Cisco Industrial Ethernet 4010 Series Switches

Contents

Product overview

Cisco® Industrial Ethernet (IE) 4010 Series Switches with 28 Gigabit Ethernet interfaces are high-performance ruggedized Layer2/3 switches with high-density Power-over-Ethernet (PoE) capabilities, making them an ideal choice for use as access switches in industrial environments. The 4010 delivers comprehensive Cisco IOS® Software security features and high-availability ring protocols. The switch is ideal for outdoor enclosures or harsh environments while adhering to overall IT network design, compliance, and performance requirements.

The IE 4010 has a comprehensive software feature set, developed from manufacturing, utility, and enterprise switching products making it excellent for extended temperature range locations, such as smart buildings, utility, process control, Intelligent Transportation Systems (ITS), and city surveillance programs. The IE4010 has built-in SW image verification to ensure authenticity of the Cisco Software. The IE 4010 complements the existing Cisco IE 2000, IE 2000U, IE 3200, IE 3300, IE 3400, IE 4000, and IE 5000 Series Switching families, as well as the Cisco CGS 2520 Switch.

The IE 4010 Series can also be used to easily and securely extend the enterprise network to harsh environments with a software-defined access extension for the Internet of Things (IoT) enabling connectivity in outdoor areas, warehouses, distribution centers, roadways etc. using powerful enterprise-grade intent-based network management platform such as Cisco DNA™ Center.

The IE 4010 supports a GUI-based web user Interface, and Express Setup for the switch provides easy out-of-box configuration to deliver advanced security, data, video, and voice services over industrial networks.

Features and benefits

Table 1 lists the features and benefits of Cisco IE 4010 Series Switches.

Table 1. Features and benefits of Cisco IE 4010 Series Switches

Feature	Benefit
Robust industrial design	• A utility grade, fully managed 1 RU rack mount Ethernet access switch with PoE capabilities. • Fanless, convection cooled with no moving parts. • Extended operational temperature range (-40 to 75C). • Hardened for vibration, shock, surge, and electrical noise immunity. • Complies with multi-industry specifications for industrial automation, ITS, and electrical substation environments. • Improves uptime, performance, and safety of industrial systems and equipment. • IEEE 1588v2 PTP (both power profile for utility and default profile for manufacturing are supported). • Alarm I/O for monitoring and signaling to external equipment.
User-friendly GUI device manager	• Allows easily configuration and monitoring via a web browser. • Eliminates the need for terminal emulation programs. • Multiple Language Support - English, Chinese (Traditional), Chinese (Simplified), French, German, Japanese, Spanish (LATAM)
Swap drive: zero - config replacement	• Simple switch replacement in case of a failure. • No networking expertise required. • Helps ensure fast recovery.

Feature	Benefit
High-density industrial Power over Ethernet (PoE/PoE+)	• Supports up to 24 total PoE/PoE+ ports with power budget up to 385W available with two power supplies. • Enables ready-to-use PoE devices, such as High Definition (HD) IP cameras, wireless access points, and IP phones.
Complete Gigabit Ethernet switch	• Total of 28 Gigabit Ethernet ports provide multiple resilient design options. • Connects new wireless access point (802.11n and 802.11ac). • Enables new HD IP cameras and future proof Gigabit speed automation devices. • Allows IP-based Supervisory Control And Data Acquisition (SCADA) connectivity. • 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.

Cisco Industrial Ethernet (IE) 4010 Series Switches offer:

- Bandwidth and capacity to grow with your networking needs: high performance nonblocking switching capacity with 28 Gigabit Ethernet ports per switch
- High-density Power over Ethernet – 24 ports of PoE of 12 ports of PoE+ capable ports to connect IP cameras, IP phones, badge readers, wireless access points, etc.
- Cisco IOS Software features for easy IT integration and management consistency
- Cisco DNA Center management and support for software-defined access extension for IoT
- Robust resiliency enabled by dual ring design through 4x Gigabit Ethernet uplink ports, Resilient Ethernet Protocol (REP), Parallel Redundancy Protocol (PRP), PROFINET - Media Redundancy Protocol(MRP) ring, High Availability Seamless Redundancy (HSR) ring, EtherChannel and Flexlink support, integrated redundant power supplies, dying gasp, etc.
- True zero-touch replacement for middle-of-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

Cisco ONE Software

Cisco ONE Software offers a simplified consumption model, centered on common customer scenarios in the industrial automation and extended enterprise environments. Cisco ONE Software and services provide customers with four primary benefits:

- Software suites that address typical customer use scenarios at an attractive price
- Investment protection for their software purchase through software services-enabled license portability
- Access to ongoing innovation and new technology with Cisco Software Support Service (SWSS)
- Flexible licensing models to smoothly distribute customers' software spending over time

Figure 1 shows switch models, Table 2 shows all the available 4010 models, Table 3 lists the power supplies and Table 4 shows the available power budget for PoE/PoE+ for Cisco IE 4010 Series Switches

Figure 1.
Cisco IE 4010 series model

Table 2. Cisco IE 4010 Series switch models

Product number	Total ports	SFP Uplinks	SFP fiber ports (S)	Copper PoE/PoE+ Ports[2] (P)	Default software
IE-4010-16S12P	28	4 FE/GE	12 FE/GE	12 FE/GE	LAN Base[1]
IE-4010-4S24P	28	4 FE/GE		24 FE/GE	LAN Base[1]

[1] Can be upgraded to IP Services license with the license product number in Table 15

[2] All copper Gigabit Ethernet interfaces support speed negotiation to 10/100/1000 Mbps and duplex negotiation

Table 3. Power supplies for Cisco IE 4010 Series Switches

Product number	Wattage	Rated nominal input operating range	Supported input voltage operating range	PoE/PoE+ support	Use case scenario
PWR-RGD-AC-DC-H	150W	AC 100-240V/2.0A 50-60Hz or DC 100-250V/2.0A	AC 85-264V or DC 88-300V	Yes	High voltage AC or DC power source, for hazardous locations PoE power application
PWR-RGD-LOW-DC-H	150W	DC 24-60V/10A	DC 18-75V	Yes	Low voltage DC power source, for hazardous locations PoE power application
PWR-RGD-AC-DC-250	250W	AC 100-240V 3.3A 50-60Hz or DC 100-250V 3.3A	AC 85-264V or DC 88-300V	Yes	High voltage AC or DC power source, for hazardous locations PoE power application

Table 4. Available power budget for PoE/PoE+ with different power supply wattage

Product number	150W	150W (dual)	250W	250W + 150W	250W (dual)
IE-4010-16S12P	80	200	180	285	360
IE-4010-4S24P	80	200	180	285	385

Product specifications

Table 5 lists specifications, Table 6 lists information about switch's physical specifications, Table 7 lists information about switch performance and scalability, Tables 8 and 9 list important software license features. Tables 10–11 list the DNA Essentials and Advantage license features. Table 12 lists compliance specifications, and Table 13 lists information about management and standards and Table 14 lists the supported SFPs on Cisco IE 4010 Series Switches

Table 5. Product specifications

Description	Specification
Hardware	• 1 GB DRAM • 128 MB onboard flash memory • 1-GB removable SD flash memory card (Included) • Mini-USB and traditional RJ-45 console connector
Alarm	Alarm I/O: four alarm inputs to detect dry contact open or closed, one Form C alarm output relay
Accessories	• SD-IE-1GB= - Spare SD card • L-IE4000-RTU= - Electronic RTU IP services software license for 4010 switches • 21-in. and 23-in. ETSI rack mount brackets

Table 6. Physical specifications

Description	IE-4010-4S24P	IE-4010-16S12P
Dimensions, (H x W x D)	• 1.75 x 17.5 x 14.0 in. (4.45 x 44.5 x 35.6 cm) with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H • 1.75 x 17.5 x 15.18 in. (4.45 x 44.5 x 38.56 cm) with PWR-RGD-AC-DC-250	
System Weight	Without power supply: 12.1 lb (5.46 kg)	Without power supply: 12.7 lb (5.78 kg)
Power Supply Weight	• PWR-RGD-AC-DC-H: 2.55 lb (1.16 kg) • PWR-RGD-LOW-DC-H: 2.5 lb (1.13 kg) • PWR-RGD-AC-DC-250: 3.1 lb (1.4 kg)	
Power consumption	Maximum of 70W not including PoE consumption	

Table 7. Switch performance and scalability

Description	Specification
Forwarding bandwidth	28 Gbps (line rate/non-blocking)
Switching bandwidth	56 Gbps(Switching bandwidth is full-duplex capacity)
Forwarding rate	41.67 mpps with 64 byte packets (line rate for all ports and packet sizes)
Number of queues	4 egress
Unicast MAC addresses	16,000
IGMP multicast groups	1000
Number of VLANs	1000
IPv4 MAC security ACEs	1000 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 8. Cisco IE 4010 LAN base license: 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, 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® security, FIPS 140-2, ACT2, Secure Boot, Full flexible Netflow[1]
Layer 2 multicast	IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
Management	Fast Boot, Express Setup, HTTP Web Config, SmartPort, MIB, SNMP, syslog, Storm Control–Unicast, Multicast, Broadcast, SPAN Sessions, RSPAN, DHCP Server, Energywise, PnP, Customized TCAM/SDM size configuration, DOM (digital optical management), Port-based DHCP
Industrial Ethernet	CIP Ethernet/IP, Profinet v2, IEEE 1588 PTP v2 Default Profile
Quality of Service (QoS)	Ingress Policing, Rate-Limit, Egress Queueing/shaping, AutoQoS, Modular QoS CLI (MQC),PROFINET QoS
Layer 2 IPv6	IPv6 Host support, HTTP over IPv6, SNMP over IPv6
Layer 3 routing	IPv4 Static Routing

LAN base license (default)	Features
Industrial management	Layer 2 switching with 1:1 static Network Address Translation (NAT)
Utility	IEEE 1588v2 PTP Power Profile, dying gasp, GOOSE messaging, SCADA protocol classification, MODBUS TCP/IP Memory Maps, utility SmartPort macro, BFD, Ethernet OAM, IEEE 802.3ah, CFM (IEEE 802.1ag)
Redundancy	Redundancy Ethernet Protocol ring (REP) Parallel Redundancy Protocol (PRP) High Availability Seamless Redundancy (HSR), PTP over HSR Media Redundancy Protocol (MRP) ring, MRP Auto Manager (MAM)

[1] Full flexible Netflow is included is included on all IE-4010 Switches and requires either one of the following licenses per switch:

- Cisco ONE™ Foundation Perpetual license
- DNA Essentials license
- Cisco IP Services license

Table 9. Cisco IE 4010 IP Services license: 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
IPv6 routing	RIPng, OSPFv6, and EIGRPv6 support
Security	IEEE 802.1AE MACsec (including PSK based MKA support), Cisco TrustSec®, SGT inline tagging and SGACL, Full flexible Netflow
Virtualization	VRF-lite

Table 10. Cisco IE 4010 DNA Essentials features

Feature	Description
Cisco DNA Center	Discovery, topology, inventory, software image management
Visibility	Cisco DNA assurance, Full flexible Netflow, Device 360
Day-zero network bring-up automation	Cisco Network Plug-and-Play application

Table 11. Cisco IE 4010 DNA Advantage features

Feature	Description
DNA Essentials	All DNA Essentials features
Software-Defined Access (SDA)	Policy based automation, IE 4010 can function as an SDA extended node

Table 12. 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 EN 300 386 CNS13438 Class A (pending)
Electromagnetic immunity	EN55024 CISPR 24 AS/NZS CISPR 24 EN 61000-4-2 Electro Static Discharge EN 61000-4-3 Radiated RF EN 61000-4-4 Electromagnetic Fast Transients EN 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 61000-4-10 Damped Oscillatory Magnetic Field (100 A/m) 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 IEEE 1613 Electric Power Stations Communications Networking IEC 61850-3 Communication networks for power utility automation

Type	Standards
	EN50121-4 Railway - Signaling and Telecommunications Apparatus EN50121-3-2 Railway - Apparatus for Rolling Stock PROFINET conformance B IP30 Marine DNV GL - Ships NEMA TS-2 (EMC, environmental, mechanical)
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 UL 61010-2 CSA C22.2, No 142 **Hazardous locations**: Class 1, Div2, gas groups IIC 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 - 40 LFM Air Flow) • -40C to +60C (Sealed Enclosure - 0 LFM Air Flow) • -34C to +75C (Fan or Blower equipped Enclosure - 200 LFM Air Flow) • -40C to +85C (IEC 60068-2-2 Environmental Type Testing, 16 hours) • Operating altitude: Up to 13,800ft • EN 60068-2-1, EN 61163
Storage environment	Temperature: -40C to +85C Altitude: Up to 15,000 feet IEC 60068-2-14
Humidity	Relative humidity of 5% to 95% noncondensing 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 (Nonoperational Vibration)

Type	Standards
Corrosion	ISO 9223: Corrosion lass C3-Medium class C4-High EN 60068-2-52 EN 60068-2-60 (Flowing Mixed Gas)
Others	RoHS Compliance China RoHS Compliance TAA (Government) CE (Europe)
Warranty	Five-year limited hardware warranty on all IE-4010 PIDs and power supplies (see Table 3). See link that follows for more details on warranty.
Mean Time Between Failures (MTBF)	IE-4010-4S24P: 429,620 hours IE-4010-16S12P: 415,160 hours

Table 13. 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 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

Description	Specification	
	• RFC 1166: IP Addresses • RFC 1256: ICMP Router Discovery	• RFC 3580: 802.1x RADIUS • RFC 4250-4252 SSH 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-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-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-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

Description	Specification	
	• CISCO-RTTMON-IP-EXT-MIB • CISCO-RTTMON-MIB • CISCO-RTTMON-RTP-MIB	• SNMPv2-MIB • TCP-MIB • UDP-MIB

Table 14. SFP support

Part number	Specification	SFP type	Max distance	Cable type	Temp range*	DOM support
GLC-FE-100FX-RGD=	100BASE-FX	FE	2 km	MMF	IND	Yes
GLC-FE-100LX-RGD=	100BASE-LX10	FE	10 km	SMF	IND	Yes
GLC-FE-100FX=	100BASE-FX	FE	2 km	MMF	COM	No
GLC-FE-100LX=	100BASE-LX10	FE	10 km	SMF	COM	No
GLC-FE-100EX=	100BASE-EX	FE	40 km	SMF	COM	No
GLC-FE-100ZX=	100BASE-ZX	FE	80 km	SMF	COM	No
GLC-FE-100BX-D=	100BASE-BX10	FE	10 km	SMF	COM	No
GLC-FE-100BX-U=	100BASE-BX10	FE	10 km	SMF	COM	Yes
GLC-SX-MM-RGD=	1000BASE-SX	GE	550 m	MMF	IND	Yes
GLC-LX-SM-RGD=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	IND	Yes
GLC-ZX-SM-RGD=	1000BASE-ZX	GE	70 km	SMF	IND	Yes
GLC-BX-U-I=	1000BASE-BX	GE	10 km	SMF	IND	Yes
GLC-BX-D-I=	1000BASE-BX	GE	10 km	SMF	IND	Yes
GLC-BX40-U-I=	1000BASE-BX40	GE	40 km	SMF	IND	Yes
GLC-BX40-D-I=	1000BASE-BX40	GE	40 km	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-SMD=	1000BASE-EX	GE	40 km	SMF	EXT	Yes
GLC-ZX-SMD=	1000BASE-ZX	GE	70 km	SMF	EXT	Yes
GLC-BX-D=	1000BASE-BX10	GE	10 km	SMF	COM	Yes

Part number	Specification	SFP type	Max distance	Cable type	Temp range*	DOM support
GLC-BX-U=	1000BASE-BX10	GE	10 km	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	550 m	MMF	EXT	Yes
SFP-GE-L=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	EXT	Yes
SFP-GE-Z=	1000BASE-ZX	GE	70 km	SMF	EXT	Yes
GLC-SX-MM=	1000BASE-SX	GE	550 m	MMF	COM	No
GLC-LH-SM=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	COM	No
GLC-ZX-SM=	1000BASE-ZX	GE	70 km	SMF	COM	Yes
GLC-TE=	1000BASE-T	GE	100 m	Copper	EXT	NA
GLC-T=	1000BASE-T	GE	100 m	Copper	COM	NA
GLC-T-RGD=	1000BASE-T	GE	100 m	Copper	IND	NA

Note:
Not all SFPs are supported in all software versions. For the first software release supporting SFP, visit https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

Not all SFPs are supported in PROFINET GSD, SIMATIC STEP7/TIA Portal, please visit https://www.cisco.com/c/en/us/td/docs/switches/lan/industrial/software/configuration/guide/b_sfp_TIA.html

*If nonindustrial (that is, EXT, COM) SFPs are used, the switch operating temperature must be derated.

MMF = multimode fiber SMF = single-mode fiber

Ordering information

Table 15 lists the ordering information for Cisco IE 4000 system.

Table 15. Ordering information

Product ID	Description
Cisco IE 4010 Hardware PIDs	
IE-4010-16S12P	IE4010 with 12GE SFP, 12GE Copper PoE+ and 4GE SFP uplink ports
IE-4010-4S24P	IE4010 with 24GE Copper PoE+ ports and 4GE SFP uplink ports

Product ID	Description
Cisco IE 4010 software licenses and accessories PIDs	
IE-LICENSE-SPARE	Spare license for software upgrade (L2 to L3 features or MRP ring)
L-IE4000-RTU=	IE4010 Electronic software license upgrade from LAN base L2 to IP Services L3 features
LIC-MRP-Manager=	MRP ring manager license
LIC-MRP-Client=	MRP ring client license
SD-IE-1GB=	IE 1GB SD Memory Card - Spare
Cisco ONE™ Licenses	
C1F1PIE4K5K1K9	Cisco ONE Foundation Lite Perpetual Includes Prime Infrastructure (LF and AS), Identity Services Engine - Base
C1F1PIE40001K9	Cisco ONE Foundation Perpetual Includes Full flexible Netflow, Stealthwatch, Prime Infrastructure, and Identity Services Enginer - Base
C1A1PIE40001K9	Cisco ONE Advanced Perpetual Includes IP Services
Cisco IE 4010 DNA licenses	
IE4010-DNA-E-H	DNA Essentials license
IE4010-DNA-E-H-3Y	DNA Essentials 3-year term license option
IE4010-DNA-E-H-5Y	DNA Essentials 5-year term license option
IE4010-DNA-A-H	DNA Advantage license
IE4010-DNA-A-H-3Y	DNA Advantage 3-year term license option
IE4010-DNA-A-H-5Y	DNA Advantage 5-year term license option
IE4010-DNA-E-H-7Y	DNA Essentials 7-year term license option
IE4010-DNA-A-H-7Y	DNA Advantage 7-year term license option

Warranty information

Warranty information for the IE 4010 switch is available at http://www.cisco-servicefinder.com/warrantyfinder.aspx.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

Cisco and Partner Services

At Cisco, we're committed to minimizing our customers' TCO, and we offer a wide range of services programs to accelerate customer success. Our innovative programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco Services helps you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. Here are some of the key benefits our customers can get from Cisco Services:

- Mitigating risks by enabling proactive or expedited problem resolution
- Lowering TCO by taking advantage of Cisco expertise and knowledge
- Minimizing network downtime
- Supplementing your existing support staff so they can focus on additional productive activities

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