Charles Power and Fiber Enclosure

CFIT-PF2020DSH1 and CFIT-PF2020DSH2

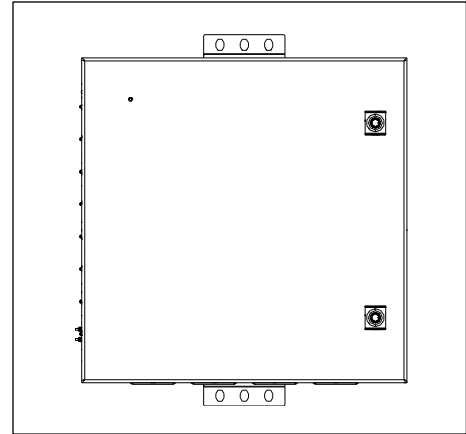# General Description and Installation

Figure 1   Front View of the CFIT

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides general information for the CFIT-PF2020DSH1 and CFIT-PF2020DSH2 fiber storage enclosure. Figure 1 shows a closed front view of the enclosure.

> *-NOTE-*
>
> *Hereafter, the Charles Universal Broadband Enclosure CFIT-PF2020DSH1 and CFIT-PF2020DSH2 will be referred to as the "CFIT."*

1.2. Product Purpose

The CFIT enclosure includes a breaker, a terminal block, and six ports of LC/UPC adapters. The adapter bulkhead has space for up to six additional ports (ordered separately). Fiber and wiring are routed through knockouts on the CFIT.

1.3. Product Mounting and Location

The outdoor, weather-resistant CFIT is to be mounted on a wall or pole.

2. SAFETY PRECAUTIONS

⚠️ — **WARNING** — ⚠️

Risk of serious eye damage! Never look into the end of a fiber optic line or use a magnifier in the presence of laser light or radiation. Exercise caution when installing, testing or maintaining live circuits. If eyes are exposed to laser light or radiation occurs, immediately seek treatment by a medical professional.

⚠️ — **WARNING** — ⚠️

Cable and fiber cleaning solvents may contain hazardous or harmful materials. Maintain good housekeeping practices and refer to the SDS when working with cleaning solvents or similar products.

Shards and cleaved glass fibers are very sharp and can easily pierce the skin. Use tweezers to pick up cut glass fibers and place them in a specifically designated container. Do not consume any food products near the cable installation site.

Corrugated metal or armor in feed cables is very sharp when cut or exposed. Exercise extreme caution to prevent personal injury. Use protective work gloves when handling armored cable.

⚡ — **CAUTION** — ⚡

Perform all bonding and grounding prior to making any electrical and communications connections.

Be careful not to damage any buried cables or service wires while digging either to expose cables or to prepare a hole or trench, or while driving stakes. Buffer tubes and fibers are sensitive to excessive bending, pulling, and crushing forces. To avoid kinking of buffer tubes and fiber damage or breakage, exercise great care when working with fiber, and do not exceed or violate minimum bend radius requirements for fibers, buffer tubes, and cables.
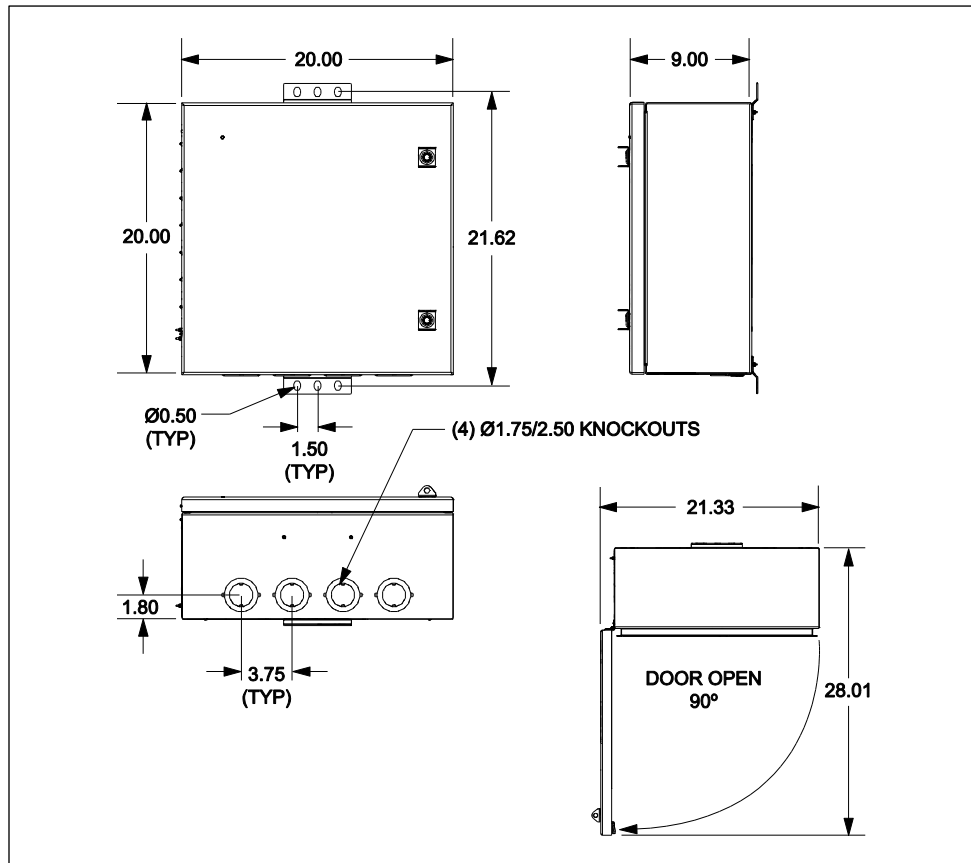

Figure 2   CFIT Dimensions (in inches)
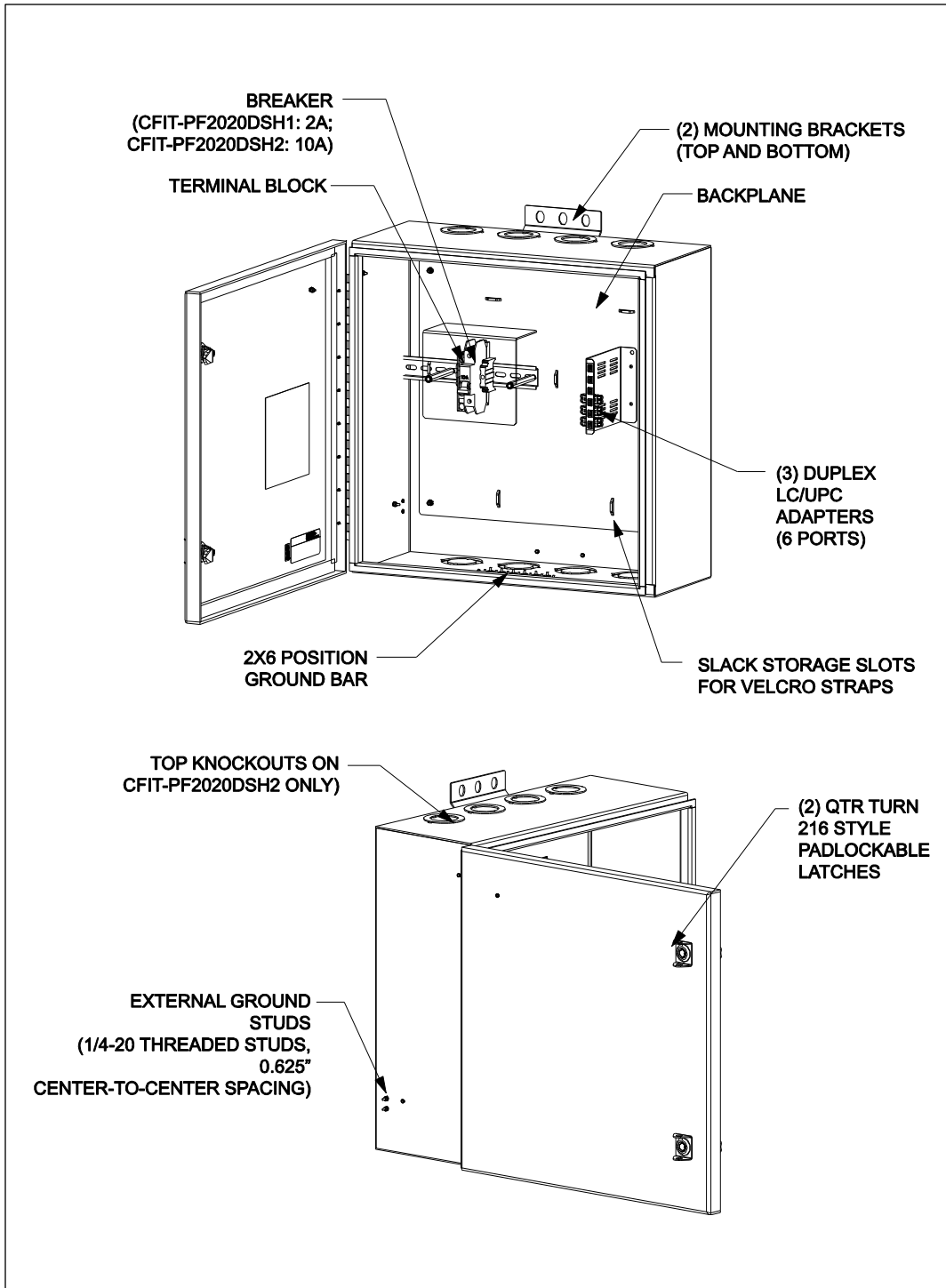**Note: CFIT-PF2020DSH1 is shown. CFIT-PF2020DSH2 includes the same knockout configuration on the top of the enclosure.**

Figure 3   CFIT Components

3. INSTALLATION

3.1. Inspecting the Product

The CFIT is shipped mounted upright on a skid. Remove the bolts, unpack the unit, and dispose of the packaging material.

> *-INSPECTION NOTE-*
>
> *Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the extent of the damage to the transportation company.*

3.2. Following and Using Safety Precautions

Read the following site and safety tips, cautions, and warnings, then proceed with the paragraphs that follow.

- For installation, follow all National Electrical Codes (NEC) ANSI/NFPA 70, local, environmental, workplace, and company codes, safety procedures, and practices.
- Minimum spacing between the accessories and components and the housing for ITE equipment shall be maintained for safe operation of the equipment when installed in accordance with NEC ANSI/NFPA 70.
- Read all instructions, warnings and cautions on the equipment and in the documentation shipped with the product.
- Always connect ground connections first.
- Do not place this product on weak or unstable surfaces which may allow the product to fall, resulting in potentially serious damage(s) to persons or product.
- Only authorized trained personnel shall install the CFIT.

3.3. Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the CFIT.

- Sufficient length and quantities of fiber cable (or pigtails)
- Cable scoring, opening, and cutting tools for cable sheathing, shields, wrappings, strength members and buffer tubes
- Wire strippers
- Crimpers
- Cable, tube, wire, and fiber cleaning materials
- Protective and/or insulated work gloves
- Safety glasses
- Tape measure
- Marking utensil
- #6 ground wire or rod and earth ground materials
- Bond strap (optional, from cable bond clamp to bond post)
- Any exterior cable strain relief, per company practice
- Slotted, hex, and Phillips screwdrivers
- Torque wrench
- Assorted cable ties, clips, or fasteners (optional)
- Can wrench (216 type tool)
- Level

3.4. Preparing the Installation Site

Observe the following site preparation recommendations.

- Leave adequate horizontal and vertical space between multiple installations to allow for proper cable access, as well as enough room around the enclosure to open the door(s).
- The site must meet minimal personnel and equipment safety requirements.
- The distance from the cable entry point should be consistent with local installation practices.
- The wall or pole must be able to support the weight of the CFIT.
- Run all fiber and copper facilities to the site.

3.5. Mounting the CFIT

The CFIT is shipped with the mounting brackets flush with the top and bottom of the enclosure. Before mounting, remove the brackets, rotate them 180⁰, and re-attach. All images in this document show the brackets in the correct position for mounting.

Charles recommends using a minimum SAE Grade 2, 3/8" diameter corrosion-resistant bolts, washers, and nuts for all mounting applications. Bolts need to be of sufficient length depending on which type of mounting is used. Ensure that the unit is level.

A minimum of 3/4" thick plywood or similar surface is required for wall mounting.

Charles kit 97-CABPMTKIT is available for pole-mount applications.

3.6. CFIT Wiring and Equipment

After the CFIT 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.**

A basic electrical diagram is shown in Figure 4.
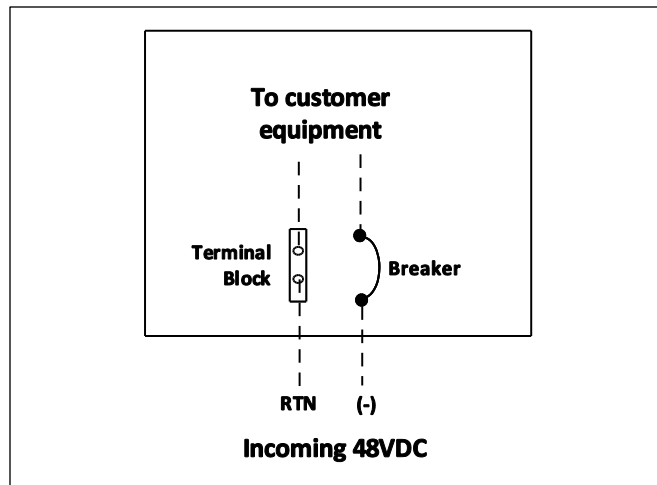

Figure 4   Electrical Diagram

3.6.1. Cable and Fiber Routing

Fiber enters the CFIT through the knockouts. Route fiber around the CFIT, using the included Velcro straps as needed to manage slack. Connect fiber to the LC/UPC duplex adapters. The bulkhead has space for installing up to three additional customer supplied duplex LC/UPC adapters if needed. A routing example is shown in Figure 5.

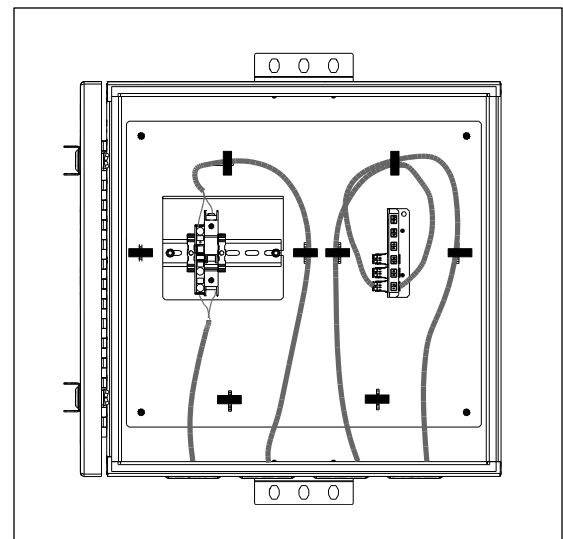Note: to remove knockouts more efficiently use a drill or Greenlee tool.

Figure 5   Routing Example

3.6.2. Torque Requirements

Torque all hardware as shown below (unless otherwise noted). These values apply to SAE Grade 1 & 2 Low Carbon Steel, ASTM A307 Low Carbon Steel, and Stainless Steel Grade 18-8.

Thread Size	In-lbs	Ft-lbs
4-40	4±10%	
6-32	8±10%	
8-32	16±10%	
10-32	26±10%	
12-24	50±10%	
1/4-20/M6	60±5%	5±5%
5/16-18	125±5%	10.4±5%
3/8-16	180±5%	15.0±5%
1/2-13	500±2%	41.7±2%
5/8-11	1000±1%	83.3±1%

3.6.3. Ground Connection

Use the 2x6 position ground bar provided in the equipment compartment for all grounding of internal equipment. External ground studs are available on the left side for connecting a site ground wire.

3.6.4. Fiber and Copper Entry

The CFIT has four Ø1.75"/2.50" knockouts on the bottom that accommodate Ø1.25"/2.00" fittings. See Figure 2 for knockout locations.

3.7. Conduit Seals

All conduit openings on the CFIT must be completely sealed with a duct seal compound to prevent moisture from entering the CFIT. Use a moldable, flame-retardant putty style duct seal material. Do not use an expanding foam seal. Mold the putty so that the open space around the wire or conduit is completely sealed, as shown in Figure 6. If the openings must be accessed at any time, remove the putty and set it aside. When work is complete, re-mold the putty to re-seal the opening.
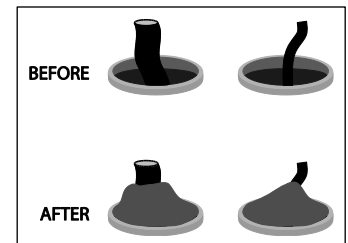

Figure 6   Applying Putty Seal

4. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

> 847-806-8500
> techserv@charlesindustries.com (email)
> http://www.charlesindustries.com/techserv.htm

5. WARRANTY & CUSTOMER SERVICE

Charles Industries LLC offers a one-year warranty on the CFIT product. The Charles warranty is limited to the operation of the CFIT hardware as described in this documentation and does not cover equipment which may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

> 847-806-6300
> mktserv@charlesindustries.com (email)
> http://www.charlesindustries.com/main/telecom_sales_support.htm

6. SPECIFICATIONS

6.1. Regulatory Specifications

- UL-504 Type 4 Listed
- UL-2416 Listed

If CFITs are field-modified, a customer provided ETL field evaluation of the modified components may be required to re-establish ETL certification to UL standards. Consult local jurisdictions for guidance on a site-by-site basis.

6.2. Product Specifications

Physical	
Dimensions	20"Hx20"Wx9"D
Weight	Approx. 25 lbs. as shipped
Materials	0.090" aluminum
Color	Off-white
Electrical	
Bonding and Grounding	(1) 2x6 ground bar inside enclosure, external ground studs on left side
Cable Entry	See Figure 2
Environmental	
Operating Temp. Range, Outside Enclosure	-40° to +115°F, -40° to 46°C
Operating Temp Range, Inside Enclosure	-40° to +149°F, -40° to 65°C
Humidity	0 to 95% (non-condensing)
Altitude	Up to 2,000 meters (6560 feet)
Kits and Replacement Parts	
Touch-up Paint	02-000290-0
216 Type Security Tool	07-002070-0
1/4 Turn Latch with Padlock Hasp	39-000449-0
Pole Mounting Kit	97-CABPMTKIT

Table 1   CFIT Specifications

7. ORDERING INFORMATION

Part Number	Description
CFIT-PF2020DSH1	2A Breaker and four 1.75"/2.50" knockouts
CFIT-PF2020DSH2	10A Breaker and eight 1.75"/2.5" knockouts