



Cisco EtherSwitch 4- and 9-Port High-Speed WAN Interface Cards Datasheet



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Leading Network Hardware Supplier

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OVERVIEW

The 4- and 9-port Cisco® EtherSwitch® 10/100 high-speed WAN interface cards (HWICs) supported on the Cisco 1800 (modular)/1941, Cisco 2800/2900, and Cisco 3800/3900 series integrated services routers offer small-to-large-size businesses and enterprise branch office customers the option to integrate switching and routing in one device. This combination offers ease of configuration, deployment, and management while using the powerful characteristics of Cisco routing and Cisco Catalyst® switching features.

APPEARANCE

Figure 1. 9- and 4-Port Cisco EtherSwitch HWICs



KEY FEATURES AND BENEFITS

Feature	Benefit
4 or 9 10BASE-T/100BASE-TX Ports	<ul style="list-style-type: none"> • These ports deliver up to 200 Mbps of aggregate bandwidth (full duplex) for forwarding Layer 2 traffic on each port.
Autosensing, Autonegotiation, and Auto-MDIX (Automatic Media-Dependant Interface Crossed Over)	<ul style="list-style-type: none"> • The Autosensing feature allows the switch to detect the speed of the attached device and automatically configure the port for 10- or 100-Mbps operation. • The Autonegotiation feature allows the switch to automatically select half- or full-duplex transmission mode to optimize bandwidth on all the ports of the HWIC • The Auto-MDIX feature allows the switch to automatically detect cable type (straight through vs. crossover) between the attached Ethernet device and switch line pairs.
Integrated Switching	<ul style="list-style-type: none"> • Integrated switching provides fewer points of management for remote and small branch offices.
802.1P QoS (Traffic Prioritization)	<ul style="list-style-type: none"> • This feature provides support for QoS based on the IEEE class of service (CoS) and port-based prioritization, allowing the switch to change the CoS settings of tagged packets on a per-port basis.
802.1Q Trunking	<ul style="list-style-type: none"> • This feature allows the setup of separate VLANs with tagged and untagged framing; trunking is used to save ports when creating a link between two devices implementing VLANs;

	VLANs allow segmentation of the LAN.
802.1D Spanning Tree Protocol	<ul style="list-style-type: none"> • This Layer 2 link-management protocol provides path redundancy while preventing undesirable loops in the network; it simplifies network configuration and improves fault tolerance.
Voice VLAN (VLAN)	<ul style="list-style-type: none"> • VVLANs help enable Cisco IP phones to place voice and data in their own separate VLANs. The HWIC switch port is manually configured as a trunk port to support voice and data VLANs on the same port. The switch then uses Cisco Discovery to dynamically configure the Cisco IP phones.
802.1x Authentication	<ul style="list-style-type: none"> • This client-server-based access control and authentication protocol restricts unauthorized devices from connecting to a LAN through publicly accessible ports.
PoE (Option)	<ul style="list-style-type: none"> • Cisco EtherSwitch technology with the appropriate inline power module and internal power supply can power Cisco IP phones and wireless access points. Support is provided for both IEEE 802.3af PoE and Cisco prestandard inline powered devices. The ninth port of the 9-port HWIC (part number HWIC-D-9ESW-POE) cannot be used for PoE applications. The PoE option is not available on the Cisco 1841 router.
Multicast Management Support	<ul style="list-style-type: none"> • This feature offers Internet Group Management Protocol (IGMP) snooping in hardware for management support.

Simple Network Management Protocol (SNMP) Management	<ul style="list-style-type: none"> ● SNMP allows management of the MIB through a MIB browser.
Cisco IOS Software Command-Line Interface (CLI)	<ul style="list-style-type: none"> ● This feature provides configuration through the Cisco IOS Software CLI and provides a common user interface for all the router functions.
CiscoWorks Support	<ul style="list-style-type: none"> ● CiscoWorks network management software helps enable manageability on a per-port and per-switch basis, providing a common management interface for Cisco routers, switches, and hubs. ● SNMPv1, v2, and v3 (noncryptographic) and Telnet interface support delivers comprehensive in-band management, and a CLI management console provides detailed out-of-band management. ● Cisco Discovery Protocol Versions 1 and 2 help enable a CiscoWorks network management station to automatically discover the switch in a network topology. ● Support is provided by the CiscoWorks LAN Management Solution.
Cisco Discovery Protocol Versions 1 and 2	<ul style="list-style-type: none"> ● This protocol enables a CiscoWorks network management station to automatically discover the switch in a network topology.
VLAN Trunking Protocols (Client, Server, and Transparent Modes)	<ul style="list-style-type: none"> ● The Cisco Virtual Lan Trunking Protocol (VTP) supports dynamic VLAN configuration across Cisco switches.
Cisco Secure Router and Device Manager (SDM)-Based Configuration and Device	<ul style="list-style-type: none"> ● This feature simplifies initial configuration of a switch through a Web browser, eliminating the

Management	<p>need for more complex terminal emulation programs and CLI knowledge.</p> <ul style="list-style-type: none"> • Cisco SDM reduces the cost of deployment by helping less-skilled personnel set up switches quickly and simply.
Status LEDs	<ul style="list-style-type: none"> • Two LEDs per port provide convenient visual indication of the switch port and inline power status.

PRODUCT SPECIFICATIONS OF 9- AND 4-PORT CISCO ETHERSWITCH HWICS

Feature	Benefit
Target Applications	Data, voice, and video
Supported Router Platforms	<ul style="list-style-type: none"> • Cisco 1800 (modular), Cisco 2800, and Cisco 3800 series integrated services routers: • Cisco 1841 (supports HWIC-4ESW only; no PoE support) • Cisco 2801 • Cisco 2811 • Cisco 2821 • Cisco 2851 • Cisco 3825 • Cisco 3845 • Cisco 1941 • Cisco 2901

	<ul style="list-style-type: none"> • Cisco 2911 • Cisco 2921 • Cisco 2951 • Cisco 3925 • Cisco 3945
Form Factor	<ul style="list-style-type: none"> • HWIC-4ESW = Single-wide HWIC form factor • HWIC-D-9ESW = Double-wide HWIC form factor
Dimensions (W x D x H)	<ul style="list-style-type: none"> • HWIC-4ESW = 3.08 x 4.74 x 0.76 in. • HWIC-D-9ESW = 6.20 x 4.74 x 0.76 in.
Weight	<ul style="list-style-type: none"> • HWIC-4ESW = 79 grams (0.17 lb) • HWIC-4ESW-POE = 108 grams (0.24 lb) • HWIC-D-9ESW = 149 grams (0.33 lb) • HWIC-D-9ESW-POE = 196 grams (0.43 lb)
Standards	
IEEE Protocols	<ul style="list-style-type: none"> • Ethernet: IEEE 802.3, 10BASE-T • Fast Ethernet: IEEE 802.3u, 100BASE-TX • IEEE 802.1d Spanning Tree Protocol • IEEE 802.1p CoS for Traffic Prioritization • IEEE 802.1q VLAN • IEEE 802.1x Security • IEEE 802.3x Full Duplex • IEEE 802.3af Power over Ethernet Standard

RFC	RFC 2284, PPP Extensible Authentication Protocol (EAP)	
MIBs	<ul style="list-style-type: none"> ● RFC 1213 ● IF MIB ● RFC 2037 ENTITY MIB ● CISCO-CDP-MIB ● CISCO-IMAGE-MIB ● CISCO-FLASH-MIB ● OLD-CISCO-CHASSIS-MIB ● CISCO-VTP-MIB ● CISCO-HSRP-MIB ● OLD-CISCO-TS-MIB ● CISCO-ENTITY-ASSET-MIB ● CISCO-ENTITY-FRU-CONTROL-MIB ● BRIDGE MIB (RFC 1493) 	<ul style="list-style-type: none"> ● CISCO-VLAN-MEMBERSHIP-MIB ● CISCO-VLAN-IFINDEX-RELATIONSHIP-MIB ● RMON1-MIB ● PIM-MIB ● CISCO-STP-EXTENSIONS-MIB ● OSPF MIB (RFC 1253) ● IPMROUTE-MIB ● CISCO-MEMORY-POOL-MIB ● ETHER-LIKE-MIB (RFC 1643) ● CISCO-ENTITY-FRU-CONTROL-MIB.my ● CISCO-RTTMON-MIB ● CISCO-PROCESS-MIB ● CISCO-COPS-CLIENT-MIB
Manageability	<ul style="list-style-type: none"> ● SNMP and Telnet interface support delivers comprehensive in-band management, and a CLI management console provides detailed out-of-band management. ● An embedded Remote Monitoring (RMON) software agent supports four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis. ● A Switched Port Analyzer (SPAN) port can mirror traffic from one or many ports to another port for monitoring all nine RMON 	

	<p>groups with an RMON probe or network analyzer.</p> <ul style="list-style-type: none"> ● Trivial File Transfer Protocol (TFTP) reduces the cost of administering software upgrades by downloading from a centralized location. ● Network Timing Protocol (NTP) provides an accurate and consistent time stamp to all switches within the intranet. ● Two LEDs per port provide convenient visual indication of the port link and inline power status. ● Crash information support helps enable a switch to generate a crash file for improved troubleshooting. ● Show-interface capabilities provide information about the configuration capabilities of any interface. ● The Response Time Monitoring (RTTMON) MIB allows users to monitor network performance between the HWIC switch and a remote device.
Connectors and Cabling	<ul style="list-style-type: none"> ● 10BASE-T ports: RJ-45 connectors, two-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling ● 100BASE-TX ports: RJ-45 connectors; two-pair Category 5 UTP cabling
Indicators	<ul style="list-style-type: none"> ● Link status LED: One LED per port for indicating link status ● Inline power LED: One LED per port system for inline power status indication
Power Requirements	
Internal Power Supply	Optional PoE system power supply available for all Cisco 2800 and Cisco 3800 series routers
External Redundant Power	Optional for the Cisco 2800 series and Cisco 2900 Series routers

Supply (RPS2300)	
Internal Redundant Power Supply	For the Cisco 3845, 3925 and 3945 router only
DC Power Support	<ul style="list-style-type: none"> • DC system power input available on the Cisco 2811/2911, Cisco 2821/2921, Cisco 2851/2951, Cisco 3825/3925, and Cisco 3845/3945 routers; PoE option not available with DC system power input
Software Support	<ul style="list-style-type: none"> • Minimum Cisco IOS Software Release 12.3(8)T for 1841. 280 Series and 3800 Series routers: IP Base image. • Minimum Cisco IOS Software Release 15.0(1)M for Cisco 1900 Series, Cisco 2900 Series and Cisco 3900 Series routers: IP Base License of the Universal image.
Environmental	
Operating Temperature	32 to 104°F (0 to 40°C)
Operating Humidity	10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating
Nonoperating Temperature	-4 to 149°F (-20 to 65°C)
Operating Altitude	(Moderate 1.5°C per 1000 feet)
Regulatory Compliance, Safety, EMC	<ul style="list-style-type: none"> • When installed in a Cisco 1841, Cisco 2800, or Cisco 3800 router, the Cisco EtherSwitch HWIC meets the standards (regulatory compliance, safety, EMC) of the router itself. Refer to the data sheets for the Cisco 1841, Cisco 2800, and Cisco 3800 series routers for more details

CISCO 9- AND 4-PORT ETHERSWITCH HWICS ORDERING INFORMATION

Product Number	Product Description
Ethernet HWICs	
HWIC-4ESW	4-port 10/100 Ethernet switch
HWIC-4ESW=	4-port 10/100 Ethernet switch, spare
HWIC-4ESW-POE	4-port 10/100 Ethernet switch with 4-port inline power daughter card
HWIC-4ESW-POE=	4-port 10/100 Ethernet switch with 4-port inline power daughter card, spare
HWIC-D-9ESW	9-port 10/100 Ethernet switch
HWIC-D-9ESW=	9-port 10/100 Ethernet switch, spare
HWIC-D-9ESW-POE	9-port 10/100 Ethernet switch with 8-port inline power daughter card
HWIC-D-9ESW-POE=	9-port 10/100 Ethernet switch with 8-port inline power daughter card, spare
Daughter Card Modules for Inline Power Support	
ILPM-4=	4-port inline power module for PoE applications, spare
ILPM-8=	8-port Inline power module for PoE applications, spare
Cisco 2800 and Cisco 3800 Routers with Inline Power Supply Bundles	
CISCO2801-AC-IP	Cisco 2801 router with inline power, 2 Fast Ethernet ports, 4 slots, IP BASE, 64F/128D
CISCO2811-AC-IP	Cisco 2811 with AC+PoE, 2 Fast Ethernet ports , 4 HWICs, 2 packet voice DSP modules (PVDMs), 1 enhanced network module [(NME), 2 advanced

	integration modules (AIMs), IP BASE, 64F/256D
CISCO2821-AC-IP	Cisco 2821 with AC+PoE, 2 Gigabit Ethernet ports, 4 HWICs, 3 PVDMs, 1 NME-X, 2 AIMs, IP BASE, 64F/256D
CISCO2851-AC-IP	Cisco 2851 with AC+PoE, 2 Gigabit Ethernet ports, 4 HWICs, 3 PVDMs, 1 NME-XD, 2 AIMs, IP BASE, 64F/256D
CISCO3825-AC-IP	2 Gigabit Ethernet router with 1 Small Form-Factor Pluggable (SFP), 2 NME-XHDs, 4 HWICs, IP BASE, power supply
CISCO3845-AC-IP	2 Gigabit Ethernet router with 1 SFP, 4 NME-XHDs, 4 HWICs, IP BASE, power supply

SOURCES

https://www.cisco.com/c/en/us/products/collateral/interfaces-modules/high-speed-wan-interface-cards/product_data_sheet0900aecd8016bf0b.html?dtid=ossdc000283