



10/100BASE-T Ethernet Switch High-Speed WAN Interface Cards

Revised: 6/7/07, OL-12850-01

Overview

This document describes Cisco 10/100BASE-T Ethernet switch high-speed WAN interface cards (HWICs) and how to connect Cisco 10/100BASE-T Ethernet HWICs to the network, and contains the following sections:

- [Cisco 10/100BASE-T Ethernet Switch HWICs, page 1](#)
- [Installing a Daughter Card on the HWIC-4ESW Card, page 4](#)
- [Scenarios for Cisco 10/100BASE-T Ethernet Switch HWICs, page 6](#)
- [Connecting Cisco 10/100BASE-T Ethernet Switch HWICs to Your Network, page 6](#)
- [Stacking of Cisco 10/100BASE-T Ethernet Switch HWICs, page -7](#)
- [Related Documentation, page 7](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page 8](#)

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

Cisco 10/100BASE-T Ethernet Switch HWICs

The Cisco 10/100BASE-T Ethernet switch HWIC is available as a 4-port single-wide HWIC (HWIC-4ESW), and as an (8+1)-port double-wide HWIC (HWIC-D-9ESW), providing Layer 2 switching for Cisco modular access routers.



Caution

To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the 4-port single-wide HWIC (HWIC-4ESW), 4-port single-wide HWIC with PoE (HWIC-4ESW-POE), (8+1)-port double-wide HWIC (HWIC-D-9ESW), and (8+1)-port double-wide HWIC with PoE (HWIC-D-9ESW-POE) only to intra-building or non-exposed wiring or cabling. The intrabuilding cable must be shielded and the shield must be grounded at both ends.

**Note**

Cisco 10/100BASE-T Ethernet switch HWICs can be inserted into HWIC slots only. They are not designed to fit into WIC/VIC slots.

The Cisco 10/100BASE-T Ethernet switch HWIC provides Layer 2 switching for traffic between one port on the HWIC and any other port on the same HWIC. The HWIC also supports Layer 3 traffic to and from the HWIC and any of the other platform interfaces. Traffic between different VLANs on the switch is routed through the router platform.

Two Cisco 10/100BASE-T Ethernet switch HWICs can be stacked in a router chassis to provide expanded switching capability. See the “[Stacking of Cisco 10/100BASE-T Ethernet Switch HWICs](#)” section on page 7 for a detailed description.

Each version of the Cisco 10/100BASE-T Ethernet switch HWIC is capable of providing –48 volts of inline power through its ports. Inline power is used to provide power to an IP phone or to a wireless access point attached to a port.

**Note**

The HWIC-D-9ESW card provides inline power through only eight of its ports, ports 0 through 7. The ninth port (port 8) is intended to be a stacking port, and as such, does not support inline power.

To provide inline power, an HWIC must be provisioned with an optional daughter card that distributes inline power. Inline power is provided by a –48 volt power supply within the router. The daughter card distributes the –48 volt power to the ports of the HWIC.

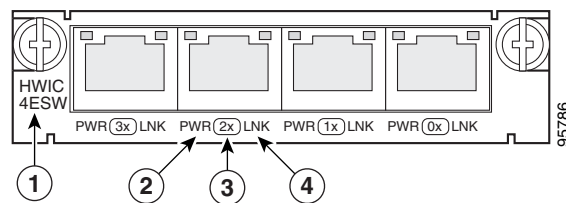
**Note**

In order for the HWIC to distribute inline power, the router must be provisioned with an optional –48 volt power supply.

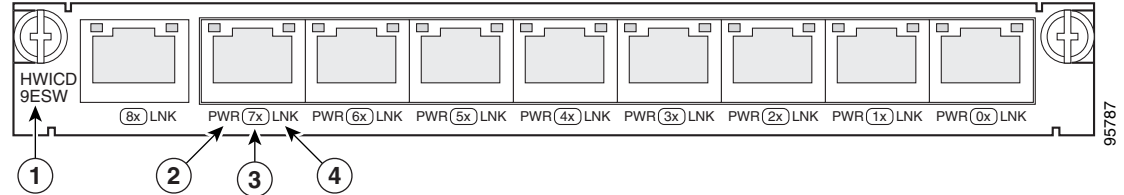
Cisco 10/100BASE-T Ethernet Switch HWIC LEDs

The Cisco 10/100BASE-T Ethernet switch HWIC uses two LEDs per port to indicate link status and inline power status. See [Figure 109](#), [Figure 110](#), and [Table 30](#) for a description of these LEDs.

Figure 109 HWIC-4ESW Faceplate



1	Product name	3	Port number
2	Inline power LED	4	Link LED

Figure 110 HWIC-D-9ESW Faceplate

1	Product name	3	Port number
2	Inline power LED	4	Link LED

Table 30 Cisco 10/100BASE-T Ethernet Switch HWIC LEDs

LED	Color	Definition	States
LNK	Green	Link Status	ON = Link pulses detected OFF = No link pulses detected
ILP	Green/amber	Inline Power Status	GREEN = Providing power to the device AMBER BLINKING = Power delivery fault or denial AMBER = Power administratively disabled OFF = No external device detected, or inline power option not installed.

Installing Inline Power Daughter Cards on Cisco 10/100BASE-T Ethernet Switch HWICs

This section describes the installation of inline power daughter cards on HWIC-4ESW and HWIC-D-9ESW Ethernet switch HWICs. [Table 31](#) shows the inline power card mapping for the two HWICs.

Table 31 HWIC and Inline Power Card Mapping

HWIC Part Number	Inline Power Part Number
HWIC-4ESW	ILPM-4
HWIC-D-9ESW	ILPM-8

**Note**

The inline power daughter cards are available separately as spares.

**Note**

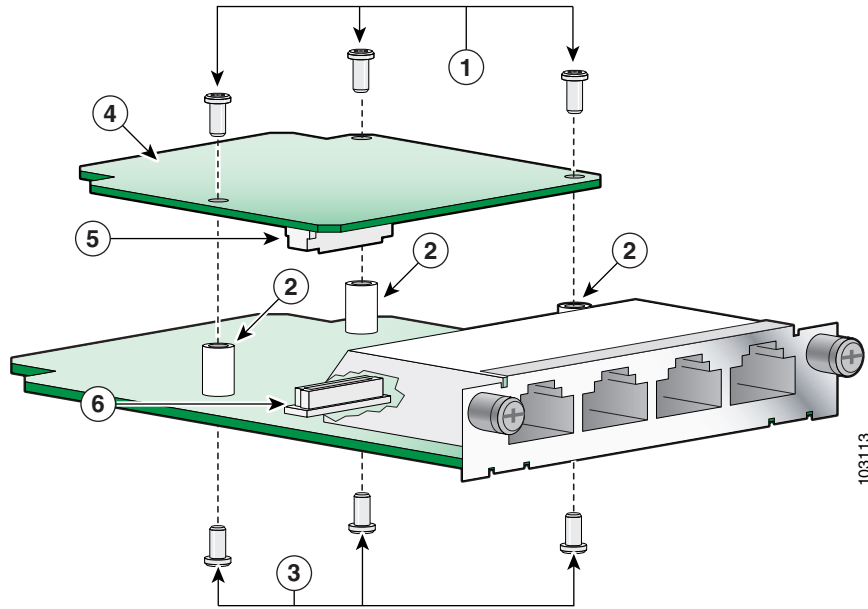
The inline power daughter cards are NOT interchangeable between the 4-port and the (8+1)-port HWICs.

Installing a Daughter Card on the HWIC-4ESW Card

To install an inline power daughter card on the HWIC-4ESW card, perform the following steps:

- Step 1** Install the three standoffs (included with the daughter card) on the HWIC motherboard, as shown in [Figure 111](#), with the provided fastening screws. Tighten the screws firmly.

Figure 111 *Installing an Inline Power Card on the Cisco 10/100BASE-T Ethernet Switch HWIC-4ESW Card*



1	Fastening screws: daughter card to standoffs	4	Daughter card
2	Standoffs (3)	5	Daughter card connector
3	Fastening screws: standoffs to motherboard	6	Motherboard connector

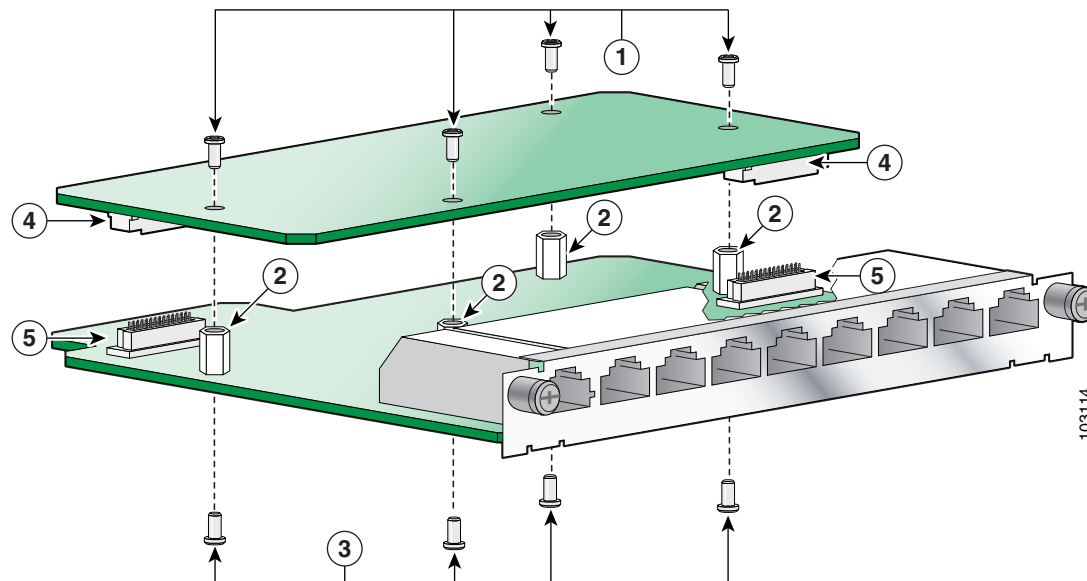
- Step 2** Plug the daughter card connector into the motherboard connector, making sure that the standoffs align correctly underneath the mounting holes in the daughter card.
- Step 3** Connect the daughter card to the standoffs with the provided fastening screws. Tighten the screws firmly.

Installing a Daughter Card on the HWIC-D-9ESW Card

To install an inline power daughter card on the HWIC-D-9ESW card, perform the following steps:

- Step 1** Install the four standoffs (included with the daughterboard) onto the HWIC motherboard, as shown in [Figure 112](#), with the provided fastening screws. Tighten the screws firmly.

Figure 112 *Installing an Inline Power Card on the Cisco 10/100BASE-T Ethernet Switch HWIC-D-9ESW Card*



1	Fastening screws: daughter card to standoffs	4	Daughter card connectors
2	Standoffs	5	Motherboard connectors
3	Fastening screws: standoffs to motherboard		

- Step 2** Plug the daughter card connectors into the motherboard connectors, making sure that the standoffs align correctly underneath the mounting holes in the daughter card.
- Step 3** Connect the daughter card to the standoffs with the provided fastening screws. Tighten the screws firmly.

Verifying Daughter Card Installation

Perform the following steps to verify correct installation of the daughter card:

- Step 1** Install the HWIC into the router and power up the router.
- Step 2** Issue the **show power inline** command.

- Step 3** Read the status of the –48 volt power supply and the ports that support inline power.
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Scenarios for Cisco 10/100BASE-T Ethernet Switch HWICs

Cisco 10/100BASE-T Ethernet switch HWICs are designed for use in the following scenarios:

- Multiproduct WAN gateway routers for LANs
- Same-building or same-campus wiring closets to achieve high-speed connectivity for high-demand network segments



Tip

For more information on possible network configurations using the Cisco 10/100BASE-T Ethernet switch HWIC, see the *Configuration Guidelines for HWIC-4ESW and HWIC-D-9ESW Interface Cards* document.

Connecting Cisco 10/100BASE-T Ethernet Switch HWICs to Your Network

To connect the Cisco 10/100BASE-T Ethernet switch HWIC to the network, perform the following steps:

- Step 1** Confirm that the router is powered down.
- Step 2** Insert the Cisco 10/100BASE-T Ethernet switch HWIC into an HWIC slot on the platform.



Caution

To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the 4-port single-wide HWIC (HWIC-4ESW), 4-port single-wide HWIC with PoE (HWIC-4ESW-POE), (8+1)-port double-wide HWIC (HWIC-D-9ESW), and (8+1)-port double-wide HWIC with PoE (HWIC-D-9ESW-POE) only to intra-building or non-exposed wiring or cabling. The intrabuilding cable must be shielded and the shield must be grounded at both ends.

- Step 3** Using the appropriate cables, connect the card to your system.
- On the HWIC-4ESW card, all four ports support Auto-MDIX, so both straight-through and crossover cables can be used.
 - On the HWIC-D-9ESW card, ports 0 through 7 support Auto-MDIX, so both straight-through and crossover cables may be used. Port 8 supports Auto-MDIX only when configured in Auto mode.
- Step 4** Power up the router.
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Stacking of Cisco 10/100BASE-T Ethernet Switch HWICs

Stacking is the connection of two Ethernet switch HWICs resident in the same chassis so that they behave as a single switch. Stacking is accomplished by daisy-chaining the two cards together with an external RJ-45 crossover cable that is connected to the specified stacking port on each switch.

When a chassis is populated with two Ethernet switch HWICs, the user must configure the cards to operate in stacked mode.

**Note**

There is no option to unstack two Ethernet switch HWICs. When two Ethernet switch HWICs are in the same chassis, they can operate only in stacked mode. If you configure the cards to operate unstacked, they will not operate correctly.

You must designate one port on each switch to be the stacking port. On the HWIC-4ESW card, this port is nominally the first port (port 0), although any port can be chosen. On the HWIC-D-9ESW card, this port is nominally the ninth port (port 8), although any port can be chosen. We recommend the use of port 8 as the stacking port, because it has been designed as an extra port on the HWIC-D-9ESW card and does not provide inline power.

**Note**

Only one port on an Ethernet switch HWIC can be configured as a stacking port.

All combinations of Ethernet switch HWICs may be stacked: two HWIC-D-9ESW cards, an HWIC-D-9ESW card with an HWIC-4ESW card, or two HWIC-4ESW cards.

See the *Configuration Guidelines for HWIC-4ESW and HWIC-D-9ESW Interface Cards* document for information on how to configure stacking ports.

Related Documentation

Related documentation is available on Cisco.com or on the Product Documentation DVD. For more information, see the “[Obtaining Documentation, Obtaining Support, and Security Guidelines](#)” section on page 8.

- [Cisco EtherSwitch 4- and 9-Port High-Speed WAN Interface Cards for Cisco 1800 \(Modular\), Cisco 2800, and Cisco 3800 Series Integrated Services Routers](#), data sheet
- [Cisco EtherSwitch 4- and 9-Port High-Speed WAN Interface Cards for Cisco 1800 \(Modular\), Cisco 2800, and Cisco 3800 Series Integrated Services Routers](#), Q&A
- [Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information](#)
- [Cisco HWIC-4ESW and HWIC-D-9ESW EtherSwitch Interface Cards](#), Cisco IOS Release 12.3(8)T4 feature module

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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