Charles Universal Broadband Enclosure CUBE-PM63912 and CUBE-PM63915 General Description and Installation

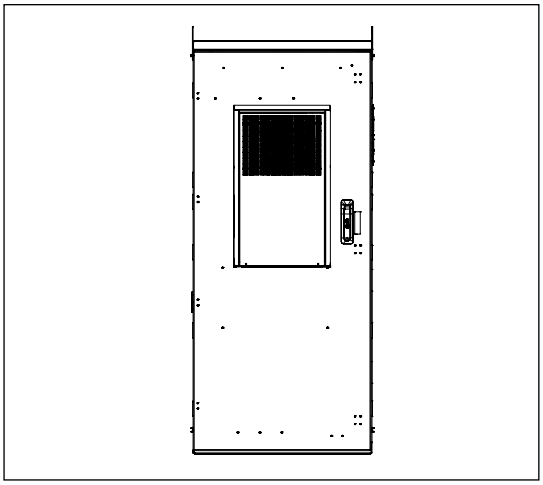

Figure 1 Front View of the CUBE

1. GENERAL INTRODUCTION

1.1 Document Purpose

This document provides general information for the CUBE-PM63912 and CUBE-PM63915 family of the Charles Industries' Universal Broadband Enclosure (CUBE) product line. Supplemental documentation that ships with the CUBE contains more detailed information about specific models. Figure 1 shows a closed front view of the enclosure.

-NOTE-

Hereafter, the CUBE-PM6391X Charles Universal Broadband Enclosure will be referred to as the PM63912, PM63915, or the "CUBE."

1.2 Product Purpose

These CUBEs consist of a protective enclosure for an integrated system of electronic components and equipment that can serve copper and fiber interfaces. Batteries are not supported in the configurations covered by this document.

1.3 Product Mounting and Location

These enclosures are suitable for outside plant-type (OSP) locations and those that may require NEC compliance. These outdoor, weather-resistant CUBEs are to be mounted on a pad or steel-grate. The installer connects the power, fiber and copper connections. Detailed mounting and installation information is covered in Section 3. Charles recommends the CPAD composite pad for pad mounting applications.

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2. PRODUCT DESCRIPTION

The CUBE includes an equipment compartment with 39RU of rack spacing. The PM63912 has front and rear doors while the PM63915 has a front door and a removable rear panel. Figure 2 shows the dimensions for the CUBE. Figure 3 shows the dimensions with the door(s) opened. Figure 4 shows the dimensions of the thermal system (if equipped). See Table 2 for a list of all models. The supplemental documents that ship with each model include component views.

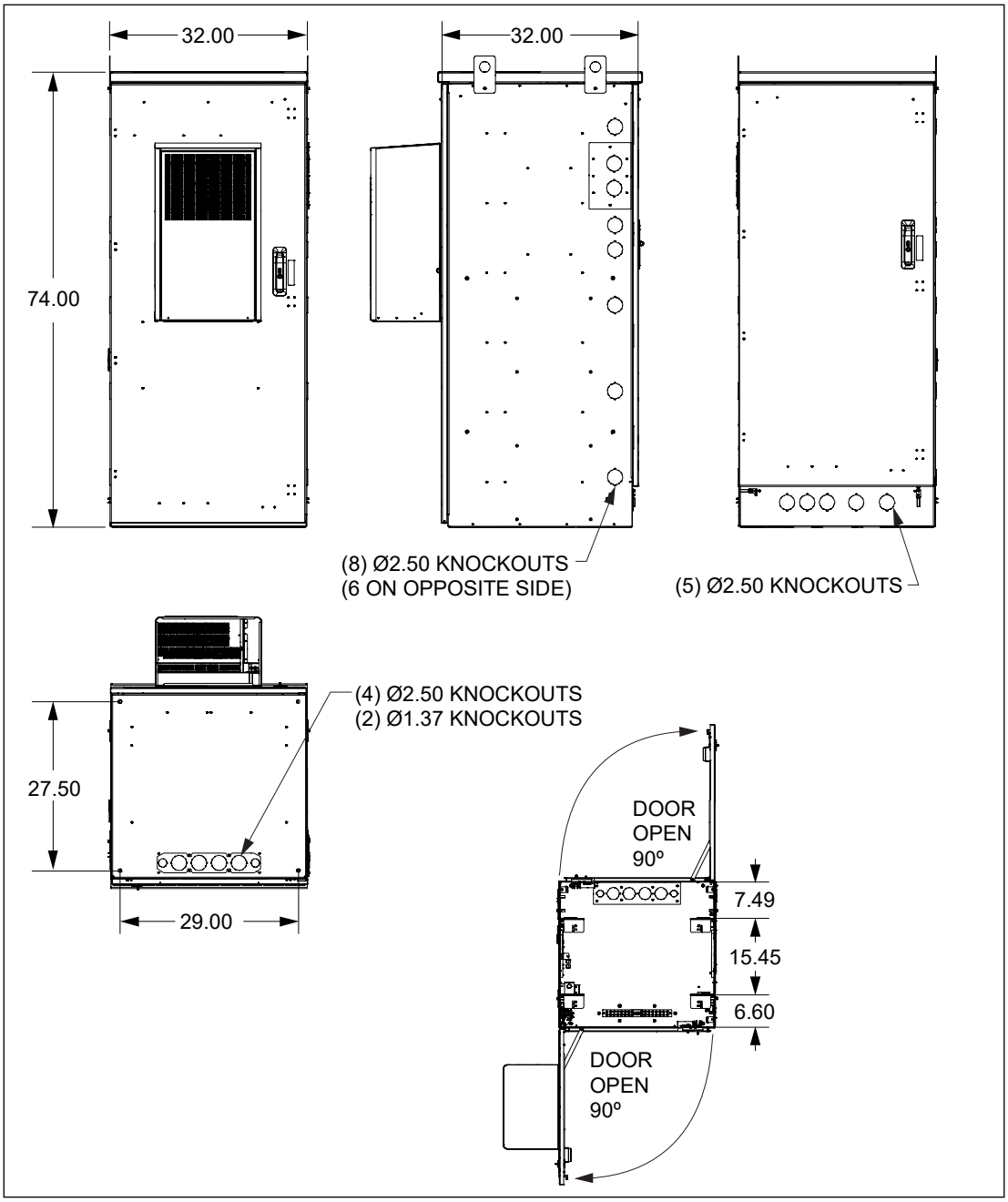

Figure 2 CUBE Dimensions (in inches) (PM63912JN1 shown, thermal unit depth varies by model)

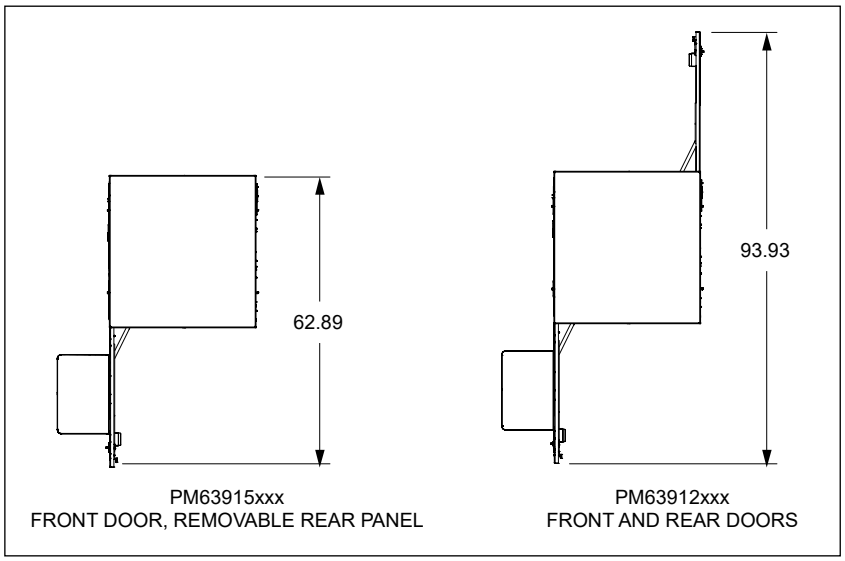

Figure 3 CUBE Open Door Dimensions (in inches)

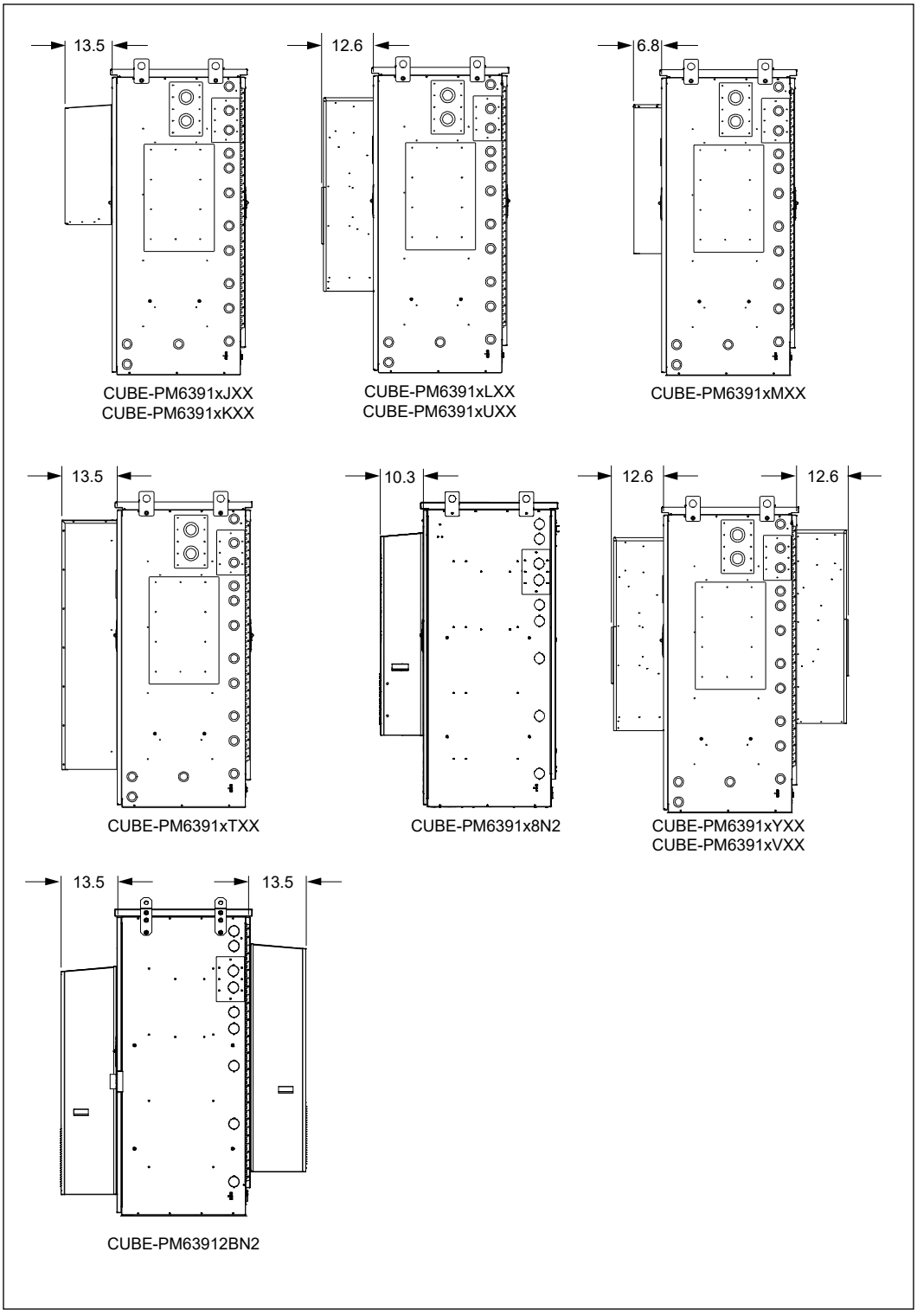

Figure 4 CUBE Thermal Equipment Dimensions (in inches)

3. INSTALLATION

3.1 Inspecting the Product

The CUBE is shipped mounted upright to a skid. Remove the bolts, unpack the unit, remove and dispose of the packaging material.

-INSPECTION NOTE-

Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the extent of the damage to the transportation company.

3.2 Following and Using Safety Precautions

Read the following site and safety tips, cautions and warnings, then proceed with the paragraphs that follow.

- For installation, follow all National Electrical Codes (NEC) ANSI/NFPA 70, local, environmental, workplace, and company codes, safety procedures, and practices.
- Maintain minimum spacing between the accessories and components and the housing for ITE equipment for safe operation of the equipment when installed in accordance with NEC ANSI/NFPA 70.
- Read all instructions, warnings and cautions on the equipment and in the documentation shipped with the product.
- Always connect ground connections first.
- Do not place this product on weak or unstable surfaces which may allow the product to fall, resulting in potentially serious damage(s) to persons or product.
- Only authorized trained personnel shall install the CUBE.
- In windy conditions, be sure to engage the door latch to secure the door in a stationary position.

3.3 Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the CUBE on a pad or steel grate.

- Sufficient length and quantities of fiber cable (or pigtails)
- Cable scoring, opening, and cutting tools for cable sheathing, shields, wrappings, strength members and buffer tubes
- Wire strippers
- Crimpers
- Cable, tube, wire, and fiber cleaning materials
- Protective and/or insulated work gloves
- Safety glasses
- Tape measure
- Marking utensil
- #6 ground wire or rod and earth ground materials
- Bond strap (optional, from cable bond clamp to bond post)
- Any exterior cable strain relief, per company practice
- Slotted, hex, and Phillips screwdrivers
- Torque wrench
- Assorted cable ties, clips, or fasteners (optional)
- Can wrench (216 type tool--provided)
- Level
- Derrick (crane) for lifting

3.4 Preparing the Installation Site

Observe the following site preparation recommendations:

- Leave adequate horizontal and vertical space between multiple installations to allow for proper cable access, as well as enough room to open the doors.
- The site must meet minimal personnel and equipment safety requirements.
- The distance from the cable entry point should be consistent with local installation practices.
- The pad or steel grate must be able to support the weight of the CUBE.
- Run all fiber and copper facilities to the site.

3.5 Lifting the CUBE

See the supplemental documentation for CUBE weight.

Some models have vertical (straight) lifting hoists, while others have angled lifting hoists. The lifting procedures are slightly different for each style of hoist.

⚠	**WARNING**	**Prior to lifting, remove the lifting brackets that hold the mounting gasket in place. Set aside the gasket, and then replace the brackets. Failure to do so can result in a failure of the lifting bracket assembly.**

3.5.1 Required Equipment

- One derrick (crane) capable of lifting the CUBE
- Spreader bars (for models with straight lifting hoists)
- Four lifting slings or chains with each having a 2,500 lbs. capacity
- Connecting links to attach slings to the CUBE's lifting brackets
- 75-ft. long tagline rope

Insert the lifting sling connecting links securely through each of the lifting brackets as shown in Figure 5 (for straight hoists) or Figure 6 (for angled hoists).

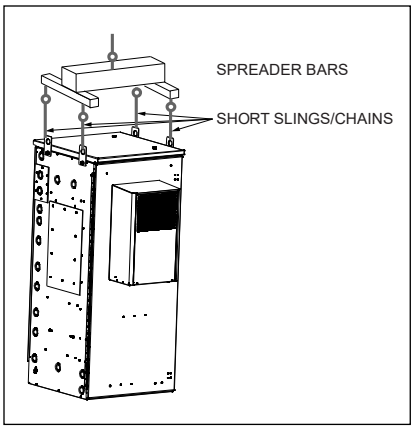

Figure 5
Lifting a CUBE with Straight Hoists

3.5.2 Warnings and Specific Safety Precautions

⚠	**WARNING**	**Improper hoisting equipment and unsafe lifting procedures can result in serious injury or death.**

Observe the following local safety procedures when performing the tasks in this section:

- Keep the CUBE away from any power lines.
- Keep bystanders away from the work operations at all times.
- Only trained operators shall operate the crane for lifting and setting the CUBE.
- Do not suspend loads over people or equipment.
- All persons working with hoisting equipment shall wear standard safety gear according to local practices including safety helmets and steel-toed shoes.
- Do not operate the hoisting equipment until all stabilizer are extended and in firm contact with the ground or adequate support structure.
- Do not attempt to retract or extend the stabilizers while a load is suspended.

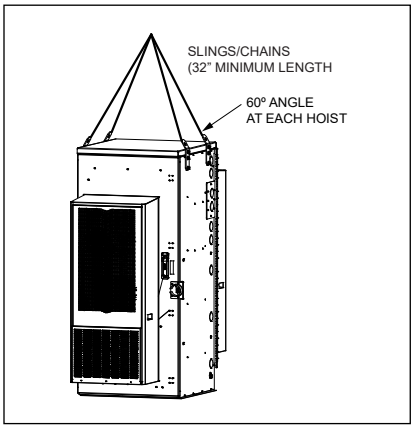

Figure 6
Lifting a CUBE with Angled Hoists

3.6 Mounting the CUBE

The CUBE can be mounted on a new or existing concrete or composite pad. Charles recommends the CPAD-MM2EXX with the optional CPAD-MM1EXXEXT or CPAD-MM2EXXEXT extension. A gasket is provided for placing the CUBE on a concrete pad. If the gasket becomes damaged during installation, order a replacement under part number 80-005300-A. The gasket is not needed if mounting on a CPAD. An optional plinth kit is also available (97-002162-A for the field mounted plinth or 96-002162-A for the factory installed plinth).

3.6.1 Torque Requirements

Torque all hardware as shown below (unless otherwise noted). These values apply to SAE Grade 1 & 2 Low Carbon Steel, ASTM A307 Low Carbon Steel, and Stainless Steel Grade 18-8.

Thread Size	In-lbs	Ft-lbs
4-40	4±10%	
6-32	8±10%	
8-32	16±10%	
10-32	26±10%	
12-24	50±10%	
1/4-20/M6	60±5%	5±5%
5/16-18	125±5%	10.4±5%
3/8-16	180±5%	15.0±5%
1/2-13	500±2%	41.7±2%
5/8-11	1000±1%	83.3±1%

3.6.2 Constructing a New Pad

- Use only concrete for the pad. Do not use substitute materials since they lack the rigidity for CUBE placement.
- Charles recommends using 1/2" anchor bolts for mounting to the pad. The embedment depth of the anchor is not to exceed 3.5".
- Observe local building practices for pad construction. Charles recommends that the pad should extend a minimum of 8" beyond the CUBE base on all sides (Figure 9)
- Use a minimum of 6" of sand or gravel as a base for the pad for leveling purposes.
- Figure 7 shows the required conduit openings and mounting hole dimensions for entering/mounting the bottom of the CUBE. Use these dimensions when designing the pad.

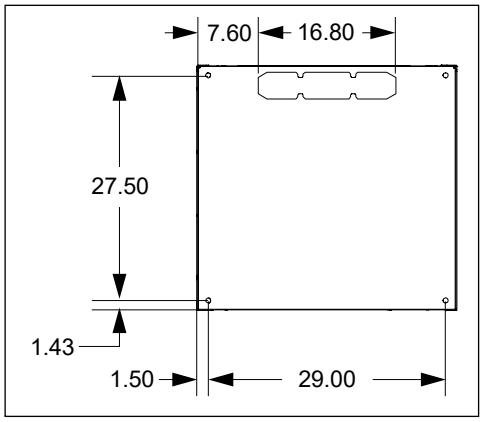

Figure 7
Mounting Dimensions (in inches), Top View

⚠	**WARNING**	**When pad mounting, the compression strength of the pad must be at least 4000 psi as determined by ASTM C39 test of compression strength of concrete cylinders.** **The slump of the concrete shall be 2" to 4" as determined by ASTM C143 test method.**

3.6.3 Mounting the CUBE on a Pad

Four customer supplied corrosion resistant 1/2"-13 hex head bolts with anchors are required for mounting the CUBE to the concrete pad. Use the following steps to mount the CUBE to a pad.

1. Layout, drill, and set the 1/2"anchors per manufacturer's recommendations. The embedment depth is not to exceed 3.5". Use the gasket as a mounting hole location template. Remove the anchor bolts for later reuse.
2. Clean any debris from the concrete pad or platform.
3. Install the gasket and place into position on the pad/platform so that the gasket will be underneath the bottom of the CUBE when it is placed. Line up the gasket so that the cutouts are in position around the conduit opening and over the mounting holes as shown in Figure 8.
4. For cabinets in which the cable conduit is entering from the bottom of the enclosure, dress the cable conduit so that it aligns with the opening in the base as it is lowered onto the pad or platform.
5. Open the front door to allow access to the mounting holes.
6. Ensure that the CUBE is parallel to the pad surface as it is placed onto the pad and that it aligns with the holes in the pad and the gasket. Dress the cable/conduit so that it aligns with the CUBE openings as it is lowered onto the pad.
7. Place the CUBE on the pad. Loosen the slings so that all the weight is on the pad. Check that the CUBE is properly aligned.
8. Secure the CUBE to the pad using 1/2"-13 hex head bolts. Tighten all bolts securely.
9. To secure the CUBE to a steel grate platform, install ½" corrosion-resistant Grade 5 steel hardware through the cabinet and platform grate. Ensure that the bolts are long enough to extend past the nut on the bottom side of the platform grate. For all mounting applications, for each bolted joint, use a minimum Ø1 inch fender washer on the inside of the cabinet (and underside of the platform grate for platform mounting) with a lock washer. The washer on the underside of the platform must be large enough to cover both adjacent bearing bars as shown in Figure 9.
10. Once the CUBE is secured, remove the slings and tagline and close the door.

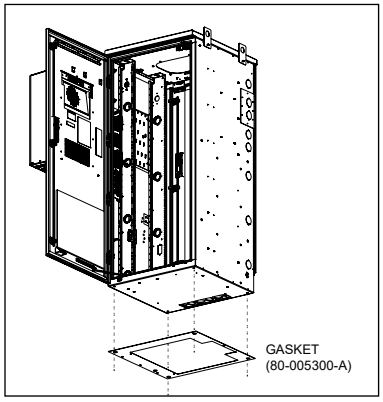

Figure 8 Gasket Installation

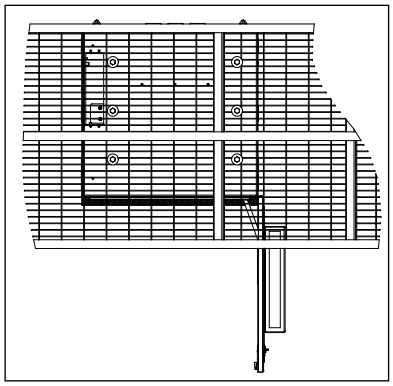

Figure 9 Installing on a Platform

3.6.4 Mounting the CUBE on a CPAD

First, follow the instructions that ship with the CPAD to ensure that the CPAD is securely installed in the ground. Then proceed to mount the CUBE on the CPAD. Four customer supplied, corrosion resistant, 1/2”-13, 2” long fully threaded hex head bolts are required for mounting the CUBE to the CPAD. Use the following steps to mount the CUBE to a CPAD.

1. Clean any debris from the CPAD.
2. Open the front door to allow access to the mounting holes.
3. Ensure that the CUBE is parallel to the CPAD surface as it is placed onto the CPAD and that it aligns with the holes in the CPAD. Dress the cable/conduit so that it aligns with the CUBE openings as it is lowered onto the CPAD.
4. Place the CUBE on the CPAD. Loosen the slings so that all the weight is on the CPAD. Check that the CUBE is properly aligned.
5. Secure the CUBE to the CPAD using the 1/2”-13 hex head bolts. Tighten all bolts securely.
6. Once the CUBE is secured, remove the slings and tagline and close the door.

3.7 CUBE Wiring and Equipment

After the CUBE is properly mounted in the desired location, apply No-Ox where bus bar and other 2-hole lug connections will be made. Install ground and power connections. Always ground the equipment first, before making any other connections.

⚠	WARNING	Perform all bonding and grounding connections prior to any electrical and communications connections.

In order to prevent condensation prior to being placed in service, do not remove the desiccant until the CUBE is sealed and power is applied. Refer to the supplemental document that ships with the CUBE for a basic electrical diagram.

3.7.1 Ground Connections

Use the two 2x8 position ground bars provided in the equipment compartment for all grounding of internal equipment. Stack hardware as shown in Figure 10. There are four sets of external studs with nuts, two on the rear, one on the left side and one on the right of the cabinet, that are used for terminating a double-hole lug for earth ground or site ground wire.

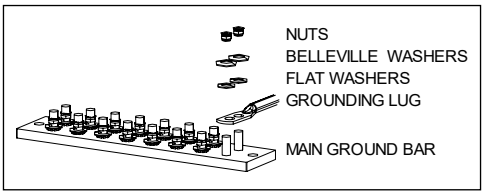

Figure 10
Ground Bar Hardware Stack

3.7.2 Removable Rear Access Panel

The PM63915 models have a removable rear access panel instead of a door. There are two padlockable 216-style quarter turn locks and four standard quarter-turn locks that are used to remove or secure the panel.

3.7.3 Fiber and Copper Entry

Cable entry is accommodated through multiple Ø2.50” knockouts on the sides, bottom, and rear of the cabinet suitable for Ø2.00” conduit fittings.

The right side of the cabinet has a removable knockout plate. By ordering kit 96-ROXTEC2X9CRL, this panel can be replaced with a panel that contains two 4” Microflect ports equipped with Roxtec 4” CRL seals. If desired, the installer can replace the Roxtec seals with customer-supplied Microflect boots.

3.7.4 Cable Management Kit

Charles Top Hat Cable Management Kit 97-002228-A is available for field installations as an option that allows cable to enter through the top of the enclosure (Figure 11). The 97-002230-A Top Hat cable management kit is identical, but comes factory-installed. The Top Hat kit comes with a 1x4 4-inch Microflect panel. Additional 1x4 4” Microflect panels can be ordered under part number 97-002250-A. See the documentation that ships with the TopHat for more information.

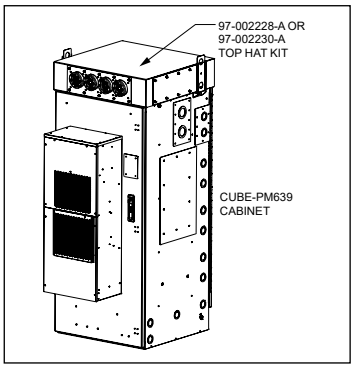

Figure 11
Top Hat Cable Management Kit

3.7.5 Macro Alarm Terminal Panel

An integrated macro-site alarm panel is mounted on the left wall of the cabinet. This panel provides forty protected dry contact alarm inputs to screw down terminals or 66-block connections (Figure 12).

The cabinet comes with a standard alarm schedule label (See Table 3). The table can be replaced or augmented to match the specific alarms being used. All connections are normally closed and open on alarm.

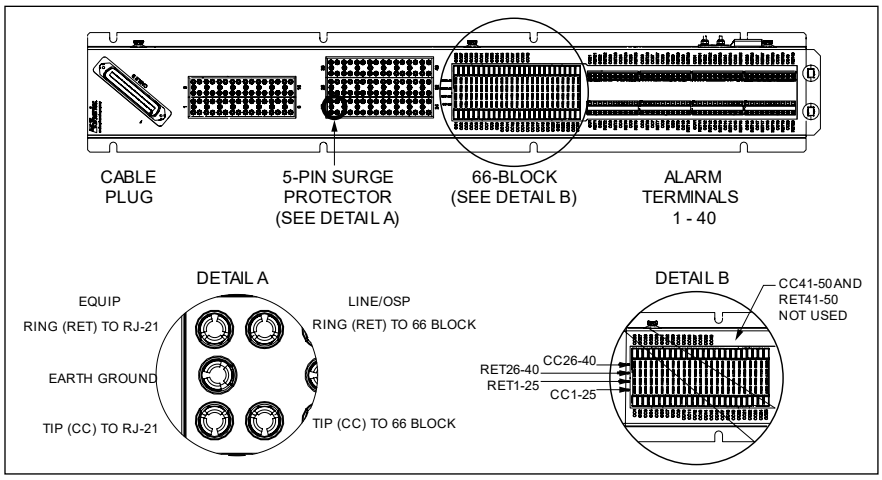

Figure 12 Alarm Terminal Panel

When connecting the CUBE in series with a battery backup unit (CUBE-BB family), take these additional wiring steps.

Step 1: Remove connections from the alarm panel in the PM cabinet.

- Remove RET1 (WHT/ORG)
- Remove RET12 (WHT)
- Remove RET13 (WHT/GRN)

Step 2: Lever lock connections.

- Use a lever lock to connect WHT/ORG removed from RET1 to ORG from the BB cabinet's alarm cables. Strip both wires to 0.5"
- Use a lever lock to connect WHT removed from RET12 to BLK from the BB cabinet's alarm cables. Strip both wires to 0.5"
- Use a lever lock to connect WHT/GRN removed from RET13 to GRN from the BB cabinet's alarm cables. Strip both wires to 0.5"

Step 3: Connect the BB cabinet to the PM cabinet alarm panel.

- Connect WHT/ORG from the BB cabinet alarm cables to RET1 on the PM alarm panel. Strip to 0.33"
- Connect WHT from the BB cabinet alarm cables to RET12 on the PM alarm panel. Strip to 0.33"
- Connect WHT/GRN from the BB cabinet alarm cables to RET13 on the PM alarm panel. Strip to 0.33"
- Connect BLU and BLU/WHT from the BB cabinet alarm cables to CC23 and RET23 on the PM alarm panel, respectively. Strip to 0.33"

Step 4: Groom wires.

- Secure cabling to wire grooming features and bundles located on the alarm panel.

See Figure 13 for a diagram of the in-series wiring.

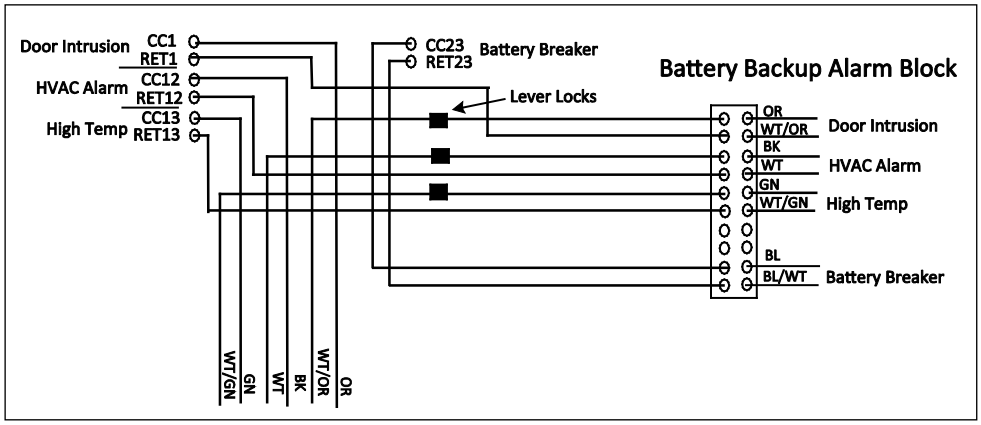

Figure 13 Alarm Connections In Series

3.7.6 Overheat Alarm

The CUBE is equipped with an overheat (high temperature) alarm thermostat in the equipment compartment that provides a normally closed connection. The overheat alarm is factory set at 50°C in units with HVACs or 60°C in units with heat exchangers and will open the connection when this temperature is exceeded.

-NOTE-
Changing the overheat (high-temp) thermostat default factory set points can lead to unnecessary alarms or system performance issues, such as equipment failures as a result of unreported alarms.

3.7.7 LED Lights

The front and rear door switches have two sets of contacts. The primary side contacts are used for turning the front and rear LED lights on and off. The LED lights are connected so that opening the front door turns on the front lights and opening the rear door turns on the rear lights. The secondary set of contacts is used for intrusion alarms.

3.7.8 Adjustable Rack Rails

The vertical rack rails have an adjustable depth. To reposition the rail, loosen the nuts on the horizontal cutouts in each rail and set to different points on the front and the rear. Retighten to 60 in-lbs.

A factory installed rack extender kit option is available, part number 96-PM639RK19EXT, that changes front and rear rack rails from 23” to 19”.

3.7.9 Optional Folding Laptop Tray

All of the enclosures have mounting studs on the front door for installing an optional folding laptop tray. This tray can be ordered under Charles 97-002178-A, which includes hardware for mounting. To open the tray, lift the platform and lower the hinged vertical support bracket.

3.7.10 MasterLock Provision

The cabinet has provisions for an optional MasterLock locking device, There are two kits necessary to complete a MasterLock cabinet door lock installation for an online system: a Network Controller kit (Charles 96-MLNTWKCTR-A) and a door kit. The door kit part number contains a door code and region code (96-MLXDRX-XXX). Contact Charles Industries for the appropriate part number for the installation. Refer to the documentation supplied with the MasterLock locking device for installation and use instructions.

3.8 Reversible Door

The PM63912 and PM63915 doors can be removed and remounted with the hinges on the opposite side of the CUBE in order to change the direction of the swing.

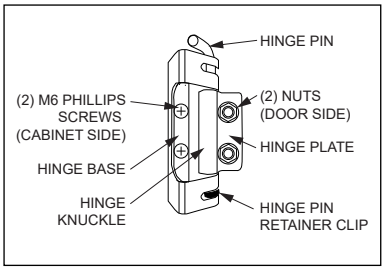

Figure 14 Hinge

1. Remove the two nuts that connect the wind latch to the cabinet. Save the nuts for later use. Disconnect the grounding strap from the door and the cabinet and save it and the nuts for later use.
2. Use pliers to remove the red hinge pin retainer clips from the hinge, then remove the hinge pins by lifting the pin out of the top of the hinge (Figure 14). Set aside the retainer clips and hinge pins for later use.
3. Remove the door (Figure 15).
4. Move the hinge plates from their positions on the front of the cabinet to the corresponding mounting holes on the opposite side of the doorway (Figure 14). Flip the hinge plate 180° so that when it is mounted, the hinge knuckle will be on the outside of the hinge plate.
5. Remove the hinge bases from the door (Figure 14). Attach the hinge base to the corresponding mounting holes on the opposite side of the door (Figure 17a). Position the hinge base so that the knuckle is pressed against the door flange. Torque the mounting nuts to 60 in-lbs.
6. Move the door ramp and wind latch to their new mounting locations on the opposite side of the door (Figure 17a, 17b). Torque the mounting hardware to 60 in-lbs.
7. Remove the inside and outside handle cover plates (Figure 17a) by removing the two ¼-20 Keps nuts that secure them to the door. Set aside the plates and the two Keps nuts.
8. To transfer the door handle and latches, follow these steps:
    a. Remove the four #10-32 Keps nuts from each door latch. Save the nuts.
    b. Loosen the hexagonal door rod set screws (found on the door latches, Figure 16).
    c. Loosen the four mounting screws on the door handle (Figure 17c), but do not remove.
    d. Lift door latches past the door studs and slide the hexagonal door rod out. Set aside. Remove the door latches from the door.
    e. Once all door latches and the rod have been removed, remove the door handle screws. Separate the door handle retainer bracket from the door handle and set aside (Figure 17c). Remove the door handle from the door.
    f. Slide the door lever out of its slot, rotate it 180°, and re-insert it on the other side of the handle assembly (Figure 17c). Pushing the door handle all the way closed helps to disengage the lever.
    g. Install the door handle into the door where the handle cover plate was previously. Loosely attach the door handle retainer bracket to keep the handle in place.
    h. Slide the door rod through the door lever and through the hexagonal opening in the handle closest to the edge of the door.
    i. Before attaching the latches, make sure they are in the fully released position (Figure 18) and the door handle is in its fully open position. Then, slide the top latch into its mounting location, and slide the rod 1/2" beyond the latch. Tighten the latch set screws. Repeat with the remaining middle latch, then the bottom latch. Make sure that the door rod extends .5" past the bottom latch when finished.
    j. Tighten the screws on the door handle.
    k. Install Keps nuts on all latches and tighten to 26 in-lbs (Figure 17c).
9. Using the reserved Keps nuts, attach the inside and outside handle cover plates over the opening where the door handle was mounted initially, ensuring that the studs face inside the cabinet (Figure 17a).
10. Lift the door upright and position the door so that the hinge bases line up with the hinge plates in the new positions on the other side of the doorway. While supporting the door weight, rest the door on the hinges and secure it into position by inserting the pins into the hinges from the top. Reconnect the hinge pin retainer clips in the slot near the bottom of the hinge (Figure 14). This clip must be at the bottom of the hinge in order to lock the hinge pin in place.
11. Reattach the wind latch to the cabinet. Connect the grounding strap to the door and the cabinet.

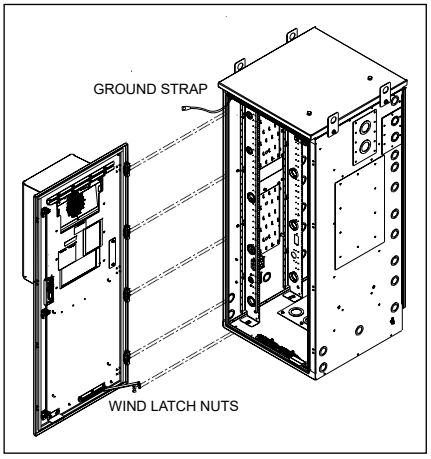

Figure 15 Door Removal

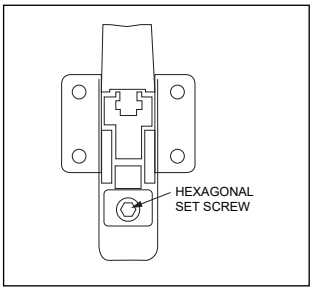

Figure 16
Door Latch Set Screw

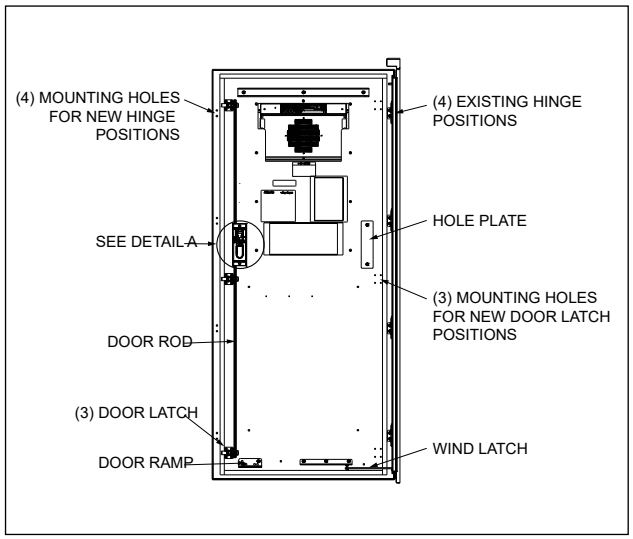

Figure 17a Reversible Door Components

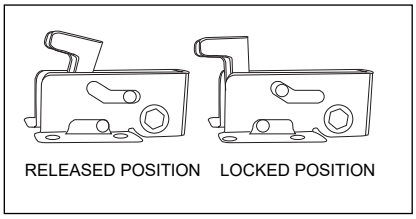

Figure 18 Latch Positions

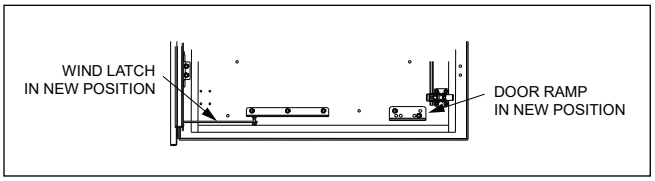

Figure 17b
New Locations for Wind Latch and Door Ramp

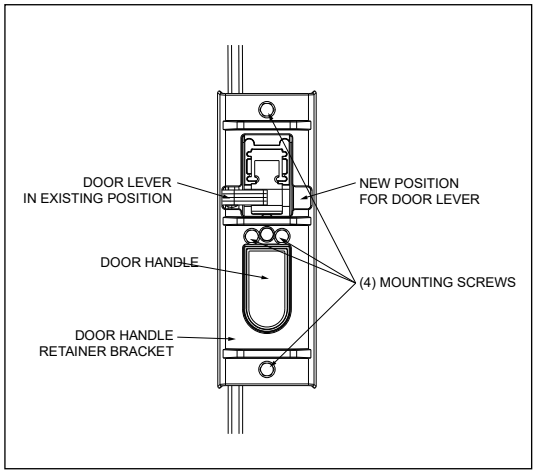

Figure 17c Door Handle Detail

3.9 Conduit Seals

All internal and external conduit openings on the CUBE must be completely sealed with a duct seal compound to prevent moisture from entering the equipment compartment. Use a moldable, flame-retardant putty style duct seal material. Do not use an expanding foam seal. Mold the putty so that the open space around the wire or conduit is completely sealed, as shown in Figure 19. If the openings must be accessed at any time, remove the putty and set it aside. When work is complete, re-mold the putty to re-seal the opening.

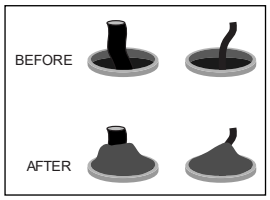

Figure 19 Applying Putty Seal

3.10 Verifying the Installation

Verify that earth ground and all grounding and bonding is complete and functional. After verifying that all installer connections are secure and complete, turn on the circuit breakers and verify that equipment turns up correctly.

4. PERIODIC MAINTENANCE

In the event that the enclosure needs to be opened in freezing conditions, a narrow, pointed metallic object such as a screwdriver or chisel, along with a non-metallic device such as a rubber mallet, may be used to remove excessive ice buildup around the door and locking mechanism. Use a commercial aerosol de-icer spray to free up locks and latches if needed.

Reset the GFCI duplex receptacle periodically to ensure it is working. The unit meets UL-943, which requires an auto-monitoring (self-testing) feature. A flashing or solid red LED indicates a fault. If the unit continues to show a fault after resetting, replace the unit.

Heat exchangers (if equipped) require no scheduled maintenance other than cleaning the fans and heat exchanger core if they become contaminated with dust or residue. Remove the cover by removing the screws on the outside. Refer to the heat exchanger documentation supplied with the cabinet for more information. Refer to the HVAC manual supplied with the HVAC (if equipped) for periodic maintenance requirements.

5. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500
techserv@charlesindustries.com (email)
http://www.charlesindustries.com/techserv.htm

6. WARRANTY & CUSTOMER SERVICE

Charles Industries LLC offers a one-year warranty on the CUBE product. The Charles warranty is limited to the operation of the CUBE hardware as described in this documentation and does not cover equipment which may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

847-806-6300
mktserv@charlesindustries.com (email)
http://www.charlesindustries.com/main/telecom_sales_support.htm

7. SPECIFICATIONS

7.1 Regulatory Specifications

- Designed to meet GR-487
- UL-2416 Listed, Type 3R (select models)
- GFCI: UL-943 Listed

If CUBEs are field-modified, a customer provided ETL field evaluation of the modified components may be required to re-establish ETL certification to UL standards. Consult local jurisdictions for guidance on a site-by-site basis.

7.2 Product Specifications

Physical	
Dimensions	74”Hx32”Wx32”D
Color	Off-white
Material	0.125” Aluminum
23” Equipment Rack Space and Hole Spacing	68.25” (39 RU) rack spacing with tapped EIA #12-24 mounting holes (front and back)
Maximum Supported Weight	Rack Rails: 429 lbs.
Electrical	
Cable Entrance Ordering Roxtec entry Panels	Refer to Figure 2 96-ROXTEC2X9CRL coax cable entry panel 96-ROXTEC2X3KFO hybrid cable entry panel
Environmental	
Operating Temp. Range, Inside Enclosure	-40° to +149°F, -40° to 65°C
Operating Temp. Range, Outside Enclosure	-40° to +115°F, -40° to 46°C
Humidity	0 to 95% (non-condensing)
Altitude	Up to 2,000 meters (6560’)
Kits and Replacement Parts	
Optional Plinth Mounting Kit	97-002162-A for field installation 96-002162-A for factory installation
Cable Management	Top Hat Kit 97-002228-A for field installation Top Hat Kit 97-002230-A for factory installation
Folding Laptop Tray (optional)	97-002178-A
Replacement Gasket	39-000350-0
Touch-Up Paint	02-000290-0
Rack Extender Kit (to modify rack spacing to 19”)	96-PM639RK19EXT
216 Type Security Tool	07-002070-0
Lift-Up Handle	39-000335-0
Lift-Up Rod Latch	39-000336-0
Combination Padlock Long Shackle - 2.25”	39-200415-0
4-Wire Door Alarm and LED Switch (Black)	17-400319-0
AC Cutoff Switch (Black with White Pushbutton)	17-400322-0
15A GFCI Outlet	04-100207-0
Overheat Thermostat	99-004548-0

Table 1 PM63912 and PM63915 Family Specifications

7.1.1 Available Models

CUBE Part Number	Thermal	Power System
CUBE-PM639158N2	12000BTU DC HVAC	None
CUBE-PM63915BN1	Hybrid DAC/14000BTU HVAC	None
CUBE-PM63912BN2	Dual 17000BTU DC HVACs	None
CUBE-PM63912JN1	4000BTU AC HVAC	None
CUBE-PM63912KN1	4000BTU DC HVAC	None
CUBE-PM63912LN1/PM63915LN1	12000BTU DC HVAC	None
CUBE-PM63915LN3	10000BTU DC HVAC	ABB -48V
CUBE-PM63915LN5	10000BTU DC HVAC	None
CUBE-PM63912MN1/PM63915MN1	1880W Heat Exchanger	None
CUBE-PM63912TN1/PM63915TN1	3500W Heat Exchanger	None
CUBE-PM63912UN1	12000BTU AC HVAC	None
CUBE-PM63912UN5	10000BTU AC HVAC	ABB -48V
CUBE-PM63912UN6	10000BTU AC HVAC	ABB -48V
CUBE-PM63912VN1	(2) 12000BTU DC HVACs	None
CUBE-PM63912VN2	(2) 12000BTU DC HVACs	ABB -48V
CUBE-PM63912YN1	(2) 12000BTU AC HVACs	None

Table 2 PM63912 and PM63915 Product Specifications by Model

7.1.2 Alarm Panel Settings

Alarm Number	Description
CC1	Door Intrusion
CC2	Commercial Power Failure
CC3	Surge Suppressor/Lightening Arrestor
CC4	Rectifier Failure
CC5	Multiple Rectifier Failure
CC6	Battery Discharge
CC7	Low Voltage
CC8	DC Power Failure
CC9	Generator Running
CC10	Generator Low Fuel
CC11	Generator Failure
CC12	HVAC Failure
CC13	High Temp
CC14	Low Temp
CC15	Tower Light
CC16	Tower Light Side
CC17	RRH Up-Convertor Failure
CC18	RRH Power Failure
CC19	RRH High Humidity
CC20	RRH Intrusion
CC21	Smoke/Fire
CC22	Bus Bar Theft
CC23	Battery Breaker Alarm
CC24	
CC25	Microwave Critical
CC26	Microwave Major
CC27	Dehydrator Alarm
CC28	Fire Suppression Discharge
CC29	Fire Suppression Trouble
CC30	Secondary HVAC Running
CC31	Explosive Gas
CC32	High Humidity

Table 3 Macro Alarm Wiring Table