Amphenol Charles Fiber Optic Dome Closure
FODCA Series
General Description and Installation

Figure 1 FODCA

1. GENERAL INTRODUCTION

1.1. Document Purpose

This document provides installation instructions for the Charles Fiber Optic Dome Closure, size A (FODCA). The FODCA is shown in Figure 1.

-NOTE-

Hereafter the Charles Fiber Optic Dome Closure Series will be referred to as the "FODCA" or "closure."

1.2. Product Purpose

The FODCA is a sealed splice closure (IP68 rated) that is used protect and store fiber optic connections

1.3. Product Mounting and Location

The FODCA is a fully sealed unit that can be used below grade. The unit can also be aerial strand, pole, or pedestal mounted. Brackets for aerial and pole mounting are sold separately.

2. PRODUCT DESCRIPTION

The FODCA is a Dome form factor fiber splice closure. The FODCA144 includes 4 splice trays. Each can accommodate 36 single fusion splices (double stacked) for a total maximum of 144 splices. There is a version designed for use with ribbon fiber, FODCARBG that comes with two deeper trays that can hold 8 ribbon splices per tray for a maximum of 192 mass fusion splices

The FODCA dimensions are shown in Figure 2.

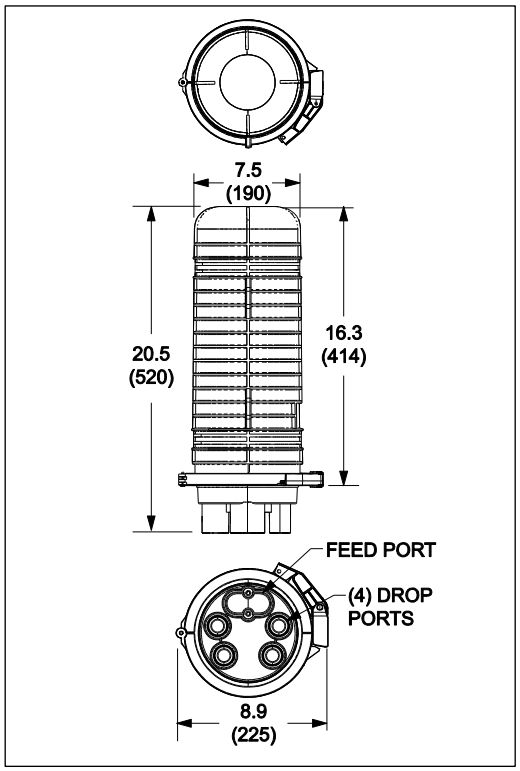


Figure 2 FODCA Dimensions in inches(mm)

The FODCA ships with a number of tools and accessories, shown in Figure 3.

Figure 3 Tools and Accessories

3. 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.

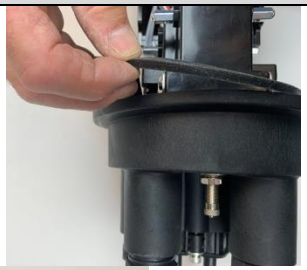
Be careful not to damage any buried cables or service wires while digging either to expose cables or to prepare a hole or trench, or while driving stakes. Buffer tubes and fibers are sensitive to excessive bending, pulling, and crushing forces. To avoid kinking of buffer tubes and fiber damage or breakage,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

4. INSTALLATION

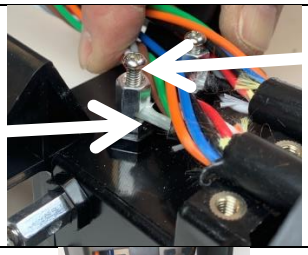
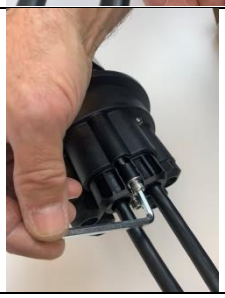
Gather the following equipment to perform the FODCA installation.

- Philips and flathead screwdrivers
- 5 mm (or 3/16") Allen wrench
- Measuring tape
- Cable marking tool
- Assorted cable ties
- Tools and Accessories kit (provided with the FODCA)
- Knife or snips (to cut grommets)
- Buffer tube stripper tool (score/cut buffer tubes)
- Fiber optic stripper tool
- Fiber splicing tools and equipment
- Safety glasses and work gloves

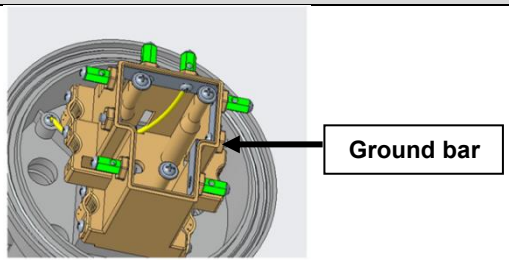
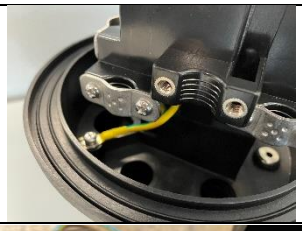
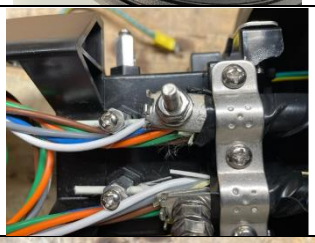
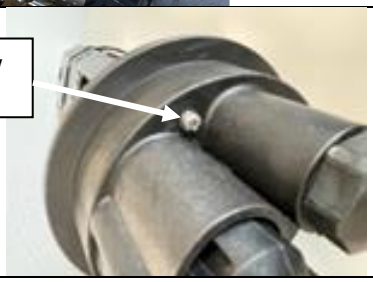
4.1. Route Express Cable Loop into Closure

Step #	Instruction	
1	Open the clamp at the base of the dome. Remove the clamp. Remove the O-ring that fits inside the base of the FODC. Slide the dome off of the FODCA assembly. Set the clamp, dome, and O-ring aside for later use.	  
2	The splice trays are attached to a pair of tray brackets on the FODCA. The tray tabs on each side fit into the keyholes on the tray bracket. To pivot the tray, ensure that the tabs are in the pivot position (the upper, round section of the keyhole. To lock the tray upright, slide the tabs downward into the lock position (the lower, narrow section of the keyhole. **Warning: If the tray is in the lock position, and the user attempts to pivot the tray without re-positioning the tabs, the tabs may break off. ALWAYS lift the tray into upper or pivot position before rotating or lower in the trays!** Remove the splice trays from the transport tray and set aside.	  

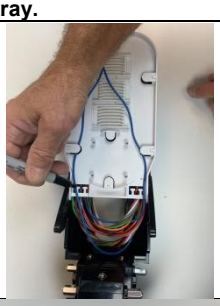
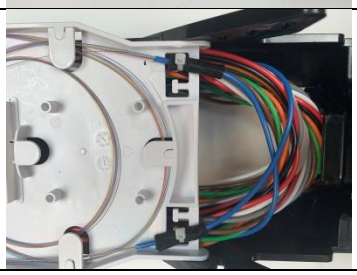
3	Locate the express port (oval port) on the base of the FODCA. Use a 5 mm (or 3/16”) Allen wrench to remove the screws securing the express port closed. Remove the sealing components. The plastic inner and outer gaskets are shipped inside the express port. The rubber middle gasket ships in the tools and accessories kit. At this time, select the appropriately sized middle gasket from the bag. • Small gasket: for 8-14mm cable • Large gasket: for 14-17.5mm cable Place the chosen gasket alongside the plastic inner and outer gaskets for later use.	  
4	Locate and remove the attachment plate just above the FODCA base. The attachment plate is held in place by three Phillips screws. Save these screws for later reuse. Two strength member brackets are located above the attachment plate. These brackets have a hole for inserting the strength member with a set screw to secure the strength member in place.	
5	Insert a length of unsheathed cable into the express loop hole. • If using a 96-fiber cable, insert an 8 ft. length. • If using a 144-fiber cable, insert a 6 ft. length. Route this loop through the opening in the transport tray.	 
6	Separate the buffer tube(s) that will be routed into the splice tray(s). Loop the buffer tubes inside the transport tray, managing as needed using cable ties.	

7	Secure both strength members using strength member bracket set screws. The strength member brackets have a hole through the center for inserting the strength member. A set screw in the top of the bracket applies pressure to the strength member to hold it in place.	**Insert strength member into hole in bracket.**  **Tighten set screw to hold strength member in**
8	Replace the attachment plate, securing with the three screws removed previously.	
9	Inspect the rubber middle gasket selected previously. Some gaskets have a factory-cut slit. If this gasket does not have a slit on the side, cut a slit using scissors or snips.	
10	Take the plastic inner gasket and connect the pieces around the sheathed cables. Push this grommet inward into the express loop port. Fit the rubber middle gasket around the cables. Push this gasket inward into the express loop port.	 
11	Reassemble the plastic outer gasket around the cables. Put the metal compression plate back in place on the outer gasket. Use the 5 mm (or 3/16”) Allen wrench and the screws removed previously to secure the express port sealing components back together in the express loop port.	 

4.2. For Use with Armored Cables

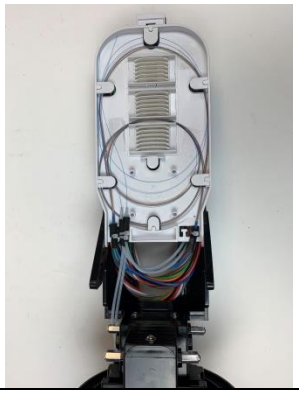
Step #	Instruction	
1	FODCA has an internal ground bar in the plastic tray bracket assembly.	
2	A pre-installed ground wire from the ground bar to ground has been inserted in the base.	
3	Install feed cable as described in Section 4.1. Attach the cable armor to a bonding connector (the bond shield connectors are customer supplied. For example, 3M Scotch Lock shield bond connectors).	
4	Attach one end of the ground wire to the shield bond connector.	
5	Attach the other end of the ground wire to one of the metal strength member posts and tighten the screw. Repeat this procedure on the second cable loop opening, as well as for any armored branch cables.	
6	Following deployment of the splice case, attach a ground strap or wire to the external bonding screw.	

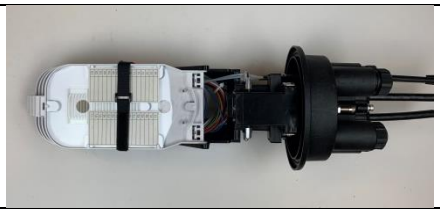
4.3. Route Fiber in the Splice Trays

Step #	Instruction	
1	The FODCA includes four splice trays, each with 18 slots to hold splice sleeves. Each tray can accommodate 18 splices single stacked or 36 splices double stacked. In total, splice capacity is144 single fusion splices. Re-install the four splice trays into the tray bracket if they have been removed by inserting the tray tabs into the keyholes on the bracket. Remove the tray cover and set it aside. **Warning: If the tray is in the lock position, and the user attempts to pivot the tray without re-positioning the tabs, the tabs WILL break off. ALWAYS reposition the tabs before pivoting the tray.**	
2	Place the separated buffer tube into the tray, marking the points on each side where the buffer tube enters the tray.	
3	Remove the buffer tube sheathing between the two marks. Route the loose fibers inside the tray.	
4	Use felt and cable ties to secure the buffer tube at both entry points on the tray.	

4.4. Install Plugs and Branch Cable into FODCA

Step #	Instruction	
1	Determine which branch cable ports will be used for cable and which will not be used in this installation.	
2	Locate the branch cable ports on the bottom of the closure. Open the ports by removing the compression screw using the wrench included in the tools and parts bag.	

3	**Follow this step for all branch cable ports that will not be used. Ports that are not being used must be plugged to seal the unit** The FODCA tool bag includes plugs for any unused branch cable ports. Insert a plug through the hole in the branch port grommet and slide the grommet back into the branch port. Note: some grommets have integrated metal end rings, and some have separate metal end rings. Be sure to place the metal rings on either side of the grommet in the branch port when installing	 
4	Locate a branch cable grommet from the tool bag that is the proper size for the cable to be installed into that port. See Section 7 for grommet information. The holes in the grommet are sealed with a thin membrane. Use a narrow pointed object to pierce this membrane. Route the cable through the branch cable port screw, then through the hole in the grommet.	
5	Determine the length of branch cable needed for routing into the splice tray. Un-sheath this section. Route the unsheathed branch fiber through the branch cable port into the FODCA.	
6	The FODCA base has attachment plates and strength member brackets on the sides, similar to those shown in section 4.1. Use the set screws in the strength member brackets to secure the branch cable as described in that section. Tighten the branch port screw. Use the included wrench and tighten as much as will easily tighten. Note that some grommets have multiple openings for multiple cable depending on the cable size. One need not use all of the holes to seal the unit. By tightening the port screw completely, the grommet will compress and seal the cable. Even if only one cable is installed.	
7	Route the branch fibers into the splice tray (both branch fibers enter the tray on the same side). Route fibers inside the tray. Secure the fibers as described in section 4.2.	
8	Perform splicing operations inside the tray.	

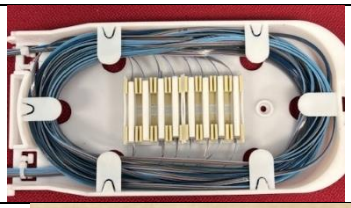
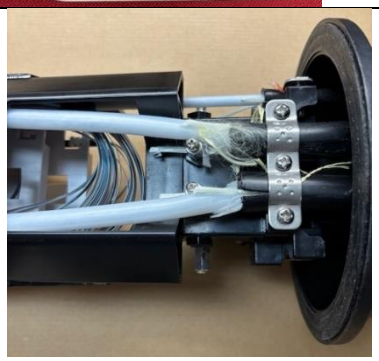
9	When all splicing operations are complete, replace the tray cover(s). Use the Velcro included with the FODCA to secure the splicing trays into the transport tray.	

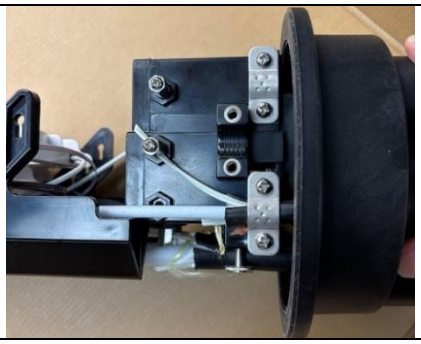
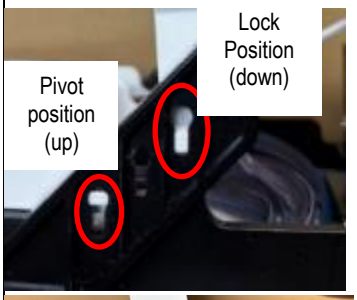
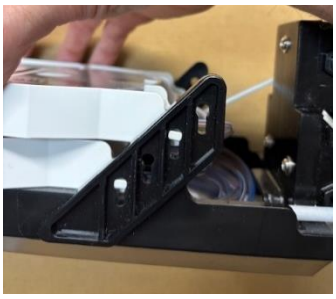
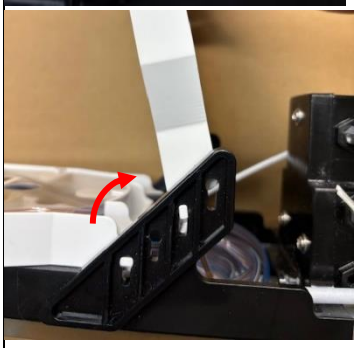
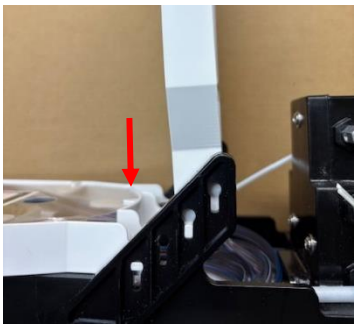
4.5 Closing the FODCA

Step #	Instruction	
1	The FODCA has a integrated O-ring that stays in place in the base. To close the unit simply attached and latch the clamp around the base.	

4.6 Use with Ribbon Fiber

An alternative version of the FODC-A dome closure is available that is more suited to managing and splicing ribbon fiber. Part number FODCARBG. This unit comes with two deep trays that have been designed to be used for ribbon fiber splicing. The FODCA ribbon trays can hold 8 ribbon splices each for a max. of 16 ribbon splices or 192 mass fusion splices. In addition, the strength member post for ports 3 and 6 have been moved to facilitate the central tube of ribbon fiber cable to route directly into the fiber basket. And the accessories kit includes larger transportation tubing that can accommodate ribbon fiber.

Step	Instruction	
0	An alternative version of the FODC-A dome closure is available that is more suited to managing and splicing ribbon fiber. Part number is FODCARBG. This unit comes with two deep trays that have been designed to be used for ribbon fiber splicing. The FODCA ribbon trays can hold 8 ribbon splices each for a max. of 16 ribbon splices or 192 mass fusion splices. In addition, the strength member post for ports 3 and 6 have been moved to facilitate the central tube of ribbon fiber cable to route directly into the fiber basket. An existing FODC-A closure can also be retrofit with ribbon trays by ordering 97-FODCARBTRAY	
1	FODC-A tray can accommodate a maximum of 8 ribbons (96 mass fusion splices)	
2	The main feed oval port (in/out ports) can accommodate cable up to a max of 18mm (0.70 inch) Attach a strength member through the opening in the strength member post and tighten the screw Attach the cable under the cable clamp Route the ribbon cable central tube slightly around the strength member post and into the fiber basket	

3	For ports 3 and 6, the strength member attachment post is moved to the upper position with the opening at a 45 degree angle to accept the strength member. Therefore, the strength member of the branch cable needs to be cut long and bent upward through the opening in the strength member post. The cable is attached under the cable clamp and can be routed directly into the fiber tray.	
4	The deep ribbon splice trays attach to the tray tower similarly to the single fusion trays To pivot the tray, ensure that the tabs are in the pivot position (the upper, round section of the keyhole. To lock the tray upright, slide the tabs downward into the lock position (the lower, narrow section of the keyhole. Always be sure to lift up the tray into the up position before lowering or pivoting the tray. **Warning: If the tray is in the lock position (down), and the user attempts to pivot the tray without re-positioning the tabs, the tabs may break off. ALWAYS lift the tray into upper or pivot position before rotating or lowering in the trays!**	   

5.0 Mounting the FODCA

The FODCA can be mounted on a pole or on an aerial strand using an appropriate mounting kit (purchased separately, see Table 1).

Figure 4
Pole Mounted FODCA

5.1 Pole Mounting

The pole mounting kit includes four mounting straps (2 large, 2 small) and a pair of offset mounting brackets.

1. Use the smaller straps to secure the brackets to the FODCA.
2. Use the larger straps to secure the FODCA to the pole.

The pole mounting assembly is shown in Figure 4.

5.2 Aerial Strand Mounting

The aerial strand mounting kit is compatible with a 1/4" to 3/8” aerial strand.

1. Affix the aerial strand mounting brackets and the tap brackets to the FODCA using hardware included with the kit.
3. Loosen the screws on the tap brackets so that the clamps can be hung over the strand.
4. Tighten the clamps around the strand to suspend the FODCA.

The aerial strand kit is shown in Figure 5.

Figure 5
Aerial Strand Kit

5.3 Pedestal Mounting

The FODC may be mounted in Amphenol Charles Broadband Pedestals. A few different options can be used. The FODCA can be attached to the mounting stake using the pole mounting kit and banding the dome. In addition, the unit can be attached to the mounting stake simply with Zip ties.

Figure 6
FODCA in a pedestal

5.4 Hand-hole Mounting

The FODC is generally placed loose in the hand-hole or vault.

6.0 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

7.0 SPECIFICATIONS

Physical	
Dimensions and Weight	21"H, dome: Ø7.5", clamp: Ø8.9"; approximately 9.2 lbs. (4.2kg) as shipped
Feed Cable Ports	0.315 to 0.70 inch O.D. (8 to 18 mm)
Four branch port cable entries: Grommet options	Each port can accommodate 0.315" to 0.70" (8 to 18 mm) cable or multiple smaller cables per port. See Part Number Information for additional grommet options
Environmental	
Ambient Temperature Range	- 40°F to + 149°F (- 40°C to + 65°C)

Table 1 FODCA Specifications

8.0 PART NUMBER INFORMATION

Part number	Description
FODCA144BCEFN	FODC, A size, four 36-splice trays, 144 splice capacity; four 1-hole 14-18mm, four 1-hole, 8-14mm, two 4-hole 5-7mm, two 2-hole 4x8mm (flat), two 9-hole 3mm, branch port grommets
FODCA144BG	FODC, A size, four 36-splice trays, 144 splice capacity; four 1-hole 14-18mm, four 1-hole, 8-14mm, two 4-hole 5-7mm, two 2-hole 4x8mm (flat), two 9-hole 3mm, branch port grommets, 4 4460 bond clamps and ground wires
FODCARBG	FODC, A size, two 8 ribbon trays, 196 mass fusion splice capacity; four 1-hole, 8-14mm, two 4-hole 5-7mm, two 2-hole 4x8mm (flat), branch port grommets, 2 4460 bond clamps and ground wires, ribbon fiber accessories
97-FODCARBTRAY	Loose ribbon splice tray for FODC-A with 8 ribbon splice slots
97-FODCAMKT	Aerial mount kit
97-FODCPLKTA	Pole mount kit

Table 2 Part Numbers

The FODCA ships with a selection of grommets for the branch cable ports. If the cables to be used require different sizes or quantities, please contact Charles with your required configuration. The full list of available grommet options is shown below:

Branch Port Grommets				
Label	**P/N**	**Size**	**View**	**Kit**
A	97-FODCAGR	1-hole 14-18 mm		10pc
B	97-FODCBGR	1-hole 8-14 mm		10pc
C	97-FODCGR	4-hole 5- 7 mm		10pc
D	97-FODCDGR	4-hole 4 - 5mm		10pc
E	97-FODCEGR	9-hole 2-3 mm		10pc
F	97-FODCFLGR	2-hole 8x4 mm flat		10pc