Charles Universal Broadband Enclosure
CUBE-PM42712UN1 and CUBE-PM42712UN2
General Description and Installation

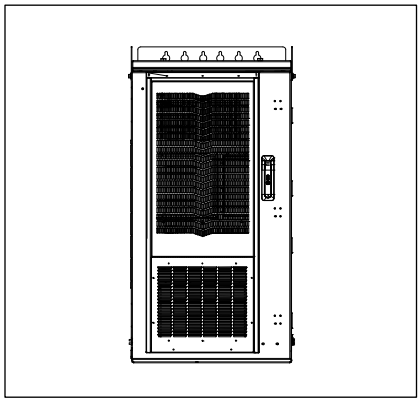

Figure 1 Front View of the CUBE

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides additional information for the Charles Industries' Universal Broadband Enclosure CUBE-PM42712UN1 and CUBE-PM42712UN2 that is not covered in the LT-PM42712XXX family document. A front view of the CUBE is shown in Figure 1.

-NOTE-

Hereafter, the Charles Universal Broadband Enclosure CUBE-PM42712UN1/UN2 will be referred to as "PM42712UN1," "PM42712UN2," or the "CUBE."

2. PRODUCT DESCRIPTION

The CUBE includes a 10,000BTU HVAC with a 2000W heater. The PM42712UN2 also includes a GE Infinity S dual voltage +24 /-48VDC power system with controller. Figure 2 shows the main components of the CUBE.

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. Basic electrical diagrams are shown in Figures 3 and 4.

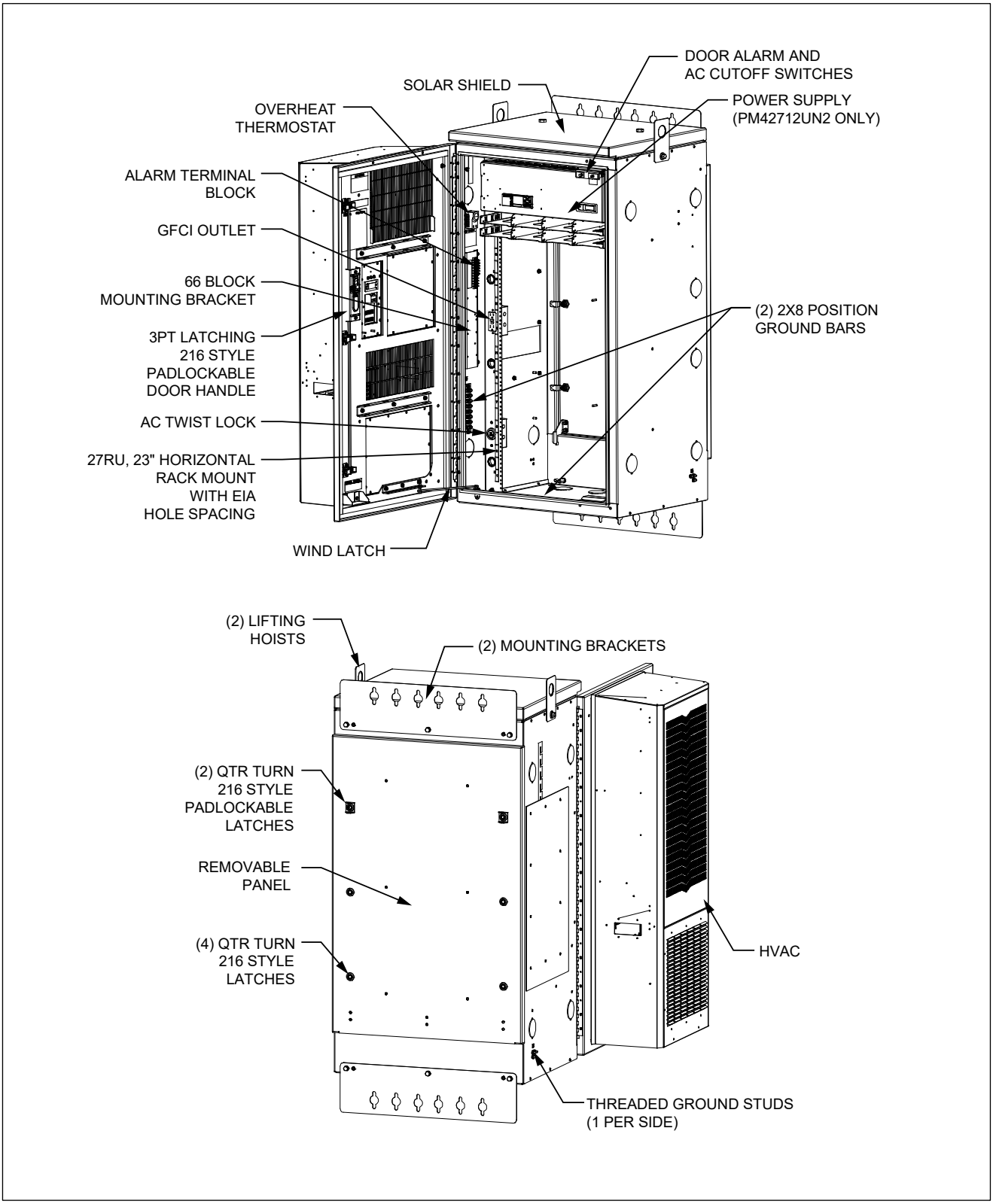

Figure 1 CUBE Components

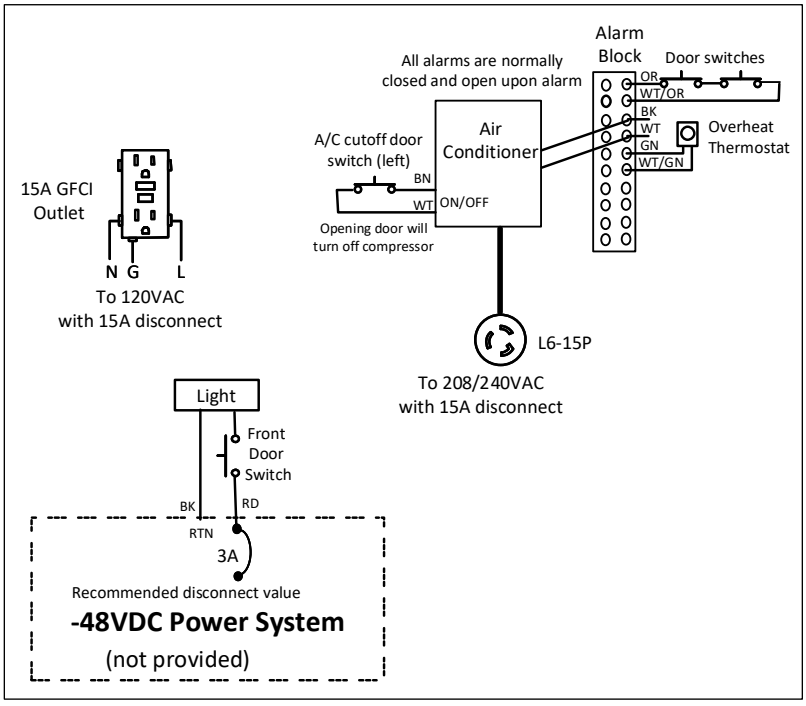

Figure 3 PM42712UN1 Electrical Diagram

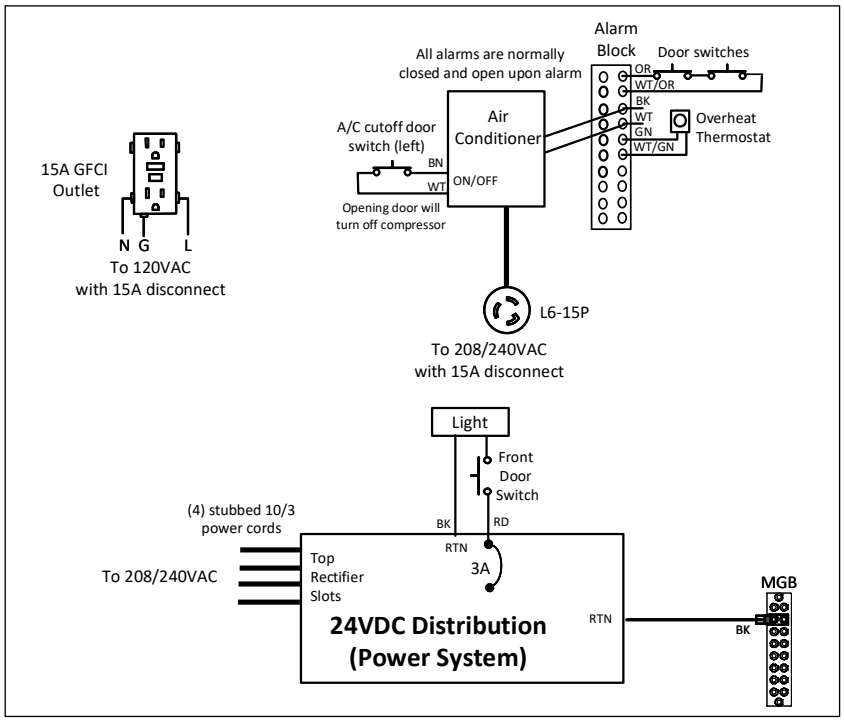

Figure 4 PM42712UN2 Electrical Diagram

3.1. +24/-48VDC Power System (PM42712UN2 Only)

The dual voltage +24/-48VDC GE Infinity S Power System is equipped with a controller, 26 breaker positions, and eight universal slots with a primary +24VDC output, which is derived from the rectifiers. The system also has a secondary -48VDC output that is obtained using +24 to -48VDC converters. Breakers, rectifiers, and converters are customer supplied. A 50-ft. alarm output cable is provided for interfacing with the controller.

Refer to the GE power supply documentation located inside the CUBE for information regarding the power supply operation and configuration.

3.2. HVAC Operation

The 12000BTU AC powered HVAC compressor and fans are PID (proportional integral derivative) controlled. The compressor turns on at 33°C at low speed and will increase/decrease speed as needed to maintain this temperature. The compressor turns off when the internal temperature reaches 28°C. The internal fan is always on at low speed (30%) to continually circulate heat within the cabinet. The external fan turns on/off with the compressor. Both fans' speed increase as needed with increasing internal cabinet temperature. In addition, the HVAC includes a built-in 1000W heater for cold temperature operation. HVAC settings for the compressor, fans, heater, and temperature alarms are defined below and are based off the cabinet's interior temperature. 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.

The maximum airflow amount supplied to the equipment by the HVAC is 500CFM. 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.

HVAC Compressor/Fans/Heater/Alarms Setting	Internal	External
Compressor Turn-on Setting	33°C	N/A
Compressor Turn-off Setting	28°C	N/A
Fan Turn-on Setting	-40°C	33°C
Heater ON Setting (70% Fan Speed)	8°C	N/A
Heater OFF Setting	13°C	N/A
High Temp Alarm Setting	65°C	N/A
Low Temp Alarm Setting	0°C	N/A

3.3. Overheat Thermostat

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 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.

4. SPECIFICATIONS

Physical	
Weight	PM42712UN1: approx. 260 lbs. as shipped PM42712UN2: approx. 314 lbs. as shipped
Electrical	
Power system with controller	PM42712UN2 only: +24/-48VDC, GE Infinity S150033378
Thermal	
HVAC	230VAC, 2000W heater, Vikinor VAK-3000-AC
Cooling Capacity	12,000 BTU

Table 1 CUBE Specifications