Cisco Industrial Ethernet 4000 Series Switches

Developed specifically to withstand the harshest industrial environments, these switches offer the most flexible and resilient industrial Ethernet products with secure connectivity, simple management and edge application execution.

Product overview

The Cisco® Industrial Ethernet (IE) 4000 Series delivers Gigabit connectivity to Cisco ruggedized switching portfolio with superior high-bandwidth switching capacity and proven Cisco IOS® Software. The IE 4000 Series provides highly secure access and industry-leading convergence ring protocols to support resilient and scalable networks while adhering to industry compliance requirements.

The IE 4000 Series is ideal for industrial Ethernet applications where hardened products are required, including manufacturing, energy, transportation, smart cities. The IE4000 has built-in SW image verification to ensure authenticity of the Cisco Software. With improved overall performance, greater bandwidth, advanced security features, 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 IE 4000 Series can 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 Cisco IE 4000 can easily be installed. with a GUI based Device Manager, it also offers out-of-the-box industrial usage configuration and simplified manageability to deliver advanced security, data, video, and voice services over industrial networks.

The IE 4000 executes edge applications using Cisco IOx to transform sensor data into insight and action. With Cisco IOx for customers take advantage of consistent, distributed computing across Cisco IoT network infrastructure. For more information on Cisco IOx, please see the Cisco IOx data sheet.

Features and benefits

Table 1 lists the features and benefits of Cisco IE 4000 Series Switches.

Table 1. Features and benefits of Cisco IE 4000 switches

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, DIN rail compliant form factor ideal for industrial deployment. • Covers a wide range of Power over Ethernet (PoE) application requirements.

Feature	Benefit
User-friendly GUI device manager	• Allows easy configuration and monitoring via a web based device manager. • 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. • Designed to support PoE power budget up to 240W(Refer Table 2 for details)
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.
Cisco IOx for Fog Compute applications	• Reach business outcomes associated with IoT initiatives with application execution close to edge network. • Reach production scale rapidly by offering flexible application development and deployment approaches • Build new business with the ability to process high volumes of data close to network edge and deliver closed-loop system control in real time.

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) ring, High Availability Seamless Redundancy (HSR) ring, EtherChannel and Flex Links 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), PROFINET, and Modbus TCP

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 the switch models, Table 2 lists all the available Cisco IE 4000 Series models, Table 3 lists the power supplies for Cisco IE 4000 Series Switches.

Figure 1. IE 4000 models

Table 2. Cisco IE 4000 Series Switches

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), Maximum PoE power budget	Default software
IE-4000-4TC4G-E	8	All models have 4 GE combo uplink ports	4 (FE)				All models ship with LAN Base feature set[2]
IE-4000-8T4G-E	12			8 (FE)			
IE-4000-8S4G-E	12				8 (FE)		
IE-4000-4T4P4G-E	12			4 (FE)		4 (FE), 125W	
IE-4000-16T4G-E	20			16 (FE)			
IE-4000-4S8P4G-E	16				4 (FE)	8 (FE), 125W	
IE-4000-8GT4G-E	12			8 (GE)			
IE-4000-8GS4G-E	12				8 (GE)		
IE-4000-4GC4GP4G-E	12		4 (GE)			4 (GE), 125W	
IE-4000-16GT4G-E	20			16 (GE)			
IE-4000-8GT8GP4G-E	20			8 (GE)		8 (GE), 240W	
IE-4000-4GS8GP4G-E	16				4 (GE)	8 (GE), 125W	

[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.
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 3. Power supplies for Cisco IE 4000 Series Switches

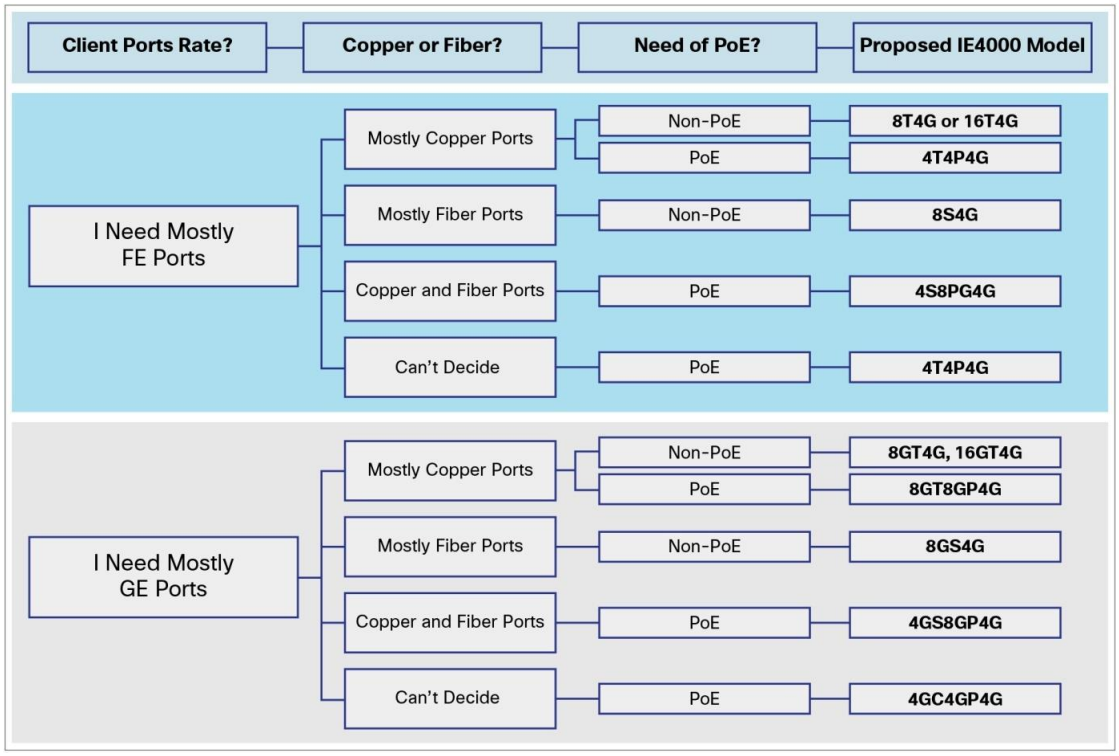
Product number	Wattage	Rated nominal input operating range	Supported input voltage operating range	power output	PoE/PoE+ support	Use case scenario
PWR-IE170W- PC-AC=	170W	AC 100-240V/2.3A 50-60Hz or DC 125-250V/2.1A	AC 90-264V or DC 106-300V	54VDC/3.15A	Yes	Maximum PoE/PoE+ port support in a AC or high DC environment[1]
PWR-IE170W- PC-DC=	170W	DC 12-54V/2.3A	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
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 environment[2]

[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.

The diagram in Figure 2 can help you select a Cisco IE 4000 model.

Figure 2. Cisco IE 4000 model selection guide



Product specifications

Table 4 lists specifications, Table 5 gives information about switch performance and scalability, Tables 6 and 7 list important software features. Table 8 provides information on software licenses and accessory PIDs.Tables 9–12 provide information about Cisco ONE™ licenses, Cisco DNA features and PIDs available for order, and Table 13 lists compliance specifications. Table 14 gives information about management and standards of the Cisco IE 4000 Series Switches, and Table 15 shows the list of supported SFPs.

Table 4. 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 5. 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 6. 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), VTPv3, EtherChannel, Voice VLAN, qinq tunneling, Industrial macro configuration
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, FIPS 140-2, ACT2, Secure boot, Full flexible Netflow[2]
Layer 2 multicast	IGMPv1, v2, v3 Snooping, IGMP filtering, IGMP Querier
Management	Fast Boot, Express setup, Web Device Manager, Industrial Network Director (IND), MIB, Smartport, SNMP, syslog, storm control, unicast, multicast, broadcast, SPAN sessions, RSPAN, DHCP server, customized DOM (digital optical management), Embedded Event Manager (EEM), Plug-n-Play Agent, Port-based DHCP
Industrial Ethernet	CIP Ethernet/IP, Profinet v2, IEEE 1588 PTP v2, NTP to PTP translation, CIP Time Sync
Quality of service	Ingress Policing, Rate-Limit, Egress Queueing/shaping, AutoQoS, QoS, PROFINET QoS
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)
Redundancy	Redundancy Ethernet Protocol ring (REP) Parallel Redundancy Protocol (PRP) Media Redundancy Protocol (MRP) ring, MRP Auto Manager (MAM) High Availability Seamless Redundancy (HSR) HSR-PRP (Dual RedBox mode)
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.

[2] Full flexible NetFlow is included on all IE-4000 Switches and requires either one of the following licenses per switch:

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

Table 7. 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
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, Cisco TrustSec®, SGT inline tagging and SGACL,Full flexible Netflow
Virtualization	VRF-lite

Table 8. Cisco IE 4000 software licenses and accessories PIDs

License	Description
IE-LICENSE-SPARE	Spare license for software upgrade (L2 to L3 features or MRP protocols)
L-IE4000-RTU=	IE4000 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
STK-RACK-DINRAIL=	19" DIN Rail mount kit

Table 9. Cisco ONE™ Licenses

Feature	Description
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

Table 10. Cisco IE 4000 DNA Essentials licenses

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 4000 DNA Advantage licenses

Feature	Description
Cisco DNA Essentials	All Cisco DNA Essentials features
Software-defined access	Policy based automation, IE 4000 can function as an SD-Access extended node

Table 12. Cisco IE 4000 DNA license PIDs

PID	Description
IE4000-DNA-E-L	Cisco DNA Essentials license(up to 12 ports)
IE4000-DNA-E-L-3Y	Cisco DNA Essentials 3 year term license(up to 12 ports) option
IE4000-DNA-E-L-5Y	Cisco DNA Essentials 5 year term license(up to 12 ports) option
IE4000-DNA-A-L	Cisco DNA Advantage license(up to 12 ports)
IE4000-DNA-A-L-3Y	Cisco DNA Advantage 3 year term license(up to 12 ports) option
IE4000-DNA-A-L-5Y	Cisco DNA Advantage 5 year term license(up to 12 ports) option
IE4000-DNA-E-M	Cisco DNA Essentials license(up to 24 ports)
IE4000-DNA-E-M-3Y	Cisco DNA Essentials 3 year term license(up to 24 ports) option
IE4000-DNA-E-M-5Y	Cisco DNA Essentials 5 year term license(up to 24 ports) option
IE4000-DNA-A-M	Cisco DNA Advantage license(up to 24 ports)
IE4000-DNA-A-M-3Y	Cisco DNA Advantage 3 year term license(up to 24 ports) option
IE4000-DNA-A-M-5Y	Cisco DNA Advantage 5 year term license(up to 24 ports) option

Table 13. 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

Type	Standards
Electromagnetic immunity	EN55024 CISPR 24 AS/NZS CISPR 24 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) Marine DNV 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

Type	Standards
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)
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 failures (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 14. 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 • IEEE 802.1AS PTP • IEEE 802.1Qbv TSN
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 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

Description	Specification	
	• RFC 2571: SNMP Management • RFC 1166: IP Addresses • RFC 1256: ICMP Router Discovery	• RFC 3046: DHCP Relay Agent Information Option • 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-SENSOR-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 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 15. 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	MMF	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-SMD=	1000BASE-EX	GE	40km	SMF	EXT	Yes
GLC-ZX-SMD=	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-RGD=	1000BASE-T	GE	100m	Copper	IND	NA

Note: Not all SFPs are supported in all software versions. For first software release supporting SFP, refer to 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.

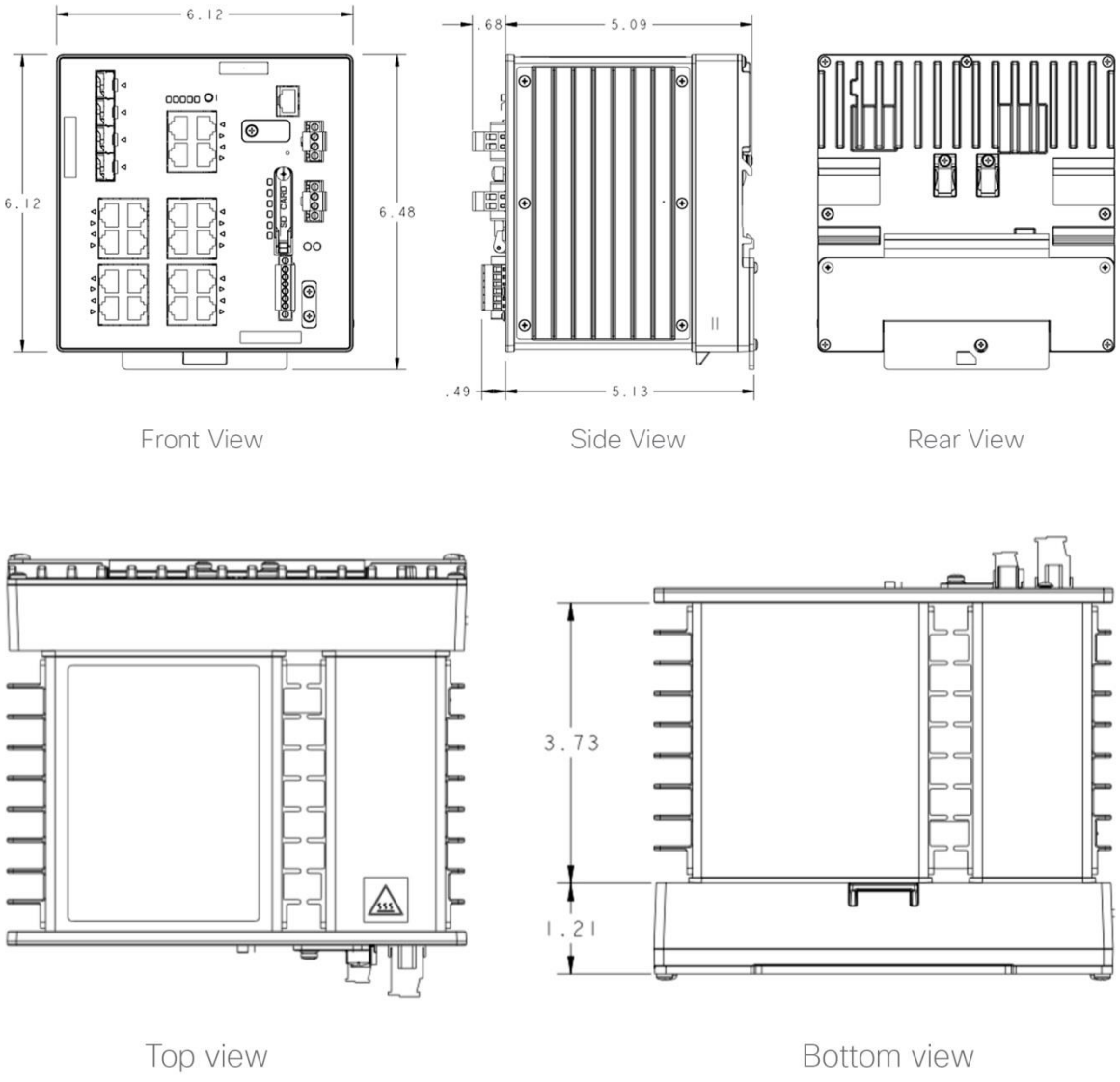
* If nonindustrial (EXT, COM) SFPs are used, the switch operating temperature must be derated.

MMF = multimode fiber

SMF = single-mode fiber

Figure 3 shows the IE4000 mechanical dimensions.

Figure 3. IE-4000 dimensions



Warranty information

Warranty information for the IE 4000 is available on https://connectthedots.cisco.com/connectdots/serviceWarrantyFinderRequest?fl=sf

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