BCS HD Low-Profile Modular DSX-3 System

Copper :: 010-4801-4848, 010-0000-3248, 010-0000-2448

User Manual
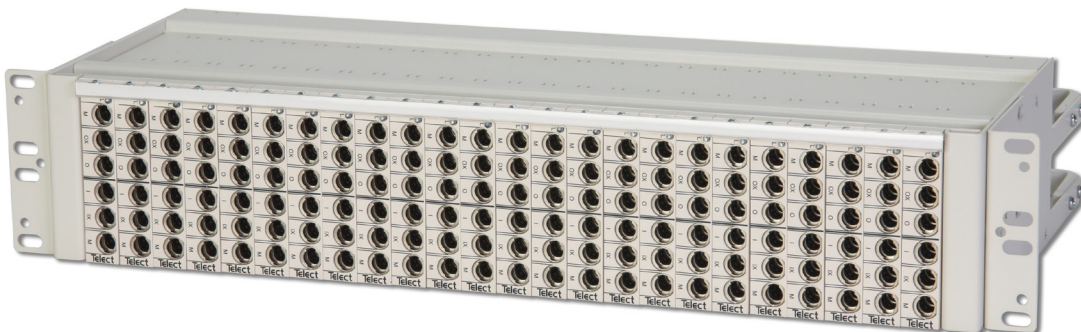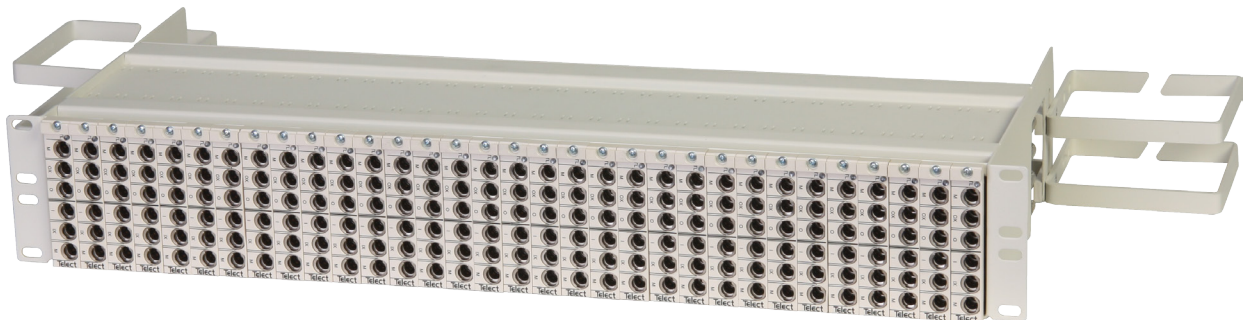
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BCS HD Low-Profile Modular DSX-3 Systems

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BCS HD Low-Profile Modular DSX-3 Systems

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Chapter 1: Description

1.1 Broadband DSX

Telect's Broadband Digital Signal Cross-Connect (DSX) is a high-density device for crossconnecting DS3, STS-1, and STS-3 signal types from broadband equipment, such as digital radio, fiber-optic multiplexers, and 3:3 or 3:1 DCS.
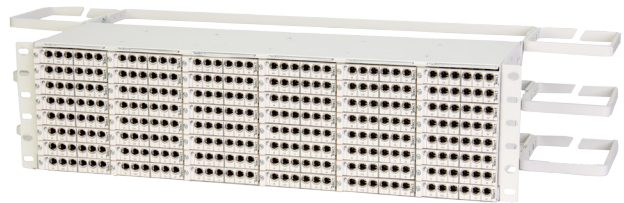
Figure 1 - DSX 48-Position (010-4801-4848, Fully Loaded)

1.1.1 Capabilities

- Virtually "hitless" patching with terminate-before-break TwistLok™ (TLJ™) jacks
- Backplane that can be pre-terminated and cross-connect assignments pre-wired
- Bidirectional monitoring

1.1.2 Features

- Plug-in DSX cards to turn up circuit
- Up to 48 modules (010-0000-4848 is 6" x 23" chassis)
- Industry-standard patch cords
- Mini-WECO jacks on modules and BNC on the rear of the chassis
- Cable tie-down bars

Figure 1B - DSX 32-Position (010-0000-3248, Rear View)

1.1.3 Part Numbers

The information in this manual applies to the following part numbers:

Chassis #	Height	Width	Positions	Connectors	Tracer Lamp Terminations
010-0000-2448	3.5"	19"	24	BNC	PJ
010-0000-3248	3.5"	23"	32	BNC	PJ
010-0000-4848	6"	23"	48	BNC	PJ

Module #	Jacks	# of Ports
010-4801-0407	Mini-WECO	3
010-4801-0401	Mini-WECO	4
010-4801-0410	Mini-WECO	6

1.2 Main Assemblies

1.2.1 24-Position Chassis

Module Plug-in Connector (Inside View of Backplane)

Rear Tie-down Bars

Cable Ring

Module
Insertion Guide

Mounting
Bracket
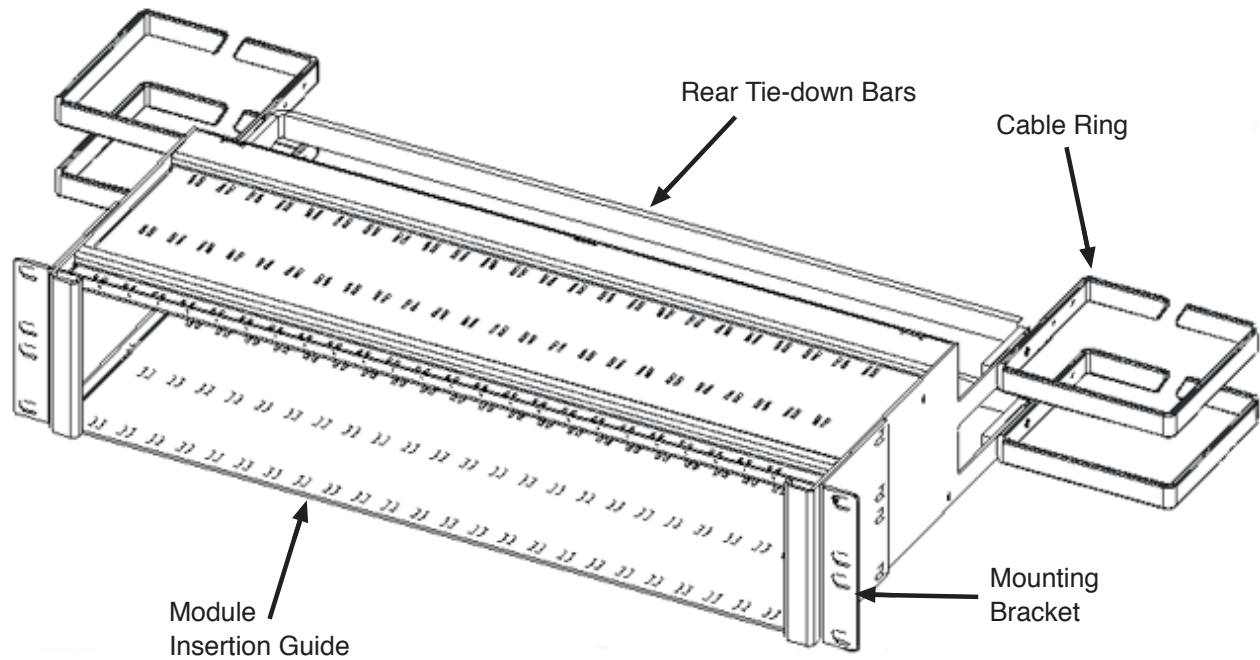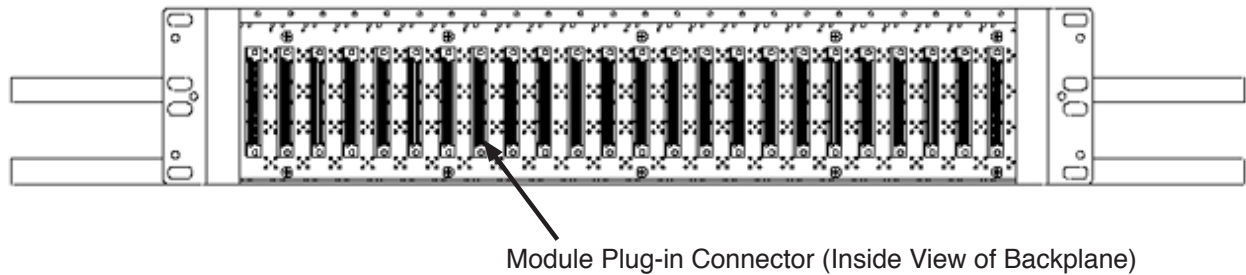
Figure 2 - 24-Position, Part 010-0000-2448

1.2.2 32-Position Chassis

Module Plug-in Connector (Inside View of Backplane)

Rear Tie-down Bars

Cable Ring

Module
Insertion Guide

Mounting
Bracket
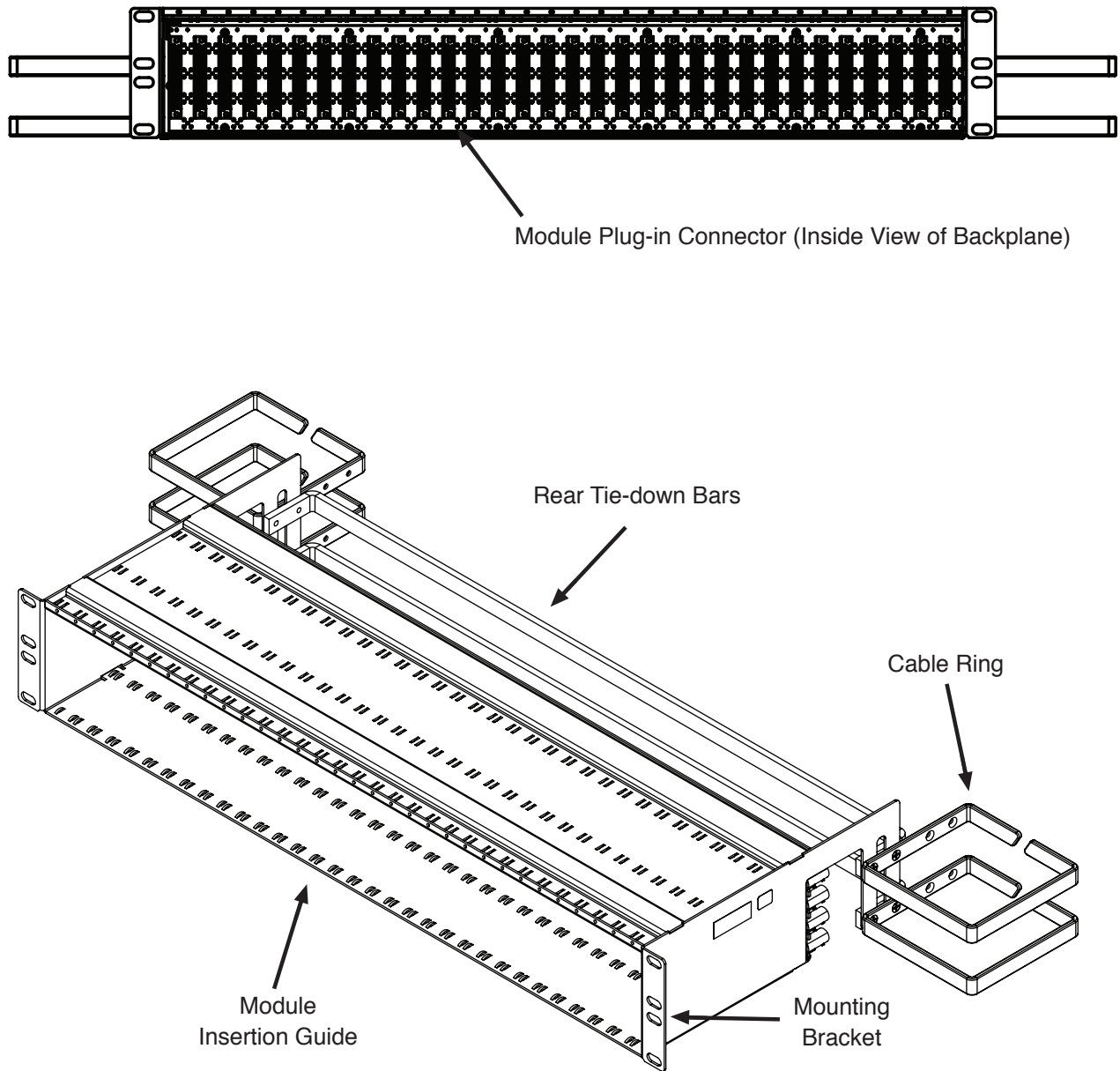
Figure 3 - 32-Position, Part 010-0000-3248

1.2.3 48-Position Chassis

Module Plug-in Connector (Inside View of Backplane)

Rear Tie-down Bars

Cable Ring

Module Insertion Guide

Mounting Bracket
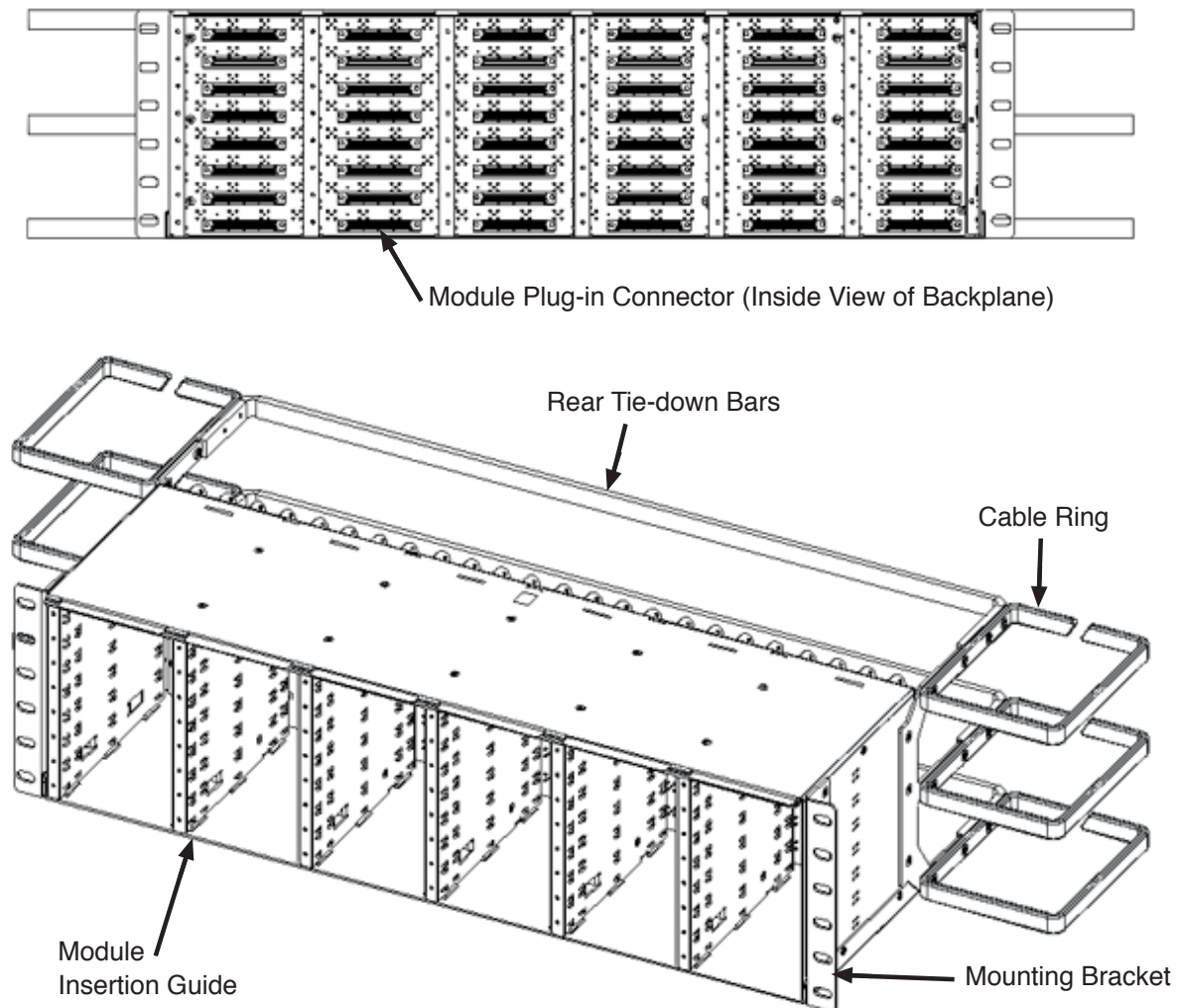
Figure 4 - 48-Position, Part 010-0000-4848

1.2.4 Backplane
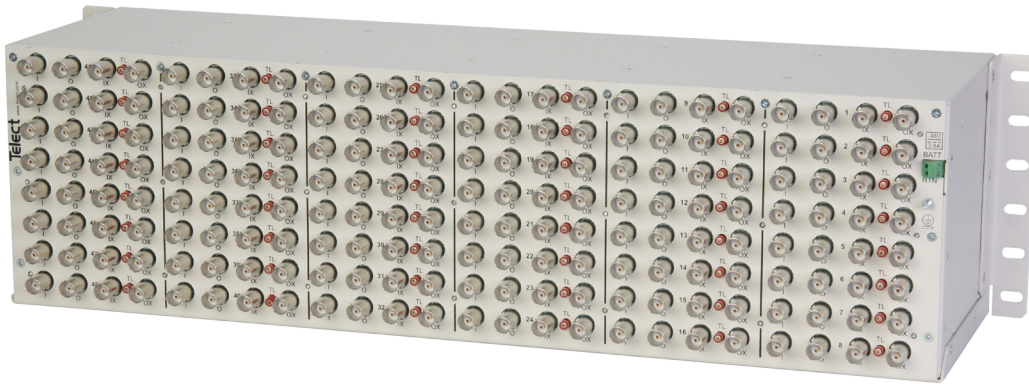
Figure 5 - Part 010-0000-4848, Rear View

1.2.5 DSX Module

Designation Label
& Holder
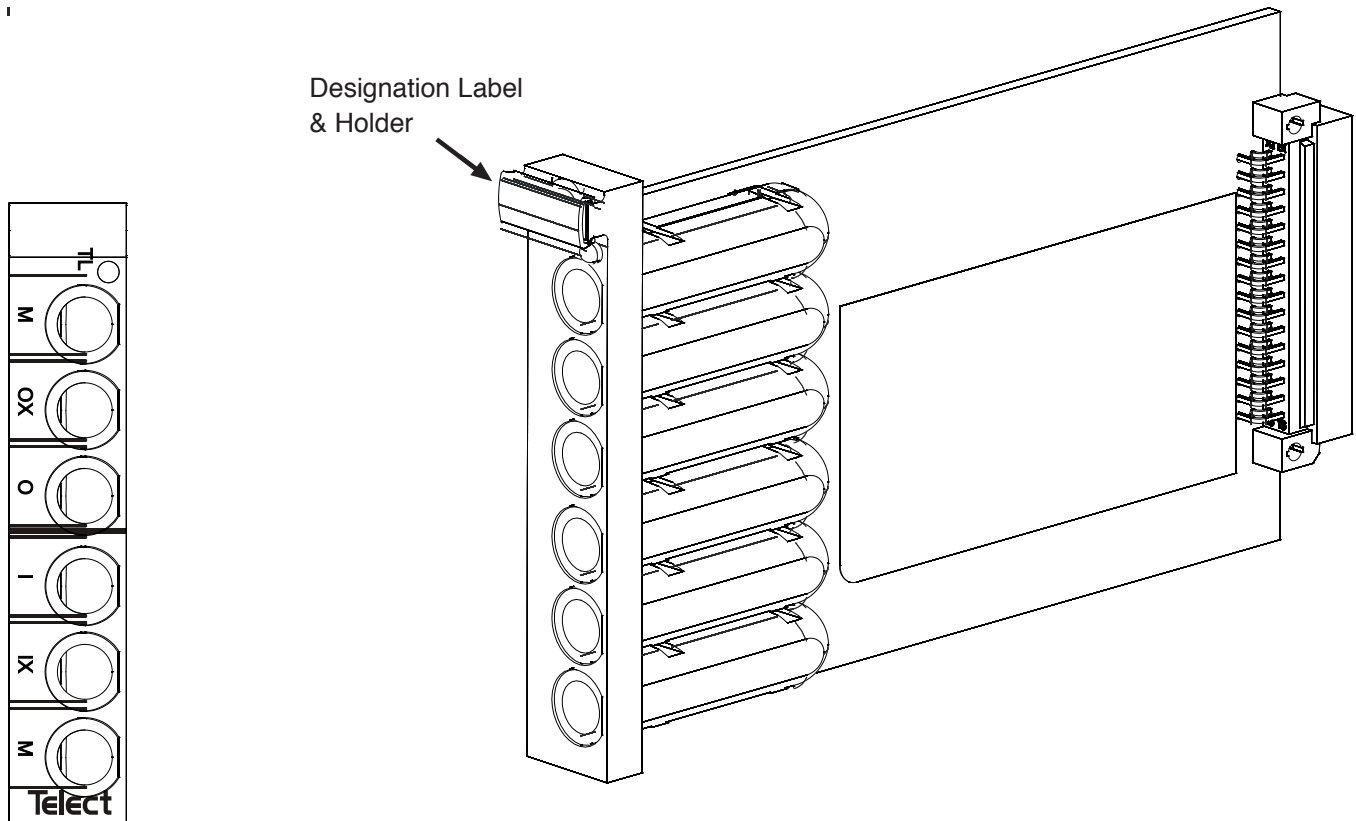
Figure 6 - 6-Port Module, Part 010-4801-0410

1.3 Specifications

1.3.1 Electrical

Digital Signal: E3 (34.368 Mbps), T3 (44.736 Mbps), STS-1 (51.84 Mbps), or STS-3 (155 Mbps)
Insertion Loss: 0.6 dB ±0.55, 8 MHz to 240 MHz, at signal rate
Return Loss: ≤ -15 dB, 8 MHz to 240 MHz, STS-3 signal rate, ≤ -26 dB, T3/E3/STS-1 signal rates
Crosstalk: ≤ -60 dB, 8 MHz to 240 MHz, at signal rate
Monitor Level: 21 ±1.5 dB below signal level
Contact Resistance: ≤ 0.01Ω
Characteristic Impedance: 75Ω
Tracer Lamp LED: Draws 9 mA

1.3.2 Environmental

Operating Temperature: –41º to 104ºF (5º to 40ºC)
Thermal Shock: Per MIL-STD 202, method 107D
Humidity: To 95% non condensing (operating and non-operating)

1.3.3 Agency Approvals

NEBS Level III Certification

1.3.4 Physical - 24-Position Chassis, Fully Loaded
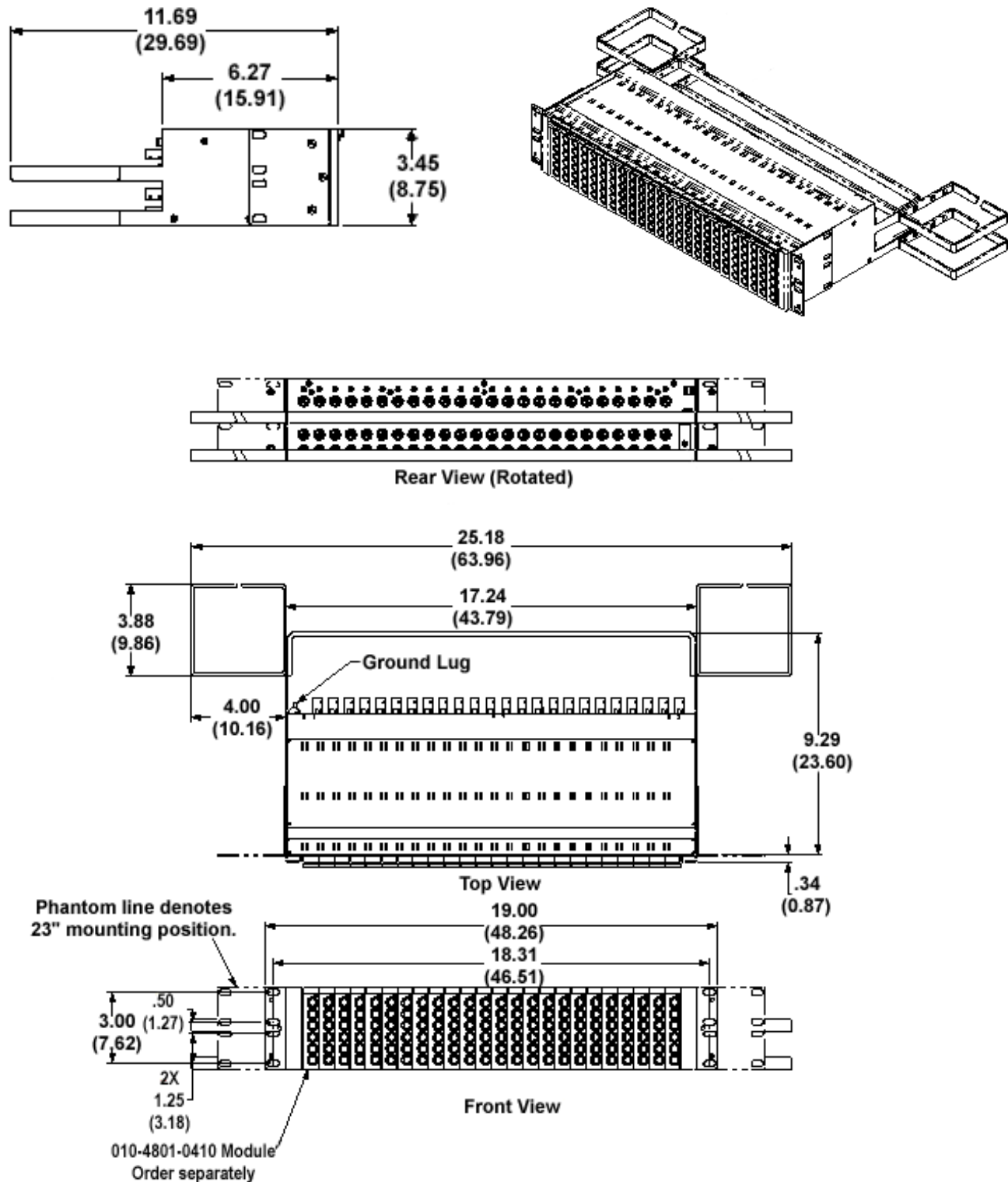
Figure 7 - 24-Position Chassis: All views

1.3.5 Physical - 32-Position Chassis, Empty

11.626

(6.090)

[8.76]
3.450

Left Side View

Front Isometric View

Rear View (Rotated)

Product ID/Serial Number

[74.60]
29.370

[54.28]
21.370

[9.86]
3.880

[10.16]
4.000

[24.38]
9.599

Top View

[58.34]
22.970

[1.27]
.500

[3.18]
1.250

[7.62]
3.000

Front View
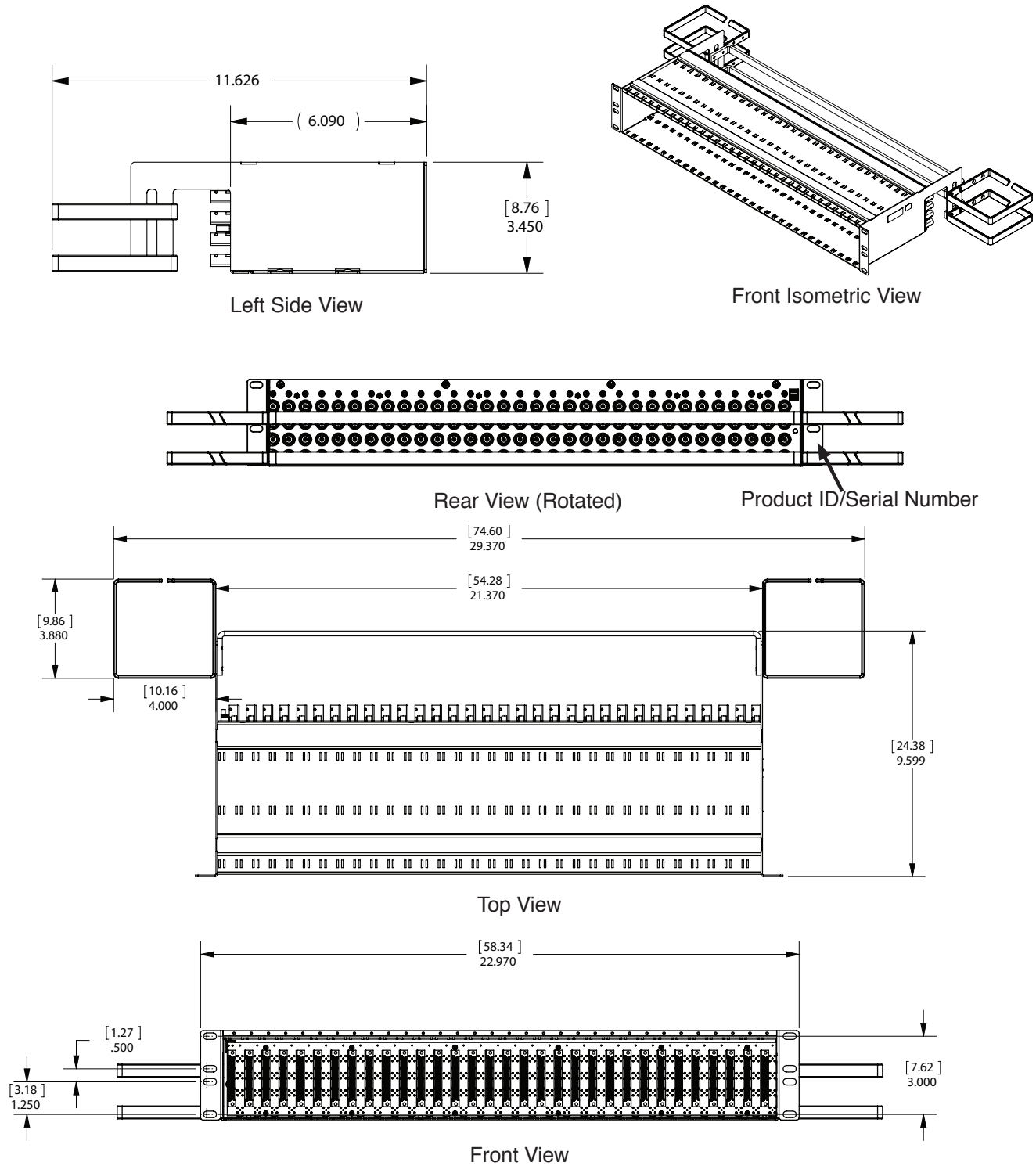
Figure 8 - 32-Position Chassis: All Views

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1.3.6 Physical - 48-Position Chassis, Fully Loaded

Cable Tie-down Bars

Front Isometric View
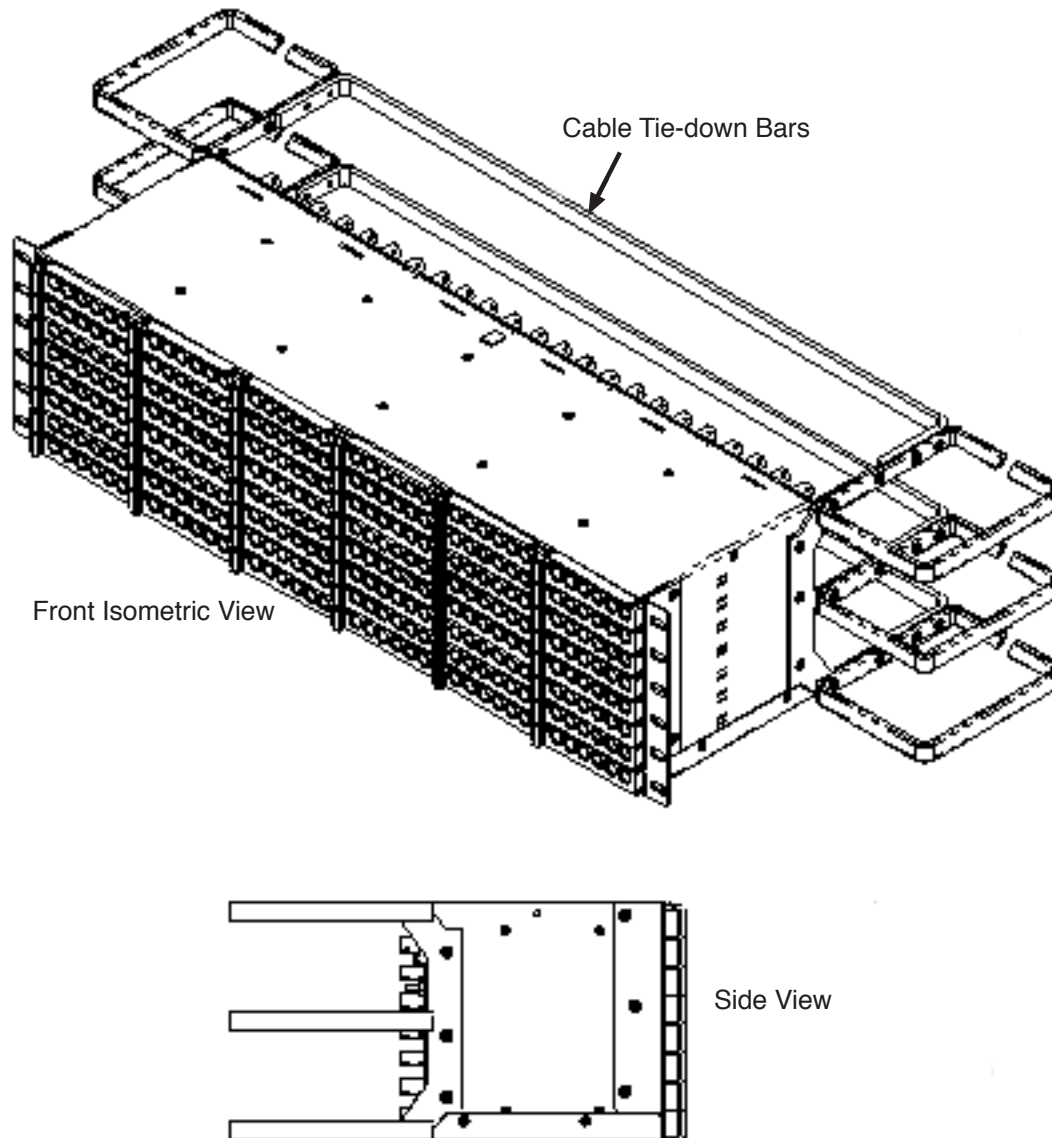
Side View

Figure 9 - 48-Position Chassis: Front Isometric and Side Views

Rear View (Rotated)

4.05
(10.29)

5.00
(12.70)

21.37
(54.28)

10.74
(27.27)

5.93
(15.05)

Top View

23.00
(58.41)

22.31
(56.67)

5.95
(15.11)

5.00
(12.70)

3.00
(7.62)
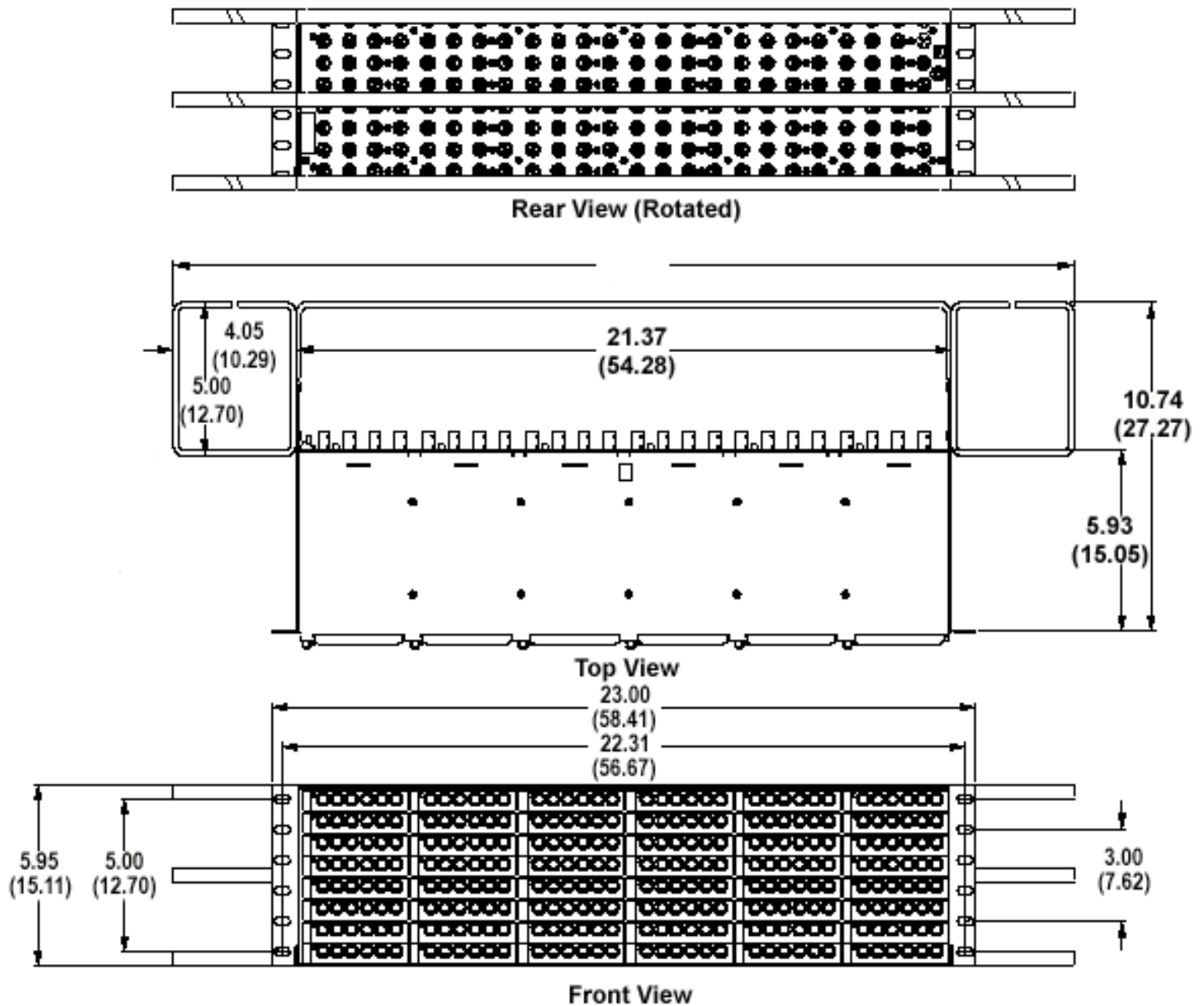
Front View

Figure 10 - 48-Position Chassis: Rear, Top, and Front Views

Chapter 2: Installation

2.1 Installation Considerations

> ⚠ **CAUTION**

CAUTION! Only qualified technicians may install and maintain this product.

> ⚠ **CAUTION**

CAUTION! Do not supply power until all connections are made in accordance with requirements specified in local electrical codes. Protect this equipment with an approved fuse or breaker sufficiently rated to interrupt power at -48 Vdc at 2 amps, or as specified on the device. Only use components and crimping tools approved by agencies or certifying bodies recognized in your country or region such as Underwriter's Laboratories (UL), TUV, etc.

> ⚠ **CAUTION**

CAUTION! This equipment is intended for installation in locations accessible only to qualified persons.

These instructions presume that you have verified that the Telect equipment being installed is compatible with the rest of the system including power, ground, circuit protection, signal characteristics, equipment from other vendors, and local codes or ordinances.

2.1.1 Location and Space

Depending on chassis size, the Broadband DSX mounts in 19" or 23" WECO-spaced racks (1-inch-on-center mounting holes) and uses 3.5" or 6" of vertical space.

2.1.2 Tools and Equipment

Installation requires no special tools or equipment.

2.1.3 Technical Support

Please use the online request from at www.telect.com under Support\Technical Support or call Telect directly at 1-509-921-6161.

2.1.4 Inspection

Compare the contents of the Broadband DSX shipping container with the packing list. Call Telect if you are missing anything.

NOTE: Telect is not liable for shipping damage. If the shipping container is damaged, keep it for carrier's inspection. Notify the carrier and call Telect's Customer Service Department at 1-800-551-4567 or 1-509-926-6000. Keep the container until you have checked equipment operation. Contact Telect if there are any problems with the equipment. Use the original, undamaged container if instructed to return the DSX to Telect.

2.2 Installation Procedure for 010-0000-2448, 010-0000-3248

1. Mount the Broadband DSX chassis to the rack with the four mounting screws that come with the equipment.

2. Attach tie-down bar mounting plate and tie-down bars and rings.

3. Starting with the lowest Broadband DSX in the chassis and working up, connect the network element (NE) equipment to the lower pairs of connectors.

4. Secure the cables as required.

5. Install the cross-connects at the upper pairs of connectors, connecting "IX" of one piece of equipment to "OX" of another. The equipment must have both cross-connects: "IX" of Equipment A to "OX" of Equipment B, and "IX" of B to "OX" of A.

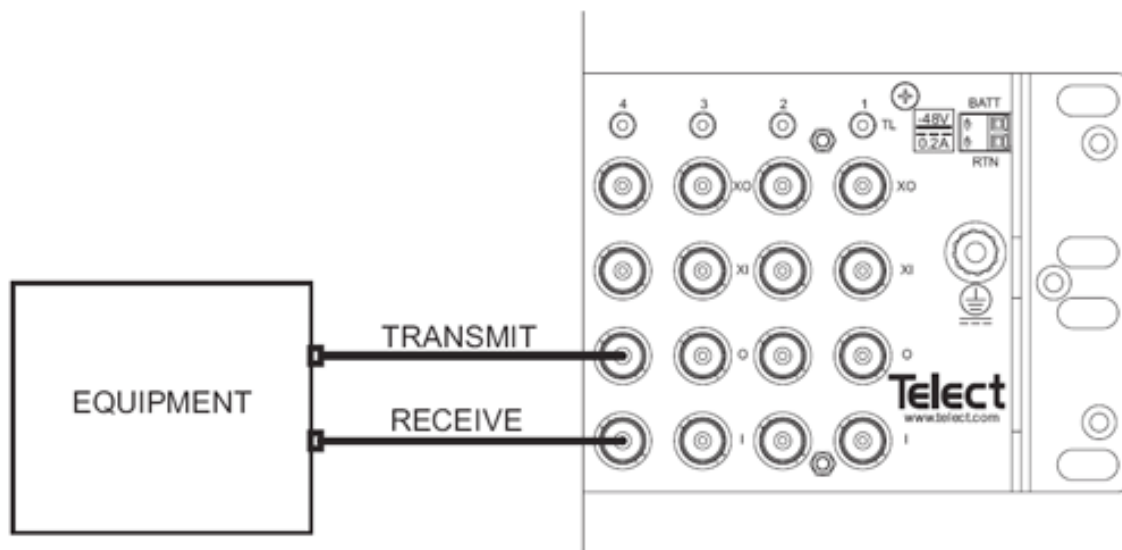**Figure 11 - Connecting the Network Element on the 010-0000-2448 or 010-0000-3248**

6. Connect the messenger wire to one of the pin sockets or wire wrap pins that pertain to the IX and OX of a crossconnect pair.

7. Secure cross-connect cables from other Broadband DSXs to the upper tie-down bar.

8. Slide the plastic designationlabel holders onto the DSX modules.

Figure 12 - Connecting Messenger Wire

9. Connect a ground wire (14 AWG, minimum) with #8 screw ring terminal to the ground lug.

10. Connect the office battery to the Power/Terminal Screws.

11. Insert the appropriate DSX modules to turn up the circuits you want.

12. Fill out the designation labels and insert them into the plastic holders on the DSX modules.

2.3 Installation Procedure for 010-0000-4848

1. Mount the Broadband DSX to the rack with the four mounting screws that come with the equipment.

2. Attach the tie-down bar mounting plate and tie -down bars and rings.

3. Connect the network element (NE) equipment to the I and O BNC connectors.

4. Secure the cables as required.

5. Install the cross-connects, connecting "IX" of one piece of equipment to the "OX" of another. The equipment must have both cross-connects: "IX" of Equipment A to "OX" of Equipment B, and "IX" of B to "OX" of A.

6. Connect the messenger wire to one of the pin sockets or wire wrap pins that pertain to the IX and OX of a cross-connect pair.

7. Secure cross-connect cables from other Broadband DSXs to the upper tie-down bar.

8. Slide the plastic designation-label holders onto the DSX modules.

9. Connect a ground wire (14 AWG, minimum) with a #8 screw ring terminal to the ground lug.

10. Connect the office battery to the Power/ Terminal screws.

11. Insert the appropriate DSX modules to turn up the circuits you want.

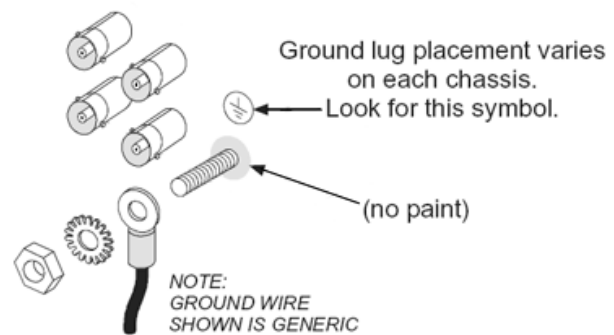12. Fill out the designation labels and insert them into the plastic holders on the DSX modules.
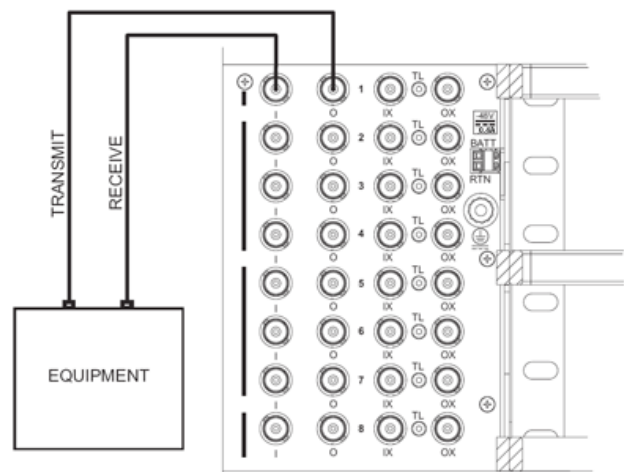

Figure 13 - Connecting Ground Wire

Figure 14 - Connecting the Network Element on the 010-0000-4848
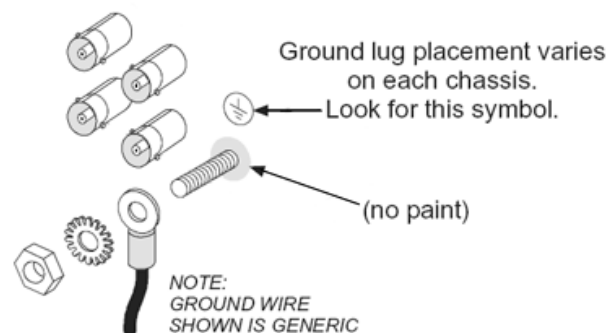

Figure 15 - Connecting the Messenger Wire

Figure 16 - Connecting the Ground Wire

Chapter 3: Electrical Operation

3.1 Power

The Broadband DSX is passive equipment. It accepts -48V office battery power to turn on the tracer lamp (TL) LED on the front of the DSX modules. This power connects to the power terminal at the back of the equipment. The strip terminates a bus on the chassis backplane; all DSX module connectors on the backplane tap into the signal lines of this bus.
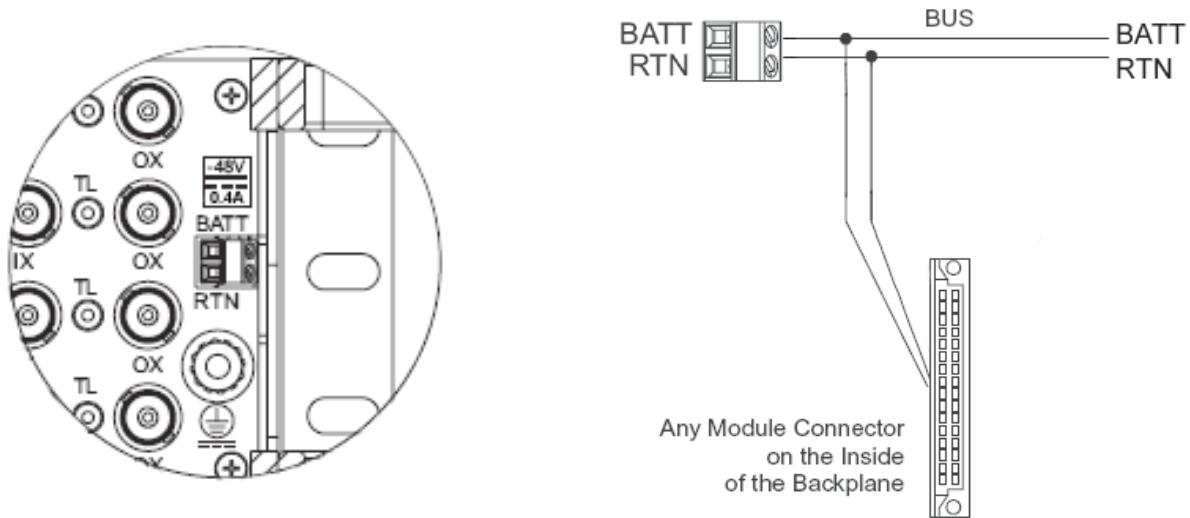
Figure 17 - Closeup of Rear View of the Chassis

3.1.1 Tracer Lamp

The TL turns on only when a plug is inserted into one of the monitor jacks on the front of a DSX module.
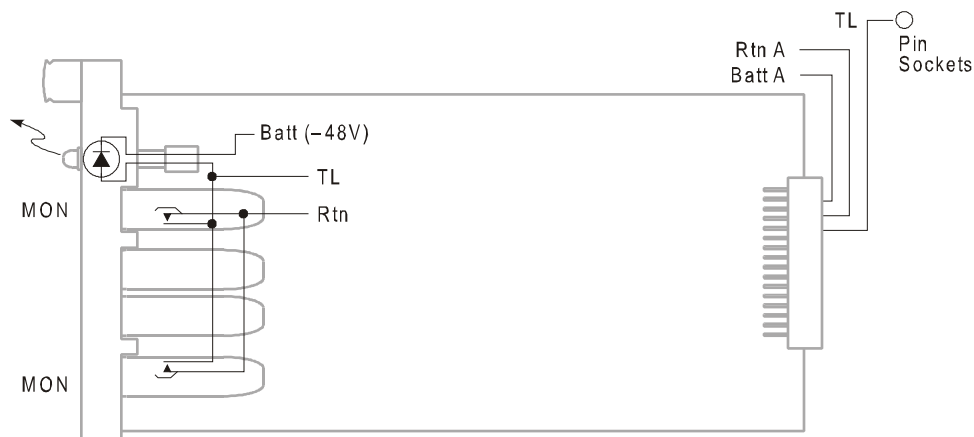
Figure 18 - Tracer Lamp

Tracer Lamps of cross-connected modules can also be connected by attaching the messenger wire to the back plane pin sockets that correspond to each of the connected modules. When one TL turns on, the other flashes for about 30 seconds and then its light becomes steady.

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Chapter 4: Service

> ⚠️ **CAUTION**

CAUTION! Only qualified technicians may install and maintain this product.

4.1 Owner Maintenance

Telect's Broadband DSX does not require preventive maintenance. If you encounter technical difficulties, please use the online request form at www.telect.com under Support\Technical Support or call Telect directly at 1.509.926.6000.

4.2 In-Warranty Service

Contact Telect at 1.509.926.6000 or e-mail us at support@telect.com. Telect will ship a new replacement product, along with a return shipping label and authorization information. When you receive your replacement product, pack up the defective product and return it to Telect using the return label, box and any additional information provided.

4.3 Out-Of-Warranty Service

Follow the In-Warranty directions above. Telect charges a processing fee for out-of-warranty service, and you must submit a Purchase Order along with a Return Material Authorization (RMA) before returning equipment. The processing fee guarantees a repair estimate and is credited against actual material and labor costs. Call Telect's support center at 1.509.926.6000 for more information.

4.4 Repacking for Shipment

1. Tag the equipment showing owner's name, address, and telephone number, together with a detailed description of the problem.
2. Use the original shipping container if possible. If you do not have it, package the equipment in a way to prevent shipping damage. Include the RMA inside the container and legibly print the RMA number on the outside of the package, near the shipping address.
3. Insure the package

4.5 Troubleshooting

4.5.1 Cross-Connected Signals

Check for correct and firm cable connections at the termination and cross-connect points of the BCS-HD.

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