

# Charles Multi-Purpose Housing (CMPH™) Enclosure Installation Instructions

## 1. GENERAL

### 1.1 Document Purpose

This document provides installation instructions for the Charles Multi-Purpose Housing (CMPH™) enclosure, which provides a quick and easy way to attach, mount, and protect various types and quantities of copper and fiber cables, splices, cases, and equipment in a protective, outside plant (OSP), above-ground enclosure. See Figure 1 for a typical CMPH model, Table 5 for general information on products in this series, or call Charles Industries (see Part 2) to request more information.

- NOTE -

Hereafter the Charles Multi-Purpose Housing will be commonly referred to as the “CMPH” or “enclosure.”

### 1.2 Document Status

Whenever this document is updated, the reason will be stated in this paragraph. The Fourth Printing removes “Optional Stake Mounting”. Stake mounting is required for best performance.

### 1.3 Product Purpose and Description

The CMPH is a non-metallic, two-piece, rectangular, OSP enclosure that offers easy installation, superior structural strength, 360° technician access, generous internal equipment and cable storage capacity, and protection against corrosion, floods, fire, weather, dirt, insects, intrusion, dents and impact. The CMPH contains a base, a dome, and internal framework. The base has corrugated or ribbed walls, internal, dual-purpose, molded-in, channel grooves (which accept most metallic stakes as well as the vertical channels of the internal framework, see Figure 2), an open top, and an open bottom. Easy replacement installations and easy underground cable access is provided via the open bottom. The top piece of the CMPH is the dome, designed to overlap the base for a flood-protective bell-jar effect. Inside the CMPH, sturdy framework with splice bars and brackets provides versatile mounting options for equipment (such as fiber optic

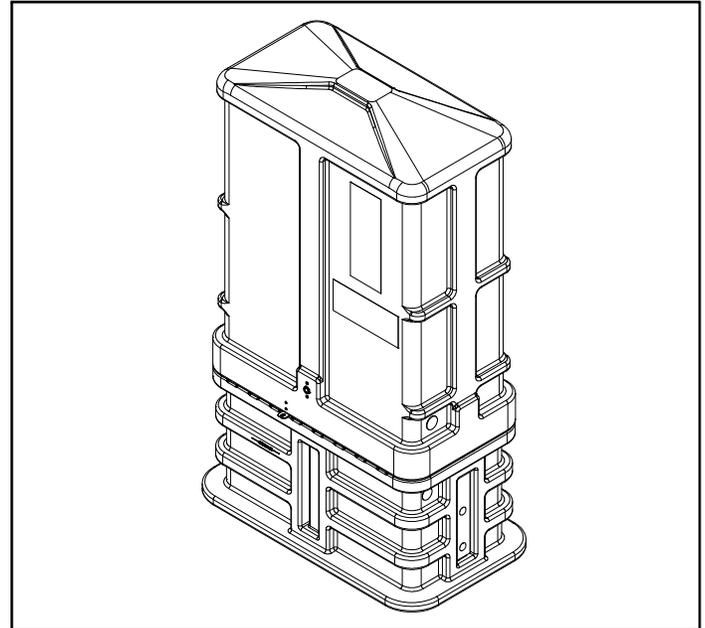


Figure 1. Typical CMPH Enclosure, Closed View

splice closures, terminal blocks, and cases) as well as storage, containment, and attachment options for various types, sizes, and quantities of conduit, innerduct, and cabling.

### 1.4 Product Mounting Type and Location

The CMPH is an above-grade enclosure, the base of which is typically installed in a trench or hole in the ground up to the base’s ground line indicator. The ribbed or corrugated base walls provide excellent stability in most soil types. The dome mounts on the base and protects all equipment installed or

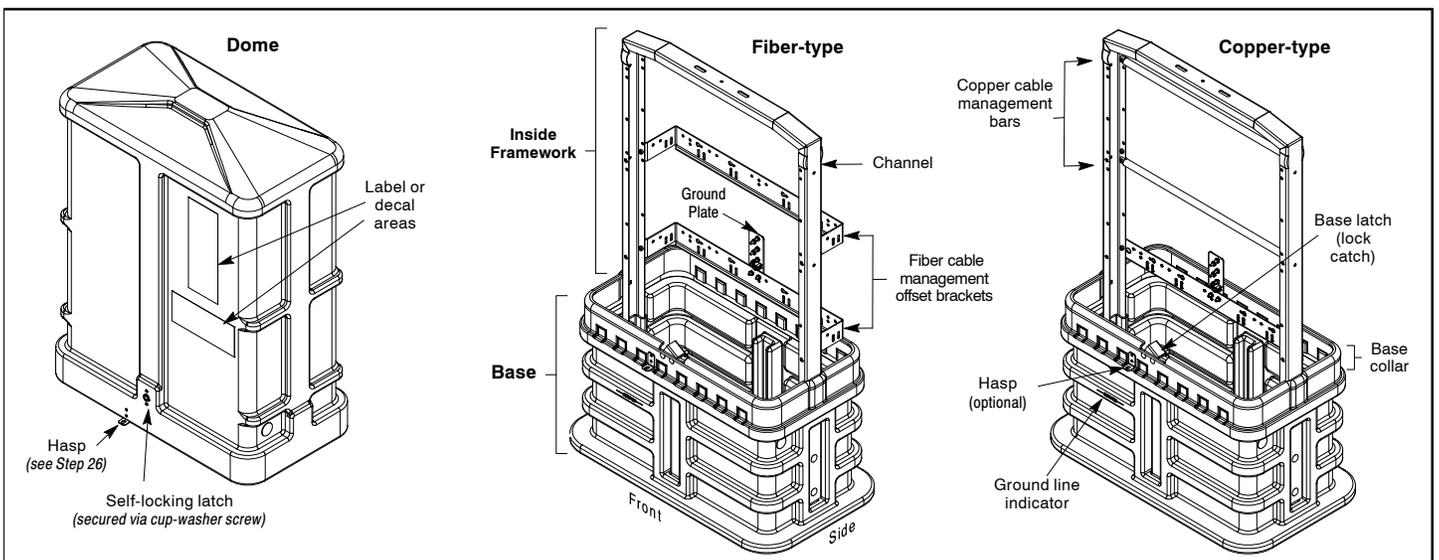


Figure 2. Typical CMPH Enclosures, Dome Removed Views

mounted inside the CMPH. Stake mounting is obtainable via molded channel grooves, which are located at the center of each interior side wall of the base. These grooves accept most new and existing enclosures' mounting stakes.

**1.5 Installation**

See Table 1 to perform a new CMPH enclosure installation. Table 2 describes a new CMPH installation with stakes, and Table 3 describes an installation to replace an existing enclosure (rehabilitation installation).

⚡ - **GROUNDING WARNINGS** - ⚡

Always follow local codes and company practices for performing proper cable and site bonding and grounding, and perform all bonding and grounding prior to other electrical, fiber, and communications connections.

⚡ - **CABLE DAMAGE WARNINGS** - ⚡

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.

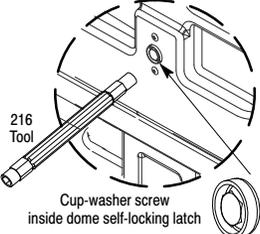
⚡ - **BODILY HARM WARNINGS** - ⚡

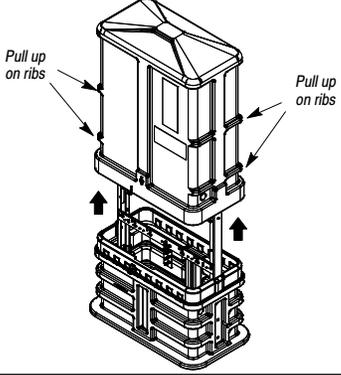
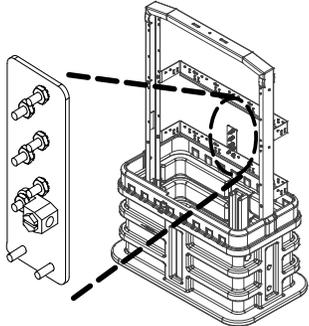
Risk of serious eye damage! Never look into the end of a fiber optic line or circuit nor use a magnifier in the presence of laser light or radiation. Always exercise caution when installing, testing, or performing maintenance on live circuits. If eye exposure to laser light or radiation has occurred or is suspected, immediately seek medical treatment by a professional eye care physician.

Shards and cleaved glass fibers are very sharp and can easily pierce the skin. Do not let cut pieces of fiber stick to your clothing or drop in the work area where they can later cause injury. Use tweezers to pick up cut or broken pieces of glass fibers and place them in a container specifically meant for this purpose.

The corrugated metal or armor that may be present in the feed cable is very sharp at the cut or exposed edges. Extreme caution should be taken to prevent personal injury. Protective work gloves are recommended when handling armored cable.

Cable and 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 or products.

Table 1. Installing a New CMPH Enclosure	
Step #	Instruction
1. □	<p><b>Obtain tools, materials and equipment.</b> Gather the following equipment to perform the CMPH installation.</p> <ul style="list-style-type: none"> <li>□ 216 tool or can wrench</li> <li>□ Charles CMPH model</li> <li>□ Scissors, knife or snips</li> <li>□ Level</li> <li>□ Measuring tape</li> <li>□ Soil tamping tool(s)</li> <li>□ Soil for backfill</li> <li>□ Trenching and digging equipment and tools</li> <li>□ Cable grounding materials and tools</li> <li>□ Cable opening and management equipment</li> <li>□ Clean, dry, pea gravel (3/8"-5/8" diameter)</li> <li>□ Conduit and conduit caps (optional)</li> <li>□ Wrenches or socket set</li> <li>□ Site cleanup tools</li> </ul>
2. □	<p><b>Prepare trench. Do not damage any buried cables or wires while digging.</b> Dig and prepare the cable trench, per company practice.</p>
3. □	<p><b>Place cables (or conduit or innerduct) in trench.</b> Follow company practice to lay, place, and cut any cables and innerduct or conduit.</p>
4. □	<p><b>Unpack and inspect equipment.</b> Remove the CMPH from its packaging. Inspect the unit upon delivery; if damaged in transit, report the damage to the shipping company.</p>
5. □	<p><b>Disengage the CMPH lock.</b> Unlock the CMPH using a 216 tool or can wrench at the front hex nut-in-cup washer screw; turn the cup-washer screw counterclockwise approximately 1/8 turn until it stops. Hold in this position, then lift the dome up approximately 1" (enough to disengage the self-locking latch) by grasping and lifting the molded side rail.</p> <div style="text-align: right;">  <p style="font-size: small;">216 Tool Cup-washer screw inside dome self-locking latch</p> </div>

6. □	<p><b>Remove the dome.</b> Set aside the can wrench after slightly lifting the dome, then use both hands to grasp a side rail (rib) with each hand and completely lift off the dome from the base. Set aside the dome for later use.</p> <div style="text-align: right;">  <p style="font-size: x-small;">Pull up on ribs</p> </div>
7. □	<p><b>Locate and remove red plastic bag.</b> Remove the red bag labeled "moisture barrier" included with the CMPH. Set it aside for later use.</p>
8. □	<p><b>Optional - Replacement or rehabilitation mountings only.</b> For applications to replace old enclosures, continue with the steps in Table 3.</p>
9. □	<p><b>Determine and mark base installation location.</b> To determine exactly where to place the base in the trench, use the base itself as a positioning template by placing it up over the top of the conduit, innerduct, or cables (route the cables through the base) and lowering the base to the ground. Analyze the site and position the base at its proposed final orientation and horizontal positioning in the trench or hole and adjust accordingly. Mark this proposed final spot by removing a shallow layer of top soil from around the outside perimeter of the base about 2-4 inches wider than the base. Set the base aside.</p>
10. □	<p><b>Dig a hole for the base. Caution: Avoid damaging buried cables, wires, innerduct, conduit or ground equipment whenever digging.</b> At and within the marked perimeter boundary, dig straight down to a depth of 9 inches. Do not dig too deep.</p>
11. □	<p><b>Stake mountings.</b> Refer to Table 2 for instructions to install mounting stakes in Table 2.</p> <div style="text-align: center;">  </div>
12. □	<p><b>Put base in hole or trench and route cable(s) through base.</b> Route the cables and conduit or innerduct up through the bottom of the base, then put the base in the prepared hole or trench.</p> <p><i>Note: Ensure the base location allows technician access to the lock and any equipment installed or to be installed in the CMPH.</i></p>
13. □	<p><b>Verify proper base depth.</b> Before backfilling, verify the base is at the proper depth, approximately 9 inches deep. Rest the base on solid or well-tamped soil when measuring this distance. Verify the base ground line indicator is at the same level as the final-grade ground line. Remove, add, or tamp more soil as necessary.</p>
14. □	<p><b>Level the base.</b> Verify that the base is level. Check the level in both dimensions; front to back, and side to side. Make any needed base-bottom soil adjustments to bring the base to a level position.</p>
15. □	<p><b>Prepare earth ground. Always follow local codes and company practice when preparing earth ground and when grounding cables or equipment.</b> If an earth ground is not present at the CMPH site and local code or practice requires an earth ground, prepare one now. Attach the earth ground to the CMPH's ground lug on the ground plate (Step 21) using a ground wire of proper gauge, per company practice.</p> <div style="text-align: right;">  </div>

16. □ **Backfill and tamp inside/outside the base.** Once the hole has been dug to the proper depth, a layer of pea rock /gravel must be placed at the bottom of the hole. **Note: The base can be leveled more easily if it is placed on gravel first.**

Position the base on top of the gravel and level the base. Alternately backfill the base on the inside first then the outside, tamping the soil as it is added. This equalizes the pressure inside/outside the base and makes the base more stable. The backfill on the outside of the base should be even with the Ground Line on the front of the base. Inside, add backfill soil to a point midway between the first and second ribs.

17. □ **Place the red plastic moisture barrier.** The provided moisture barrier sheet or bag must be placed on top of the tamped backfill soil inside the base. If it is supplied as a bag, cut the sides so it can be spread over the backfill soil. Bring it to the edges of the base so it covers as much of the backfill as possible. The sheet can be cut to fit around any duct or cable entering the base, or an X can be cut in the center to allow the sheet to be fitted over the cable or conduits. The sheet serves to prevent excessive moisture from entering the CMPH. **Failure to use the plastic moisture barrier on top of the soil significantly increases the risk of condensation inside the pedestal.**

18. □ **Add gravel to the inside of the base.** Pour approximately 2 to 3 inches of 5/8", or smaller, pea rock or gravel into the base up to the second rib or 2 inches below any innerduct or conduit opening. Keep the duct openings sealed when adding gravel. Spread out and level the gravel.

19. □ **End of base installation – determine next procedure.** If cable work will now be performed, continue with the next steps and consult local practices and equipment manufacturer instructions for the proper procedures. If further cable work will NOT be performed at this time, skip to Step 24 to close the CMPH enclosure.

20. □ **Perform cable routing and mounting.** Per company practice and local codes, perform all cable routing, mounting, and management procedures.

21. □ **Bond and strain-relief the cables.** Ground or bond the cable(s) to the ground posts provided on the ground plate. Perform cable strain relief and bonding per company practice.

22. □ **Finish cable work & equipment mounting.** Per company practice, perform all cable opening and splicing procedures, and equipment mountings and connections.

23. □ **Re-check cable management.** Verify all equipment and cabling is organized and will not contact the interior walls of the dome when installed (keep items at least 1" from the vertical plane of the base collar). This assures safe and smooth dome placement.

24. □ **Install dome.** Locate the dome and lift it up and over the interior framework and equipment. When replacing the dome, make sure the lock side of the dome is facing the catch side of the base. Lower the dome until it overlaps and self-latches to the base.

25. □ **Verify the CMPH is locked.** The dome design allows the dome to self-lock on the base. Verify the dome is locked by attempting to lift the dome.

26. □ **(Optional) Padlock the CMPH.** For models equipped with an optional hasp, the CMPH also can be locked by inserting a padlock through the holes in the hasp provided at the front of the enclosure.

27. □ **Label outer dome.** Place all ID/warning labels on the dome, per company practice.

28. □ **End of CMPH placement. Clean up site.** If no more equipment or cable work will be performed at this time, clean up the site, fill and tamp any trenches, replace any removed sod, restore the landscape to it's original condition, pick up all equipment, and optionally leave this document inside the CMPH for future reference.

**Table 2. Installing the CMPH with New Charles Stakes**

Step #	Instructions
Charles offers some CMPH models that include 2 mounting stakes (either 30", 36", or 42" long). All stakes have identical hole patterns. This table describes how to install these models.	
1. □	<b>Prepare the CMPH, trench, and cable.</b> Perform Steps 1-10 of Table 1 to open the enclosure and prepare the hole or trench and the cables or conduit. Verify the base installation site is ready and suitable for metallic stakes.
2. □	<b>Remove stakes from CMPH framework.</b> Two mounting stakes are packed with the CMPH; detach them from the base lag bolts by removing the nuts and washers which secure them. Take care to retain the hardware which will be re-used in subsequent steps.

<p>3. □</p>	<p><b>Determine which grooves to use for stakes.</b> The base contains a molded-in dual-purpose groove at the center of each wall to accept the U-shaped mounting stakes (as well as the U-shaped vertical channels of the frame). Per local company practice and site conditions, select two wall grooves that are appropriate for stake attachment purposes (the grooves on the shorter side walls are typically used).</p>	
<p>4. □</p>	<p><b>Attach stakes to grooves in base.</b> Set the base on the ground or a raised surface to access the grooves through the base bottom. On the inside of the base, remove the nuts and washers from the bolts (which are 4" apart) that secure the frame channels in place. On the mounting stake, the distance between the first and third hole down from the top of the stake is 4". Insert the top of the stake into the base, rotate the stake so it will fit properly into the base groove (so the perimeters match), align the stake holes with the bolts in the base, and set the stake in place. Re-install the lock washers and nuts that were removed to secure both the mounting stake and frame channel in place. Repeat for the other stake.</p>	
<p>5. □</p>	<p><b>Verify hole or trench accommodates stake length.</b> Lift the base and attempt to place it back in place in the trench or hole. If the trench is deep enough to accommodate the length of stake protruding from the bottom of the base, skip the rest of this step. If the hole or trench is not deep enough to accept the stakes, and the weight of the base is not enough to drive the stakes the length needed to allow the base to rest at its proper depth, then once again use the base as a template to mark the exact stake locations in the ground where more soil must be removed. Remove the base from the hole, and at the stake-hole indentations, dig down just enough to accommodate the length of the stake.</p>	
<p>6. □</p>	<p><b>Set base in place, bring cables into base.</b> When the hole is deep enough for the stakes, again lift the base by its walls or ribs and set it back into the hole, being sure to enclose or encompass within the base all cables, innerduct, conduit or equipment present at the site and intended for storage inside the enclosure.</p>	
<p>7. □</p>	<p><b>Finish the installation.</b> Perform Steps 13 through 28 in Table 1 to finish the installation. Be sure to backfill and firmly tamp soil <i>into the stake holes</i> when backfilling.</p>	

Table 3. Installing Replacement or Rehabilitation Enclosures	
Step #	Instructions
<p>The Charles CMPH has the same footprint as the UPC 1200 series. These instructions describe how to replace a UPC 1200 with a Charles CMPH. To replace enclosures with smaller footprints, remove the smaller enclosure and dig a wider hole, as described in Step 9 of Table 1.</p>	
<p>1. □</p>	<p><b>Prepare the base, trench, and cables.</b> Locate the old or existing enclosure (such as the UPC 1200 series) to be replaced. Perform Steps 1-7 of Table 1 to prepare the new Charles CMPH enclosure, the hole or trench, and the cables or conduit (skip Steps 2-3 if trenching and new cable placement is not required).</p>
<p>2. □</p>	<p><b>Dig around existing enclosure.</b> Remove the dirt from around the existing enclosure. Dig deep enough to allow the enclosure to be lifted and removed.</p>
<p>3. □</p>	<p><b>Prepare existing enclosure for removal.</b> Remove the bottom panels of the UPC 1200. Locate the mounting stakes and remove the nuts and bolts from them. Remove all attachments to the enclosure, including cable supports and tie wraps, bonding connections, and grounding connections.</p>
<p>4. □</p>	<p><b>Remove the old enclosure.</b> Completely remove the existing enclosure.</p>
<p>5. □</p>	<p><b>Protect cables and connections.</b> Per company practice, wrap the existing splice as tightly as possible without damaging the wire (or fiber) connections.</p>
<p>6. □</p>	<p><b>Analyze condition of existing mounting stakes.</b> Inspect the existing mounting stakes for possible re-use. If they are deteriorated, bent, out of alignment, or have a hole pattern that will not work with the Charles CMPH base, carefully remove the stakes and install new ones per company practice (consult Table 2 if desired).</p>
<p>7. □</p>	<p><b>Optional - remove the CMPH's horizontal splice bars and/or ground bracket.</b> Analyze whether or not it will be necessary to temporarily remove any of the CMPH's internal, horizontal, supportive splice bars or brackets in order to fit the existing cabling, connections, splices, and equipment into the CMPH during the base installation. After base installation, re-attach the bars and brackets (Step 10).</p>
<p>8. □</p>	<p><b>Set base in place.</b> Lift the base over the existing cabling and equipment, and route the wrapped splice and all equipment up through the base bottom while lowering the base to the bottom of the hole. If the existing stakes were used, verify they are <i>inside</i> the base. If new stakes were attached to the base, insure the hole accommodates them. Perform Steps 13-14 of Table 1 for the proper base depth and level.</p>
<p>9. □</p>	<p><b>Attach base to re-used stakes.</b> Remove the nuts and washers from the 4 bolts located inside the CMPH base that secure the frame channels in place (2 bolts on each side, 4" apart). Manipulate the base and/or stake tops so the re-used stakes fit into the preformed stake grooves in the base walls. Align the base bolts with the stake holes, and re-attach the washers and nuts onto the bolts. Firmly tighten nuts.</p>
<p>10. □</p>	<p><b>Attach cables to bars and brackets.</b> If the splice bars or brackets were removed, re-install them now in the best positions to support (and ground) the equipment. Per company practice, attach or mount all cables and equipment to the internal framework (bars, brackets) of the CMPH. Re-attach any grounding, bonding, and cable connections previously unattached to remove the old enclosure.</p>
<p>11. □</p>	<p><b>Close the CMPH and clean the site.</b> Perform Steps 23 to 28 of Table 1 to close the CMPH and restore the site to its previous condition.</p>

2. CUSTOMER TECHNICAL SERVICE

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

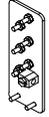
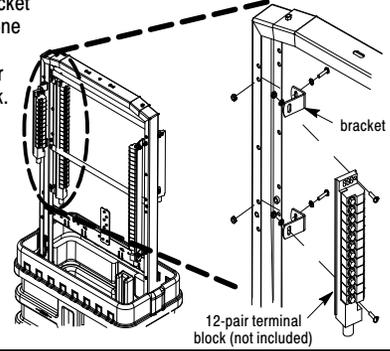
- 847-806-8500 (Tech. Service local)      847-806-6300 (Customer Service)
- 800-607-8500 (Tech. Service toll-free)      847-806-6653 (Customer Service FAX)
- 847-806-8556 (Tech. Service FAX)      mktsterv@charlesindustries.com (email)
- techsterv@charlesindustries.com (email)      www.charlesindustries.com (website)

**Table 4. Physical Specifications**

Feature	U.S.	Metric
Height, overall	47 in.	119.4 cm
Height, base only, incl. collar	17 in.	43.2 cm
Height, dome only	33 in.	83.8 cm
Height, internal framework	30 in.	76.2 cm
Height, base bottom to ground line	9 in.	22.9
Depth, base (at wider footprint)	17 in.	43.2 cm
Depth, dome	14.5 in.	36.8 cm
Width, base (at wider footprint)	29.5 in.	75 cm
Width, dome	27 in.	68.6 cm
Weight, dome	22 lbs.	10 Kg
Weight, base, fiber-bracketry models	29 lbs.	13.1 Kg
Weight, base, copper-bracketry models	27 lbs.	12.3 Kg
Weight, two 30" stakes	5 lbs.	2.2 Kg
Weight, two 36" stakes	6 lbs.	2.7 Kg
Weight, two 42" stakes	7 lbs.	3.2 Kg

NOTE: All dimensions and weights are approximate.

**Table 5. Model Number Ordering Information & Options**

Model #	Description
CMPH-75ABCD	Charles Multi-Purpose Housing. All sturdy self-locking CMPH models come with a polyethylene base, an overlapping polyethylene dome, and internal metallic framework for mounting equipment and cabling, a ground plate with a ground lug and bond posts, instructions, and a plastic moisture-barrier sheet. Order model CMPH-75 A B C D , where A, B, C, or D represents one of the features as listed below.
A (stake size):	0 = No stakes. 1 = 30" stakes. 2 = 36" stakes. 3 = 42" stakes.
B (bar or bracket type):	0 = Standard copper type. F = Fiber type (offset, see Step 2 Table 2).
C (material):	F = Flame retardant. N = Non-flame retardant.
D (hasp):	H = Hasp for padlock for additional security. 
Optional Equipment for Use with CMPHs	
CMPH-FOBRKT	Kit containing one offset bracket and mounting hardware, typically used for fiber applications. 
CMPH-BOND10	Package of 10 ground plates, each plate contains a ground lug and 6 bond posts. Attaches to internal, horizontal, ground bracket. 
CMPH-SPBAR10	Package of 10 splice bars, typically used for copper applications.
CKPL-99	Mounting bracket kit for either one 12-pair or one 25-pair terminal block. Includes 2 brackets and mounting hardware. 

Various replacement and optional parts are available, including bracket kits for vault-mounting. Contact Charles Industries for more information.