



Installing the Cisco ONS 15454 SDH E1-75/120 Impedance Conversion Panel

Product Name: 15454E-E1-75BB=

This document contains a description of E1-75/120 conversion panel (“E1-75 Black Box”) features, installation procedures, and technical specifications. Use this document in conjunction with the *Cisco ONS 15454 SDH Reference Manual* and the *Cisco ONS 15454 SDH Procedure Guide* when working with E1-75/120 conversion panels.

This document contains the following sections:

- [E1-75/120 Impedance Conversion Panel Description, page 1](#)
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- [Install the E1-75/120 Conversion Panel, page 4](#)
- [Install Ground and Cables, page 5](#)
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This document contains the following procedures:

[Install the E1-75/120 Conversion Panel, page 4](#)

[Install Cables with Molex 96-Pin LFH Connectors on 120-Ohm Side, page 6](#)

[Install Cables with 1.0/2.3 Miniature Coax Connectors on 75-Ohm Side, page 6](#)

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Note

For information about circuits and card capacities, see the *Cisco ONS 15454 SDH Reference Manual*.

E1-75/120 Impedance Conversion Panel Description

The ONS 15454 SDH E1-75/120 impedance conversion panel provides front mount electrical connection for 42 ITU-compliant, G.703 E-1 ports. It contains 84 1.0/2.3 miniature coaxial connectors (42 for transmit, 42 for receive) to the client side and two 96-pin Molex type connectors to the FMEC



Corporate Headquarters:

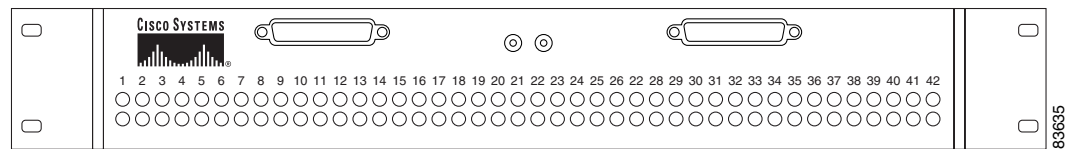
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

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120-ohm side. Each of the 96-pin Molex type connectors connects 21 inputs and 21 outputs. Transformers in the E1-75/120 conversion panel improve decoupling from DC voltages and overvoltages. The E1-75/120 conversion panel is intended to be used in DDFs (digital distribution frames), ETSI racks, and ANSI racks. If you want to use the E1-75/120 conversion panel in a rack other than ETSI, remove the ETSI rackmount brackets shipped with the E1-75/120 and use the optional 19-inch/23-inch mounting bracket.

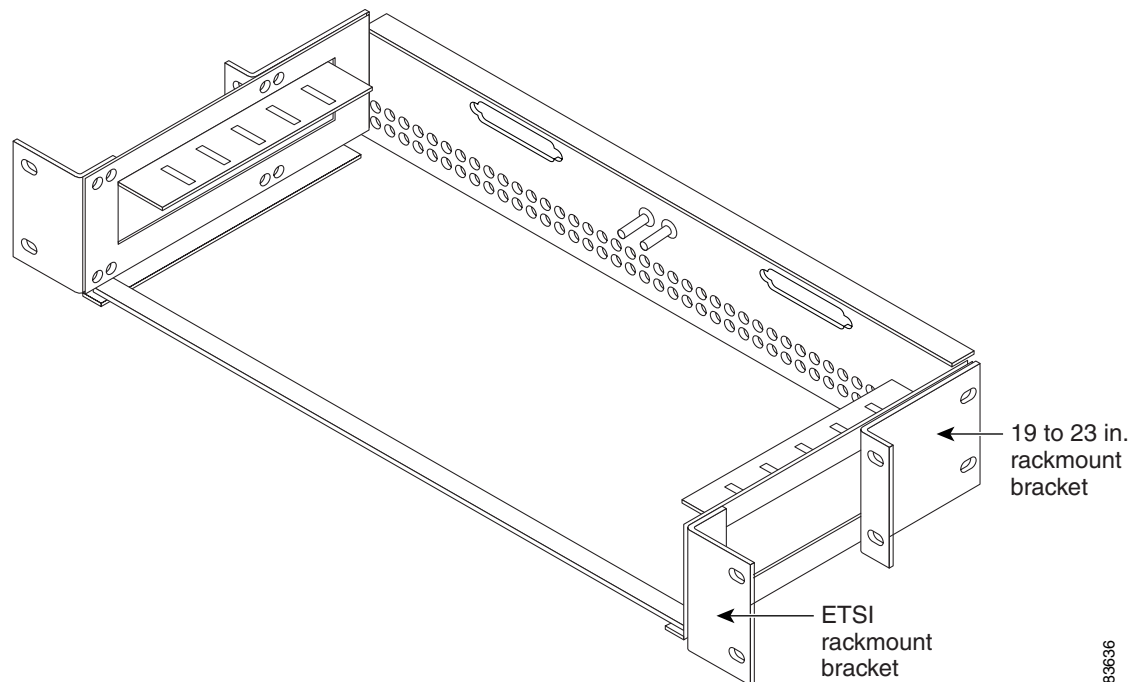
With the E1-75/120 conversion panel, each E1-42 port operates at 2.048 Mbps over a 75-ohm unbalanced coaxial 1.0/2.3 miniature coaxial connector. [Figure 1](#) shows the E1-75/120 faceplate.

Figure 1 E1-75/120 Conversion Panel Faceplate



[Figure 2](#) shows the E1-75/120 with optional rackmount brackets installed.

Figure 2 E1-75/120 with Optional Rackmount Brackets

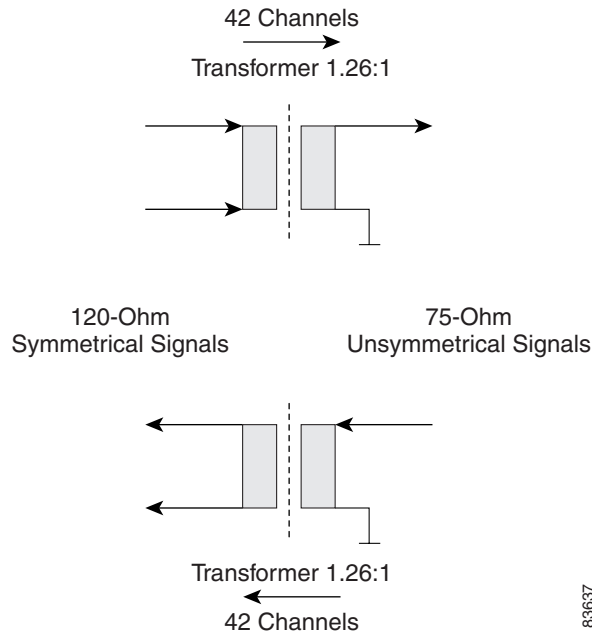


You can install the E1-75/120 conversion panel in the ANSI or ETSI rack containing the ONS 15454 SDH shelf or in a nearby rack. If you install the E1-75/120 conversion panel where a longer cable is required, make sure that the total cable loss of the balanced 120-ohm cable and the unbalanced 75-ohm cable does not exceed the maximum allowed value. The E1-75/120 conversion panel enables the use of 75-ohm interfaces on the client side with the E1-42 card that has 120-ohm interfaces.

Before you can install the E1-75/120 in the rack, install the type of rackmount brackets that is required for the rack that you are using. [Figure 2](#) shows an ETSI rackmount bracket and a 19-inch/23-inch rackmount bracket. To install the E1-75 in a 23-inch rack, use the 19-inch/23-inch rackmount brackets perpendicularly.

[Figure 3](#) shows a block diagram of the E1-75/120 conversion panel.

Figure 3 E1-75/120 Conversion Panel Block Diagram



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E1-75/120 Impedance Conversion Panel Specifications

The E1-75/120 conversion panel has the following specifications:

- E1-75/120 input
 - Bit rate: 2.048 Mbps $\pm$ 50 ppm
 - Line code: HDB-3
- E1-75/120 output
 - Bit rate: 2.048 Mbps $\pm$ 50 ppm
 - Line code: HDB-3
- E1-75/120 electrical interface
 - Connectors:
 - 1.0/2.3 miniature coax connectors on 75-ohm side
 - Molex 96-pin LFH connectors on 120-ohm side (21 inputs and 21 outputs per connector)
 - Impedance tolerance: $\pm$ 5%

**Note**

See the cable loss specification of the E1-42 card for valid cable lengths. The E1-75/120 as a passive device cannot amplify any signal and so cannot increase the possible cable length.

- Environmental
 - Operating temperature: –5 to +45 degrees Celsius (+23 to +113 degrees Fahrenheit)
 - Operating humidity: 5 to 95%, noncondensing
 - Power consumption: Not applicable; the E1-75/120 is a passive device.
- Dimensions
 - Height: 75 mm (2.95 in.)
 - Width: 535 mm (21.06 in.)
 - Depth: 221 mm (8.7 in.)
 - Weight: 2.15 kg (4.74 lb)
- Compliance

ONS 15454 SDH cards, when installed in a system, comply with these standards:

 - Safety: IEC 60950, EN 60950, UL 60950, CSA C22.2 No. 60950, TS 001, AS/NZS 3260

Install the E1-75/120 Conversion Panel

This section explains how to install the E1-75/120 conversion panel. You need an E1-75/120 conversion panel if you want to convert the balanced 120-ohm interfaces of the E1-42 card and the corresponding FMECs to unbalanced 75-ohm interfaces.

**Note**

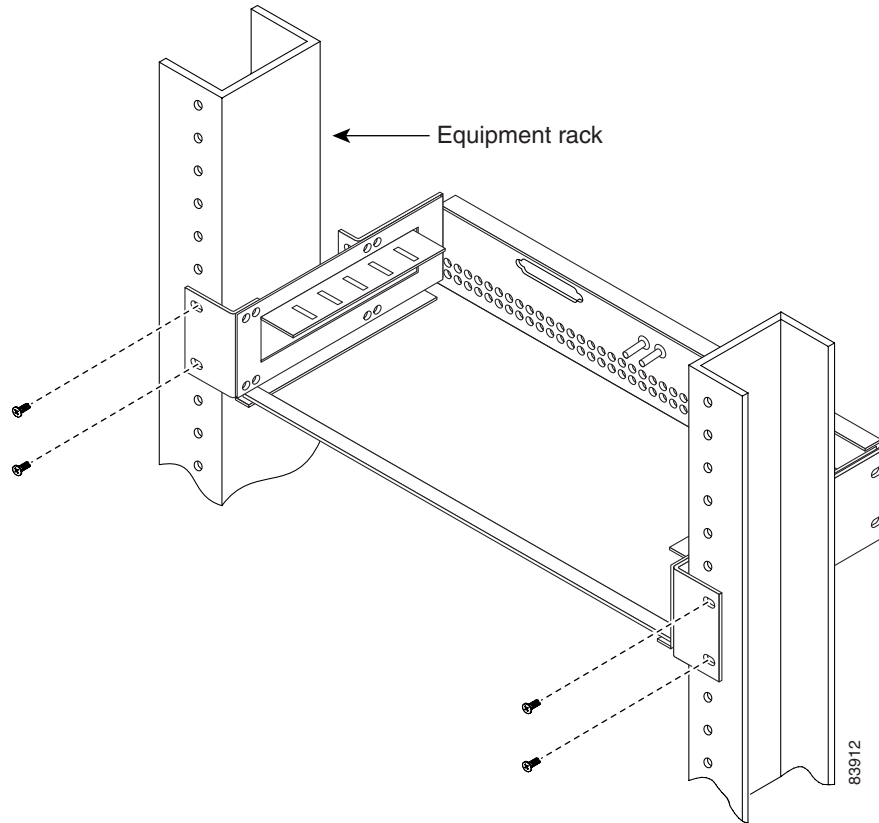
For more information about the E1-75/120 conversion panel, refer to the *Cisco ONS 15454 Reference Manual*.

Step 1

Lift the E1-75/120 conversion panel to the desired rack position.

[Figure 4](#) shows the rack-mounting for the E1-75/120 conversion panel.

Figure 4 Mounting the E1-75/120 Conversion Panel in a Rack



- Step 2** Align the screw holes on the mounting ears with the mounting holes in the rack.
- Step 3** Using screws suitable to the rack that you are using, install one mounting screw in each side of the assembly.
- Step 4** When the E1-75/120 conversion panel is secured to the rack, install the remaining mounting screws if necessary.

Install Ground and Cables

This section explains how to install the ground connection and the cables to the E1-75/120 conversion panel.

Install the Ground Connection

This section explains how to install the ground connection to the E1-75/120 conversion panel. The ground connection is in the center of the faceplate of the E1-75/120 conversion panel.

- Step 1** Remove the nuts and washers from the two grounding bolts in the center of the faceplate.
- Step 2** Remove the two-hole grounding lug from the two grounding bolts.

- Step 3** With a crimping tool, crimp the ground cable (13.3 mm² [#6 AWG] multi-strand copper wire) to the grounding lug.
 - Step 4** Attach the grounding lug to the two grounding bolts. Place the side with the ground cable to the side where you want to route the grounding cable.
 - Step 5** Use the nuts and washers to fix the grounding lug to the grounding bolts.
 - Step 6** Route the grounding cable and fix it to the to the loop farthest from the front of the cable guiding rail using tiewraps.
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Install Cables with Molex 96-Pin LFH Connectors on 120-Ohm Side

This section explains how to install the Molex 96-pin LFH connector cables on the 120-ohm side to the E1-75/120 conversion panel.

- Step 1** Guide the left Molex 96-pin LFH connector cable (channels 1 to 21) to the left and use tiewraps to attach it to the loop farthest from the front-left side of the cable guiding rail (see [Figure 1](#) and [Figure 2 on page -2](#)).
 - Step 2** Guide the right Molex 96-pin LFH connector cable (channels 22 to 42) to the right and use tiewraps to attach it to the loop farthest from the front-right side of the cable guiding rail.
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Install Cables with 1.0/2.3 Miniature Coax Connectors on 75-Ohm Side

This section explains how to install the 1.0/2.3 miniature coax connector cables on the 75-ohm side to the E1-75/120 conversion panel.

- Step 1** Group the 42 pairs of 75-ohm cables into six groups of 7 cable pairs, so that three groups of cables (channels 1 to 7, channels 8 to 14, and channels 15 to 21) can be guided to the left and three groups of cables (channels 42 to 36, channels 35 to 29, and channels 28 to 22) can be guided to the right.
 - Step 2** Tiewrap the two groups of cables coming from the left and right sides of the E1-75/120 conversion panel (channels 1 to 7 and 42 to 36) to the second tiewrap fixing loop left and right, etc. with the following groups (8-14, 35-29).
 - Step 3** Tiewrap the last two groups of cables coming from the left and right of the center of the E1-75/120 conversion panel (channels 15 to 21 and 28 to 22) to the left and right tiewrap fixing loops closest to the front.
 - Step 4** Insert the 1.0/2.3 miniature coax connector of each cable into the connector of the E1-75/120 conversion panel and push the connector until it clicks into position. If required, use the Y-shape end of the coaxial connector insertion and removal tool.
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Replace Cables with 1.0/2.3 Miniature Coax Connectors on 75-Ohm Side

This section explains how to replace single 1.0/2.3 miniature coax connector cables on the 75-ohm side of the E1-75/120 conversion panel.

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| Step 1 | If you want to replace individual 1.0/2.3 miniature coax connector cables in the existing installation, first cut the tiewrap holding the cable that you want to replace. |
| Step 2 | With the Y-shape end of the coaxial connector insertion and removing tool, grab the groove of the 1.0/2.3 miniature coax connector, pull the sleeve of the 1.0/2.3 miniature coax connector backwards, and remove the connector and cable. |
| Step 3 | Insert the 1.0/2.3 miniature coax connector of the new cable into the connector of the E1-75/120 conversion panel. |
| Step 4 | With the Y-shape end of the coaxial connector insertion and removal tool, push the connector until it clicks into position. |
| Step 5 | Tie the cable with a tiewrap to the group of cables that it belongs to. |
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Related Documentation

- *Cisco ONS 15454 SDH Procedure Guide*
- *Cisco ONS 15454 SDH Reference Manual*

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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