Cisco Industrial Ethernet 2000 Series Switches

Product Overview

The Cisco® Industrial Ethernet 2000 (IE 2000) Series is a range of compact, ruggedized access switches that handle security, voice, and video traffic across industrial networks. They provide customers in industries such as automotive, oil and gas, mining, transportation, and energy with highly secure access and industry-leading convergence using Cisco Resilient Ethernet Protocol (REP).

Product Details

The Cisco IE 2000 Series are designed for low cost, low ports, and small sizes. They offer:

- Four, eight, or 16 10/100Base-T Ethernet ports (Small Form-Factor Pluggable [SFP] downlinks on selected models); fixed configurations with a compact form factor
- Two gigabit combo ports: SFP (100 Mbps and 1 Gbps) or RJ45 uplink
- Dual-input DC power supply, alarm relays, DIN rail mount
- Industrial Power over Ethernet (PoE) solution
- Conformal coating available
- Swappable SD flash card and mini-USB connector
- Industrial environmental compliance and certifications
- Industrial partner applications: Ethernet/IP and PROFINET

Primary Benefits and Features

- **Easy deployment:** Zero-touch discovery using Dynamic Host Control Protocol (DHCP), express setup, and fast bootup time (60 seconds) to help in migrating to an Ethernet environment without resistance.
- **Security:** 802.1x, port security, and DHCP allow dynamic port-based authentication; Secure Shell (SSHv2); SNMPv3 provides encrypted administrator traffic during Telnet and SNMP sessions; TACACS+ and RADIUS authentication facilitate centralized control and restrict unauthorized users.
- **Resiliency:** Flex links for fast recovery; Cisco REP protocol for fast convergence.
- **Manageability:** Auto SmartPort, Web Device Manager, Telnet, HTTPS access, SNMP, CNA, and Cisco Prime Infrastructure 1.2.1.
- **Network Address Translation (NAT):** Line-rate, hardware-enabled 1:1 static address translation designed to enable duplicate IP address usage in the Layer 2 machine node networks.
- **Industrial PoE:** PoE (IEEE 802.af) and PoE+ (802.3at) supported on selected models.
- **Industrial automation protocols:** Common Industrial Protocol (CIP) and PROFINETv2 allow integration with existing management platforms from Rockwell, Siemens, and others.

Product Specifications

Switch Performance and Scalability

- Line-rate, nonblocking uplink, downlink ports

- Forwarding rate: 6.5 Mpps with 64-byte packets

- Egress buffer: 2 MB

- Unicast MAC addresses: 8000

- Internet Group Management Protocol (IGMP) multicast groups: 255

- Maximum virtual LANs (VLANs): 255

- IPv4 MAC security ACEs: 384 (default ternary content-addressable memory [TCAM] template)

- Bidirectional, 128 NAT translation entries

Detailed Product Information

Figure 1 shows switch models, and Table 1 shows the Cisco IE 2000 Series configuration information. Table 2 lists the SKUs for power supplies and license upgrades. Table 3 includes IE 2000 Series product specifications. Table 4 lists software features. Table 5 includes compliance specifications. Table 6 outlines management and relevant industry standards.

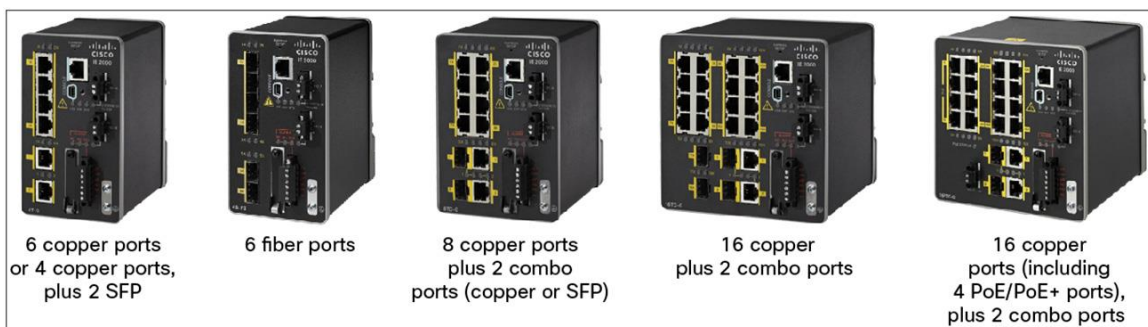**Figure 1.**   Industrial Ethernet 2000 Series

| 6 copper ports or 4 copper ports, plus 2 SFP | 6 fiber ports | 8 copper ports plus 2 combo ports (copper or SFP) | 16 copper plus 2 combo ports | 16 copper ports (including 4 PoE/PoE+ ports), plus 2 combo ports |

Table 1.   Industrial Ethernet 2000 Series Configurations

Product Number	Total Ports	RJ45 Ports	Combo Ports	SFP Ports	Software	IEEE 1588	NAT	PoE(+)	Conformal Coating
IE-2000-4TS-L[1]	6	4 FE		2 FE	LAN Lite				
IE-2000-4TS-B	6	4 FE		2 FE	LAN Base				
IE-2000-4T-L	6	6 FE			LAN Lite				
IE-2000-4T-B	6	6 FE			LAN Base				
IE-2000-4TS-G-L	6	4 FE		2 GE	LAN Lite				
IE-2000-4TS-G-B	6	4 FE		2 GE	LAN Base				
IE-2000-4T-G-L	6	4 FE, 2 GE			LAN Lite				
IE-2000-4T-G-B	6	4 FE, 2 GE			LAN Base				
IE-2000-4S-TS-G-L	6			4 FE, 2 GE	LAN Lite				
IE-2000-4S-TS-G-B	6			4 FE, 2 GE	LAN Base				
IE-2000-8TC-L	10	8 FE	2 FE		LAN Lite				
IE-2000-8TC-B	10	8 FE	2 FE		LAN Base				
IE-2000-8TC-G-L	10	8 FE	2 GE		LAN Lite				

Product Number	Total Ports	RJ45 Ports	Combo Ports	SFP Ports	Software	IEEE 1588	NAT	PoE(+)	Conformal Coating
IE-2000-8TC-G-B	10	8 FE	2 GE		LAN Base				
IE-2000-8TC-G-E	10	8 FE	2 GE		LAN Base	X	X^2		
IE-2000-16TC-L	20	16 FE	2 FE	2 FE	LAN Lite				
IE-2000-16TC-B	20	16 FE	2 FE	2 FE	LAN Base				
IE-2000-16TC-G-L	20	16 FE	2 GE	2 FE	LAN Lite				
IE-2000-16TC-G-E	20	16 FE	2 GE	2 FE	LAN Base	X	X^2		
IE-2000-16TC-G-X	20	16 FE	2 GE	2 FE	LAN Base	X	X^2		X
IE-2000-8TC-G-N	10	8 FE	2 GE		Enhanced LAN Base	X	X		
IE-2000-16TC-G-N	20	16 FE	2 GE	2FE	Enhanced LAN Base	X	X		
IE-2000-16PTC-G-L	18	16 FE	2 GE		LAN Lite			X	
IE-2000-16PTC-G-E	18	16 FE	2 GE		LAN Base	X	X^2	X	
IE-2000-16PTC-G-NX	18	16 FE	2 GE		Enhanced LAN Base	X	X	X	X

1. "-L" models are field-upgradable from LAN Lite to LAN Base.
2. Upgradable to Enhanced LAN Base through license upgrade.

Table 2.   Power Supply and License Upgrade

Product Number	Description
PWR-IE50W-AC-IEC	AC to DC 24 V/2.1A DIN Rail power supply, 110/220 VAC and 88-300 VDC with IEC plug
PWR-IE50W-AC	AC to DC 24 V/2.1A DIN Rail power supply, 110/220 VAC and 88-300 VDC, to replace PWR-IE3000-AC
PWR-IE65W-PC-AC	AC to DC, 65 W Power Module for PoE/PoE+; Supports up to 4 PoE or 2 PoE+ devices
PWR-IE65W-PC-DC	DC to DC, 65 W Power Module for PoE/PoE+. Supports up to 4 PoE or 2 PoE+ devices
SD-IE-1GB	1 GB Ruggedized SD memory card
STK-RACKMNT-2955	19 in. DIN Rail mount kit
L-IE2000-L-B=	IE2000 LAN Lite to LAN Base e-license
IE2000-L-B=	IE2000 LAN Lite to LAN Base paper license
L-IE2000-B-E=	IE2000 LAN Base to Enhanced LAN Base e-license
IE2000-B-E=	IE2000 LAN Base to Enhanced LAN Base paper license

Table 3.   Product Specifications

Description	Specification
Hardware	● 256 MB DRAM with ECC memory ● IEEE 1588v2 FPGA ● 64 MB on-board flash memory ● 1GB removable SD flash memory card (optional) ● Mini-USB connector
Alarm	● Alarm I/O: Two alarm inputs to detect dry contact open or close; one alarm output relay

Description	Specification
Power Supply	● Rated redundant DC input voltage with operating range: +/- 12 to 48 VDC (maximum voltage range 9.6 to 60 VDC) ● Maximum-rated DC input current: 　○ IE-2000 4 and 8 models: 2A to 0.5A at +/- 12 to 48 VDC (recommend minimum 20 W rated power input source) 　○ IE-2000 16 models: 3A to 0.5A at +/- 12 to 48 VDC (recommend minimum 30 W rated power input source) ● PWR-IE65W-PC-DC=Power Supply: 18-60 VDC/3.4 Amp Input, 54VDC/1.2 Amp output ● PWR-IE65W-PC-AC=Power Supply: 110/220 VAC and 88-300 VDC input, 54VDC/1.2 Amp output
Power Consumption	● 4-port downlink models: 9.5-15 W ● 8-port downlink models: 12.5-20 W ● 16-port downlink models: 21-30 W ● 4-port PoE/PoE+ models: 21-30 W (16-port base switch) and 4 PoE/PoE+ power requirement
Connectors and Cabling	● 100BASE-FX MMF (2 km), -LX SMF (10 km) -ZX SMF (100 km), BX10 SMF (10 km) SFP and CWDM SFP-based ports: LC fiber connectors ● 10/100/1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling
Dimensions **(H x W x D)** **Including DIN Rail**	● IE-2000 6 ports (copper downlinks) chassis: 5.1"H x 2.95"W x 4.51"D in (130mm H x 74.9mm W x 115mm D) ● IE-2000 6 ports (SFP downlinks) chassis: 5.1"H x 3.15"W x 4.51"D in (130mm H x 80mm W x 115mm D) ● IE-2000 10 ports short chassis: 5.1"H x 3.6"W x 4.51"D (130mm H x 91.4mm W x 115mm D) ● IE-2000 10 ports long chassis: 5.1"H x 3.6"W x 5.26"D (130mm H x 91.4mm W x 134mm D) ● IE-2000 18-20 ports chassis: 5.1"H x 5.0"W x 5.26"D (130mm H x 127mm W x 134mm D) ● PWR-IE50W-AC=: 5.8"H x 2.0"W x 4.4"D (147mm H x 51 mm W x 112mm D) ● PWR-65W-PC-AC=: 5.9 "H x 2.6"W x 4.6"D (150mm H x 66mm W x 117mm D) ● PWR-65W-PC-DC=: 5.9 "H x 2.6"W x 4.6"D (150mm H x 66mm W x 117mm D)
Weight	● IE-2000 6 ports chassis: 2.45 lbs (1.11 kg) ● IE-2000 6 ports (SFP): 2.69 lbs (1.22 kg) ● IE-2000 10 ports short chassis: 2.75 lbs (1.25 kg) ● IE-2000 10 ports long chassis: 3.45 lbs (1.56 kg) ● IE-2000 18-20 ports chassis: 4.35 lbs (1.97 kg)

Table 4.　Cisco IE 2000 Software Features

LAN Lite License (Default)	Features
Layer 2 Switching	IEEE 802.1, 802.3, 802.3at, 802.3af standard (see Table 6), VTPv2, NTP, UDLD, CDP, LLDP, Unicast MAC filter, Resilient Ethernet Protocol (REP)
Security	SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, SPAN session
Multicast	IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
Management	Fast Boot, Express Setup, Web Device Manager, CNA, Cisco Prime, LMS, MIB, SmartPort, SNMP, syslog
Industrial Ethernet	Ethernet/IP, Profinet v2
LAN Base License	**Features**
Layer 2 Switching	VTPv3, EtherChannel, Voice VLAN, Flexlink
Security	Port-Security, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, 802.1x, Guest VLAN. MAC Authentication Bypass, 802.1x Multi-Domain Authentication, Storm Control, Trust Boundary
Quality of Service	Ingress Policing, Rate-Limit, Egress Queuing/Shaping, AutoQoS
Management	Port-Based DHCP, Storm Control - Unicast, Multicast, Broadcast, SPAN Sessions, RSPAN, DHCP Server, Customized TCAM/SDM Size Configuration
Industrial Ethernet	IEEE 1588 PTPv2, CIP time sync
Layer 2 IPv6	IPv6 host support, HTTP over IPv6, SNMP over IPv6
Layer 3 Routing	IPv4 static routing
Enhanced LAN Base	**Features**
Industrial Management	Layer 2 switching with 1:1 static Network Address Translation (NAT)

Table 5. Compliance Specifications

Description	Specification
Safety Certifications	● UL 60950-1 ● CSA C22.2 No. 60950-1 ● EN 60950-1 ● CB to IEC 60950-1 (with country deviations) ● NOM to NOM-019-SCF1 (through partners and distributors)
Hazard Location	● ANSI/ISA 12.12.01 (Class 1, Div 2 A-D) (requires cabinet enclosure) ● EN 60079-0, -15 ATEX certification (Class I, Zone 2 A-D) (requires cabinet enclosure) ● IEC 60079-0, -15 (Test report only) (requires cabinet enclosure) ● UL508 ● CSA C22.2 No. 142
EMC Emissions Compliance	● FCC 47 CFR Part 15 Class A ● IEC/EN 55022A Class A ● VCCI Class A ● AS/NZS CISPR 22 Class A ● CISPR 11 Class A ● CISPR 22 Class A ● ICES 003 Class A ● KN 22 Class A ● CNS 13438 Class A
EMC Immunity Compliance	● EN 55024 ● AS/NZS CISPR 24 ● KN 24 ● IEC/EN 61000-4-2 (Electro Static Discharge) ● IEC/EN 61000-4-3 (Radiated Immunity) ● IEC/EN 61000-4-4 (Fast Transients) ● IEC/EN 61000-4-5 (Surge) ● IEC/EN 61000-4-6 (Conducted Immunity) ● IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity) ● IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity) ● IEC/EN 61000-4-10 (Oscillatory Magnetic Field Immunity) ● IEC/EN 61000-4-11 (AC power Voltage Immunity) ● IEC/EN 61000-4-16 (Low Frequency Conducted CM Disturbances) ● IEC/EN 61000-4-17 (Ripple on DC Input Power) ● IEC/EN 61000-4-18 (Damped Oscillatory Wave) ● IEC/EN 61000-4-29 (Voltage Dips Immunity, DC power) ● IEEE C37.90 (Surge) ● IEEE C37.90.1 (Fast Transients) ● IEEE C37.90.2 (Radiated Immunity) ● IEEE C37.90.3 (Electro Static Discharge)
Shock and Vibration	● IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine) ● IEC 60068-2-27 (Non-Operational Shock 55-70G, trapezoidal) ● IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Operational Vibration) ● IEC 60068-2-6, IEC 60068-2-64, EN 61373 (Non-operational Vibration)
Industry Standards	● EN 61131-2 Programmable Controllers (EMC/EMI, environmental, mechanical) ● IEEE 1613 Power Station and Substation Networking Devices ● IEC 61850-3 Power Station and Substation Communication Networks and Systems ● EN 61326-1 Electrical Equipment for Measurement, Control and Laboratory Use - EMC ● EN 61000-6-1 Immunity for Light Industrial Environments ● EN 61000-6-2 Immunity for Industrial Environments ● EN 61000-6-4 Emissions for Industrial Environments ● TS 61000-6-5 EMC Immunity for Power Station and Substation ● EN 50155 Railway, Electronic Equipment on Rolling Stock (EMI/EMC, environmental, mechanical)

Description	Specification
	● EN 50121-3-2 Railway, Electromagnetic Compatibility on Rolling Stock
	● EN 50121-4 Railway, Emission and Immunity of Signaling and Telecommunications Apparatus
	● EN 60945 Maritime Navigation and Radio-communication Equipment and Systems
	● IEC 60533 Shipboard Electrical and Electronic Installation EMC
	● NEMA TS-2 (EMC, environmental, mechanical)
	● ABB Industrial IT certification
	● ODVA Industrial EtherNet/IP support
	● PROFINETv2 support
	● Directive 2011/65/EU RoHS
	● IP30
Compliance Marking	● UL/CSA
	● CE
	● AS/NZ RCM
	● BSMI
	● KCC
	● Russia
	● ANATEL
	● China RoHS
Corrosive Testing	● IEC-60068-2-60
Humidity	● IEC 60068-52-2 (salt fog mist, test Kb) marine environments
	● IEC 60068-2-3
	● IEC 60068-2-30
	● Relative humidity: 5% to 95% non-condensing
Operating Temperature	● -40 C to +70 C (vented enclosure operating)
	● -40 C to +60 C (sealed enclosure operating)
	● -34 C to +75 C (fan or blower-equipped enclosure operating)
	● -40 C to +85 C (IEC Environmental Type Testing, 16 hours)
	● Operational altitude: Up to 15,000 ft
Storage Temperature	● -40 C to +85 C (storage temperature)
	● IEC 60068-2-14
	● Storage altitude: Up to 15,000 ft
Mean Time Between Failure	● Mean time between failure: 374,052 hours (42.7 years)
Warranty	● Five-year limited warranty

Table 6.   Management and Standards

Description	Specification	Specification
IEEE Standards	● IEEE 802.1D MAC bridges, STP	● IEEE 802.3af Power over Ethernet
	● IEEE 802.1p Layer 2 COS prioritization	● IEEE 802.3at Power over Ethernet Plus
	● IEEE 802.1q VLAN	● IEEE 802.3ah 100BASE-X SMF/MMF only
	● IEEE 802.1s Multiple Spanning-Trees	● IEEE 802.3x full duplex on 10Base-T
	● IEEE 802.1w Rapid Spanning-Tree	● IEEE 802.3 10BASE-T specification
	● IEEE 802.1x Port Access Authentication	● IEEE 802.3u 100BASE-TX specification
	● IEEE 802.1AB LLDP	● IEEE 802.3ab 1000BASE-T specification
	● IEEE 802.3ad Link Aggregation (LACP)	● IEEE 802.3z 1000BASE-X specification
	● IEEE 802.3af Power over Ethernet provides up to 15.4W DC power to each end device	● IEEE 1588v2 PTP Precision Time Protocol
	● IEEE 802.3at Power over Ethernet provides up to 25.5W DC power to each end device	
RFC Compliance	● RFC 768: UDP	● RFC 1305: NTP
	● RFC 783: TFTP	● RFC 1492: TACACS+
	● RFC 791: IPv4 protocol	● RFC 1493: Bridge MIB Objects
	● RFC 792: ICMP	● RFC 1534 DHCP and BootP interoperation
	● RFC 793: TCP	● RFC 1542: Bootstrap Protocol

Description	Specification	Specification
	● RFC 826: ARP ● RFC 854: Telnet ● RFC 951: BootP ● RFC 959: FTP ● RFC 1157: SNMPv1 ● RFC 1901,1902-1907 SNMPv2 ● RFC 2273-2275: SNMPv3 ● RFC 2571: SNMP Management ● RFC 1166: IP Addresses ● RFC 1256: ICMP Router Discovery	● RFC 1643: Ethernet Interface MIB ● RFC 1757: RMON ● RFC 2068: HTTP ● RFC 2131, 2132: DHCP ● RFC 2236: IGMP v2 ● RFC 3376: IGMP v3 ● RFC 2474: DiffServ Precedence ● RFC 3046: DHCP Relay Agent Information Option ● RFC 3580: 802.1x RADIUS ● RFC 4250-4252 SSH Protocol
SFP Transceivers[1]	● GLC-FE-100FX-RGD 2km/MMF[2] ● GLC-FE-100FX 2km/MMF ● GLC-FE-100LX-RGD 10km/SMF[3] ● GLC-FE-100EX 40km/SMF ● GLC-FE-100LX 10km/SMF ● GLC-FE-100BX-D 10km/SMF ● GLC-FE-100BX-U 10km/SMF ● GLC-FE-100ZX 80km/SMF ● GLC-T GE copper transceiver	● GLC-SX-MM-RGD 220-550m/MMF ● GLC-SX-MM 220-550m/MMF ● GLC-SX-MMD DOM supported ● GLC-LH-SM 550m/MMF, 10km/SMF ● GLC-LH-SMD 550m/MMF,10km/SMF DOM ● GLC-LX-SM-RGD 550m/MMF, 10km/SMF ● GLC-ZX-SM-RGD 70-100km/SMF ● GLC-EX-SMD DOM supported ● GLC-BX-D 10km/SMF ● GLC-BX-U 10km/SMF ● CWDM SFP 100km/SMF ● DWDM SFP
Simple Network Management Protocol (SNMP) MIB Objects	● BRIDGE-MIB ● CALISTA-DPA-MIB ● CISCO-ACCESS-ENVMON-MIB ● CISCO-ADMISSION-POLICY-MIB ● CISCO-AUTH-FRAMEWORK-MIB ● CISCO-BRIDGE-EXT-MIB ● CISCO-BULK-FILE-MIB ● CISCO-CABLE-DIAG-MIB ● CISCO-CALLHOME-MIB ● CISCO-CAR-MIB ● CISCO-CDP-MIB ● CISCO-CIRCUIT-INTERFACE-MIB ● CISCO-CLUSTER-MIB ● CISCO-CONFIG-COPY-MIB ● CISCO-CONFIG-MAN-MIB ● CISCO-DATA-COLLECTION-MIB ● CISCO-DHCP-SNOOPING-MIB ● CISCO-ENTITY-ALARM-MIB ● CISCO-ENTITY-VENDORTYPE-OID-MIB ● CISCO-ENVMON-MIB ● CISCO-ERR-DISABLE-MIB ● CISCO-FLASH-MIB ● CISCO-FTP-CLIENT-MIB ● CISCO-IF-EXTENSION-MIB ● CISCO-IGMP-FILTER-MIB ● CISCO-IMAGE-MIB ● CISCO-IP-STAT-MIB ● CISCO-LAG-MIB ● CISCO-LICENSE-MGMT-MIB ● CISCO-MAC-AUTH-BYPASS-MIB ● CISCO-MAC-NOTIFICATION-MIB ● CISCO-MEMORY-POOL-MIB ● CISCO-PAE-MIB ● CISCO-PAGP-MIB	● CISCO-SNMP-TARGET-EXT-MIB ● CISCO-STACK-MIB ● CISCO-STACKMAKER-MIB ● CISCO-STP-EXTENSIONS-MIB ● CISCO-SYSLOG-MIB ● CISCO-TCP-MIB ● CISCO-UDLDP-MIB ● CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB ● CISCO-VLAN-MEMBERSHIP-MIB ● CISCO-VTP-MIB ● ENTITY-MIB ● ETHERLIKE-MIB ● HC-RMON-MIB ● IEEE8021-PAE-MIB ● IEEE8023-LAG-MIB ● IF-MIB ● IP-FORWARD-MIB ● IP-MIB ● LLDP-EXT-MED-MIB ● LLDP-MIB ● NETRANGER ● NOTIFICATION-LOG-MIB ● OLD-CISCO-CHASSIS-MIB ● OLD-CISCO-CPU-MIB ● OLD-CISCO-FLASH-MIB ● OLD-CISCO-INTERFACES-MIB ● OLD-CISCO-IP-MIB ● OLD-CISCO-MEMORY-MIB ● OLD-CISCO-SYS-MIB< ● OLD-CISCO-SYSTEM-MIB ● OLD-CISCO-TCP-MIB ● OLD-CISCO-TS-MIB ● RMON-MIB ● RMON2-MIB

Description	Specification	Specification
	• CISCO-PING-MIB • CISCO-PORT-QOS-MIB • CISCO-PORT-SECURITY-MIB • CISCO-PORT-STORM-CONTROL-MIB • CISCO-PRIVATE-VLAN-MIB • CISCO-PROCESS-MIB • CISCO-PRODUCTS-MIB • CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB • CISCO-RTTMON-ICMP-MIB • CISCO-RTTMON-IP-EXT-MIB • CISCO-RTTMON-MIB • CISCO-RTTMON-RTP-MIB	• SMON-MIB • SNMP-COMMUNITY-MIB • SNMP-FRAMEWORK-MIB • SNMP-MPD-MIB • SNMP-NOTIFICATION-MIB • SNMP-PROXY-MIB • SNMP-TARGET-MIB • SNMP-USM-MIB • SNMP-VIEW-BASED-ACM-MIB • SNMPv2-MIB • TCP-MIB • UDP-MIB

[1] For the complete list of the supported SFP models, refer to
http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

[2] MMF = multi-mode fiber

[3] SMF = Single-mode fiber

Warranty Information

Warranty information is available at http://www.cisco-servicefinder.com/warrantyfinder.aspx.

Service and Support

Cisco is committed to reducing your total cost of ownership (TCO). We offer a portfolio of technical support services to help ensure that products operate efficiently, remain highly available, and benefit from the most up-to-date system software. The services and support programs described in Table 7 are available as part of the Cisco Desktop Switching Service and Support solution and are available directly from Cisco and through resellers.

Table 7.   Cisco Services and Support Programs

Service and Support	Features	Benefits
Advanced Services		
• Cisco Total Implementation Solutions (TIS), available directly from Cisco • Cisco Packaged TIS, available through resellers • Cisco SMARTnet® and SMARTnet Onsite support, available directly from Cisco • Cisco Packaged SMARTnet support program, available through resellers • Cisco SMB Support Assistant	• Project management • Site survey, configuration, and deployment • Installation, text, and cutover • Training • Major moves, adds, and changes • Design review and product staging • 24-hour access to software updates • Web access to technical repositories • Telephone support through the Cisco Technical Assistance Center (TAC) • Advance replacement of hardware parts	• Supplements existing staff • Helps ensure that functions meet needs • Mitigates risk • Helps enable proactive or expedited issue resolution • Lowers TCO by taking advantage of Cisco expertise and knowledge • Reduces network downtime

For More Information

For more information about Cisco products, contact:

- United States and Canada: 800 553-6387

- Europe: 32 2 778 4242

- Australia: 612 9935 4107

- Other: 408 526-7209

- Cisco Industrial Ethernet 2000 (IE 2000) Series Switches: http://www.cisco.com/en/US/partner/products/ps12451/index.html.

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