Charles Universal Broadband Enclosure
CUBE-SS4B228PN1
# General Description and Installation

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides additional information for the CUBE-SS4B228PN1 of the Charles Industries' Universal Broadband Enclosure (CUBE) product line that is not included in the family document, LT-SSXX228XXX. Figure 1 shows a closed front view of the enclosure.

-NOTE-

Hereafter, the CUBE-SS4B228PN1 Charles Universal Broadband Enclosure will be referred to as the "CUBE."
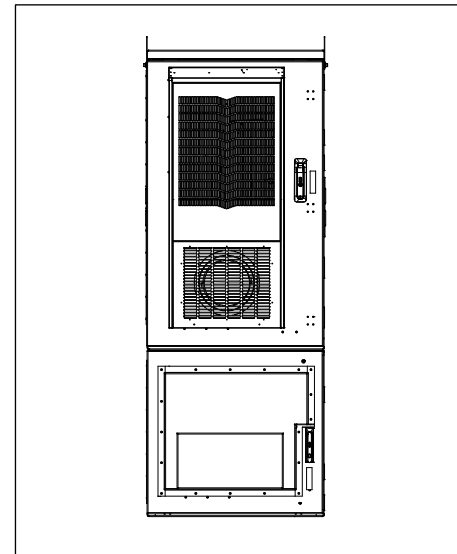
Figure 1   Front View of the CUBE

2. PRODUCT DESCRIPTION

The equipment compartment includes a 2250W 48VDC thermosiphon. The battery compartment supports two strings of -48VDC Saft NiCd batteries (customer supplied), and it is equipped with a -48VDC direct air cooling system (DAC). Figure 2 shows the components of the CUBE.
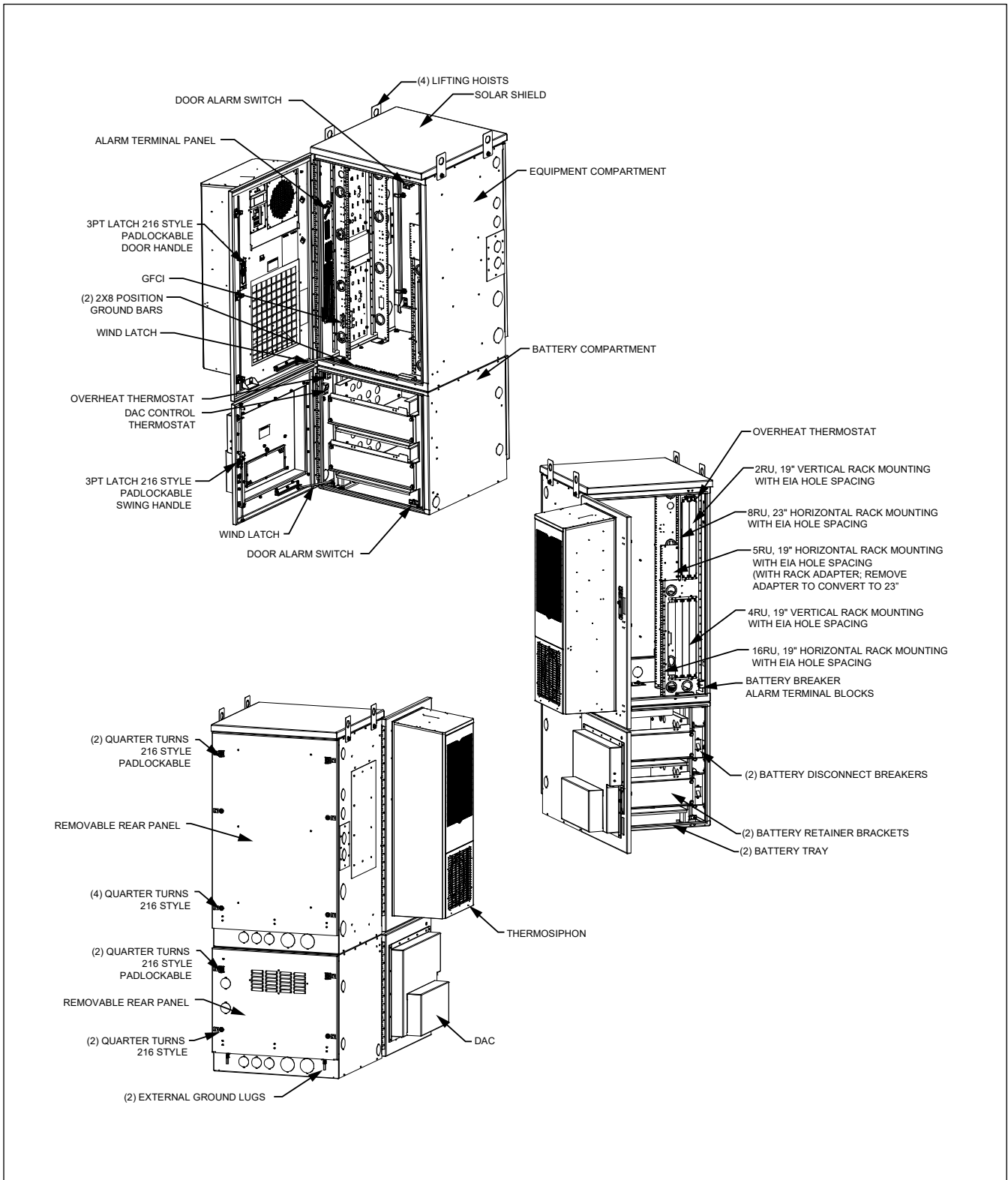
Figure 2   CUBE Components

Labels in figure:

(4) LIFTING HOISTS
DOOR ALARM SWITCH
SOLAR SHIELD
ALARM TERMINAL PANEL
EQUIPMENT COMPARTMENT
3PT LATCH 216 STYLE PADLOCKABLE DOOR HANDLE
GFCI
(2) 2X8 POSITION GROUND BARS
WIND LATCH
BATTERY COMPARTMENT
OVERHEAT THERMOSTAT
DAC CONTROL THERMOSTAT
3PT LATCH 216 STYLE PADLOCKABLE SWING HANDLE
WIND LATCH
DOOR ALARM SWITCH

OVERHEAT THERMOSTAT
2RU, 19" VERTICAL RACK MOUNTING WITH EIA HOLE SPACING
8RU, 23" HORIZONTAL RACK MOUNTING WITH EIA HOLE SPACING
5RU, 19" HORIZONTAL RACK MOUNTING WITH EIA HOLE SPACING (WITH RACK ADAPTER; REMOVE ADAPTER TO CONVERT TO 23"
4RU, 19" VERTICAL RACK MOUNTING WITH EIA HOLE SPACING
16RU, 19" HORIZONTAL RACK MOUNTING WITH EIA HOLE SPACING
BATTERY BREAKER ALARM TERMINAL BLOCKS
(2) BATTERY DISCONNECT BREAKERS
(2) BATTERY RETAINER BRACKETS
(2) BATTERY TRAY

(2) QUARTER TURNS 216 STYLE PADLOCKABLE
REMOVABLE REAR PANEL
(4) QUARTER TURNS 216 STYLE
(2) QUARTER TURNS 216 STYLE PADLOCKABLE
REMOVABLE REAR PANEL
(2) QUARTER TURNS 216 STYLE
(2) EXTERNAL GROUND LUGS
THERMOSIPHON
DAC

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 power is applied to the CUBE. A basic electrical diagram is shown in Figure 3.
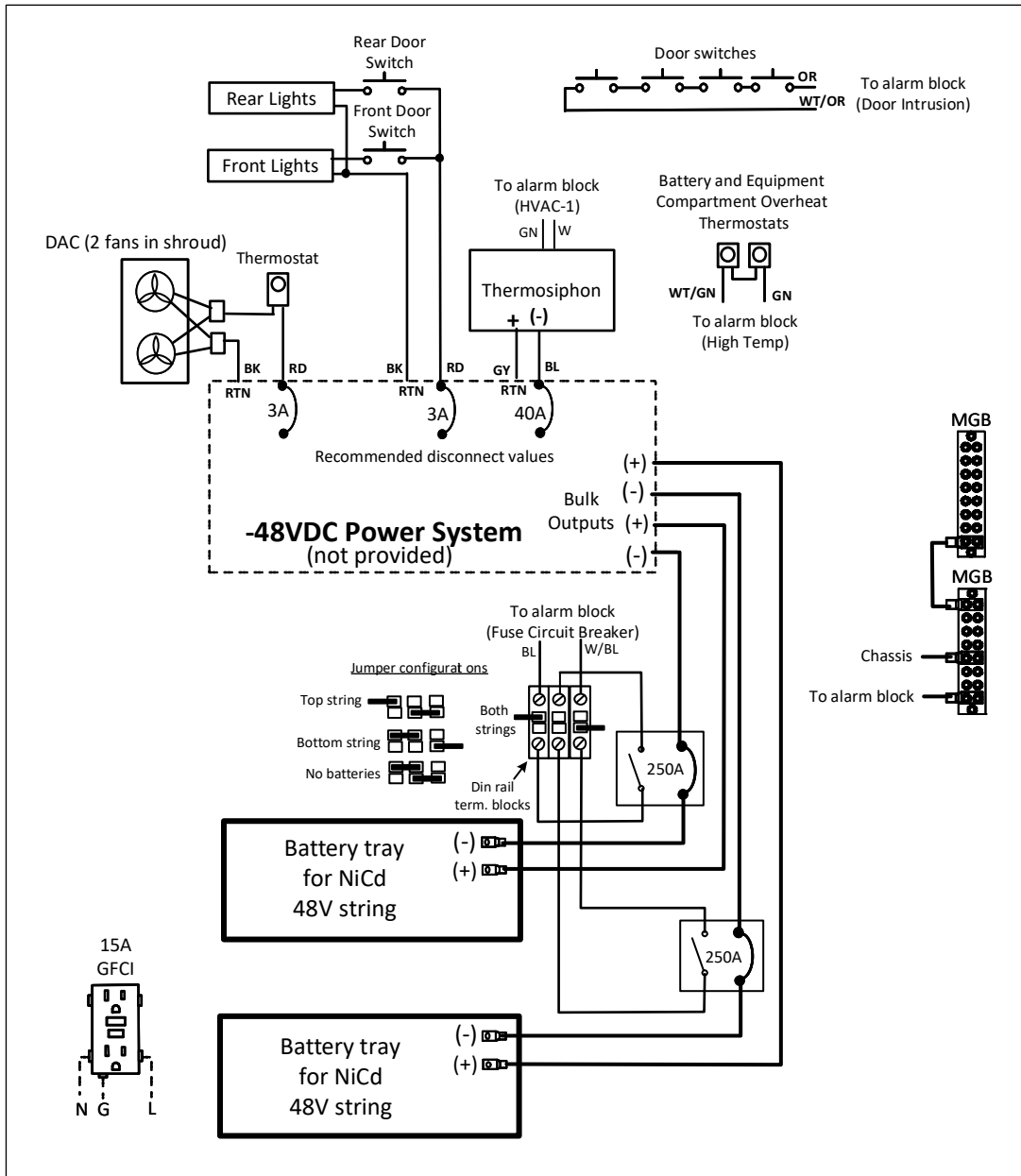

Figure 3   CUBE Electrical Diagram

3.1.   Thermosiphon Operation

The DC powered thermosiphon in the equipment compartment has a speed controller and includes an internal and an external fan. The fans' speed increases with increasing ambient temperature. Fan settings are defined below.

Fan Setting	Internal	External
Turn-on Setting	-40°C	35°C
Medium Temp Setting	35°C	35°C
High Temp Setting	45°C	45°C

For more information, refer to the thermosiphon 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 thermosiphon's return and supply vents. Maintain a minimum of 6" clearance to enable proper air flow.

3.2.   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 -48VDC 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.

3.3.   Alarm Terminal Panel

All alarm wiring is connected to the 40-position alarm panel. Refer to the family practice LT-SSxx228xxx for more information about the panel. The following table shows the macro alarm block wiring for this unit.

Alarm ID	Color	POS	Color	POS2
Door Intrusion	ORG	CC1	WHT/ORG	RET1
HVAC Failure	GRN	CC12	WHT	RET12
High Temp	GRN	CC13	WHT/GRN	RET13
Battery Breaker Alarm	BLU	CC23	BLU/WHT	RET23

4.   SPECIFICATIONS

Physical	
Weight	Approx. 700 lbs. as shipped
Electrical	
Battery Disconnect Breakers	18-908176-0
Thermal	
Thermosiphon	2250W, Vikinor VHT-225-DC
Maximum Heat Dissipation	2090W@19°C above ambient with solar
DAC	243CFM, Delta PFB1248UHE-EP

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