Charles Universal Broadband Enclosure
CUBE-SS4B207DB1
General Description and Installation

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides additional information for the CUBE-SS4B207DB1 of the Charles Industries' Universal Broadband Enclosure (CUBE) product line that is not included in the family document, LT-SSxx207xxx. Figure 1 shows a closed front view of the enclosure.

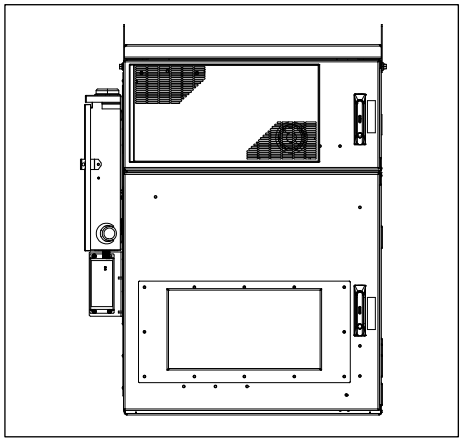

Figure 1 Front View of the CUBE

-NOTE-

Hereafter, the Charles Universal Broadband Enclosure CUBE-SS4B207DB1 will be referred to as the "CUBE."

2. PRODUCT DESCRIPTION

The CUBE equipment compartment has 7RU of 23" rack mount spacing. It is equipped with a 12-position AC load center and a 760W heat exchanger. The battery compartment supports two strings of customer supplied -48VDC NiCd batteries and has a direct air cooling system (DAC). Figure 2 shows the components of the CUBE.

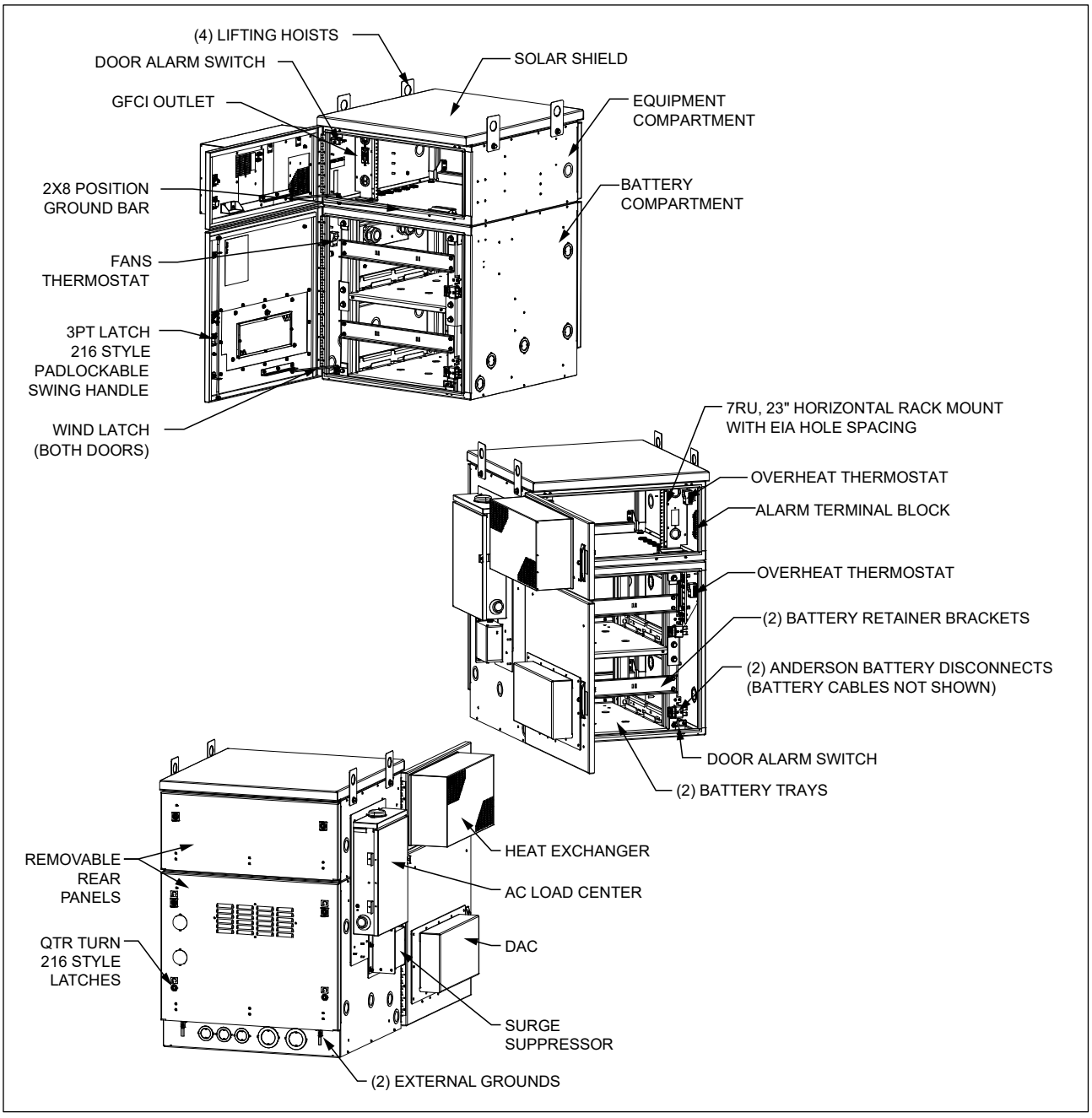

Figure 2 CUBE Components

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.

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.

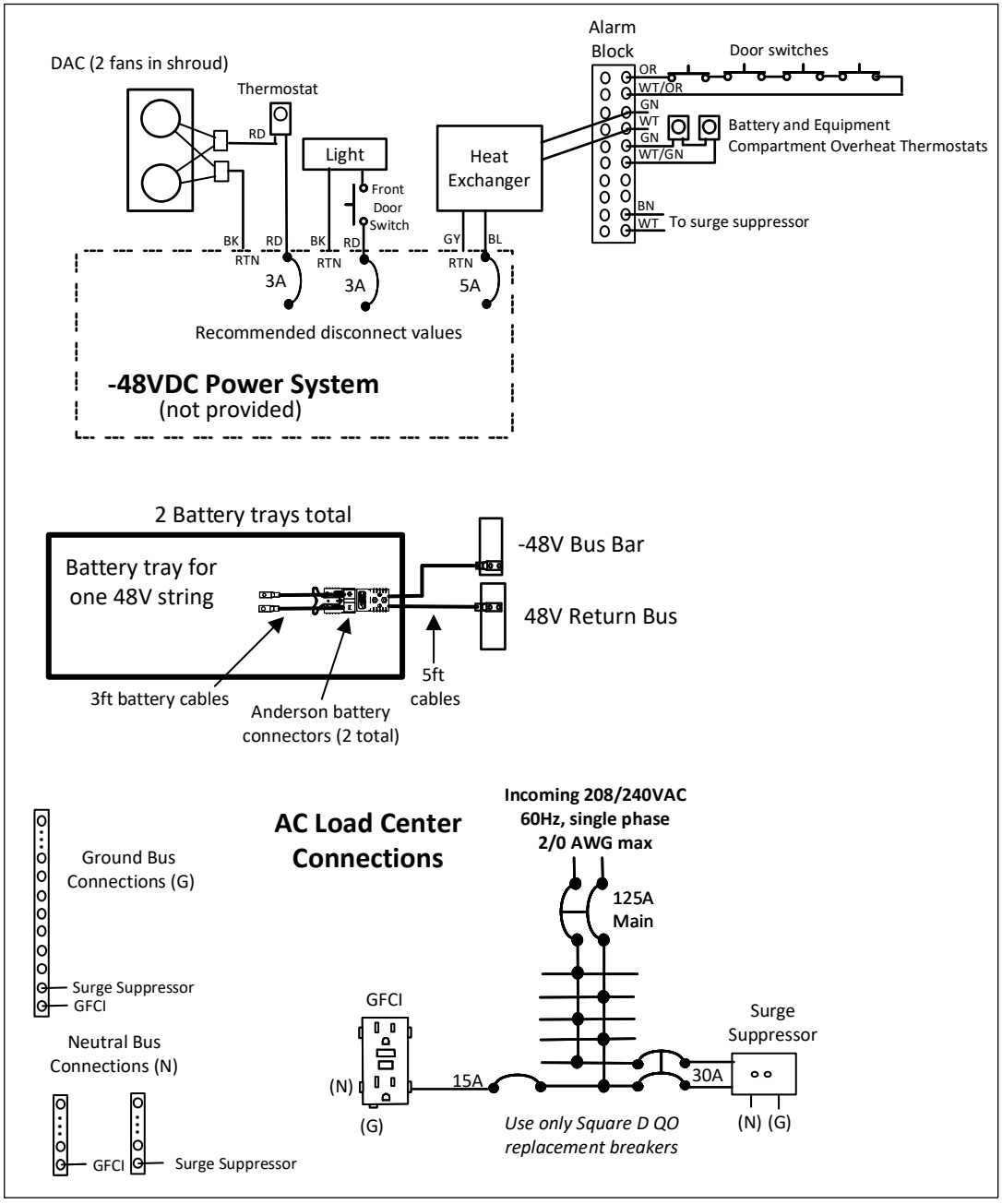

Figure 3 Electrical Diagram

3.1. AC Voltage Connection

Incoming AC voltage is single phase, 60Hz, 120VAC and is connected to the 125A main breaker in the load center. The installer connects the two hot (line) wires to the breaker, the neutral wire to the neutral bus, and the ground wire to the ground bus of the AC load center. The maximum wire size is 2/0AWG. Use wire that is sized per National Electrical Code NFPA70 table 310.16.

To configure the CUBE for 208/240VAC, remove the jumper from the 125A main breaker.

3.2. 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.

3.3. DAC Operation

The DAC system consists of filtered louvers and a shroud with dual fans. The fans are connected to a control thermostat and power. The fan wiring is routed to the equipment compartment and connected to a circuit breaker on the power system. The control thermostat is factory set at 30°C (±4°C). The thermostat turns the cooling fans on at the set point and turns them off when the temperature drops by 7°C.

-NOTE-
Changing the thermostat set point from its factory default setting can lead to system performance issues, such as reduced battery life, condensation buildup, excessive runtimes, premature fan failure, and filter clogging, in addition to unnecessary power use, noise, and vibration.

4. SPECIFICATIONS

Physical	
Weight	Approx. 500 lbs. as shipped
Electrical	
AC Load Center	Square D QO112L125GRB
Thermal	
Heat Exchanger	760W, 48VDC, Vikinor VHC-040-DC
Maximum Heat Dissipation	720W@19°C above ambient with solar
Kits and Replacement Parts	
DAC On/Off Thermostat	99-004234-0
Replacement 24VDC DAC Fans	18-950453-0

Table 1 CUBE Specifications (see family document for full list)