



Connecting ISDN BRI S/T High-Speed WAN Interface Cards to a Network

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Overview

This document describes Cisco ISDN BRI S/T high-speed WAN interface cards and how to connect them to a network. It contains the following sections:

- [Cisco ISDN BRI S/T High-Speed WAN Interface Cards, page 1](#)
- [Upgrading ISDN BRI Network Modules, page 5](#)
- [Related Documentation, page 6](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page 6](#)

For an overview of Cisco interface cards used for Cisco access routers see the [Cisco Interface Cards for Cisco Access Routers](#) document.

Cisco ISDN BRI S/T High-Speed WAN Interface Cards

This section describes ISDN BRI S/T high-speed WAN interface cards (HWICs) and how to connect them to a network. It contains the following subsections:

- [Accessibility, page 2](#)
- [Platform Support for Cisco HWIC-1B-U, page 2](#)
- [HWIC-4B-S/T LEDs, page 3](#)
- [Prerequisites for Connecting ISDN BRI S/T High-Speed WAN Interface Cards to a Network, page 3](#)
- [Connecting an HWIC-4B-S/T to a Network, page 4](#)



Caution

Warning To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the HWIC-ADSLI-B/ST, HWIC-2SHDSL and HWIC-4SHDSL interface cards only to intra-building or unexposed wiring or cable. The intra-building port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces

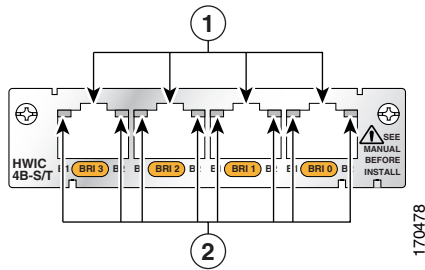
are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metalically to OSP wiring.

Caution

To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the HWIC-4B-S/T interface cards only to intra-building or unexposed wiring or cable that is shielded and grounded at both ends. The intra-building port(s) of the equipment or subassembly must not be metalically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metalically to OSP wiring.

The HWIC-4B-S/T connects to an ISDN WAN network through an external Network Termination 1 (NT1) device. This interface is also known as an *S/T interface* (see Figure 1).

Figure 1 HWIC-4B-S/T Front Panel



1	ISDN BRI S/T interfaces	2	Activity LEDs for ISDN BRI B channels
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Accessibility

These HWICs can be configured using the Cisco command-line interface (CLI). The CLI conforms to code 508 because it is text based and it relies on a keyboard for navigation. All functions of the router can be configured and monitored through the CLI.

For a complete list of guidelines and Cisco products' adherence to accessibility, see Cisco Accessibility Products at the following URL:

<http://www.cisco.com/web/about/responsibility/accessibility/products>

Platform Support for Cisco HWIC-1B-U

The HWIC-4B-S/T is supported on the following Cisco router platforms:

- Cisco 1841 Integrated Services Router (ISR)
- Cisco 2801 ISR
- Cisco 2811 ISR
- Cisco 2821 ISR

- Cisco 2851 ISR
- Cisco 3825 ISR
- Cisco 3845 ISR

HWIC-4B-S/T LEDs

The HWIC-4B-S/T LEDs are shown in [Figure 1](#). The HWIC-4B-S/T has two LEDs associated to an interface. These LEDs are located in the top corners of each port. These LEDs indicate call activity on the two ISDN BRI B channels, as described in [Table 1](#).

Table 1 HWIC-4B-S/T LEDs

LED	Description
B1	Call active on B1 channel when LED is solid green.
B2	Call active on B2 channel when LED is solid green.

Prerequisites for Connecting ISDN BRI S/T High-Speed WAN Interface Cards to a Network

Before connecting an HWIC to the network, ensure that the HWIC is installed in the router, the equipment is properly grounded, and you have the proper cables for connecting the HWIC to the network. This section describes the preparation necessary before connecting an HWIC-4B-S/T to the network.



The ISDN connection is regarded as a source of voltage that should be inaccessible to user contact. Do not attempt to tamper with or open any public telephone operator (PTO)-provided equipment or connection hardware. Any hardwired connection (other than by a nonremovable, connect-one-time-only plug) must be made only by PTO staff or suitably trained engineers. Statement 23

Installing a Cisco ISDN BRI S/T HWIC

Install the Cisco ISDN BRI S/T HWIC according to the instructions in [Installing Cisco Interface Cards in Cisco Access Routers](#).

Grounding

Ensure that the equipment you are working with is properly grounded according to the instruction in [Installing Cisco Interface Cards in Cisco Access Routers](#).

Cables

Use a straight-through RJ-45-to-RJ-45 cable (not included) to connect an ISDN BRI S/T HWIC to a network.



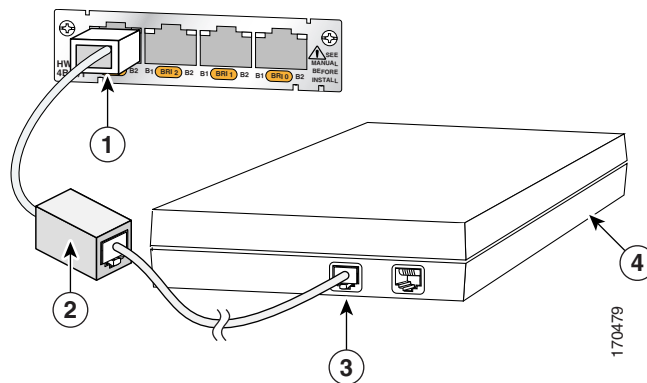
Warning

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

Connecting an HWIC-4B-S/T to a Network

To connect an HWIC-4B-S/T card to a network (NT1), use a straight-through RJ-45-to-RJ-45 cable. (See [Figure 2](#).) These ports are color-coded orange.

Figure 2 Connecting an HWIC-4B-S/T to an NT1 Device



1	ISDN BRI S/T port	3	Straight-through RJ-45-to-RJ-45 cable
2	External termination resistor (100ohm)	4	NT1 device



Caution

The router should be turned off before performing tasks to connect the HWIC-4B-S/T to a network.

To connect an HWIC-4B-S/T to a network, follow these steps:

- Step 1** Connect one end of a straight-through RJ-45-to-RJ-45 cable to the RJ-45 port on the HWIC-4B-S/T.
- Step 2** Connect one end of the cable to the external termination resistor (100ohm).
- Step 3** Connect the other end of the cable to the NT1 device, as shown in [Figure 2](#).
- Step 4** Follow the instructions in the documentation that came with the NT1 device to connect the NT1 device to the ISDN wall jack.
- Step 5** Turn on power to the router.

Connecting Point to Multipoint

To connect one or more basic ISDN ports, use the ISDN BRI interface to connect the point-to-multipoint S interface.



Note The resistor is added to the bus at the furthest point from the NT1.

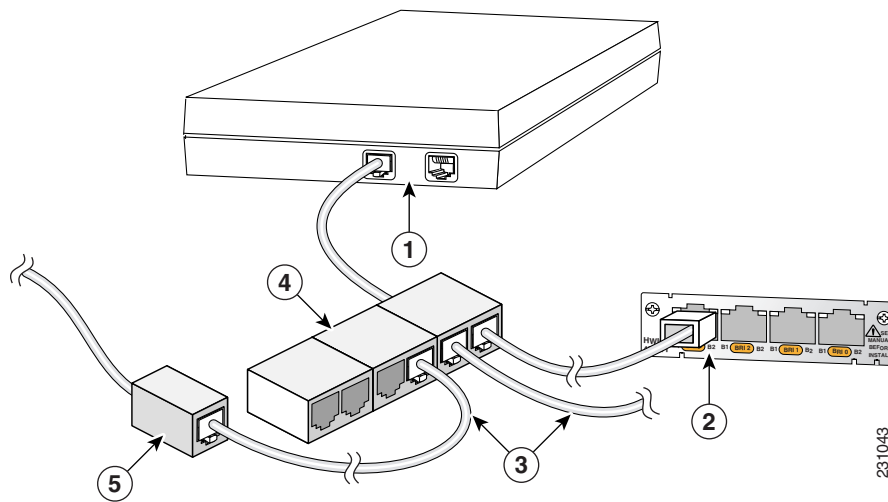


Note Point to multipoint support is permitted only when no bus loop power is consumed by any endpoint on the bus. The HWIC-4B-S/T does not consume S-bus loop power.

Step 1 Connect one end of a straight-through RJ-45-to-RJ-45 cable to the RJ-45 port on the HWIC-4B-S/T.

Step 2 Connect the other end of the RJ-45 cable to up to 7 other Traffic Engineering (TE) interfaces and external terminating resistor.

Figure 3 Connecting Point to Multipoint



1	NT1 device	4	Multi-port splitter
2	ISDN BRI S/T port	5	External terminating resistor
3	Cable connecting to up to 7 other TE interfaces		

Upgrading ISDN BRI Network Modules

To upgrade your existing HWIC-4B-S/T on the Cisco 2800 or Cisco 3800 ISRs, see the replacement HWICs listed in [Table 2](#).

**Note**

Same-slot replacement of the network module with the HWIC-4B-S/T is not possible unless the slot supports HWICs.

Table 2 ISDN BRI Network Module and HWIC Replacements

Module	Replace with...
NM-4B-S/T	HWIC-4B-S/T
NM-8B-S/T	HWIC-4B-S/T

Related Documentation

Related documentation is available on Cisco.com.

- [Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information](#)
- “Configuring ISDN BRI” chapter of the *Cisco IOS Dial Technologies Configuration Guide* for your Cisco IOS software release

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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