



# T1/E1 High-Speed WAN Interface Cards

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## Overview

This chapter describes how to connect Cisco T1/E1 high-speed WAN interface cards (HWICs) to a network. It contains the following sections:

- [Cisco T1/E1 HWICs, page 9](#)
- [Safety Warnings for Cisco T1/E1 HWICs, page 10](#)
- [Cisco T1/E1 HWIC LEDs, page 10](#)
- [Connecting a T1/E1 HWIC to a Network, page 12](#)

## Cisco T1/E1 HWICs

T1/E1 HWICs provide T1 and E1 support to Cisco 2800 series and Cisco 3800 series integrated services routers. T1 support has integrated CSU/DSU capability.

The following T1/E1 HWICs are available:

- 1-port channelized
- 2-port channelized
- 4-port clear channel

Supported platforms are:

- Cisco 2811
- Cisco 2821
- Cisco 2851
- Cisco 3825
- Cisco 3845

## Safety Warnings for Cisco T1/E1 HWICs

The following safety warnings apply to installation procedures involving Cisco T1/E1 HWICs. Translations of these warnings are available in the *Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information* document, which is available online.



**Warning**

**To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.** Statement 1021



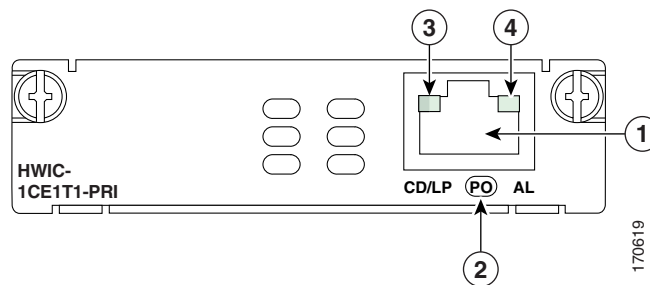
**Warning**

**Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first.** Statement 1026

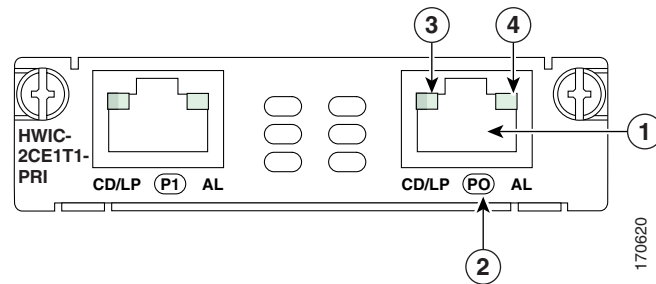
## Cisco T1/E1 HWIC LEDs

T1/E1 HWICs have 2 LEDs for each port that indicate the functionality of the T1 or E1 connection. [Figure 0-138](#), [Figure 0-139](#), and [Figure 0-140](#) show the front panels and LEDs on the 1-port, 2-port, and 4-port HWICs, respectively. The LEDs are described in [Table 0-46](#).

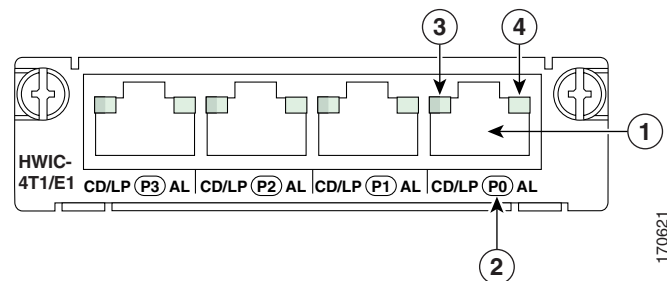
**Figure 0-138** 1-Port T1/E1 HWIC Front Panel



<b>1</b>	RJ-48C connector	<b>2</b>	Port number
<b>3</b>	CD/LP LED (bicolor LED)	<b>4</b>	AL LED

**Figure 0-139 2-Port T1/E1 HWIC Front Panel**

<b>1</b>	RJ-48C connector	<b>2</b>	Port number
<b>3</b>	CD/LP LED (bicolor LED)	<b>4</b>	AL LED

**Figure 0-140 4-Port T1/E1 HWIC Front Panel**

<b>1</b>	RJ-48C connector	<b>2</b>	Port number
<b>3</b>	CD/LP LED (bicolor LED)	<b>4</b>	AL LED

CD/LP LEDs are bicolor LEDs with both green and yellow emitters.

**Table 0-46 T1/E1 HWIC LEDs**

LED	Color	Description
CD/LP	Green/Yellow	Off: No carrier detected Green on (CD): Carrier detected Yellow on (LP): Port in loopback mode
AL	Yellow	Off: No alarms On: Port in alarm mode

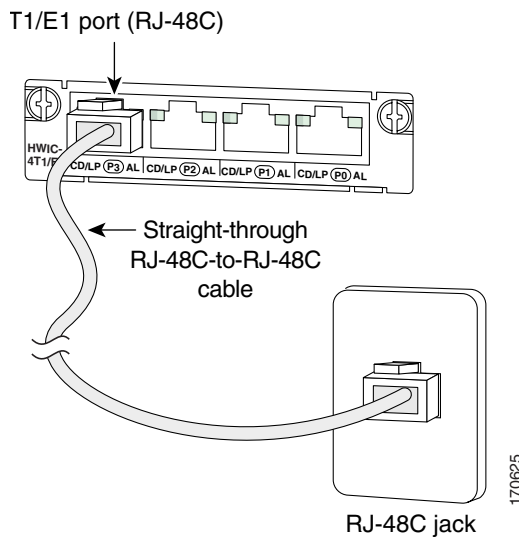
## Connecting a T1/E1 HWIC to a Network

Use straight-through RJ-48C-to-RJ-48C cables to connect T1/E1 ports to RJ-48C jacks. See the [Cisco Modular Access Router Cable Specifications](#) for pinouts.

To connect a T1/E1 port to the network, complete the following steps:

- Step 1** Connect one end of the cable to a T1/E1 port on the card.
- Step 2** Connect the other end to the RJ-48C jack at your site, as shown in [Figure 0-141](#).

**Figure 0-141** Connecting a T1/E1 HWIC to an RJ-48C Jack



## Additional References

For additional information, see the following documents and resources.

Related Topic	Document Title
Regulatory compliance and safety information	<a href="#">Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information</a>
Cisco IOS software website and reference documentation	<a href="#">Cisco IOS Software</a> <a href="http://www.cisco.com/en/US/products/sw/iosswrel/tsd_products_support_category_home.html">http://www.cisco.com/en/US/products/sw/iosswrel/tsd_products_support_category_home.html</a>
Technical documentation, including feedback and assistance	<a href="#">What's New in Cisco Product Documentation</a> (including monthly listings of new and revised documents) at <a href="http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm">http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm</a>

# Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, 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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