Cisco Industrial Ethernet 4000 Series Switches

Developed specifically to withstand the harshest industrial manufacturing environments, these switches offer today's most flexible and scalable industrial Ethernet platform that will grow with your network.

Product Overview

The Cisco® Industrial Ethernet (IE) 4000 Series is the latest addition to our ruggedized switching platforms and provides superior high-bandwidth switching and proven Cisco IOS® Software-based routing capabilities for industrial environments. The IE 4000 Series delivers highly secure access and industry-leading convergence using the Cisco Resilient Ethernet Protocol (REP) and is built to withstand extreme environments while adhering to overall IT network design, compliance, and performance requirements.

The IE 4000 Series is ideal for industrial Ethernet applications where hardened products are required, including factory automation, energy and process control, intelligent transportation systems (ITS), oil and gas field sites, city surveillance programs, and mining. With improved overall performance, greater bandwidth, a richer feature set, and enhanced hardware, the Cisco IE 4000 Series complements the current industrial Ethernet portfolio of related Cisco industrial switches, such as the Cisco IE 2000 and IE 3000.

The Cisco IE 4000 can easily be installed in your network. Through a user-friendly web device manager, the Cisco IE 4000 provides easy out-of-the-box configuration and simplified operational manageability to deliver advanced security, data, video, and voice services over industrial networks.

Features and Benefits

Table 1. Features and Benefits of Cisco IE 4000

Feature	Benefit
Robust Industrial Design	• Built for harsh environment and temperature range (-40 to 70 C). • Hardened for vibration, shock and surge, and noise immunity. • Resilient dual ring design via 4x Gigabit Ethernet uplink ports. • Complies with multi-industry specifications for automation, ITS, and substation environments. • Improves uptime, performance, and safety of industrial systems and equipment. • Fitted with compact, PLC (Programmable Logic Control) style DIN rail compliant form factor ideal for industrial deployment. • Covers a wide range of Power over Ethernet (PoE) application requirements.
User-Friendly GUI Device Manager	• Allows easily configuration and monitoring via a web browser. • Eliminates the need for more complex terminal emulation programs. • Reduces the cost of deployment.
SwapDrive: "Zero-Config" Replacement	• Simple switch replacement in case of a failure. • No networking expertise required. • Helps ensure fast recovery.
High-Density Industrial Power over Ethernet (PoE)	• Reduces complexity with one cable for both connectivity and power. • Controls costs by limiting wiring, distribution panels, and circuit breakers. • Creates space and reduces heat dissipation. • Enables ready-to-use PoE devices like IP phones and wireless access points. • Supports (on select models) maximum HD camera deployments.

Feature	Benefit
Full Gigabit Ethernet Switch	• Connects new wireless access point (802.11n and 802.11ac). • Enables new HD IP Cameras and new PLC (Programmable Logic Control). • Allows SCADA (Supervisory Control And Data Acquisition) connectivity. • Provides introduction of new bandwidth-hungry applications in the industrial space. • Supports very-delay-sensitive applications and time-sensitive networks. • Delivers multiple rings, redundant ring topology for new network configurations. • Extends geographical scalability where longer distance connectivity is required.

Your Ruggedized Choice for Industrial Environments

The Cisco Industrial Ethernet (IE) 4000 Series offers:

- Bandwidth and capacity to grow with your networking needs: 20-Gbps nonblocking switching capacity with up to 20 Gigabit Ethernet ports per switch
- High-density industrial PoE/PoE+ support providing in-line power to up to 8 power devices, including IP cameras and phones, badge readers, wireless access points, etc.
- Cisco IOS Software features for smooth IT integration and policy consistency
- Robust resiliency enabled by dual ring design via 4x Gigabit Ethernet uplink ports, Resilient Ethernet Protocol (REP), Parallel Redundancy Protocol (PRP), PROFINET– Media Redundancy Protocol (MRP), Etherchannel and Flexlink support, redundant power input, dying gasp, etc.
- True zero-touch replacement for middle-of-the-night or middle-of-nowhere failure
- Line-rate, low-latency forwarding with advanced hardware assist features (such as NAT, IEEE1588)
- Simplified software upgrade path with universal images
- Support of Industrial automation protocols EtherNet/IP (CIP) and PROFINET, MRP (IEC 62439-2)

Figure 1 shows switch models, Table 2 shows all the available Cisco IE 4000 Series models, Table 3 list the SW license PIDs and Table 4 lists the power supplies for Cisco IE 4000 Series Switches.

Figure 1. IE 4000 Models

Table 2. Cisco IE 4000 Series Models

Product Number	Total Ports	GE Combo Uplinks (4G)[1]	Additional Combo Ports	RJ-45 Copper Ports (T)	SFP Fiber Ports (S)	PoE/PoE+ Ports (P, GP)	Default Software
IE-4000-4TC4G-E	8	All models have 4 GE combo uplink ports	4 (FE)				All models ship with LAN Base image[2]
IE-4000-8T4G-E	12			8 (FE)			
IE-4000-8S4G-E	12				8 (FE)		
IE-4000-4T4P4G-E	12			4 (FE)		4 (FE)	
IE-4000-16T4G-E	20			16 (FE)			
IE-4000-4S8P4G-E	16				4 (FE)	8 (FE)	
IE-4000-8GT4G-E	12			8 (GE)			
IE-4000-8GS4G-E	12				8 (GE)		
IE-4000-4GC4GP4G-E	12		4 (GE)			4 (GE)	
IE-4000-16GT4G-E	20			16 (GE)			
IE-4000-8GT8GP4G-E	20			8 (GE)		8 (GE)	
IE-4000-4GS8GP4G-E	16				4 (GE)	8 (GE)	

[1] Combo ports provide one copper and one fiber physical port and only one can be activated at a time.
[2] Can be upgraded to IP Services at a fee.

Table 3. Cisco IE 4000 SW License and Accessories PIDs

License	Description
L-IE4000-RTU=	IE4000 Electronic software license upgrade from LAN base to IP Services
LIC-MRP-Manager	MRP ring manager license
LIC-MRP-Client	MRP ring client license
LIC-MRP-MULTI-MGR	Multiple MRP manger license
STK-RACKMNT-2955=	19" DIN Rail mount kit
STK-RACK-DINRAIL=	19" DIN Rail mount kit

All copper Gigabit Ethernet interfaces support speed negotiation to 10/100/1000 mbps and duplex negotiation. All copper Fast Ethernet interfaces support speed negotiation to 10/100 mbps and duplex negotiation.

Table 4. Power Supplies for Cisco IE 4000 Series Switches

Product Number	Wattage	Rated Nominal Input Operating Range	Supported Input Voltage Operating Range	Power Output	PoE/PoE + Support	Use Case Scenario
PWR-IE170W- PC-AC=	170W	AC 100-240V/2.3A 50-60Hz or DC 125-250V/2.1A	AC 90-264V or DC 106-300V	54VDC/3.15A	Yes	Maximum PoE/PoE+ port support in a AC or high DC environment[1]
PWR-IE170W- PC-DC=	170W	DC 12-54V/23A	DC 10.8-60V	54VDC/3.15A	Yes	Maximum PoE/PoE+ port support in a DC environment[1]
PWR-IE50W- AC=	50W	AC 100-240V/1.25A 50-60Hz or DC 125-250V/1.25A	AC 90-264V or DC 106-300V	24VDC/2.1A	No	No PoE/PoE+ support needed in an AC or DC environment
PWR-IE50W- AC-IEC=	50W	AC 100-240V/1.25A 50-60Hz	AC 90-264V	24VDC/2.1A	No	No PoE/PoE+ support needed when IEC plug is desired

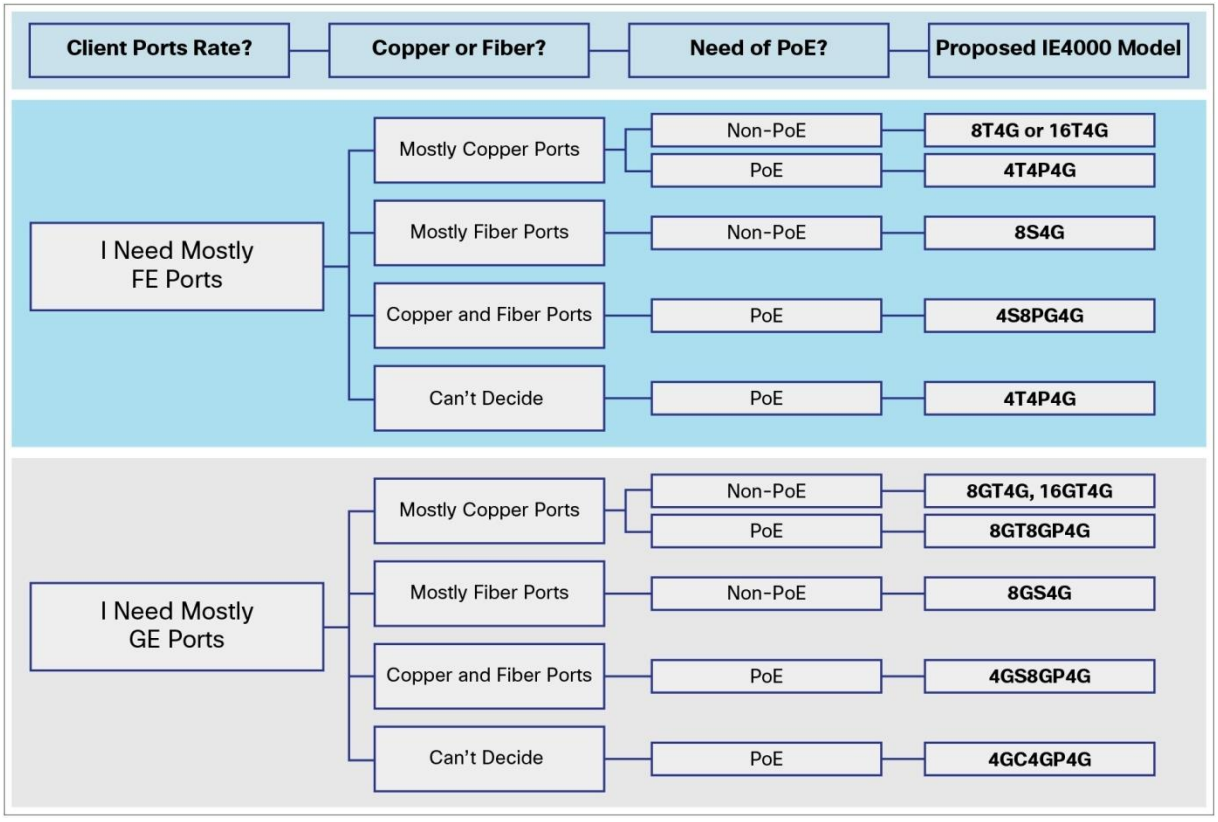
Product Number	Wattage	Rated Nominal Input Operating Range	Supported Input Voltage Operating Range	Power Output	PoE/PoE + Support	Use Case Scenario
PWR-IE65W- PC-AC=	65W	AC 100-240V/1.4A 50-60Hz or DC 125-250V/1.0A	AC 90-264V or DC 106-300V	54VDC/1.2 A	Yes	Minimum (1~2 port) PoE support needed in an AC or high DC environment[2]
PWR-IE65W- PC-DC=	65W	DC 24-48VDC/4.5A	DC 18-60V	54VDC/1.2 A	Yes	Minimum (1~2 port) PoE support needed in a DC environment2

[1] The entire power budget for the switch and PoE ports needs to stay within 170W. A PoE port draws up to 15.4W of power, and a PoE+ port draws up to 30W of power.

[2] The entire power budget for the switch and PoE ports needs to stay within 65W.

Figure 2 shows a diagram to help you select a Cisco IE 4000 model.

Figure 2. Cisco IE 4000 Model Selection Guide



Product Specifications

Table 5 lists specifications, Table 6 gives information about switch performance and scalability, Table 7 and 8 list important software features, Table 9 lists compliance specifications, and Table 10 gives information about management and standards of the Cisco IE 4000 Series Switches.

Table 5. Product Specifications

Description	Specification
Hardware	• 1GB DRAM • 128-MB onboard flash memory • 1-GB removable SD flash memory card • Mini-USB connector • RJ-45 connector
Alarm	• Alarm I/O: two alarm inputs to detect dry contact open or closed, one alarm output relay
Power Input	• Redundant DC input voltage with operating range: nominal 9.6 to 60VDC • Maximum DC input current: 3.7A (IE-4000-4T4P4G-E, IE-4000-8T4G-E, IE-4000-8GT4G-E, IE-4000-16T4G-E), 4.3A (IE- 4000-4GC4GP4G-E, IE-4000-4TC4G-E, IE-4000-4S8P4G-E, IE-4000-4GS8GP4G-E, IE-4000-16GT4G-E, IE- 4000-8GT8GP4G-E), 5A (IE-4000-8S4G-E, IE-4000-8GS4G-E)
Power Consumption	• IE-4000-4T4P4G-E, IE-4000-8T4G-E, IE-4000-8GT4G-E, and IE-4000-16T4G-E: 35W • IE-4000-4GC4GP4G-E, IE-4000-4TC4G-E, IE-4000-4S8P4G-E, IE-4000-4GS8GP4G-E, and IE-4000-16GT4G-E: 40W • IE-4000-8S4G-E, IE-4000-8GS4G-E: 42W • These numbers are measured at 9.6V and do not include PoE power consumption
Dimensions, (H x W x D)	• All IE 4000 models have the following dimensions: 6.12 x 6.12 x 5.09 in. (155.4 x 155.4 x 129.2 mm) • PWR-IE170W-PC-AC=: 5.93 x 3.72 x 5.60 in. (150.6 x 94.5 x 142.2) • PWR-IE170W-PC-DC=: 5.93 x 4.47 x 5.75 in. (150.6 x 113.5 x 145.8) • PWR-IE50W-AC=: 5.8 x 2.0 x 4.4 in. (147 x 51 x 112 mm) • PWR-IE50W-AC-IEC=: 5.8 x 2.0 x 4.4 in. (147 x 51 x 112 mm) • PWR-IE65W-PC-AC=: 5.9 x 2.6 x 4.6 in. (150 x 66 x 117 mm) • PWR-IE65W-PC-DC=: 5.9 x 2.6 x 4.6 in. (150 x 66 x 117 mm)
Weight	• All IE4000 models listed in Table 1: 6.35 pounds (2.88 kg) • PWR-IE170W-PC-AC=: 3.88 pounds (1.76 kg) • PWR-IE170W-PC-DC=: 3.7 pounds (1.67 kg) • PWR-IE50W-AC=: 1.4 lb (0.65 kg) • PWR-IE50W-AC-IEC=: 1.4 lb (0.65 kg) • PWR-IE65W-PC-DC=: 2.6 (1.18 Kg) • PWR-IE65W-PC-AC=: 2.7 (1.24 Kg)

Table 6. Switch Performance and Scalability

Description	Specification
Forwarding rate	Line rate for all ports and all packet sizes
Number of queues	4 egress
Unicast MAC addresses	16,000
IGMP multicast groups	1,000
Number of VLANs	1,000
IPv4 MAC security ACEs	1,000 with default TCAM Template
NAT translation	Bidirectional, 128 unique subnet NAT translation entries, which can expand to tens of thousands of translated entries if designed properly

Table 7. Cisco IE 4000 LAN BASE: Key Software Features

LAN Base License (Default)	Features
Layer 2 Switching	IEEE 802.1, 802.3, 802.3at, 802.3af standard, VTPv2, NTP, UDLD, CDP, LLDP, Unicast Mac filter, Flexlink, Resilient Ethernet Protocol (REP), Parallel Redundancy Protocol (PRP), VTPv3, EtherChannel, Voice VLAN, qinq tunneling
Security	SCP, SSH, SNMPv3, TACACS+, RADIUS Server/Client, MAC Address Notification, BPDU Guard, Port-Security, Private VLAN, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, 802.1x, Guest VLAN, MAC Authentication Bypass, 802.1x Multi-Domain Authentication, Storm Control, Trust Boundary, Cisco TrustSec® supporting SGT inline tagging and SGACL, FIPS 140-2
Layer 2 Multicast	IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
Management	Fast Boot, Express Setup, Web Device Manager, Cisco Network Assistant[1], Cisco Prime™ platform1, MIB, SmartPort, SNMP, syslog, Storm Control - Unicast, Multicast, Broadcast, SPAN Sessions, RSPAN, DHCP Server, Customized TCAM/SDM size configuration, DOM (digital optical management)
Industrial Ethernet	CIP Ethernet/IP, Profinet v2 MRP (IEC 62439-2), IEEE 1588 PTP v2, NTP to PTP translation, CIP Time Sync
Quality of Service	Ingress Policing, Rate-Limit, Egress Queueing/shaping, AutoQoS, Modular QoS CLI (MQC)
Layer 2 IPv6	IPv6 Host support, HTTP over IPv6, SNMP over IPv6
Layer 3 Routing	IPv4 Static Routing
Industrial Management	Layer 2 switching with 1:1 static Network Address Translation (NAT)
Utility	Power Profile, dying gasp, GOOSE messaging, SCADA protocol classification, MODBUS TCP/IP, utility SmartPort macro, BFD, Ethernet OAM, IEEE 802.3ah, CFM (IEEE 802.1ag)

[1] Support after product General Availability

Table 8. Cisco IE 4000 IP Services: Key Software Features

IP Services License	Additional Features
IP Multicast	PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), and PIM sparse-dense mode
Industrial Management	Embedded Event Manager (EEM)
IP Unicast Routing Protocols	OSPF, EIGRP, BGPv4, IS-IS, RIPv2, Policy-Based Routing (PBR), HSRP
Cisco Express Forwarding	Hardware routing architecture delivers extremely high-performance IP routing
IPv6 Routing	RIPng, OSPFv6, and EIGRPv6 support
Security	IEEE 802.1AE MACsec, Security Group Access Control Lists (SGACL)
Virtualization	VRF-lite

To enable PROFINET MRP (IEC 62439-2) functionalities on the IE4000 switches the relevant SW license, listed in table 3 should be ordered.

Table 9. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC 47 CFR Part 15 Class A 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 CNS13438 Class A KN22
Electromagnetic Immunity	EN55024 CISPR 24 AS/NZS CISPR 24

Type	Standards
	KN24 EN 61000-4-2 Electro Static Discharge EN 61000-4-3 Radiated RF EN 61000-4-4 Electromagnetic Fast Transients N 61000-4-5 Surge EN 61000-4-6 Conducted RF EN 61000-4-8 Power Frequency Magnetic Field EN 61000-4-9 Pulse Magnetic Field EN 61000-4-11 AC Power Voltage EN 61000-4-18 Damped Oscillatory Wave EN-61000-4-29 DC Voltage Dips
Industry Standards	EN 61000-6-1 Light Industrial EN 61000-6-2 Industrial EN 61000-6-4 Industrial EN 61326 Industrial Control EN 61131-2 Programmable Controllers Substation KEMA (IEEE 1613, IEC 61850-3) NEMA TS-2 (EMC, environmental, mechanical) IEEE 1613 Electric Power Stations Communications Networking IEC 61850-3 Electric Substations Communications Networking EN50155 Railway - Electronic Equipment on Rolling Stock (EMC, ENV, Mech) EN50121-4 Railway - Signaling and Telecommunications Apparatus EN50121-3-2 Railway - Apparatus for Rolling Stock ODVA Industrial EtherNet/IP PROFINET conformance B IP30 (per EN60529)
Safety Standards and Certifications	**Information Technology Equipment:** UL/CSA 60950-1 EN 60950-1 CB to IEC 60950-1 with all country deviations NOM to NOM-019-SCFI (through partners and distributor) **Industrial Floor (Control Equipment):** UL 508 CSA C22.2, No 142 **Hazardous Locations:** ANSI/ISA 12.12.01 CSA C22.2 No 213 IEC 60079-0, -15 IECEx test report EN 60079-0, -15 ATEX certification (Class I Zone 2) Cabinet enclosure required
Operating Environment	Operating Temperature: -40C to +75C • -40C to +70C (Vented Enclosure Operating) • -40C to +60C (Sealed Enclosure Operating) • -34C to +75C (Fan or Blower equipped Enclosure Operating) EN 60068-2-1 EN 60068-2-2 EN 61163 Altitude: up to 15,000 feet
Storage Environment	Temperature: -40 to +85 degrees C Altitude: 15,000 feet IEC 60068-2-14
Humidity	Relative humidity of 5% to 95% non-condensing IEC 60068-2-3 IEC 60068-2-30
Shock and Vibration	IEC 60068-2-27 (operational shock, 50G, 11ms, Half Sine) IEC 60068-2-27 (Non-Operational Shock, 65-80G, 9ms, 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)

Type	Standards
Corrosion	ISO 9223: Corrosion class C3-Medium class C4-High EN 60068-2-52 (Salt Fog) EN 60068-2-60 (Flowing Mixed Gas)
Others	RoHS Compliance China RoHS Compliance TAA (Government) CE (Europe)
Warranty	Five-year limited HW warranty on all IE-4000 PIDs and all IE Power Supplies (see table 3 above). See link below for more details on warranty
Mean Time Between Failure (MTBF)	IE-4000-4TC4G-E: 578, 730 Hours IE-4000-8T4G-E: 591, 070 Hours IE-4000-8S4G-E: 583, 700 Hours IE-4000-4T4P4G-E: 562, 300 Hours IE-4000-16T4G-E: 558, 310 Hours IE-4000-4S8P4G-E: 535, 880 Hours IE-4000-8GT4G-E: 591, 240 Hours IE-4000-8GS4G-E: 583, 700 Hours IE-4000-4GC4GP4G-E: 550, 940 Hours IE-4000-16GT4G-E: 558, 630 Hours IE-4000-8GT8GP4G-E: 519, 190 Hours IE-4000-4GS8GP4G-E: 536, 220 Hours

Table 10. Management and Standards

Description	Specification	
IEEE Standards	• IEEE 802.1D MAC Bridges, STP • IEEE 802.1p Layer2 COS prioritization • IEEE 802.1q VLAN • IEEE 802.1s Multiple Spanning-Trees • IEEE 802.1w Rapid Spanning-Tree • IEEE 802.1x Port Access Authentication • IEEE 802.1AB LLDP • IEEE 802.3ad Link Aggregation (LACP) • IEEE 802.3af Power over Ethernet provides up to 15.4W DC power to each end device • IEEE 802.3at Power over Ethernet provides up to 25.5W DC power to each end device	• IEEE 802.3af Power over Ethernet • IEEE 802.3at Power over Ethernet Plus • IEEE 802.3ah 100BASE-X SMF/MMF only • IEEE 802.3x full duplex on 10BASE-T • IEEE 802.3 10BASE-T specification • IEEE 802.3u 100BASE-TX specification • IEEE 802.3ab 1000BASE-T specification • IEEE 802.3z 1000BASE-X specification • IEEE 1588v2 PTP Precision Time Protocol
RFC Compliance	• RFC 768: UDP • RFC 783: TFTP • RFC 791: IPv4 protocol • RFC 792: ICMP • RFC 793: TCP • 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 1305: NTP • RFC 1492: TACACS+ • RFC 1493: Bridge MIB Objects • RFC 1534: DHCP and BOOTP interoperation • RFC 1542: Bootstrap Protocol • 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

Description	Specification	
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-EMBEDDED-EVENT-MGR-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-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	• 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 • LLDP-EXT-MED-MIB • LLDP-EXT-PNO-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 • 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	

Table 11. SFP Support

Part Number	Specification	SFP Type	Max Distance	Cable Type	Temp Range*	DOM Support
GLC-FE-100FX-RGD=	100BASE-FX	FE	2km	MMF	IND	Yes
GLC-FE-100LX-RGD	100BASE-LX10	FE	10km	SMF	IND	Yes
GLC-FE-100FX=	100BASE-FX	FE	2km	SMF	COM	No
GLC-FE-100LX=	100BASE-LX10	FE	10km	SMF	COM	No
GLC-FE-100EX=	100BASE-EX	FE	40km	SMF	COM	No
GLC-FE-100ZX=	100BASE-ZX	FE	80km	SMF	COM	No
GLC-FE-100BX-D=	100BASE-BX10	FE	10km	SMF	COM	No
GLC-FE-100BX-U=	100BASE-BX10	FE	10km	SMF	COM	Yes
GLC-SX-MM-RGD=	1000BASE-SX	GE	550m	MMF	IND	Yes
GLC-LX-SM-RGD=	1000BASE-LX/LH	GE	550m/10km	MMF/SMF	IND	Yes
GLC-ZX-SM-RGD=	1000BASE-ZX	GE	70km	SMF	IND	Yes
GLC-BX40-U-I=	1000BASE-BX40	GE	40km	SMF	IND	Yes
GLC-BX40-D-I=	1000BASE-BX40	GE	40km	SMF	IND	Yes
GLC-BX40-DA-I=	1000BASE-BX40	GE	40km	SMF	IND	Yes
GLC-BX80-U-I=	1000BASE-BX80	GE	80km	SMF	IND	Yes
GLC-BX80-D-I=	1000BASE-BX80	GE	80km	SMF	IND	Yes
GLC-SX-MMD=	1000BASE-SX	GE	550m	MMF	EXT	Yes
GLC-LH-SMD=	1000BASE-LX/LH	GE	550m/10km	MMF/SMF	EXT	Yes
GLC-EX-MMD=	1000BASE-EX	GE	40km	SMF	EXT	Yes
GLC-ZX-MMD=	1000BASE-ZX	GE	70km	SMF	EXT	Yes
GLC-BX-D=	1000BASE-BX10	GE	10km	SMF	COM	Yes
GLC-BX-U=	1000BASE-BX10	GE	10km	SMF	COM	Yes
CWDM-SFP-xxxx= (8 freq)	CWDM 1000BASE-X	GE		SMF	COM	Yes
DWDM-SFP-xxxx= (40 freq)	DWDM 1000BASE-X	GE		SMF	COM	Yes
SFP-GE-S=	1000BASE-SX	GE	550m	MMF	EXT	Yes
SFP-GE-L=	1000BASE-LX/LH	GE	550m/10km	MMF/SMF	EXT	Yes
SFP-GE-Z=	1000BASE-ZX	GE	70km	SMF	EXT	Yes
GLC-SX-MM=	1000BASE-SX	GE	550m	MMF	COM	No
GLC-LH-SM=	1000BASE-LX/LH	GE	550m/10km	MMF/SMF	COM	No
GLC-ZX-SM=	1000BASE-ZX	GE	70km	SMF	COM	Yes
GLC-TE=	1000BASE-T	GE	100m	Copper	EXT	NA
GLC-T=	1000BASE-T	GE	100m	Copper	COM	NA

Note: Not all SFPs supported in all SW versions. For first software release supporting SFP refer to http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

* If non industrial (i.e., EXT, COM) SFPs are used the switch operating temperature must be derated.
MMF = multi-mode fiber
SMF = single-mode fiber

Warranty Information

Warranty information for the IE 4000 is available on http://www.cisco-servicefinder.com/warrantyfinder.aspx.

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