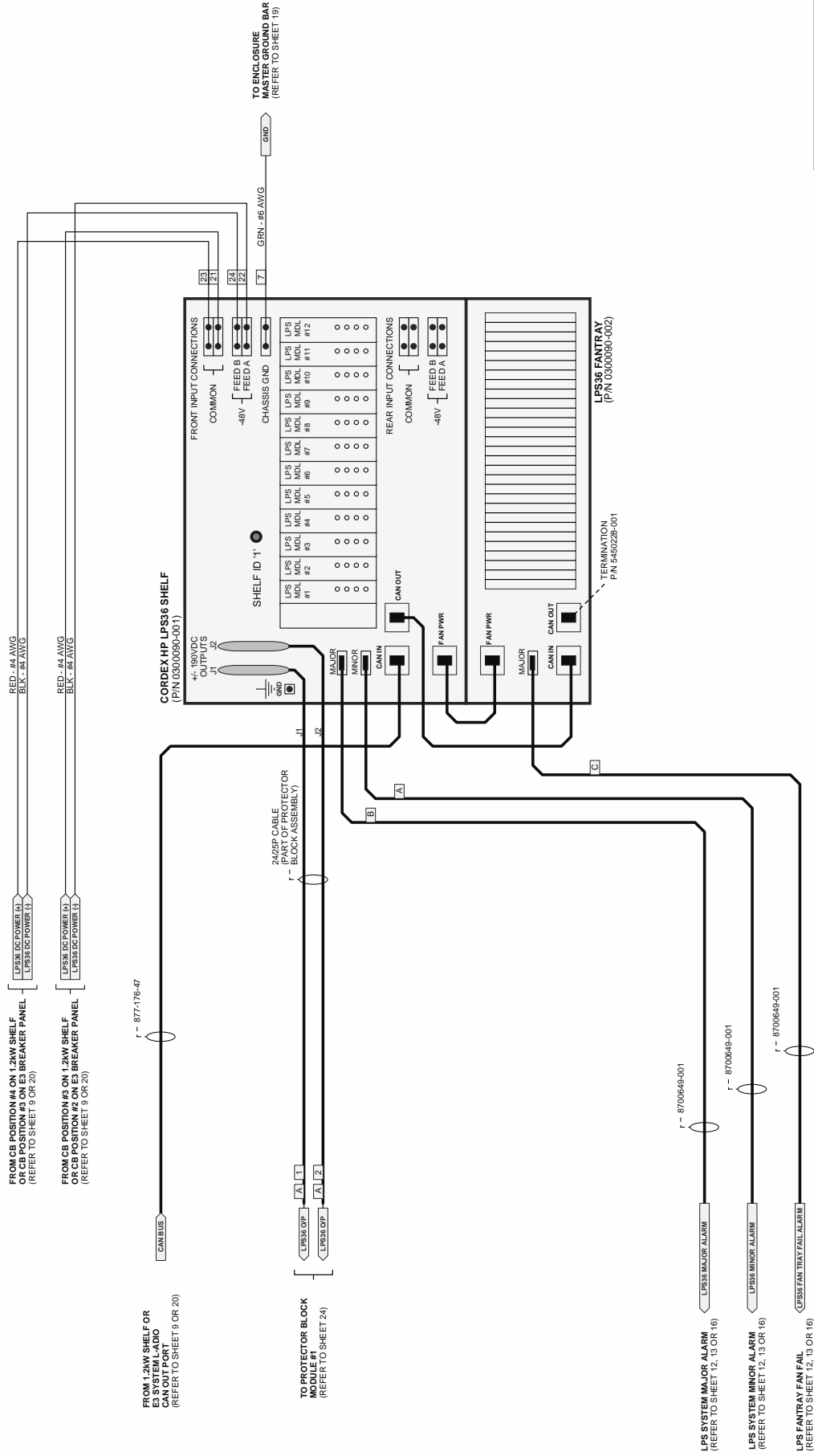
**OPTIONAL BATTERY HEATER MAT CONNECTIONS:**







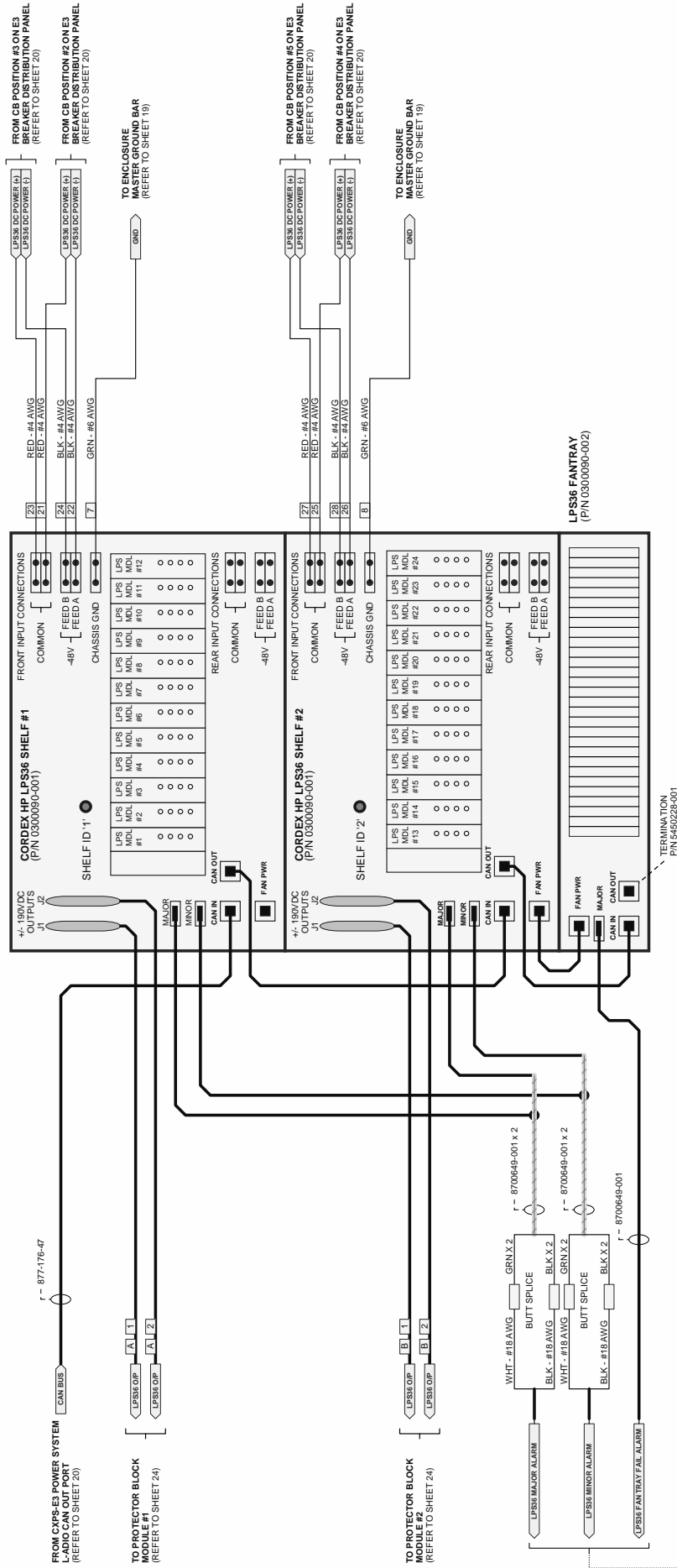
**LIST OPTION 808 & 809 - LPS 36 23" SHELF DC INPUT / OUTPUT, FAN TRAY, AND ALARM WIRING:**



**2 X LIST OPTION 808 & 1 X 809 - LPS 36 23" SHELF DC INPUT / OUTPUT, FAN TRAY, AND ALARM WIRING:**

NOTES:

1.) SET LPS36 SHELF ID PRIOR TO INSTALLATION INTO POWER ENCLOSURE.



TO SYSTEM ALARM WIRING SCHEMATIC (REFER TO SHEET 12, 13 OR 16)

**alpha**

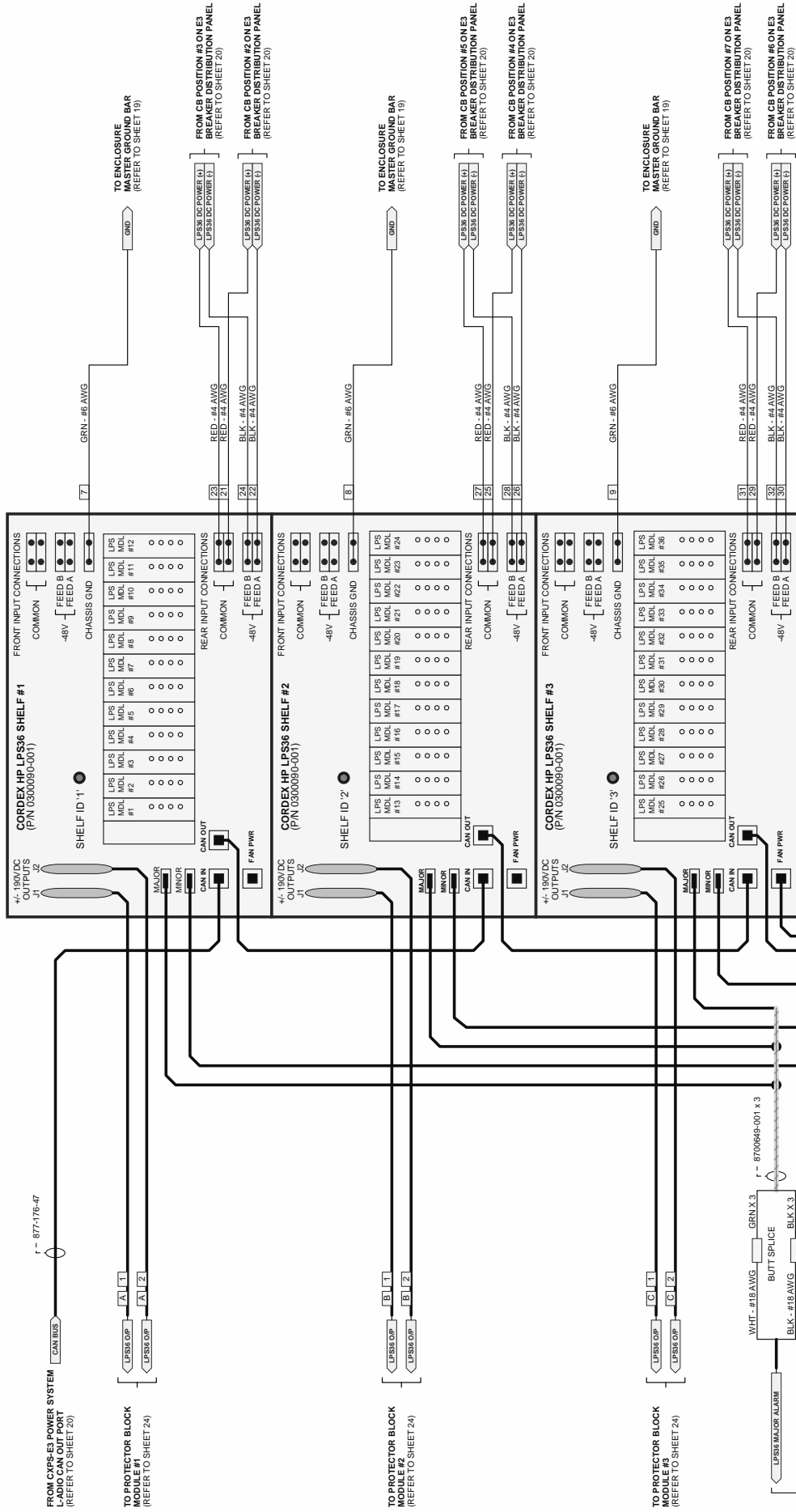
TITLE SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC

SIZE B DWG NO. 0290002-000-05

SCALE NTS SHEET 22 of 25

### 3 x LIST OPTION 808 & 1 x 809 - LPS 36 23" SHELF DC INPUT / OUTPUT, FAN TRAY, AND ALARM WIRING:

NOTES:  
1.) SET LPS36 SHELF ID PRIOR TO INSTALLATION INTO POWER ENCLOSURE.



**TO PROTECTOR BLOCK MODULE #1**  
(REFER TO SHEET 24)

**TO PROTECTOR BLOCK MODULE #2**  
(REFER TO SHEET 24)

**TO PROTECTOR BLOCK MODULE #3**  
(REFER TO SHEET 24)

**TO ENCLASURE BREAKER DISTRIBUTION PANEL**  
(REFER TO SHEET 19)

**TO ENCLASURE MASTER GROUND BAR**  
(REFER TO SHEET 19)

**TO ENCLASURE BREAKER DISTRIBUTION PANEL**  
(REFER TO SHEET 20)

**TO ENCLASURE BREAKER DISTRIBUTION PANEL**  
(REFER TO SHEET 20)

**TO ENCLASURE MASTER GROUND BAR**  
(REFER TO SHEET 19)

**TO ENCLASURE BREAKER DISTRIBUTION PANEL**  
(REFER TO SHEET 20)

**LPS36 FAN TRAY**  
(P/N 0300090-002)

TERMINATION  
P/N 5450228-001

**TO SYSTEM ALARM WIRING BLOCK**  
(REFER TO SHEET 12, 13 OR 16)

ALPHA

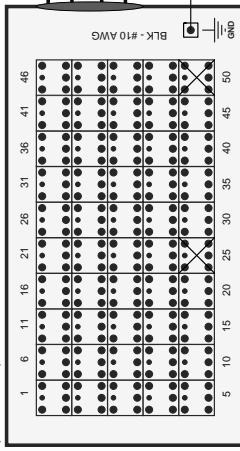
TITLE: SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC

SIZE: B DWG NO. 0290002-000-05

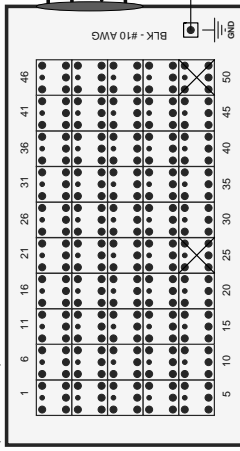
SCALE: NTS SHEET 23 of 25

**1 OR 2 OR 3 X LIST OPTION 808 - LPS 36 LINE POWERING PROTECTOR BLOCK WIRING:**

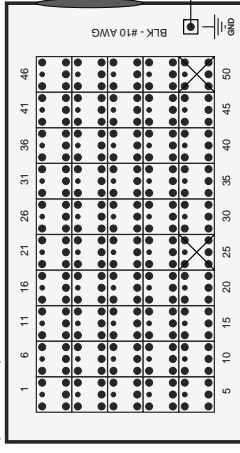
**TOP 50 PAIR PROTECTOR BLOCK ASSEMBLY #1 (INSTALLED FOR 1, 2, & 3 X OPTION 808 ONLY) (P/N 0200217)**



**MID 50 PAIR PROTECTOR BLOCK ASSEMBLY #2 (INSTALLED FOR 2 & 3 X OPTION 808 ONLY) (P/N 0200217)**



**BOT 50 PAIR PROTECTOR BLOCK ASSEMBLY #3 (INSTALLED FOR 3 X OPTION 808 ONLY) (P/N 0200217)**



TO ENCLOSURE MASTER GROUND BAR (REFER TO SHEET 19)

BLK - #10 AWG  
BLK - #10 AWG  
BLK - #10 AWG

J1 C1 T1 LPS36 OP  
J2 C2 Z2 LPS36 OP  
J1 B1 T1 LPS36 OP  
J2 B2 Z2 LPS36 OP  
J1 A1 T1 LPS36 OP  
J2 A2 Z2 LPS36 OP

GEL BRIDGE MODULES  
242SP CABLE PROTECTOR BLOCK ASSEMBLY  
MS2-1  
MS2-2

GEL BRIDGE MODULES  
242SP CABLE PROTECTOR BLOCK ASSEMBLY  
MS2-1  
MS2-2

GEL BRIDGE MODULES  
242SP CABLE PROTECTOR BLOCK ASSEMBLY  
MS2-1  
MS2-2

\*CUSTOMER CONNECTIONS\*

\*CUSTOMER CONNECTIONS\*

\*CUSTOMER CONNECTIONS\*

LPS SHELF SLOT	PROTECTOR BLOCK PANEL #1
LPS MODULE #1	PAIR #1 - PAIR #4
LPS MODULE #2	PAIR #5 - PAIR #8
LPS MODULE #3	PAIR #9 - PAIR #12
LPS MODULE #4	PAIR #13 - PAIR #16
LPS MODULE #5	PAIR #17 - PAIR #20
LPS MODULE #6	PAIR #21 - PAIR #24
LPS MODULE #7	PAIR #25 - PAIR #28
LPS MODULE #8	PAIR #29 - PAIR #32
LPS MODULE #9	PAIR #33 - PAIR #36
LPS MODULE #10	PAIR #37 - PAIR #40
LPS MODULE #11	PAIR #41 - PAIR #44
LPS MODULE #12	PAIR #45 - PAIR #48

\*PAIR #25 & PAIR #50 ARE NOT USED. (MS2 PINS #25 & #50 / GRAY/VIOLET PAIR)

LPS SHELF SLOT	PROTECTOR BLOCK PANEL #2
LPS MODULE #13	PAIR #1 - PAIR #4
LPS MODULE #14	PAIR #5 - PAIR #8
LPS MODULE #15	PAIR #9 - PAIR #12
LPS MODULE #16	PAIR #13 - PAIR #16
LPS MODULE #17	PAIR #17 - PAIR #20
LPS MODULE #18	PAIR #21 - PAIR #24
LPS MODULE #19	PAIR #25 - PAIR #28
LPS MODULE #20	PAIR #29 - PAIR #32
LPS MODULE #21	PAIR #33 - PAIR #36
LPS MODULE #22	PAIR #37 - PAIR #40
LPS MODULE #23	PAIR #41 - PAIR #44
LPS MODULE #24	PAIR #45 - PAIR #48

\*PAIR #25 & PAIR #50 ARE NOT USED. (MS2 PINS #25 & #50 / GRAY/VIOLET PAIR)

LPS SHELF SLOT	PROTECTOR BLOCK PANEL #3
LPS MODULE #25	PAIR #1 - PAIR #4
LPS MODULE #26	PAIR #5 - PAIR #8
LPS MODULE #27	PAIR #9 - PAIR #12
LPS MODULE #28	PAIR #13 - PAIR #16
LPS MODULE #29	PAIR #17 - PAIR #20
LPS MODULE #30	PAIR #21 - PAIR #24
LPS MODULE #31	PAIR #25 - PAIR #28
LPS MODULE #32	PAIR #29 - PAIR #32
LPS MODULE #33	PAIR #33 - PAIR #36
LPS MODULE #34	PAIR #37 - PAIR #40
LPS MODULE #35	PAIR #41 - PAIR #44
LPS MODULE #36	PAIR #45 - PAIR #48

\*PAIR #25 & PAIR #50 ARE NOT USED. (MS2 PINS #25 & #50 / GRAY/VIOLET PAIR)

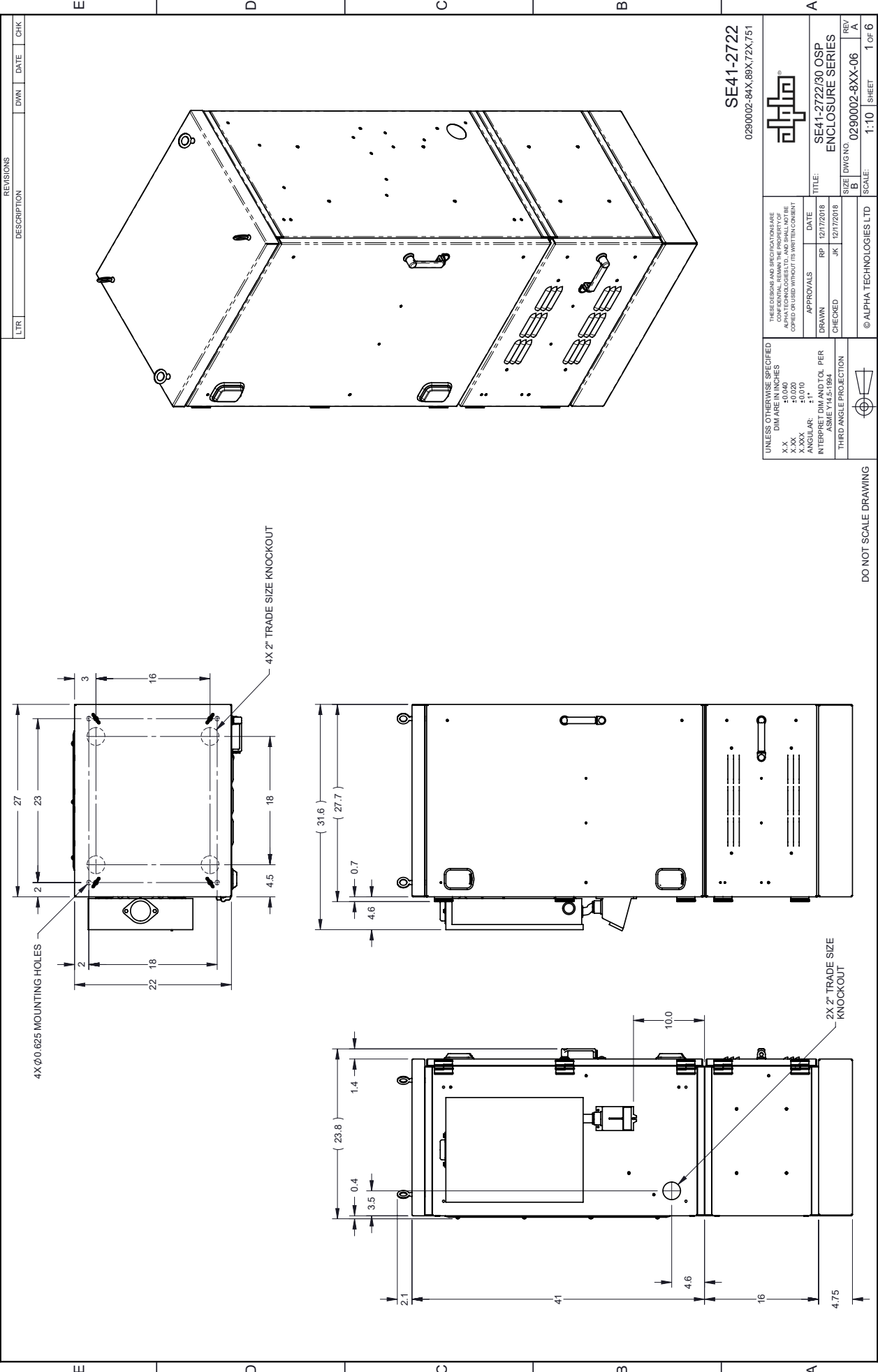


TITLE SE41-2722 / 2760 POWER ENCLOSURE SYSTEM WIRING SCHEMATIC

SCALE B  
DWG NO. 0290002-000-05  
SHEET A  
24 of 25

REVISIONS			
LTR	DESCRIPTION	DWN	DATE

1 2 3 4 5



SE41-2722

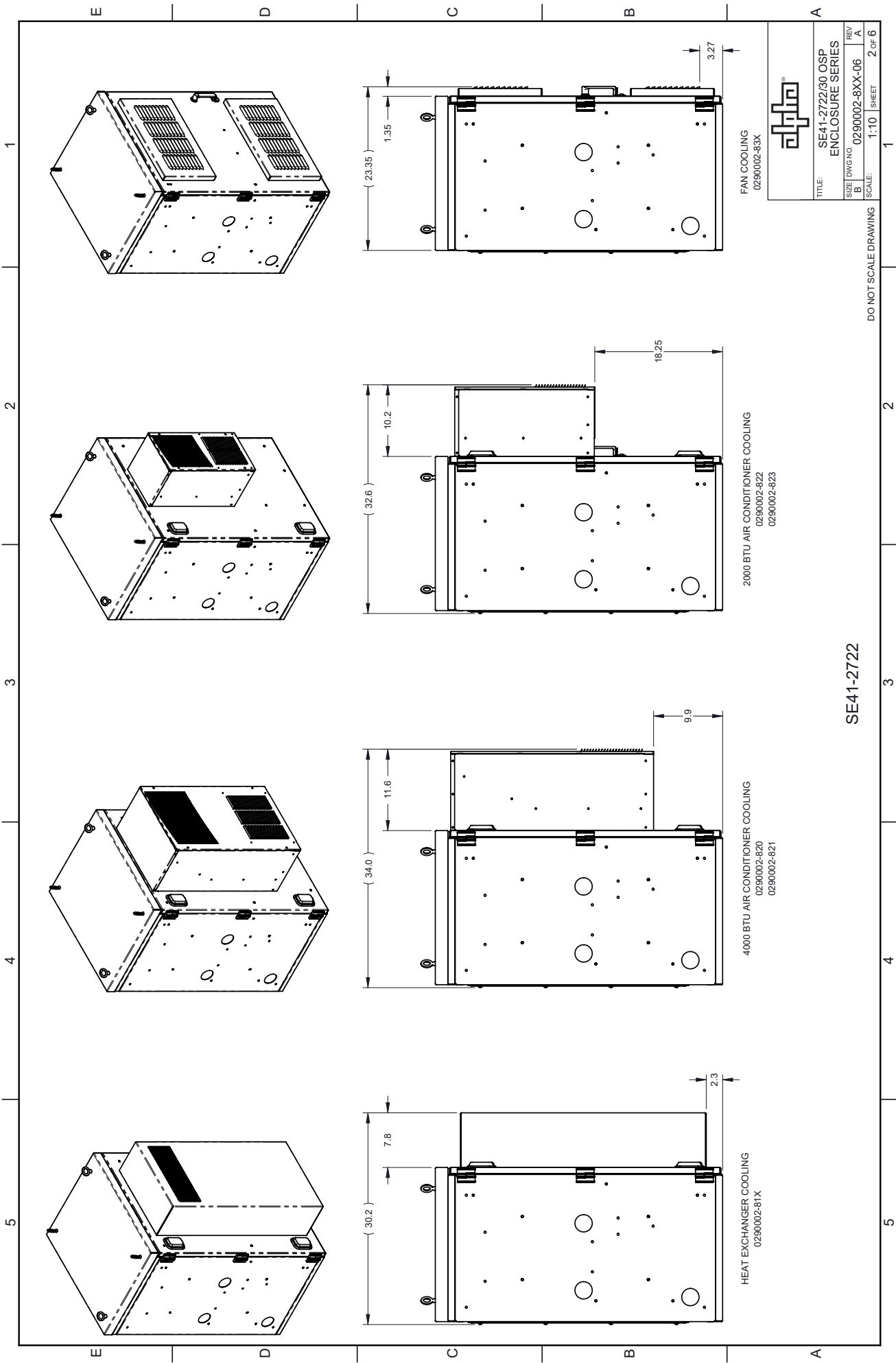
0290002-84X,89X,72X,751

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APPROVALS	DATE
DRAWN	RP 12/17/2018
CHECKED	JK 12/17/2018
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</small> X.X ±0.020 X.XX ±0.010 X.XXX ±0.010 ANGULAR ±1° INTERPRET DIM AND TOL PER ANSI Y14.5M-2018 THIRD ANGLE PROJECTION	
© ALPHA TECHNOLOGIES LTD	
TITLE	SCALE
SE41-2722/80 OSP ENCLOSURE SERIES	1:10
SIZE DWG NO. 0290002-8XX-06	SHEET 1 OF 6
REV A	REV A

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APPROVALS	DATE
DRAWN	RP 12/17/2018
CHECKED	JK 12/17/2018
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</small> X.X ±0.020 X.XX ±0.010 X.XXX ±0.010 ANGULAR ±1° INTERPRET DIM AND TOL PER ANSI Y14.5M-2018 THIRD ANGLE PROJECTION	
© ALPHA TECHNOLOGIES LTD	
TITLE	SCALE
SE41-2722/80 OSP ENCLOSURE SERIES	1:10
SIZE DWG NO. 0290002-8XX-06	SHEET 1 OF 6
REV A	REV A

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APPROVALS	DATE
DRAWN	RP 12/17/2018
CHECKED	JK 12/17/2018
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</small> X.X ±0.020 X.XX ±0.010 X.XXX ±0.010 ANGULAR ±1° INTERPRET DIM AND TOL PER ANSI Y14.5M-2018 THIRD ANGLE PROJECTION	
© ALPHA TECHNOLOGIES LTD	
TITLE	SCALE
SE41-2722/80 OSP ENCLOSURE SERIES	1:10
SIZE DWG NO. 0290002-8XX-06	SHEET 1 OF 6
REV A	REV A



**alpha**

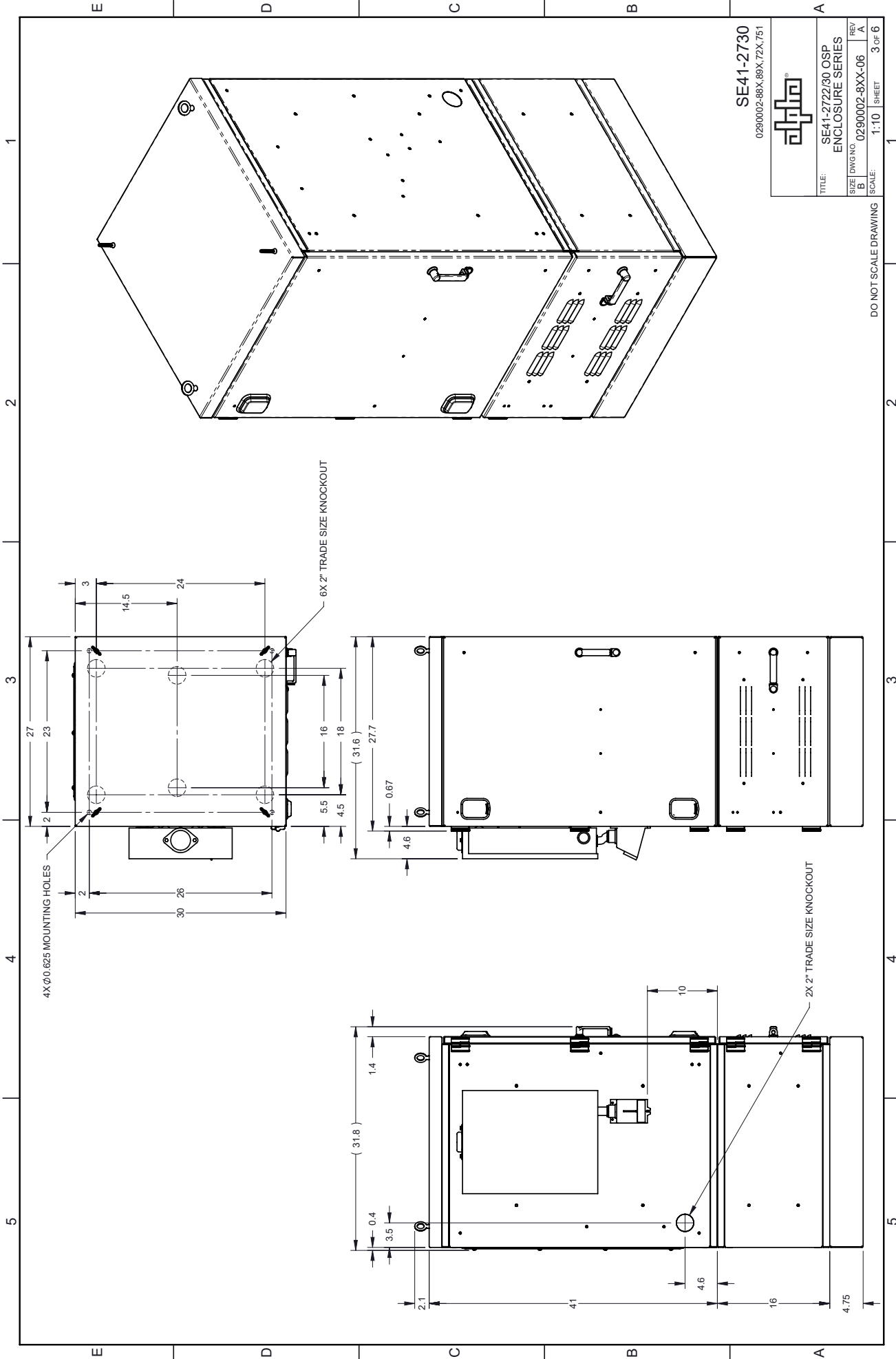
TITLE: SE41-2722/80 OSP  
ENCLOSURE SERIES

SIZE	DWG NO.	REV
B	0290002-8XX-06	A

SCALE: 1:10 SHEET 2 OF 6

DO NOT SCALE DRAWING

SE41-2722

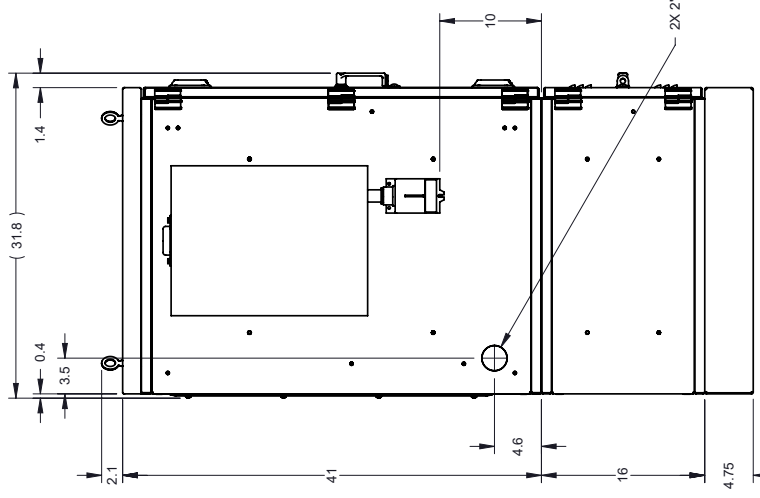
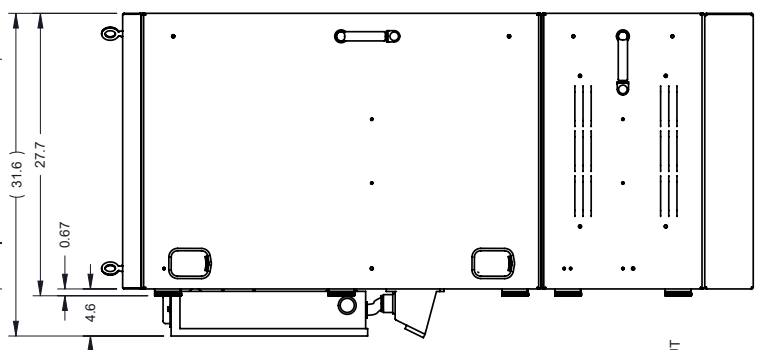
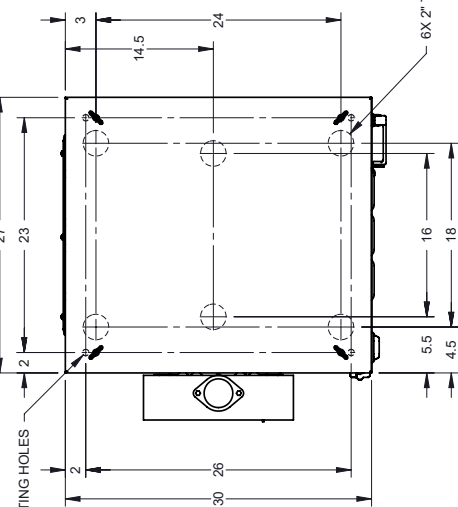


SE41-2730  
0290002-88X,89X,72X,751



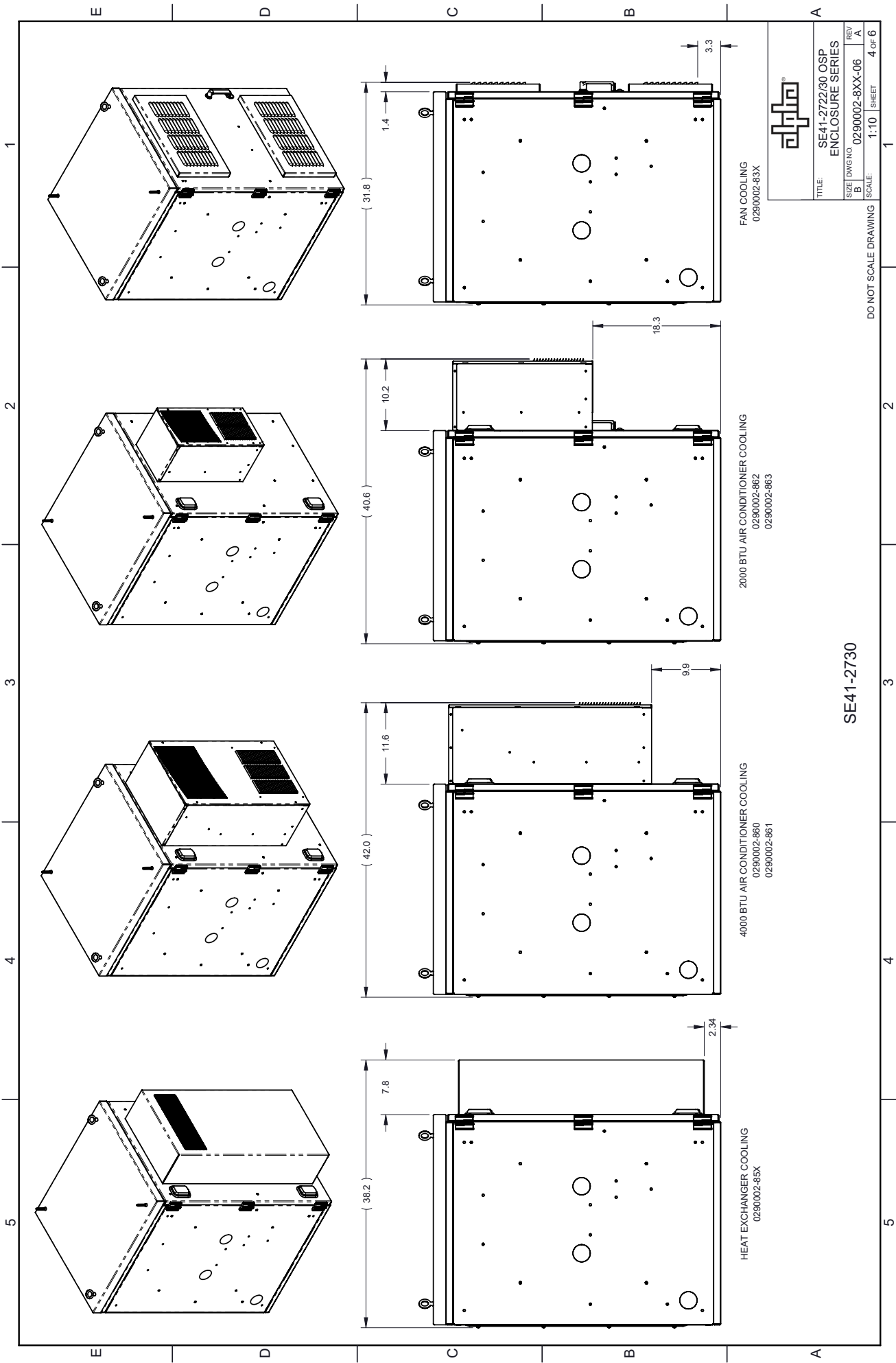
TITLE: SE41-2722/30 OSP ENCLOSURE SERIES		REV: A
SIZE: B	DWG NO: 0290002-8XX-06	SHEET: 3 OF 6
SCALE: 1:10		

DO NOT SCALE DRAWING



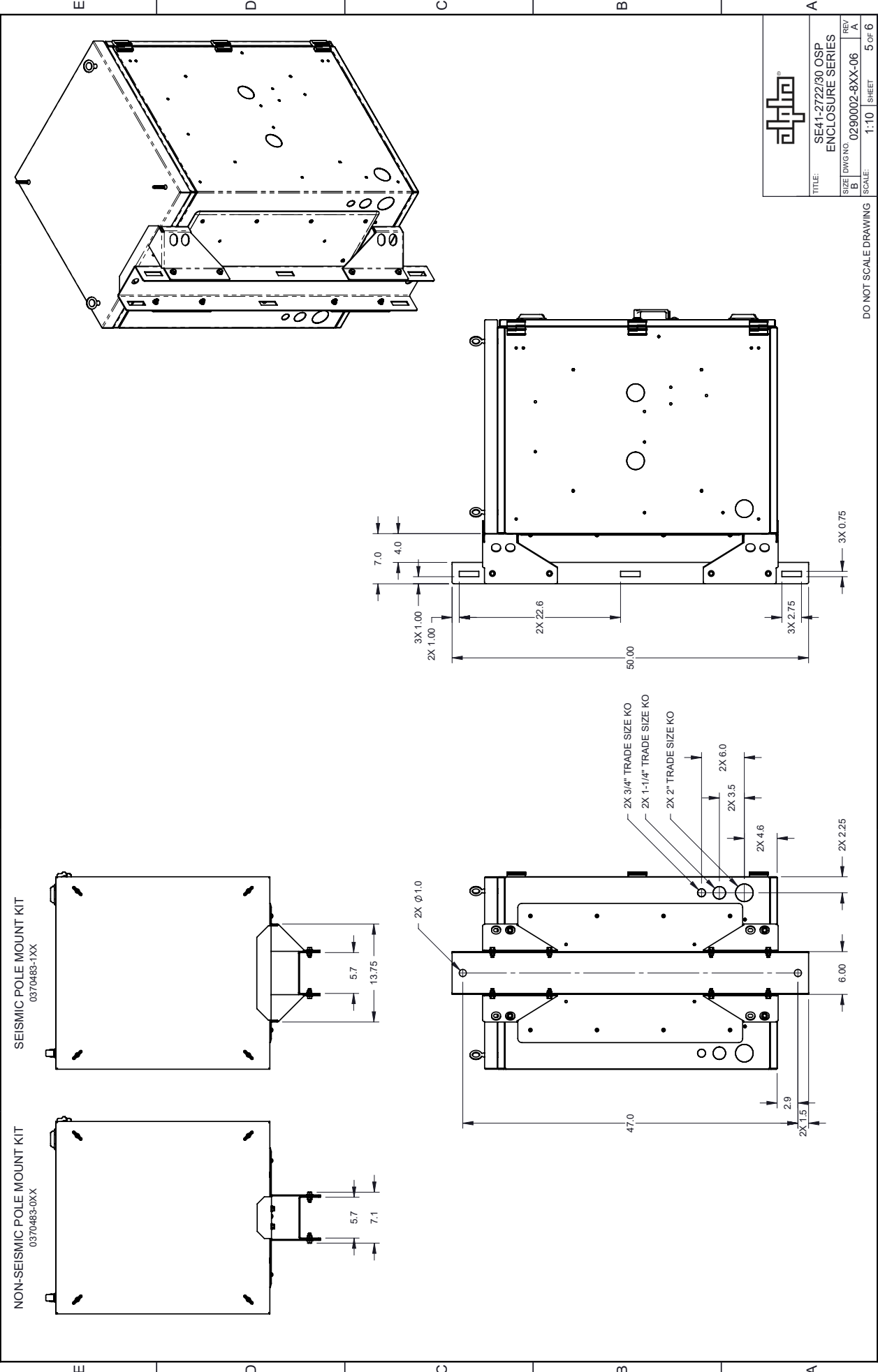


	
TITLE:	SE41-27230 OSP ENCLOSURE SERIES
SIZE:	DWG NO. 0290002-8XX-06
B	REV. A
SCALE: 1:10 SHEET 4 OF 6	



SE41-2730

DO NOT SCALE DRAWING



		TITLE: SE41-272280 OSP ENCLOSURE SERIES
		SCALE: 1:10 SHEET 5 OF 6
SIZE B	DWG NO. 0290002-8XX-06	REV. A

DO NOT SCALE DRAWING

1 2 3 4 5

1 2 3 4 5

E D C B A

SEISMIC POLE MOUNT KIT  
0370483-1XX

NON-SEISMIC POLE MOUNT KIT  
0370483-0XX



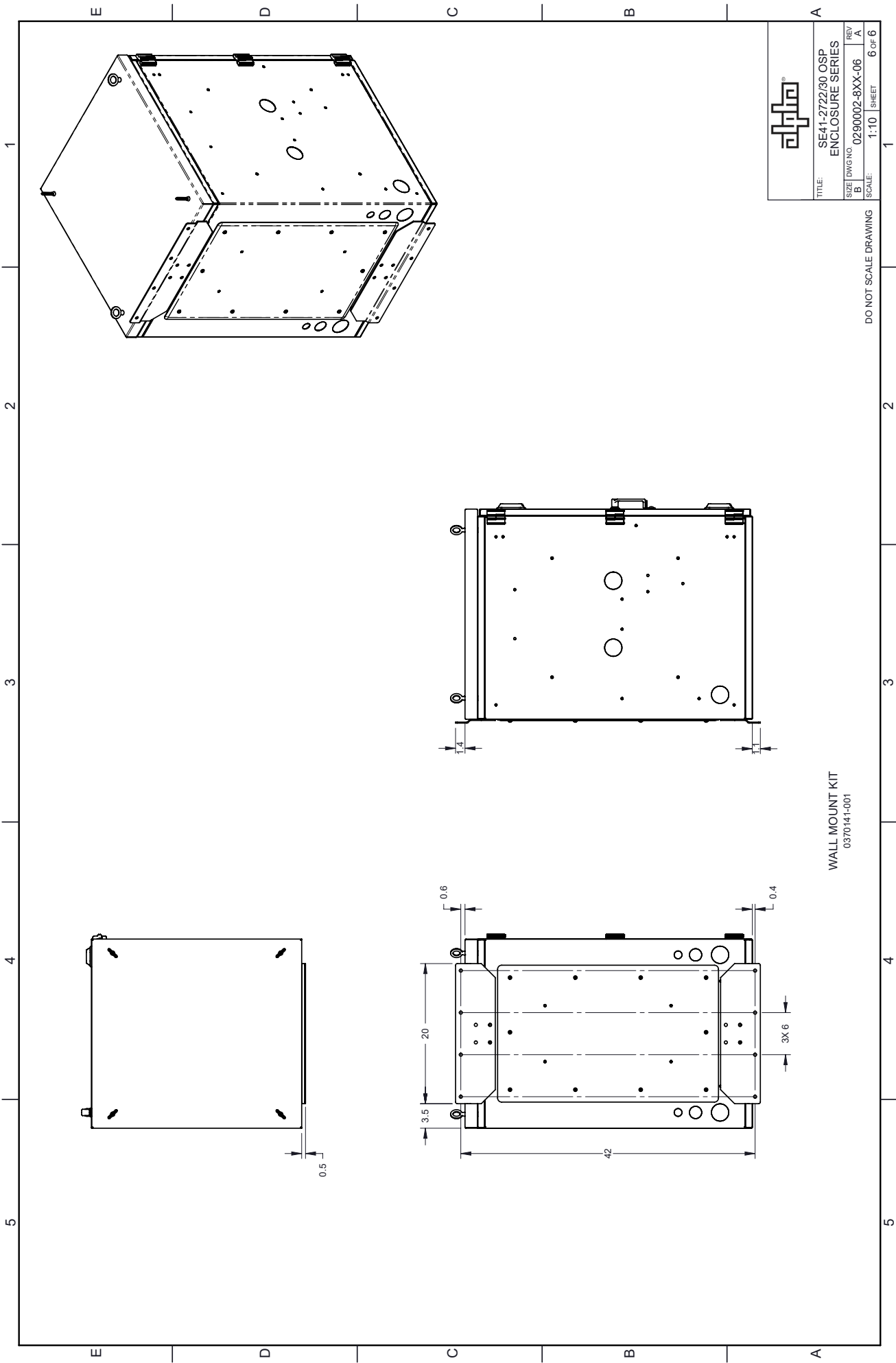
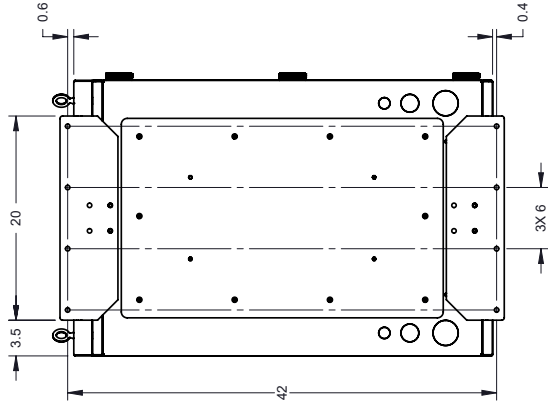
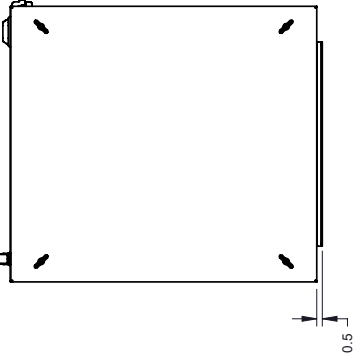
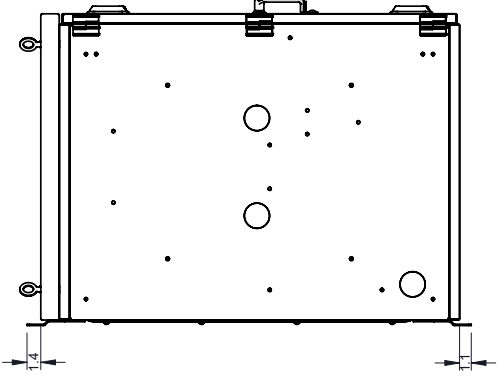
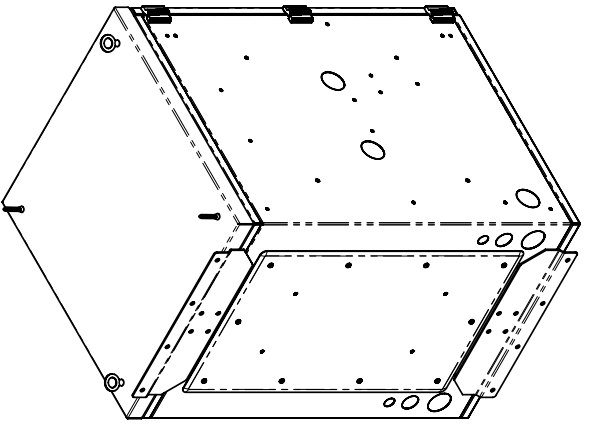
TITLE: SE41-272/30 OSP  
ENCLOSURE SERIES

SIZE	DWG NO.	REV
B	0290002-8XX-06	A

SCALE: 1:10 SHEET 6 OF 6

DO NOT SCALE DRAWING

WALL MOUNT KIT  
0370141-001





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#0290002-J0 Rev G  
(07/2020)