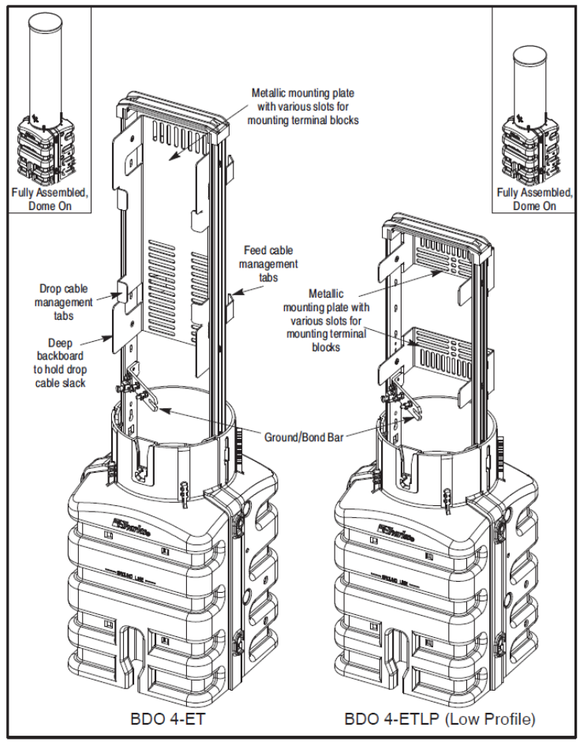


Figure 1. Dome-Off Interior View of the ET/ETLP Pedlocks®

Fiber Cable Preparation, Termination and Splicing Instructions *for the* BDO-ET/ETLP Series of Fiber Pedlock® OSP Pedestals in Sealed Fiber Terminal Block Applications

1. GENERAL

This document provides Telco-to-customer fiber optic cable connection instructions for the fiber cable technician to properly perform fiber cable preparations, terminations and splicing using Charles Industries' Buried Distribution Optical (BDO™) ET and ETLP series of Pedlock® pedestals in special preconnectorized terminal block applications. These instructions facilitate home run (end of line) configuration installations. Figure 1 shows an interior, dome-off view of a BDO ET model and a BDO ETLP model. See Table 3 for information on all models in the series or call Charles Industries (see Part 3) to request more information or literature.

– NOTE –
Hereafter the Charles' Pedlock BDO-ET and BDO-ETLP pedestals will be commonly referred to as the "BDO" or "pedestal." Specific model numbers will be specified where key differences apply.

1.2 Document Status

The third printing of this document updates Step 39 to add a mounting bracket. The second printing of this document updates Table 3. Whenever this document is updated, the reason will be stated in this paragraph.

1.3 Product Purpose and Description

Charles' nonmetallic BDO pedestals provide a superior protective enclosure for OSP above-grade splices of Telco-feed and customer-drop buried fiber cables at mid-span or end span points. These pedestals protect against floods, fire, dirt, weather, insects and impact. The bottom section of the pedestal has a square-shaped, expanded-capacity, 2-piece split base designed to open and easily install around conduit-fed cable bundles in new or replacement construction or to accept less flexible cables. The top section is covered by a dome that protects the exclusive and interchangeably designed interior backboard allowing technicians to mount a variety of equipment. The BDO-ET/ETLP series feature a special interior mounting plate for ease of drop cable installation that can accept and mount preconnectorized terminal block kits (terminal blocks and splice trays not included with the BDO). The BDO-ETLP offers a lower dome profile (shorter).

1.4 Product Mounting

This *Installation Guide* assumes the BDO pedestal base is properly installed in a trench or hole in the ground, up to the ground line indicator on the base, at the FTTP or FTTH distribution point. The pedestal backboard, where all cable preparations, routings, connections and terminal block mountings are typically performed (as described in this document), mounts to the base. Once all terminal block and cable installations and connections are complete, the dome is placed over and attached to the base to protect all cabling, connections, and equipment. The base contains holes or knock-outs at the rear and both sides which accept an optional, metallic, mounting stake or a pole-mount stake.

2. HOME-RUN CONFIGURATION INSTALLATION

The instructions in Table 1 help the cable technician to perform the terminal block mounting, to perform all final feed cable preparations, and to install the preconnectorized drop cables. The following presumptions and conditions apply:

- **Cable Architecture/Deployment** –The CO/feed cabling architecture is a "home-run" type (end of line) configuration with fiber cables.
- **Equipment Installation** - A BDO base has been properly installed at the desired field site (for base installation information, see the pedestal base installation document that was factory-attached to the pedestal). A sealed terminal block (not provided) is typically installed on the pedestal backboard, as described herein.
- **Trench Setup** – The trench is either dug and open, or backfilled but with feed cable conduit installed and present within the pedestal base
- **Feed Cable Design and Placement** – This application uses a special feed cable which is factory-terminated at one end with a preconnectorized, sealed, terminal block. This terminal block and its long cable tail (which may contain either ribbon fiber or loose-tube stranded fiber) will be installed by the technician or crew as described in this Part. *No splicing is required at the pedestal.*
- **Drop Cable Design** – The drop cables are factory-terminated at each end with special fiber connectors, as described herein. *No splicing is required at the pedestal.*
- **Cable Lengths/Slack** – Careful consideration should be given to determine correct cable lengths, as splicing is not performed at the preconnectorized terminal blocks in these pedestals, and cable slack is not available in the ETLP models.
- **No Transportation Tubing** – Protective, flexible transportation tubing is not required.

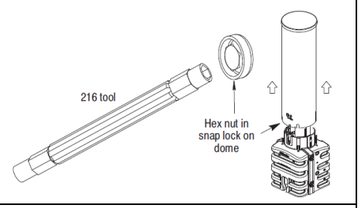
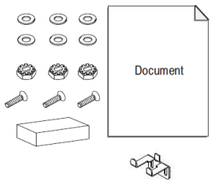
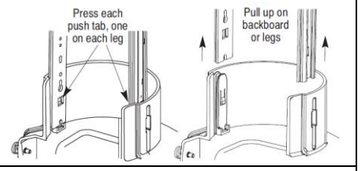
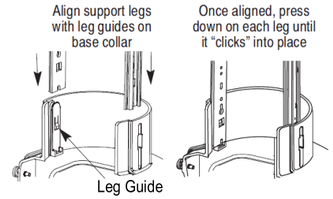
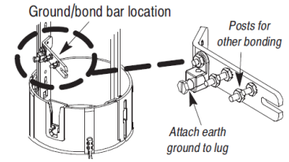
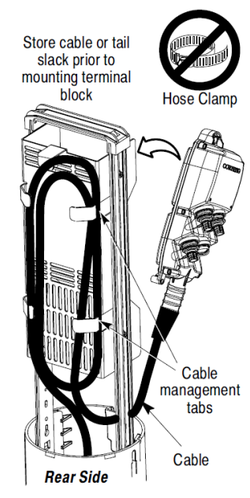
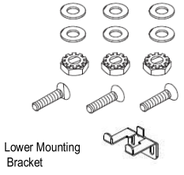
- WARNING -

- **Risk of injury! Always point, push or press away from your body when stripping, cutting, shaving or scoring cables and tubing.**
- **Risk of eye damage. Never look into the end of a fiber optic line/circuit. Always exercise caution when installing, testing or performing maintenance on live circuits. If eye exposure to laser light/radiation has occurred or is suspected, immediately seek medical treatment by a professional eye care physician.**
- **Corrugated metal or armor that may be present 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.**
- **Cable/fiber cleaning solvents may contain hazardous materials or harmful ingredients. Always read and follow the manufacturer's precautions, warnings and instructions when working with cleaning solvents/products.**

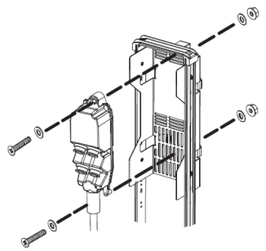
- CAUTION-

- **Buffer tubes are sensitive to excessive pulling, bending and crushing forces. To avoid buffer tube kinking 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.**
- **In cold environments, some loose tube cable designs may exhibit low temperature induced signal attenuation when long lengths of buffer tubes have been exposed and then stored. Contact the cable manufacturer concerning recommended exposed buffer tube lengths in your installation area.**
- **Perform all bonding and grounding prior to any electrical and communications connections.**

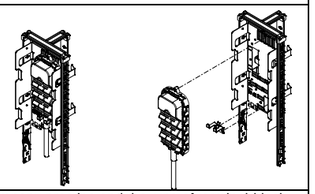
Table 1 – Home-Run Configuration Installation Instruction

Step	Instruction
1.	**Obtain tools, materials and equipment.** Obtain the following tools and equipment to perform fiber feed/drop cable connections in the installed pedestal. ○ 216 tool/can wrench ○ Work gloves (optional) ○ Tape measure (optional) ○ Wrenches or socket set ○ Screwdrivers ○ Large cable ties ○ Grounding equipment (opt.) ○ Drop cable labels ○ Safety glasses (optional) ○ Properly installed BDO-ET/ETLP base ○ Sealed fiber terminal block (not included) ○ Mounting hardware for terminal block (included) ○ Drop trenching equipment ○ Shovels, rakes, etc. (site cleanup tools) ○ Cable fishing/pulling equipment (optional) ○ Proper length connectorized drop cable(s) ○ Connector/adapter cleaning kit or solution ○ Bag of parts (included)
2.	**Verify pedestal is installed and inspect**. Find the BDO™ pedestal installation site and verify the pedestal is properly installed in the ground. Inspect it for damage.
3.	**Remove dome from base.** If the dome is installed, remove it with a 216 tool or can wrench. Turn the snap lock's hex nut 1/4-turn counterclockwise; hold it in that position, then lift up on the dome. Set it aside until needed when the installation is complete. 
4.	**Remove plastic bag and verify contents.** Locate the clear plastic bag typically attached to the interior backboard of the pedestal and verify the following remaining contents. □ Three mounting screws □ Six washers □ Three Keps nuts □ Documentation □ Foam plug (may be installed in drop channel) □ Lower Mounting Bracket 
5.	**Remove backboard (if installed) to gain room to route the feed cable (optional)** The backboard optionally can be removed to facilitate the grounding procedure and the routing or fishing of the terminal block's tail through the trench or conduit. To remove the backboard, press one finger push tab (located in a hole in the support leg at the inside top collar of the base), pull up on the support leg, and press the other leg's push tab and pull up on the other leg. Once the tabs are unlocked or released, pull the backboard out of the base and temporarily set it aside. Note that the BDO 5-ET has three support legs. 
6.	**Verify/prepare earth ground.** ***Always follow local codes and company practice when grounding cables/equipment***. Per local company practice, verify the presence of an earth ground at the pedestal base. If earth ground is not present and local practice requires one, prepare one at this time. Do not connect earth ground to the backboard until it is reattached to the base.
	Preparing the Feed Cable (Tail of the Terminal Block)
7.	**Choose proper sized terminal block**. Per local company practice, use a correct-sized, sealed, fiber terminal block for the site location and pedestal size, and bring it to the installed BDO pedestal. Verify it will fit in the pedestal's backboard.
8.	**Place/Route feed cable.** If the terminal block and its long feed cable-tail were not routed to and presented at the pedestal at the time of pedestal base installation, do so now. Before starting, verify the cable is long enough to reach from the centralized splice point to the pedestal. If conduit or inner duct is installed in the trench, uncap the conduit or inner duct at the pedestal and fish or route the cable-tail through the conduit, per company practice. Pull the cable the distance required, until the terminal block can comfortably extend to the top of the pedestal backboard (when installed), where it will be mounted. If the trench is open, lay, place, and route the cable-tail in the trench starting at either end, per company practice. The pedestal base can be opened with a 216 tool, if additional space is needed to route and place the terminal block end at the pedestal, then later re-installed and locked when the terminal block is placed through the base. Always loop and wrap any cable slack prior to making attachments and connections, to avoid connector or terminal block damage and for easier cable manipulation and management.
9.	**Terminate the tail end (optional).** If the tail is blunt-cut, perform splicing upstream at the centralized splice point per local company practice (see all boxed warnings and cautions in this document). If the tail is terminated with connectors, properly connect to the upstream equipment, per company practice.
10.	**Attach backboard.** (Skip this step if the backboard is already installed.) Install the backboard so the terminal block can be mounted on it. Larger diameter BDOs have three support legs instead of two. For the two-legged models, install the backboard so the front of the backboard (the side the terminal block mounts to) faces the front of the base (the side with the Charles logo on it). See Step 12 to determine if the terminal block and tail should be placed at the front or rear of the backboard. Align the backboard support legs with their matching leg guides in the top collar of the base, and push down on the backboard (or support legs) until it stops (audible clicks indicate proper leg insertion). 
11.	**Connect earth ground to ground/bond bar (optional).** If required per local code or company practice, install/attach an earth ground of proper gauge from the earth ground to the lug on the pedestal's ground/bond. The ground bar is attached to the left support leg just above the base collar. 
	Mounting the Terminal Block to the Pedestal Backboard
12.	**Store cable-tail slack (ET models only).** If cable slack must be left at the pedestal for frost heave or company practice, and/or if sufficient storage is unavailable at the upstream box, surplus cable slack can be looped, grouped or bundled with cable ties and stored either at the front side or rear side (shown at right) of the backboard. Bent cable management tabs or flanges are provided around the perimeter edges of the backboard to help contain the coiled cable, and the bundle can be secured with cable ties to the mounting plate via any of the mounting plate slots or tie downs. When storing cable at the rear, after the last loop in the bundle, bring the terminal block down and route it under the mounting plate to the front of the backboard. Allow approximately 1.5 to 2 feet of tail length from the bottom of the last loop to the bottom of the terminal block for sufficient length to attach the block to the backboard. **Do not use metallic hose clamps on fiber cable-tails.** 
13	**Choose/locate terminal block mounting hardware.** Follow local company practice or the terminal block manufacturer's instructions when selecting and using terminal block mounting hardware; otherwise, locate the mounting hardware provided in the clear plastic bag typically attached to the BDO's interior backboard. 

14. **Attach terminal block to backboard**. To mount the terminal block, follow local company practices, the terminal block manufacturer's instructions or the instructions herein. Most terminal blocks are attached with mounting screws (provided). Lift the terminal block and place it in mounting position. Attach the block to the backboard using the mounting screws provided. Align the holes at the top and bottom of the block with a mounting slot on the backboard. If possible, slide a washer into the screw shaft prior to mounting it into the block's mounting hole and also insert and use one at the rear of the backboard. Finish by securing the screws with the provided units.



NOTE: Some manufacturer's terminal blocks do not have lower mounting holes. For these terminals, add the lower mounting bracket (LMB) to the pedestal's backboard as shown in the figure.

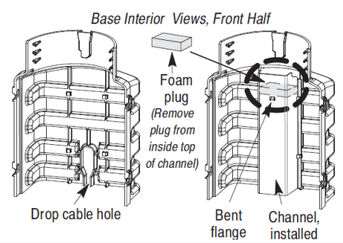


15. **Ground the cable.** Per local company practice and the type of terminal block (and cable) being placed in service, perform any tracer wire or feed cable tail grounding at this time. The ground bar attach to the BDO backboard support leg contains several ground/bond posts for the purpose (see figure in Step 11).

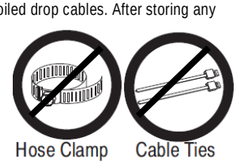
16. **Prepare trench from premises or house to pedestal.** Per local company practice, prepare a trench to route the drop cable from the customer premises or house to the pedestal base. Clear out all the soil from around the bottom front of the base, where the drop cable will enter at the cable knockout hole.

17. **Route or place the drop cable.** If desired, prior to placing the drop cable, cap, wrap, or otherwise protect the cable connectors from damage or contaminants. Route the preconnectorized drop cable through the trench, extending from the pedestal base to the customer NID box. If customary per company practice, attach the drop connector at the NID end.

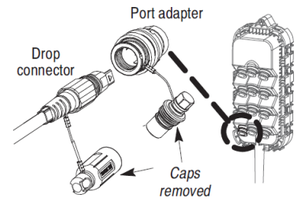
18. **Route cable up the drop cable channel.** If a foam plug is installed at the top of the pedestal's drop cable channel in the inside front of the base, remove it and reinstall it after all drop cables are connected. Route the drop cable through the drop cable accesshole at the bottom front of the base, and bring it up through the drop cable channel, extending it upward to reach the correct terminal block port.



19. **Store drop cable slack (ET models only).** Determine where any excess drop cable slack will be stored. If slack storage is available at the NID, route, place and secure the drop cable slack in or at the NID per company practice and NID manufacturer instructions. If cable slack must be left at the pedestal, first loop or coil the cable, then place or store the cable bundle at the rear side of the backboard. Angled cable management tabs or flanges are provided around the rear perimeter edges of the backboard to help contain and store the (naturally spring-loaded) coiled drop cables. After storing any cable slack at the rear, bring the connector end of the cable down and route it under the mounting plate to the front of the bottom of the oiled bundle to the bottom of the cable-end connector for sufficient length to attach the cable connector to the terminal block. **Do not use cable ties or metallic hose clamps on fiber drop cables.**

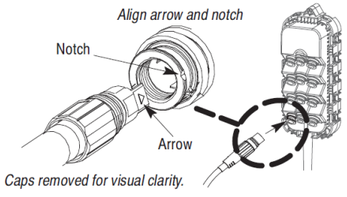


20. **Clean and remove caps.** Remove any cable-end protection used when routing the cable into the pedestal. Clean any soil or debris from the outside of the connector, then remove (unscrew) the caps protecting both the drop cable connector and the appropriate terminal block port adapter. Select terminal block ports per company practice; however, if connecting all ports, start with the lower port adapters for easier hand access and mobility when installing upper ports.



21. **Clean connectors and adapters**. Per local company practice and manufacturer's instructions, clean the connectors and adapters with approved cleaning methods, solutions or solvents.

22. **Attach drop cable to terminal block.** Find and align the arrow on the drop cable connector with the notch on the terminal block adapter, then attach the dorp cable to the terminal block adapter by turning the drop cable connector clockwise until it is tight. If desired, caps can be connected to each other.

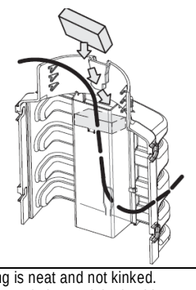


23. **Ground the cable.** Per local company practice and according to the type of drop cable used, perform any drop cable grounding or tracer wire bonding at this time. The ground bar attached to the BDO backboard support leg contains several ground/bond posts for this purpose (see the figure in Step 11).

24. **Label the drop cable.** Optionally and per local company practice, label or otherwise identify the drop cable for quick and easy cable identification.

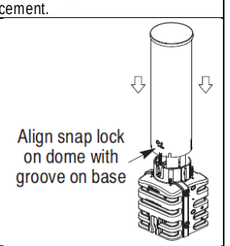
25. **Route other available drops.** Repeat Steps 16 through 24 for all other customer cable drops that are ready at this time. Connect all per company practice.

26. **Reinstall foam plug.** When all cables are in place, routed and connected, reinstall the foam plug in the top area of the drop cable channel by positioning it in front of the cables (cables at the back of the channel), angling the front edge of the plug down and forward toward the first rib of the base front, and sliding it down and forward until it rests on top of the first rib of the base. Press down on the back edge of the plug until it rests on the bent flange provided for it on the rear of the channel.



27. **Recheck cable management.** Verify all cabling is neat and not kinked. Verify no cables, wieres, strops or cable ties protrude beyond the backboar walls, allowing for smooth and safe dome placement.

28. **Close the pedestal.** Locate the dome. Align and orient it so the snap lock faces the front (the Charles logo is embossed on the front of the base). Slide the dome down over the backboard, aligning the dome's snap lock with the lock latch catch mechanism on the base. When correctly aligned, gently let the self-locking dome drop down in place until a "clock" is heard, indicating the dome is locked.



29. **Clean up site(s).** Fill and tamp any trench(es), replace any removed sod, resotre the landscape to original condition, and pick up all tools and materials.

Table 1. Home-Run Configuration Installation

Feature	U.S.	Metric	U.S.	Metric
	ET Models		*ETLP Models*	
Height, overall	42.75 in.	109 cm	35 in.	89 cm.
Height, base only, incl. collar (6" & 8" dome models)	18 in.	45.7 cm	18 in.	45.7 cm
Height, base only, incl. collar (10" dome models)	18.5 in.	47 cm	NA	
Height, base bottom to ground line	8.5 in.	21.5 cm	8.5 in.	21.5 cm.
Height, dome top to ground line	34.25 in.	87 cm	26.5 in.	67.3 cm
Height, dome only	28.5 in.	72.4 cm.	21.25 in.	54 cm
Depth, base (6" dome models)	NA		9.75 in.	24.8 cm
Width, base (6" dome models)			10.25 in.,	26 cm
Diameter, dome, O.D. (6" models)			7.1 in.	18 cm
Depth, base (10" dome models)	12.8 in.	32.5 cm	NA	
Width, base (10" dome models)	13.9 in.	35.3 cm		
Diameter, dome, O.D. (10" dome models)	11.2 in.	28.5 cm.		
Weight, 6" dome models	NA		17.75 lb.	8 Kg
Weight, 8" dome models	19.5 lbs.	8.8Kg	18.5 lbs.	8.4 Kg
Weight, 10" dome models	27.5 lbs.	12.5 Kg	NA	

NOTE: All dimensions and weights are approximate.

Table 2. Physical Specifications

3. CUSTOMER TECHNICAL SERVICE

If technical assistance or customer service is required, contact Charles Industries by calling or using one of the following options:

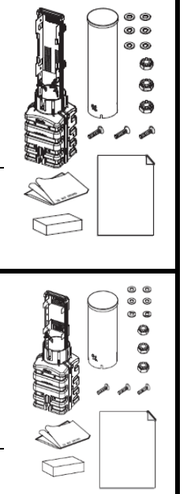
847-806-8500 (Tech. Service Local) 847-806-6300 (Customer Service)

800-607-8500 (Tech Svc. Toll free) 847-806-6653 (Cust. Svc. FAX)

847-806-8556 (Tech. Svc. FAX) mktserv@charlesindustries.com (email)

techserv@charlesindustries.com (email) *www.charlesindustries.com* (website)

Model #`	Description
BDO 4-ET	Buried Distribution Optical (BDO™) Pedlock® Pedestal, with an 8" diameter dome, a square, Expanded capacity/split, 2-piece base, a two-legged backboard with a Terminal block mounting plate, and a ground/bond bar. Includes all items to the right. Provides up to 100' of cable slack storage.
BDO 5-ET	Same as above but with a 10" diameter dome, a backboard with 3 support legs, and capacity to store up to 200' of cable slack.
BDO 3-ETLP	Buried Distribution Optical (BDO™) Pedlock® Pedestal, with an 6" diameter dome, a square, Expanded capacity/split, 2-piece base, a two-legged backboard with two Terminal block mounting plates, a ground/bond bar and a shorter dome (Low Profile). Includes all items to the right. No cable stock storage provided.
BDO 4-ETLP	Same as above but with an 8" dome.



Optional Equipment for Use with BDOs

UMS30-STD	30" Universal metal mounting stake, galvanized with mounting hardware to attach the pedestal base to the stake.
UMS42-STD	42" universal metal mounting stake, galvanized, with mounting hardware to attach the pedestal base to the stake.
UMB102A	24" universal metal mounting stake, galvanized, with mounting hardware to attach the pedestal base to the stake

BDO GLBBRKT*	Grade level box mounting bracket with hardware (square base)
97-PKOR06-A	Dome cap, high visibility, orange, 6"
97-PKOR08-A	Dome cap, high visibility, orange, 8"
97-PKOR10-A	Dome cap, high visibility, orange, 10"

Riser Pipes & U-Guards

119 series (7/8" risers)

122 series (7/8" U-guards)

219 series (1.25" risers)

222 series (1.25" U-guards)

- Strong durable solution for protecting wires that are mounted to buildings and utility poles
- PVC construction: lightweight and easy to cut
- Various bends, lengths, offsets and notches
- Available in 7/8" and 1.25" diameters

A variety of replacement/optional parts is available. Contact Charles Industries for more information.

*The BDO pedestals can be ordered with a short, vault-mount square base with hardware for attaching to appropriate handhole cover. Please contact your sales representative for more information.

Table 3. Model Numbers and Ordering Information