

Charles Universal Broadband Enclosure

CUBE-SS4D207XB1

General Description and Installation

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1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides additional information for the CUBE-SS4D207XB1 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.

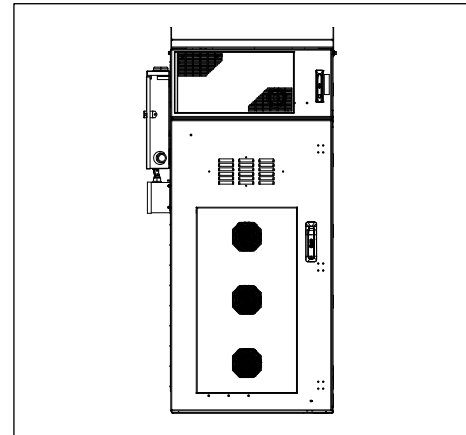


Figure 1 Front View of the CUBE

-NOTE-

Hereafter, the Charles Universal Broadband Enclosure CUBE-SS4D207XB1 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 8-position AC load center and a 750W heat exchanger. The battery compartment supports four strings of customer supplied -48VDC VRLA batteries and has a thermoelectric cooling system (TEC). Figure 2 shows the components of the CUBE.

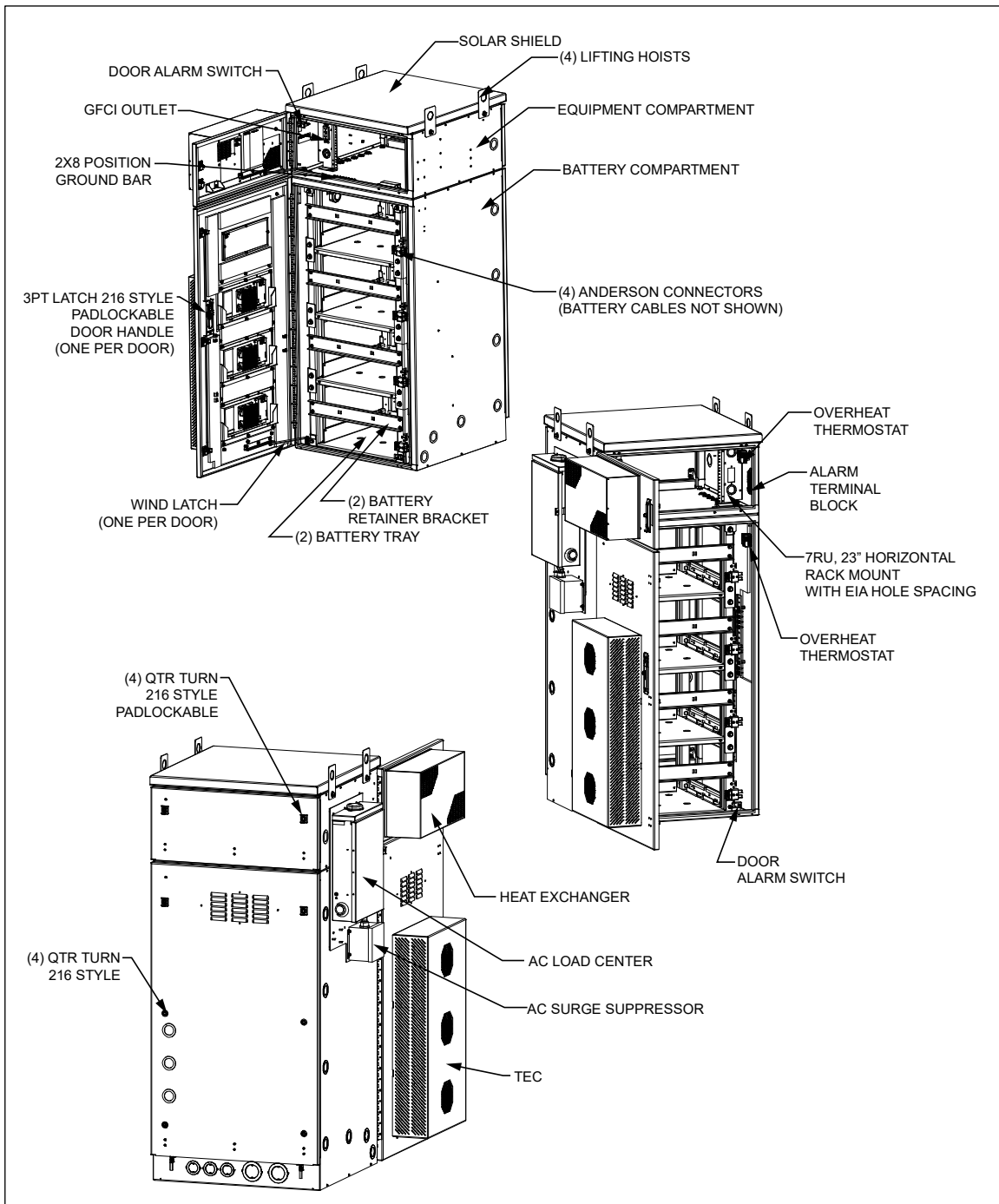


Figure 2 CUBE Components

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.

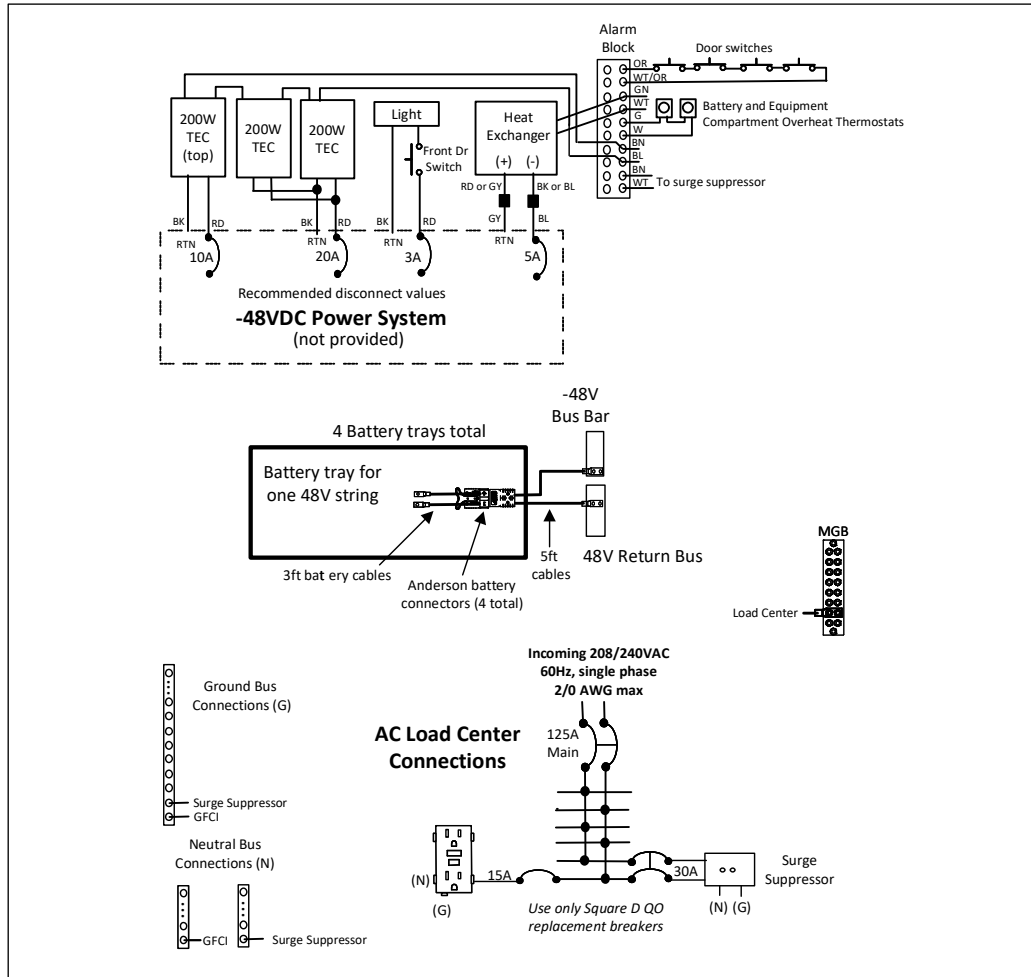


Figure 3 Electrical Diagram

3.1. AC Voltage Connection

Incoming AC voltage is single phase, 60Hz, 208/240VAC 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.

3.2. Heat Exchanger Operation

The 750W 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. TEC Operation

The TEC devices mounted on the door of the battery compartment are covered by an external shroud with their wiring connected to a return bus and circuit breaker terminated to the -48VDC bus of the power system. On-board controllers allow both heating and cooling cycles. The cooling cycle turns on at 25°C and turns off at 20°C. The heating cycle turns on at 5°C and turns off at 10°C. Condensation build up on the heat sink of the TEC is normal. For more information, refer to the TEC documentation found inside the CUBE.

-NOTE-

It is not possible to change any of the TEC factory default set points.

4. SPECIFICATIONS

Physical	
Weight	Approx. 850 lbs. as shipped
Electrical	
AC Load Center	Square D QO11624L125GRB
Thermal	
Heat Exchanger	48VDC, 750W, Vikinor VHC-030-DC
Maximum Heat Dissipation	700W@19°C above ambient with solar
Kits and Replacement Parts	
48VDC TEC Assembly	99-004478-0
48VDC TEC Internal Fan	18-950462-0
48VDC TEC External Fan	18-950463-0
48VDC TEC Control Board	99-004528-0

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

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