



Figure 1 - C(G)-303 Main Frame Connector

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1. General

1.1 Two types of installation procedures are provided for the 303-1002 Main Frame Connector. One procedure addresses stubbed connectors, and the other addresses stubless connectors.

2. Description

2.1 The C(G)-303 connector (Figure 1) is a 100 pair unit used for terminating outside plant cable in central offices or customer premises locations where current and voltage protection is required. The connector can be used without protection if only the termination features are desired. 2.2 The C(G)-303 connector consists of a connector base designed for installation on a main distributing frame (MDF), and protector modules that plug into the base. The C(G)-303 connector provides features for testing, identification of incoming circuits, and disconnection of outside cable pairs in addition to current and voltage protection through the use of several types of protector modules. The 100-pair capacity connector is available with or without a cable stub. **2.3** The C(G)-303 connector is available with either tin-alloy-plated protector receptacles (C-303) or with gold-inlayed protector receptacles (CG-303). All information applies to both versions of the connector. The connector will be referred to as type C(G)-303 whenever the information given applies to both versions.



3. Precautions

3.1 National Electrical Code Requirements. **3.1.1** The installation of this product, including any field-installed components, shall meet all applicable federal, state, and local laws and regulations and, if unrestricted, comply with articles 800, 820 and all other appropriate requirements of the National Electrical Code, ANSI/NFPA 70.

3.2 Underwriters Laboratories Inc. (UL) Listing

3.2.1 Only products marked "for indoor or outdoor use" or "for outdoor use" are suitable for outdoor use. Products without this marking are not suitable for outdoor use and are implied to be suitable for indoor use only.

3.2.2 The use of a fuse link for each and every line is recommended when connecting any equipment to the telephone circuit. For typical applications, a one-foot or longer length fuse link of at least two wire sizes smaller than the typical wire gauge in use within the circuit is recommended.

3.2.3 It is recommended that any components added to this product be both listed for the purpose and compatibility.

3.2.4 Risk of electric shock—Protector is not to be used without the arrester assembly installed.

3.3 Store the C(G)-303 connector and the protector modules in a dry location. Do not leave the units on loading docks or in outside locations where they may be exposed to the weather.

3.4 When unpacking the connector from its shipping carton, use care so as not to damage the connector or stub.

3.5 To avoid damage, do not bend the cable stub in a short radius.

3.6 Do not remove the connector from its protective carton until it is ready for installation on the frame.

3.7 If protector modules are installed in the connector prior to mounting it on the frame, they should be left in the detent position. It is not necessary to remove the protector modules before installing the connector.



Figure 2 –Mounting C(G)-303 Connector on Main Distributing Frame

4. Protector Modules



Figure 3 – Protector Module

4.1 Several types of protector modules are available to satisfy various CO requirements for line and equipment protection. The protector modules are all equipped with five contact pins and a plastic shell (Figure 3). The plastic shell for the module is made from a self-extinguishing plastic insulating material.





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4.2 When inserted into the connector base, the contact pins provide the following contacts for one cable pair:

- Tip and ring to OSP (outside plant) conductors (long pins).
- Tip and ring to CO (central office) equipment (short pins).
- Ground, which also serves as a polarization

pin.

4.3 When the protector modules are fully

inserted (Figure 4) into the connector base, the O.P. equipment and the C.O. equipment are connected. The grounding pin is connected to provide continuity through the connector base mounting bar and interconnected ground straps to the copper ground bar at the base of the distributing frame.

4.4 During installation, the protector modules, if installed, should be in the detent position (Figure 4). This keeps the C.O. equipment disconnected from the outside plant yet the protector modules provide protection for the O.P. pairs.



Figure 4 – Protector Module in Detent and Fully Inserted Positions

5. Installing Stubbed Connectors

5.1 Prior to installing the C(G)-303 connector, open the cable entrance slots or ferrules in the floor in accordance with local instructions. (For overhead cable, first follow the instructions given below for Changing Stub Position.) If there are fanning strips on the frame vertical, remove them. The C(G)-303 connector has a fanning strip as an integral part of the connector panel.

5.2 Mark the cable number and pair count of each connector stub cable and attach to the stub cable prior to placing it through the floor to the vault.

5.3 Remove the connector from the shipping carton and route the stub cable into the cable vault from in front of the vertical side of the distributing frame. Remove any cable twist that may be present. **5.4** Attach the C(G)-303 connectors to the left side of the distributing frame vertical mounting bar, beginning at the lower end of the frame. Use the screws furnished with the connectors. Place the top screw in the vertical mounting bar for the connector. Hang the connector on this screw using the keyhole slot on the C(G)-303 mounting bracket (Figures 2 and 5). Screw in the remaining screws after hanging the connector.



Figure 5 – C(G)-303 Connector Mounting Dimensions



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6. Grounding



Figure 6 – C(G)-303 Connector Grounding Methods

6.1 Two methods may be used to connect the C(G)-303 connector to electrical ground (Figure 6). The grounding methods are described in the following paragraphs.

Basic ground method: Use the short ground strap, supplied with the unit, to connect the mounting bar screws of adjacent connectors (Figure 6,1). Repeat this procedure for each pair of connectors on the same vertical. Connect the bottom mounting screw on the lowest connector to a 1/4-20 terminal on the main frame copper ground bar, using the long (26-1/2-inch) ground strap.

Independent ground method: Use a long (26-1/2-inch) ground strap to connect the bottom mounting bar screws of adjacent connector mounting brackets (Figure 6,2). Connect the mounting bar screw on the lowest connector to the 1/4-20 terminal on the main frame copper ground bar, using the long ground strap.
6.2 Tighten all mounting screws after all of the connectors and ground straps are placed in position on the vertical mounting bar.
6.3 The clamps on the pressure plug of the connector stub should be carefully bent to the vertical mounting bar, so the stub cable will be

out of the way for future work at the frame (Figure 7).

6.4 The stub cables of all connectors on a vertical mounting bar should be neatly arranged against the transverse arms of the frame. Lash the stub cables to these transverse arms in a neat manner.

6.5 Close the cable entrance slots, or ferrules, in accordance with locally accepted practices



7. Changing Stub Position

7.1 The cable stub may be turned 180 degrees (Figure 8) at locations where there is no cable vault, or the stubs go to the top of the frame. Use this method only if no other cable routing is possible. Handle the cable very carefully to avoid breaking wires. Be sure that enough clearance is available for the molded end of the cable stub above the top of the connector base before using this method. (If the "stub-up" requirement is known in advance, order the connector with the cable stub already mounted in the "stub-up" position.)



Figure 7 – Positioning C(G)-303 Connector Cable Stub



Figure 8 - C(G)-303 Connector "Stub-Up" Position

7.2 Change the cable position as follows:

- **1)** Remove cable clamps from pressure plug and mounting bracket.
- 2) Turn cable stub 180° degrees.
- **3)** Reinstall cable clamps in the alternate holes provided.
- **7.3** Splice the cable stub to the entrance cable. The cable stub is wired with standard cable wire color coding. Cable pairs can be matched to the central office jumper field as shown in Table 1.



8. Installing Stubless Connectors

8.1 Attach the stubless C(G)-303 connector to the left side of the distributing frame vertical (Figure 9) (beginning at lower end of frame) with screws furnished. First, screw the top mounting screw part way into the proper mounting hole on the frame vertical and hang the connector on the screw with the keyhole slot on the connector mounting bracket. Then install the lower screws into the mounting bracket and tighten all three screws.

8.2 Remove (4) 8-32 screws that hold the plastic base to the mounting bracket and set aside plastic base. (Save screws for step 8.4).



Figure 9 - Mount Connector

8.3 Mount temporary mounting brackets to mounting bracket on frame using the (4) 8-32 x 1/2 screws provided. The small temporary mounting bracket will be on top and the large temporary mounting bracket on bottom (Figure 10).





8.4 Secure plastic base to temporary mounting brackets with (4) 8-32 screws removed in step 8.2 (Figure 11).



Figure 11 – Attach Plastic Base



8.5 Plastic base is now ready to be wired (stubbed) per wiring application "A" and "B". See Table 1 and "A" and "B" wiring applications in Figures 12 and 13.

Cable	Binder	Cable Pair	Tip Wire	Ring Wire Color
Pair Group	Color	Sub-Group	Color	(For each tip wire color)
1-25	Blue	1-5	White	1st wire - Blue
		6-10	Red	2nd wire - Orange
		11-15	Black	3rd wire - Green
		16-20	Yellow	4th wire - Brown
		21-25	Violet	5th wire - Slate
26-50	Orange	26-30	White	1st wire - Blue
		31-35	Red	2nd wire - Orange
		36-40	Black	3rd wire - Green
		41-45	Yellow	4th wire - Brown
		46-50	Violet	. 5th wire - Slate
51-75	Green	51-55	White	1st wire - Blue
		56-60	Red	2nd wire - Orange
		61-65	Black	3rd wire - Green
		66-70	Yellow	4th wire - Brown
		71-75	Violet	5th wire - Slate
76-100	Brown	76-80	White	1st wire - Blue
		81-85	Red	2nd wire - Orange
		86-90	Black	3rd wire - Green
		91-95	Yellow	4th wire - Brown
		96-100	Violet	5th wire - Slate

Table 1 – Cable Pair Color Codes

8.6 When wiring has been completed, remove the temporary mounting brackets and reassemble the connector base to its regular mounting bracket.
8.7 After the connector has been stubbed, complete the installation by following the grounding, splicing, and other applicable instructions given above under Installing Stubbed Connectors.

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Identified Terminals, In This Area, To Be Wired By Customer To His Central Office Equipment

Figure 12 — "A" Application — Central Office (CO) Equipment Hard Wired To CO Terminals; Outside Plant (OP) Cable Cross-Connected At Jumper Field.

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Figure 13 — "B" Application — CO Equipment Cross-Connected At Jumper Field; OP Cable Hard Wired At Test Field Or To Connector OP Terminals.



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9. Marking and Jumpering

9.1 Test field. Each connector panel test field is permanently pre-marked in black numbers in increments of five pairs. Each pair of test contacts has tip-left and ring-right. A space is provided immediately above the bottom test field to mark the cable number and pair count (Figure 14).
9.2 Jumper field. The connector panel is permanently pre-marked in black numbers, with a black dividing line, adjacent to every fifth pair of wire-wrap terminals on the right face of the panel to assist in pair identification when placing central office jumpers (Figure 14).



Figure 14 - Marking C(G)-303 Connector

9.3 Fanning strip. The fanning strip with holes for entrance of the central office jumpers is on the front of the panel immediately to the right of the wire-wrap terminals. Each group of five cable pairs has three fanning strip holes to facilitate access of the jumper wires from the line terminal blocks to the connector wire-wrap terminals (Figure 15).



Figure 15 - Connecting Central Office Jumpers

9.4 Connection of CO to OP. All that is required to make the connection is to push each protector modular from the detent to the fully inserted position. The outside plant and central office equipment are then connected.



10. Testing

The C(G)-303 connector base has a 50-pair test field at the top and bottom of each 100-pair unit. This is connected directly to the outside plant cabling and the outside plant terminals of the protector modules. Each test field is grouped in 10 rows of 5 pairs that are clearly marked (Figure 16).



Figure 16 - C(G)-303 Connector Top Test Field