Connecting Cisco Serial High-Speed WAN Interface Cards

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Overview

This document describes Cisco serial and high-speed WAN interface cards (HWICs) and how to connect them to a network. It contains the following sections:

- Serial High-Speed WAN Interface Cards, page 1
- Obtaining Documentation, Obtaining Support, and Security Guidelines, page 5

For an overview of Cisco interface cards used for Cisco access routers, see the *Cisco Interface Cards for Cisco Access Routers* document.

Serial High-Speed WAN Interface Cards

This section describes serial HWICs and how to connect 1- and 2-port Cisco serial HWICs to a network. It contains the following sections:

- 1- and 2-Port Serial HWICs, page 1
- 2-Port Asynchronous/Synchronous Serial HWIC, page 2
- Serial WAN Interface Card LEDs, page 3
- Supported Platforms, page 3
- Prerequisites for Connecting 1- and 2-Port Serial WICs to a Network, page 3
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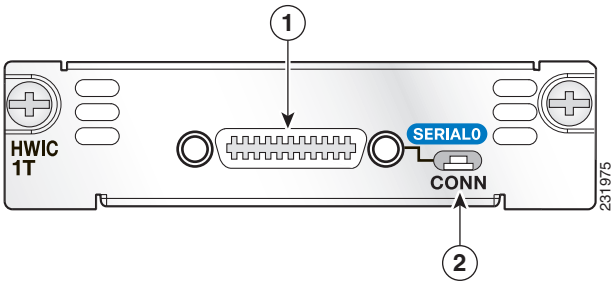
1- and 2-Port Serial HWICs

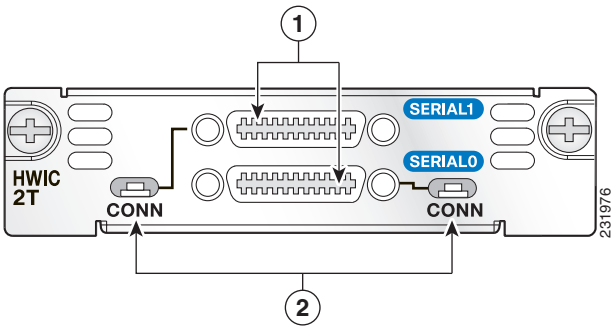
The 1-port serial HWIC (HWIC-1T), shown in Figure 1, and the 2-port serial HWIC (HWIC-2T), shown in Figure 2, provide an EIA/TIA-232, EIA/TIA-449, V.35, X.21, data terminal equipment/data communications equipment (DTE/DCE) interface, EIA-530 DTE interface, or nonreturn to zero/nonreturn to zero inverted (NRZ/NRZI) serial interface to a Cisco modular router.

Figure 1 1-Port Serial HWIC Front Panel (HWIC-1T)



1	Serial port	2	CONN LED

Figure 2 2-Port Serial HWIC Front Panel (HWIC-2T)

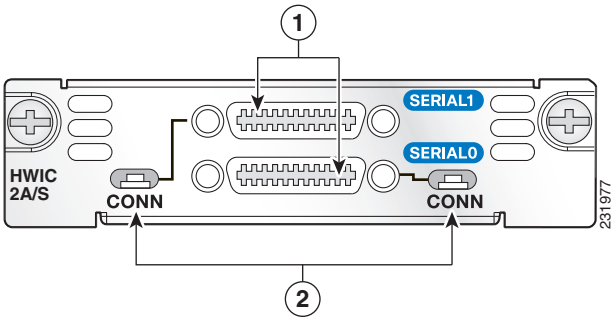


1	Serial ports	2	CONN LEDs

2-Port Asynchronous/Synchronous Serial HWIC

The 2-port asynchronous/synchronous (A/S) HWIC (HWIC-2A/S), shown in Figure 3, provides an EIA/TIA-232, EIA/TIA-449, V.35, X.21, DTE/DCE, EIA-530, or EIA-530A serial interfaces to a Cisco modular router.

Figure 3 2-Port A/S Serial HWIC Front Panel (HWIC-2A/S)



1	Serial ports	2	CONN LEDs

Serial WAN Interface Card LEDs

Each serial HWIC has one LED, labeled CONN for each port, which lights when the serial port is connected. When the port is in DTE mode, the CONN LED indicates that Data Send Ready (DSR), Data Carrier Detect (DCD), and Clear To Send (CTS) have been detected. When the port is in DCE mode, Data Terminal Ready (DTR) and Ready To Send (RTS) have been detected. Table 1 describes the functions of the LEDs.

Table 1 Serial HWIC LEDs

LED status	Description
Green	Monitored port is active (has initialized without error).
Yellow	Monitored port is in loopback mode.
Off	Monitored port is not active (has failed to initialize).

Supported Platforms

The HWIC-1T, HWIC-2T, and HWIC-2A/S interface cards support the following Cisco integrated services routers (ISRs):

- Cisco 1841 ISR
- Cisco 2801 ISR
- Cisco 2811 ISR
- Cisco 2821 ISR
- Cisco 2851 ISR
- Cisco 3825 ISR
- Cisco 3845 ISR

Note Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

Prerequisites for Connecting 1- and 2-Port Serial WICs 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 for connecting a 1- and 2-Port HWIC to the network.

Installing a Cisco Serial WAN Interface Card

Install the Cisco serial WAN interface card 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 instructions in the *Installing Cisco Interface Cards in Cisco Access Routers* document.

Cables

After you install the serial HWIC, use the appropriate serial cable to connect the HWIC's serial port to one of the following types of equipment:

- An asynchronous modem, if connecting to an analog telephone line
- A synchronous modem, DSU or CSU, or other DCE, if connecting to a digital WAN line

The 1-port serial HWIC, the 2-port serial HWIC, and the 2-port A/S HWIC have Cisco smart serial ports. Use the correct cable for your serial HWIC.

The serial cable attached to a smart serial port determines the port's electrical interface type and mode (DTE or DCE).

Types of Cables for 1- and 2-Port Serial HWICs

Six types of serial cables (also called *serial adapter cables* or *serial transition cables*) are available from Cisco for 1- and 2-port serial HWICs:

- EIA/TIA-232 serial cable assembly
- EIA/TIA-449 serial cable assembly
- V.35 serial cable assembly
- X.21 serial cable assembly
- EIA/TIA-530 serial cable assembly
- EIA/TIA-530A serial cable assembly

All serial cables have a universal plug at the interface card end. The network end of each cable provides the physical connectors that are most commonly used for the interface. For example, the network end of the EIA/TIA-232 serial cable is a DB-25 connector, which is the most widely used EIA/TIA-232 connector.

All serial cable assemblies except EIA-530 are available in DTE or DCE format: DTE with a plug connector at the network end, and DCE with a receptacle at the network end. The V.35 serial cable assembly is available in either mode with either gender at the network end.

Connecting 1- and 2-Port Serial HWICs to a Network

To connect the serial card to the WAN, follow these steps:

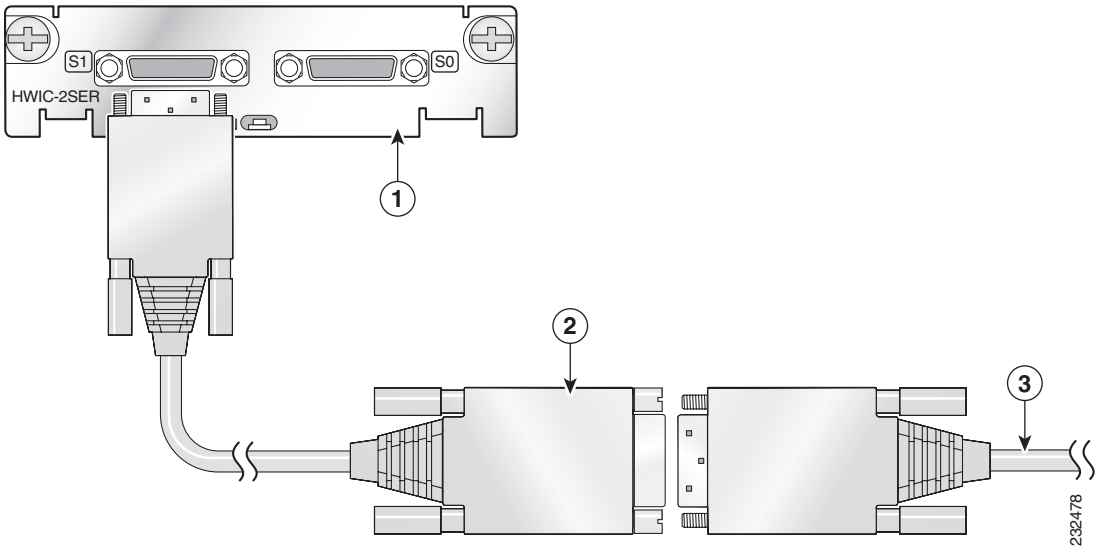
Step 1 Confirm that the router is turned off.

Warning **To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the high-speed WAN 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 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 metallically to OSP wiring.

Step 2 Connect the serial cable to the connector on the card faceplate. (See Figure 4.)

Figure 4 Connecting the Serial WAN Interface



1	Serial interface	**3**	Male serial cable
2	Female serial cable		

Step 3 Connect the female end of the serial cable to the male end of the other serial connector for back-to-back connectivity. (See Figure 4.)

Step 4 Connect one end of the appropriate serial cable to the connector on the card faceplate.

Step 5 Connect the other end of the cable to the DTE or DCE.

Step 6 Turn on power to the router by pressing the power switch to the ON (|) position.

Step 7 Check that the CONN LED goes on, which indicates that the serial port detects the WAN serial connection.

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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