



How to install a Data Cable

Scope: Install a data serial cable with connections to COD and its respective converter box.

This will involve pulling the data cable through Conduit, Panduit, and above drop ceilings as well as hard ceilings in a fast paced, crowded food service environment.

Cod – Serial cable installation.

Due to numerous floor plans and drive through configurations no definitive guide can be written to instruct with detail the path the cable should follow, where or how the conduit enters the building, or where the data converters will be found. Each McDonalds' is unique in this regard. The following guide outlines the most likely location of each location.

Locations of Data Converter box(s) – in order of likeliness

- Affixed to the wall above or behind order-takers silver workstation rack
- Affixed to the wall in manager's office
- Affixed to wall in network closet
- Affixed to wall near the presenter's window normally close to silver wire chase
- Above drop ceiling order-takers area
- Above drop ceiling behind bulk head (menu board) near french fryer

Locations where the conduit from COD(s) enters the building– in order of likeliness

- 9"x9" electrical box inset in an exterior wall of the order-takers area (metal cover)
- 2" or 2 ½ "(grey) conduit above the ceiling order-takers area
- Rear corner of building above drop ceiling (Normally visible from the exterior)
- 9"x9" electrical box inset in an exterior wall of the presenter's area (metal cover)
- Above drop ceiling - directly above any wall in the break room.

If all else fails trace the cable from the OCS port on the data converter box to the conduit.

Layout of exterior conduit(s)

- Conduit travels to COD2 then feeds COD 1 or vice versa
- Conduit travels to a large electrical box then splits to each COD
- Conduit travels directly to each COD from the building

The serial cable will be installed from the inside to the outside out of the building with the silver end plugging in to the converter box. The cable **will not be cut AND/OR spliced**, with excess coiled and secured to the structure above the ceiling near the point where the conduit enters the building. NOTE – Do not splice new cable with existing cable. If we shipped them a new cable, it is to be run the entire distance from the converter to the COD. Do not attempt to fix the existing cable or splice the new one in – install the one.



Open several ceiling panels spaced appropriately to the length of your push rod and develop a path from the converter box to the conduit leading outdoors. Avoid sharp edges and pinch points such as those found on structural members and corners of drop ceiling grid. Ceiling grid is a very poor choice as the cable will end up in the corner and bind endlessly or get cut / shredded on the metal additionally it is easy to bend or otherwise damage the ceiling grid while pulling cable.

Also avoid using ceiling grid wire to make turns.

Cable should be run as high as possible within the structure, it will not simply lie on the ceiling.



As you plan the pull, keep in mind you will remove all the cable from roll and this process takes some time. You will move around the store inside and out. It's better to find a good pull point close and work back a short distance to the final destination then to pull 150 feet of cable in a poor location or area that interferes with workers.

Using Structure for a good turn in a cable run

Safety always! Avoid having your cable becoming a tripping hazard while minimizing your impact on work flow.



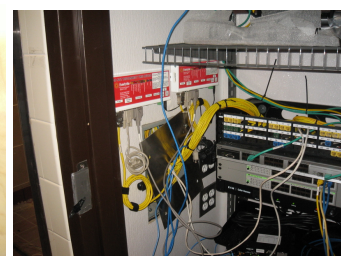
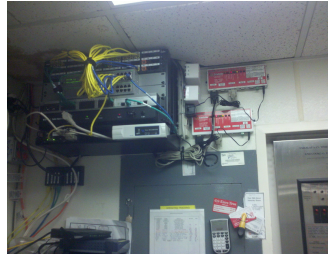
< Final Connections

Ideal install >





Order Taker's area



Various locations of Data Converter boxes

Old style Converter box (located on the bulk head – opposite the menu boards)



Most likely Point of Conduit entry



The conduit can enter the building in many locations, the normal method is through a electrical box like these pictured. Noting the type, number and color of cables entering the conduit at the COD is a helpful step to finding the conduit on the inside.

Run a nylon fish tape through the conduit to ensure you have chosen the correct tube as well as insuring the conduit is open. Metal fish should be avoided as they present an opportunity to cut other cables in the tube.



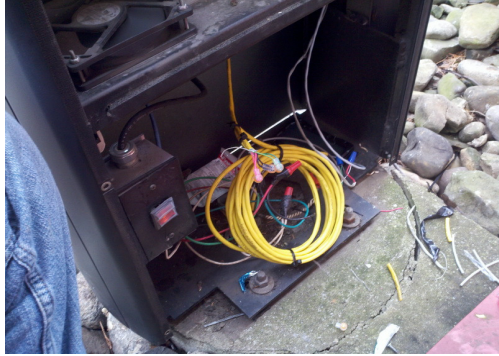
Fish Tape 100 foot



A lubricant designed for cable pulling is helpful when pulling cables trough populated or small conduit. I pull cables with only one hand to ensure I don't over tax the wires. The recommended pull force is listed at 25 pounds to prevent damage. Basically if you need to pull hard or jerk the cable to get it to move then there is a problem. The conduit may be jammed, frozen, or crushed. The store will need to contact an electrician

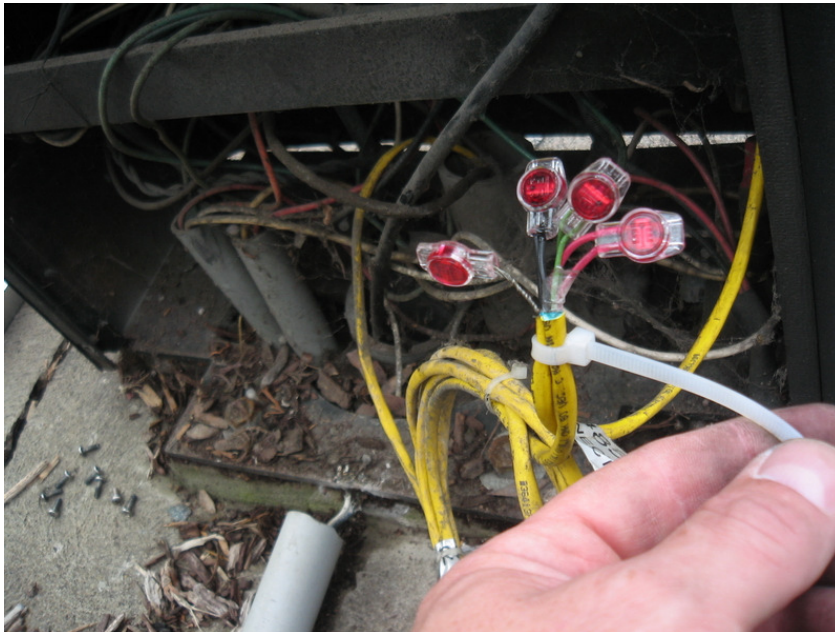
to get a pull string run through or to have the conduit cleared. **If this is the case, do not leave the site without notifying Everbrite.**

Clear Guide



Service Loops

Service loops will be installed in any electrical box and at both ends of the cable. These loops will be coiled and secured with zip ties. Service loops should be at least 5 feet in length and not more than 10 feet.



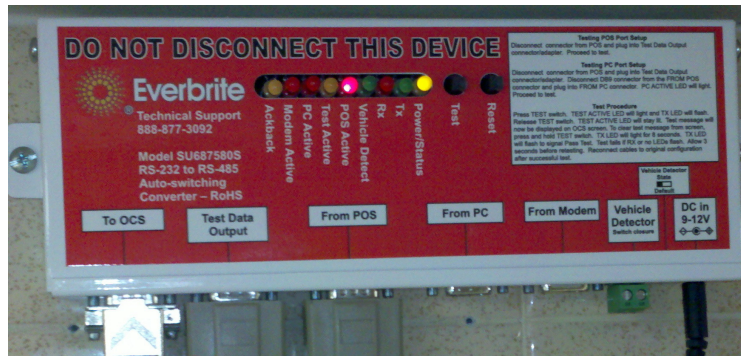
Connect the serial cable to the pig tail cable found within the COD.

In the photo, gel-caps are used to create a water tight connection. The white zip tie is used as a strain relief so the connection point will never be taxed.

A Solid Connection



New Cable – its shipping box and some Fish Sticks



Data Converter Box

With all connections made sound, complete a LOOP BACK TEST.

Performing a loop back test

The purpose of the loop back test is to provide a secondary source of data to help determine if the COD, converter, and associated cables are communicating properly. The converter box mimics the register system and sends a test order to the COD to see if it is capable of displaying.

1. Disconnect the serial cable at the Equinox hub (port 1) or from the register (PCPOS). The other end of the cable is connected to “from POS” port on the converter.
2. Connect the cable end removed from the Equinox hub / register into the “Test Data Output” port on the converter.
3. Press and hold the Test button located to the right of the Power / Status light. If proper communication has taken place, the Green TX LED will light steady for approximately 8 seconds and then will flash continuously. Let go of the Test button.
4. To ensure the COD is capable of displaying an order, we can stick a test message on the screen outside. To do this, press and hold the Test button. The amber "Test Active" LED will light. The green TX LED and the red RX LED will flash quickly. Release the Test switch.
5. The amber Test Active LED will remain on and the test message “99 Test item 99.99” is displayed on the COD screen. **If you are on an on-site tech, take a picture of the 99**

test message on the screen so we can prove the COD was functioning while you were on site.

6. Perform step 3 once again. The test message is erased from the COD display. The test is complete. The COD system passed the test.

7. Disconnect the cable from the “Test Data Output” port at the converter and reconnect it to port 1 on the Equinox box (or to the appropriate port on the register). The green TX and red RX lights should now be flickering faintly about once every 1.5 seconds. If not, reboot register 12.

NOTE – If the loop back test is successful, and the 99 test message shows up, the Everbrite equipment is working properly. Site will need to contact RTS at 800-515-3636 to troubleshoot the register software. During step three if the amber “Test Active” light comes on but the TX light does not come on solid, the test is a failure. If this is the case, or if the lights do not act as described above, there is an issue with the Everbrite equipment. Contact Everbrite at 888-877-3092.



Have the Manager witness that each COD is working, and displaying the correct orders on the screen. **Ensure both units are working even if you only repaired one.**

If any issues are encountered, contact Everbrite Technical Support at 888-877-3092 before leaving the site.