

Charles Universal Broadband Enclosure

CUBE-SS4C215XN1

General Description and Installation

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1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides additional information for the CUBE-SS4C215XN1 of the Charles Industries' Universal Broadband Enclosure (CUBE) product line that is not included in the family document, LT-SSxx215xxx. Figure 1 shows a closed front view of the enclosure.

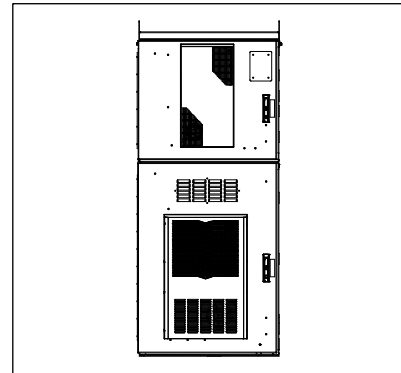


Figure 1 Front View of the CUBE

-NOTE-

Hereafter, the Charles Universal Broadband Enclosure CUBE-SS4C215XN1 will be referred to as the "CUBE."

2. PRODUCT DESCRIPTION

The CUBE equipment compartment has 15RU of 23" rack mount spacing. It is equipped with a 760W heat exchanger. The battery compartment supports two strings of customer supplied -48VDC NiCd batteries and has a 2kBTU HVAC system. Figure 2 shows the components of the CUBE.

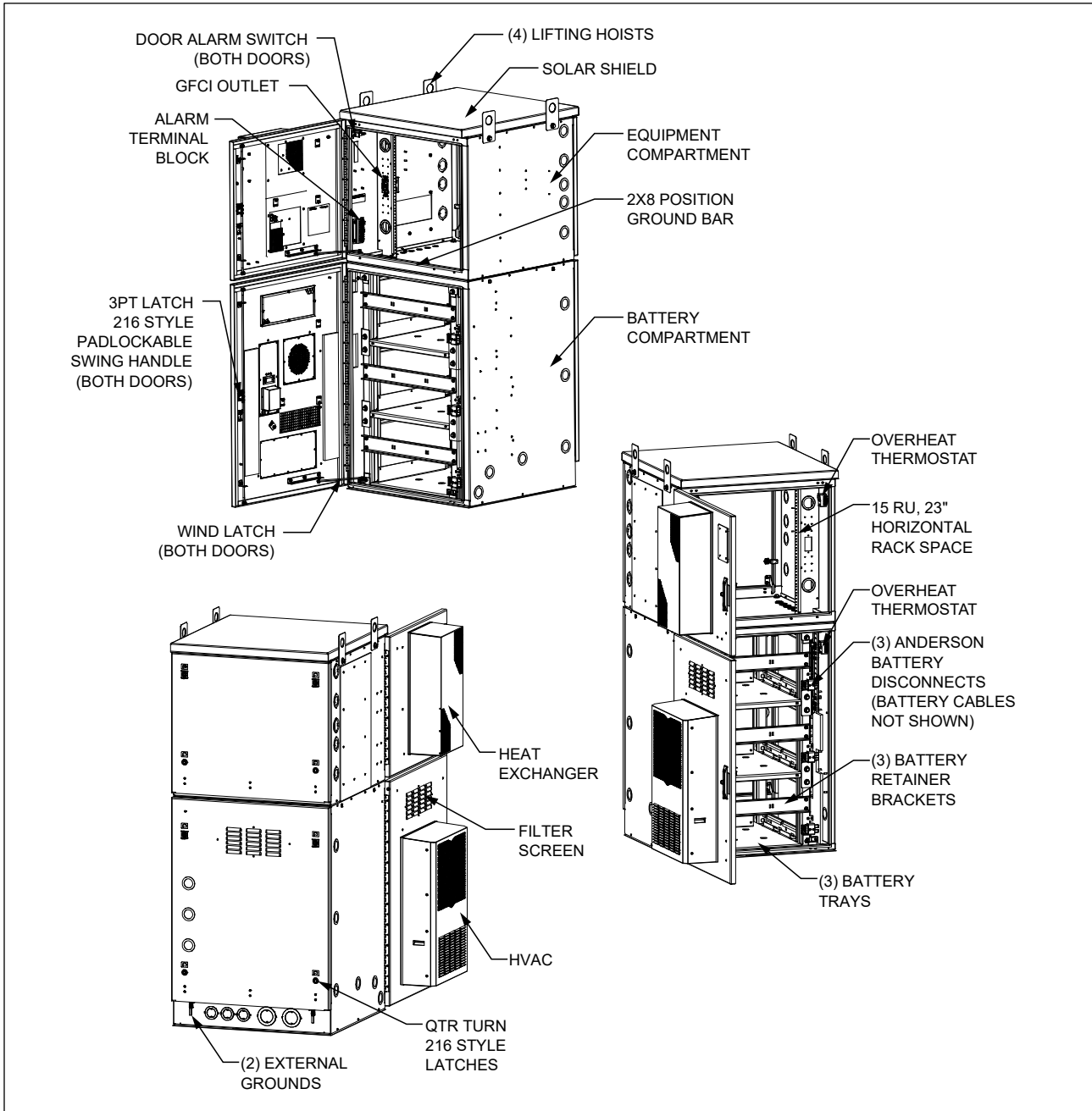



Figure 2 CUBE Components

3. 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.
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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. A basic electrical diagram is shown in Figure 3.

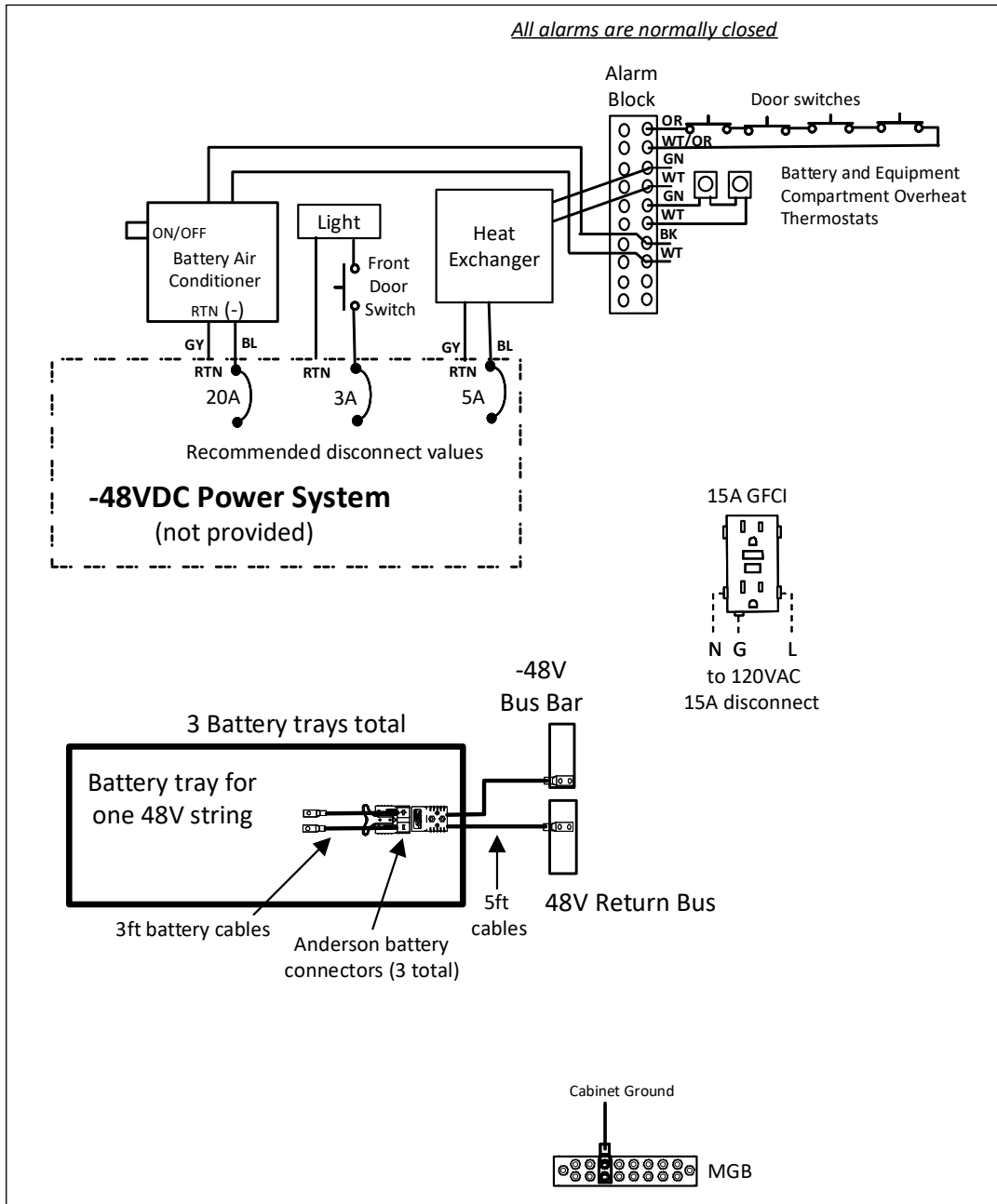


Figure 3 Electrical Diagram

3.1. Heat Exchanger Operation

The 760W DC powered heat exchanger in the equipment compartment has a fan speed controller and includes an internal and an external fan. Both fans' speed increases with increasing internal cabinet temperature. Fans and heat exchanger settings are defined below, and are based off of the cabinet interior temperature. The maximum airflow amount supplied to the equipment by the heat exchanger is 147CFM.

Setting	Internal	External
Turn-on Setting (5°C Differential)	0°C	30°C
Medium Temp Setting	30°C	35°C
High Temp Setting	45°C	50°C
High Temp Alarm Setting	70°C	N/A
Low Temp Alarm Setting	-40°C	N/A

For more information, refer to the heat exchanger documentation found inside the CUBE.

-NOTE-

Changing the speed controller default factory set points can lead to system performance issues, such as equipment failures, increased power use, unnecessary alarms, noise, condensation build up, fan failure caused by excessive runtimes and vibration.

Avoid placing items in front of the heat exchanger's return and supply vents. Maintain a minimum of 6" clearance to enable proper air flow.

3.2. DAC Operation

The 2000BTU DC powered HVAC compressor and fans are PID (proportional integral derivative) controlled. The compressor turns on at 25°C at low speed and will increase speed as needed to maintain that temperature. The compressor turns off at 22°C. The internal fan is always on at low speed to continually circulate heat within the cabinet. The heating cycle turns on at 8°C and off at 13°C. The CUBE is equipped with a cutoff switch that shuts off the HVAC compressor when a door is opened to minimize condensation buildup on the coils. For further information, refer to the HVAC documentation that ships with the CUBE.

-NOTE-

Changing the cooling or heating cycles' default factory set points can lead to system performance issues, such as equipment failures, increased power use, unnecessary alarms, noise, condensation build up, compressor or fan failure caused by excessive runtimes and vibration.

Avoid placing items in front of the HVAC's return and supply vents. Maintain a minimum of 6" clearance to enable proper air flow.

4. SPECIFICATIONS

Physical	
Weight	SS4C215XN1: Approx. 700 lbs. as shipped SS4C215XN2: Approx. 808 lbs. as shipped
Thermal	
Heat Exchanger	48VDC, 760W, Vikinor VHC-040-DC
Maximum Heat Dissipation	720W@19°C above ambient with solar
HVAC System	48VDC, Vikinor VAK-6000-DC
Cooling Capacity	2000BTU

Table 1 CUBE Specifications (For full list, see the family document, LT-SSXX215XXX)