

Cisco Industrial Ethernet 1000 Series Switches

Product Overview

The Cisco® Industrial Ethernet (IE) 1000 Series Switches are compact rugged switches aimed at operational technology (OT) users with limited IT network knowledge. The IE 1000 Series Switches provide an easy transformation from the legacy factory to digital solution. For machine builders and machine-to-machine (M2M) solutions, it is an attractive entry level product as a GUI-based, lightly-managed switch. The IE 1000 is a good fit for locations with harsh temperatures and small spaces and is Power over Ethernet (PoE) capable with zero IT management.

The IE 1000 is ideal for industrial Ethernet applications where small and easy-to-be-managed hardened products are required, including factory automation, intelligent transportation systems, city-surveillance programs, building automations etc.

The Cisco IE 1000 Series Switches complement the current industrial Ethernet portfolio of related Cisco industrial switches, such as the Cisco IE 2000, IE 3000, IE 4000 and IE 5000 Series managed Switches.

The IE 1000 can be easily installed on your network. Through a user-friendly web device manager, the IE 1000 provides easy out-of-the-box configuration and simplified operational manageability to deliver advanced and secure multiservices over industrial networks.

Features and Benefits

The Cisco IE 1000 Series Switches are designed for low cost, low ports, and small sizes. They offer:

- **Scalability:** Four models are available supporting 5, 6, 8 and 10 Ethernet ports, with Fast Ethernet (FE) and Gigabit Ethernet (GE), copper and fiber uplinks options
- **Easy integration:** Zero-touch IP discovery or Dynamic Host Configuration Protocol (DHCP)IP addressing and simple web GUI-based management
- **PnP (Plug and Play):** Automates the process of provisioning the new devices in to the network by applying configurations, installing required image without manual intervention.
- **Fast startup time:** Starts 30 seconds from cold boot
- **Manageability:** Web GUI interface, and diagnostics and analysis options through Simple Network Management Protocol (SNMP) and syslog
- **Security:** secure access; port-security; TACACS+ and RADIUS AAA Client: Security protocols to control access into networks;
- **IEEE 802.1x security:** Provides an authentication mechanism to devices wishing to attach to the network. Single host mode with MAC authentication bypass.
- **Minimize data load:** VLAN aware, Internet Group Management Protocol (IGMP) and DHCP snooping to filter unwanted data
- **Lightly-managed:** Spanning-tree protocol (STP), Link Layer Discovery Protocol (LLDP), Cisco Discovery Protocol aware

- **Sticky-MAC:** Enables the IE1K to retain MAC addresses it dynamically learns and avoid new devices to connect on the port
- **BootP server with per-port support:** When client sends a BootP request, the server responds with BootP response based on same DHCP pool configuration.
- **Gigabit uplink:** Two fiber-optic SFP based uplink for up to 50 miles (80 kilometers) links
- **Industrial PoE:** Up to eight PoE (IEEE 802.af) and PoE+ (802.3at) supported on selected models
- **Redundant voltage feeds, alarm relays support and DIN rail mount**
- **Industrial environmental compliance and certifications:** Ethernet/IP (CIP)

Product Specifications

- Maximum Forwarding Bandwidth 2.8Gbps
- Maximum Switching Bandwidth 5.6Gbps

Detailed Product Information

Figure 1 shows switch models, and Table 1 shows the Cisco IE 1000 Series Switches configuration information. Table 2 lists the SKUs for power supplies. Table 3 includes the 1000 product specifications. Table 4 lists software features. Table 5 includes compliance specifications. Table 6 outlines management and relevant industry standards.

Figure 1. Cisco Industrial Ethernet 1000 Series Switches



Table 1. Cisco IE 1000 Series Switches Configurations

Product Number	Total Ports	Fast Ethernet Copper Uplink	GE SFP Uplink	Fast Ethernet Copper Downlink	PoE/PoE+	Input Power Voltage
IE-1000-4T1T-LM	5	1		4		12-24V
IE-1000-6T2T-LM	8	2		6		12-24V
IE-1000-4P2S-LM	6		2		4	48-54V

IE-1000-8P2S-LM	10		2		8	48-54V
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Table 2. Power Supplies and Mounting Kit Available for Cisco IE 1000 Series Switches

Product Number	Wattage	Rated nominal input operating range	PoE/PoE+ support ¹	More Details
PWR-IE50W-AC=	50W	AC 100-240V/1.25A 50-60Hz or DC 125-250V/1.25A	No	Click here for more details on these DIN Rail power supplies ³
PWR-IE50W-AC-L= ²	50W	AC 100-240V/1.2A 50-60Hz	No	
PWR-IE65W-PC-AC=	65W	AC 100-240V/1.4A 50-60Hz or DC 125-250V/1.0A	Yes	
PWR-IE65W-PC-DC=	65W	DC 24-48VDC/4.5A	Yes	
PWR-IE170W-PC- AC=	170W	AC 100-240V/2.3A 50-60Hz or DC 125-250V/2.1A	Yes	
PWR-IE170W-PC- DC=	170W	DC 12-54VDC/2.3A	Yes	
PWR-IE240W-PCAC-L= ²	240W	AC 100-240V/3.5A 50-60Hz	Yes	
PWR-IE480W-PCAC-L= ²	480W	AC 100-240V/6.0A 50-60Hz	Yes	
STK-RACK- DINRAIL=	19 in. DIN Rail mount kit			

¹ The entire power budget for the switch and PoE ports needs to stay within the power supply.

² The power supplies are not certified for smart grid and hazardous locations. These power supplies are IP20 rated.

³ Power Supplies Datasheet Link: <https://www.cisco.com/c/en/us/products/collateral/switches/industrial-ethernet-switches/datasheet-c78-742180.html>

Table 3. Product Specifications

Description	Specification
Hardware	<ul style="list-style-type: none"> • DRAM: 128 MB DDR2 without ECC • Onboard flash memory: 160 MB
Alarm	<ul style="list-style-type: none"> • Alarm I/O: output connector on top panel of 4P2S and 8P2S, 1.0A@24VDC or 0.5A@48VDC
Power consumption	<ul style="list-style-type: none"> • IE1000-4T1T: 4.2W • E1000-6T2T: 5.3W • IE1000-4P2S: without PoE 8.6W, with PoE 72-140.4W • IE1000-8P2S: without PoE 10.6W, with PoE 134.4-205.2W
Connectors and cabling	<ul style="list-style-type: none"> • 100BASE-FX MMF (2 km)—TBD with engineer input • 10/100/1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling

Dimensions (H x W x D) including DIN rail	<ul style="list-style-type: none"> • IE-1000-4T1T-LM: 5.0" H x 1.50" W x 4.5" D (127mm H x 38mm W x 115mm D) • IE-1000-6T2T-LM: 5.0" H x 1.8" W x 4.5" D (127mm H x 45.7mm W x 115mm D) • IE-1000-4P2S-LM, IE-1000-8P2S-LM: 5.0"H x 1.8" W x 5.3"D (127mm H x 45.7mmW x 134mm D)
Weight	<ul style="list-style-type: none"> • IE-1000-4T1T-LM - 1.10 lb (0.50 kg) • IE-1000-6T2T-LM - 1.25 lb (0.57 kg) • IE-1000-4P2S-LM - 1.70 lb (0.77 kg) • IE-1000-8P2S-LM - 1.85 lb (0.84 kg)

Table 4. Cisco IE 1000 Software Features

Description	Specification
Software features	LLDP, Cisco CDP aware, MSTP, STP Portfast, ICMP Vlans, static IP, Trust Ingress DSCP, COS, Priority Port, port - security, IGMP querier, DHCP server SNMP v2/v3, SNMP traps, syslog, IGMP snooping, DHCP snooping, BPDU guard, Etherchannel, Alarms, PoE capability, Smartport Macro, SPAN/Port Mirroring, Strom Control, EtherNet/IP (EDS)

Table 5. Compliance Specifications

Description	Specification
Safety Certifications	<ul style="list-style-type: none"> • UL/CSA 60950-1 • EN 60950-1 • CB to IEC 60950-1 (with country deviations) • NOM to NOM-019-SCF1 (through partners and distributors) • UL/CSA/IEC/EN 61010-2-201 • CE Marking
Hazardous Locations	<ul style="list-style-type: none"> • ANSI/ISA 12.12.01 (Class1, Div2 A-D)* • EN 60079-0, -15 ATEX certificate (Class 1, Zone2 A-D)* • IEC 60079-0, 15 (report only)* • UL 60079-0, 15* • CAN/CSA C22.2 No. 60079-0, -15* <p>* Cabinet enclosure required</p>
EMC Emissions and Immunity Compliance	<ul style="list-style-type: none"> • FCC 47 CFR Part 15 Class A • EN 55022/CISPR 22 Class A • EN 55016-1-1, -1-4, -2-3 Class AVCCI Class A • RoHS compliance • AS/NZS CISPR 22 Class A, AS/NZS CISPR 24 • CISPR11 Class A, CISPR22 Class A • ICES 003 Class A • KCC Marking (Korea) • CE Marking • RCM Marking (Australia/New Zealand) • EAC Marking (Eurasian Conformity) • Anatel (Brazil) • China NAL • IEC/EN/EN61000-4-2 (Electro Static Discharge), 8kV air/6kV contact • IEC/EN 61000-4-3 (Radiated Immunity, 10 V/m 80-2000MHz, 3V/m 2000-2700MHz) • IEC/EN 61000-4-4 (Fast Transients - 2kV DC power, 2kV data line, 4kv earth) • IEC/EN 61000-4-5 (Surge 2 kV/1 kV DC power, 2 kV shielded and unshielded data line) • IEC/EN 61000-4-6 (Conducted Immunity, 10 V/emf 0.15-80MHz) • IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity 30A/m 60 sec, 300A/m 3 sec) • IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity 300A/m)
Shock and Vibration	<ul style="list-style-type: none"> • IEC 60068-2-27 (Operational Shock: 30G 11ms, half sine) • IEC 60068-2-27 (Non-Operational Shock 65-80G, trapezoidal) • IEC 60068-2-6, IEC 60068-2-64 (Operational Vibration) • EC 60068-2-6, IEC 60068-2-64, IEC 60068-2-47 (Non-operational Vibration)

Description	Specification
Industry Standard	<ul style="list-style-type: none"> • IEC/EN 61000-6-1 (Immunity for Light Industrial Environments) • IEC/EN 61000-6-2 (Immunity for Industrial Environments) • IEC/EN 61000-6-4 (Emissions for Industrial Environments) • EN 61131-2 (PLC Zone A & B, EMC/EMI, environmental, mechanical) • EN61326-1 (Industrial Controls) • Marine –TAC (Temp-A, Humid-B, Vib-A, EMC-A, Enc-A) • EN 50581 (RoHS) • China RoHS • EU WEEE • NEMA TS-2 (EMC, environmental, mechanical) • IP30
Humidity	<ul style="list-style-type: none"> • IEC 60068 -2-3 • IEC 60068-2-30 (Test Db) • Relative humidity: 5% to 95% non-condensing
Operating Temperature	<ul style="list-style-type: none"> • IE-1000-4T1T-LM, IE-1000-6T2T-LM <ul style="list-style-type: none"> ◦ -20 C to 70 C (vented enclosure operating) ◦ -20 C to 60 C (sealed enclosure operating) ◦ -16 C to 75 C (fan or blower-equipped enclosure operating) • IE-1000-4P2S-LM, IE-1000-8P2S-LM <ul style="list-style-type: none"> ◦ -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) • Operational altitude: Up to 13.8k ft • IEC 60068-2-1 • IEC 60068-2-2 • IEC 60068-2-56 • -40 C to +85 C (storage temperature) • IEC 60068-2-14 (Test Nb) • Storage altitude: Up to 15,000 ft
Mean Time Between Failure (MTBF)	<ul style="list-style-type: none"> • Meantime between failure: 374,052 hours (42.7 years)
Warranty	<ul style="list-style-type: none"> • Five-year limited warranty on all IE-1000 hardware PIDs and all IE power supplies defined in Table 2 previously. See the following link for details on warranty

Table 6. Management and Standards

Description	Specification	Specification
IEEE Standards	<ul style="list-style-type: none"> • IEEE 802.1D MAC bridges, STP • IEEE 802.1p Layer 2 COS prioritization • IEEE 802.1q VLAN • IEEE 802.1s Multiple SpanningTrees • IEEE 802.1w Rapid SpanningTree • IEEE 802.1AB LLDP • IEEE 802.3ad Link Aggregation (LACP) • IEEE 802.3af • IEEE 802.3at 	<ul style="list-style-type: none"> • 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
RFC Compliance	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • RFC 1256: ICMP Router Discovery • RFC 1305: NTP • 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

Description	Specification	Specification
	<ul style="list-style-type: none">• RFC 959: FTP• RFC 1157: SNMPv1• RFC 1901,1902-1907: SNMPv2• RFC 2273-2275: SNMPv3• RFC 1166: IP Addresses	<ul style="list-style-type: none">• RFC 2236: IGMP v2• RFC 2571: SNMP Management• RFC 4250-4252: SSH Protocol

Description	Specification	Specification
SFP Transceivers	<ul style="list-style-type: none"> • GLC-FE-100FX-RGD 2km/MMF • GLC-FE-100FX 2km/MMF • GLC-FE-100LX-RGD 10km/SMF • 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 GigE Copper Transceiver • GLC-SX-MM-RGD 220-550m/MMF • GLC-SX-MM 220-550m/MMF • GLC-SX-MMD 	<ul style="list-style-type: none"> • GLC-LH-SM 550m/MMF, 10km/SMF • GLC-LH-SMD 550m/MMF, 10km/SMF • GLC-LX-SM-RGD 550m/MMF, 10km/SMF • GLC-ZX-SM-RGD 70-100km/SMF • GLC-EX-SMD • GLC-BX-D 10km/SMF • GLC-BX-U 10km/SMF • GLC-BX40-DA 40km/Single Strand SMF • GLC-BX40-U 40km/Single Strand SMF • GLC-BX80-D 80km/Single Strand SMF • GLC-BX80-U 80km/Single Strand SMF • GLC-TE
Simple Network Management Protocol (SNMP) MIB Objects	<ul style="list-style-type: none"> • MIB-II 	

Figures 2 through 5 show the mechanical dimension details of the various IE 1000 models.

Figure 2. IE1000-4T1T-LM

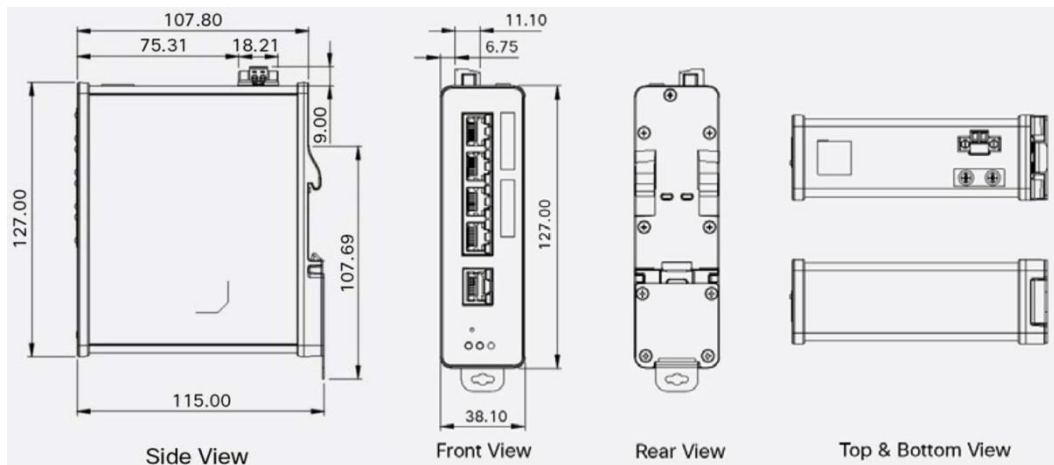


Figure 3. IE1000-6T2T-LM

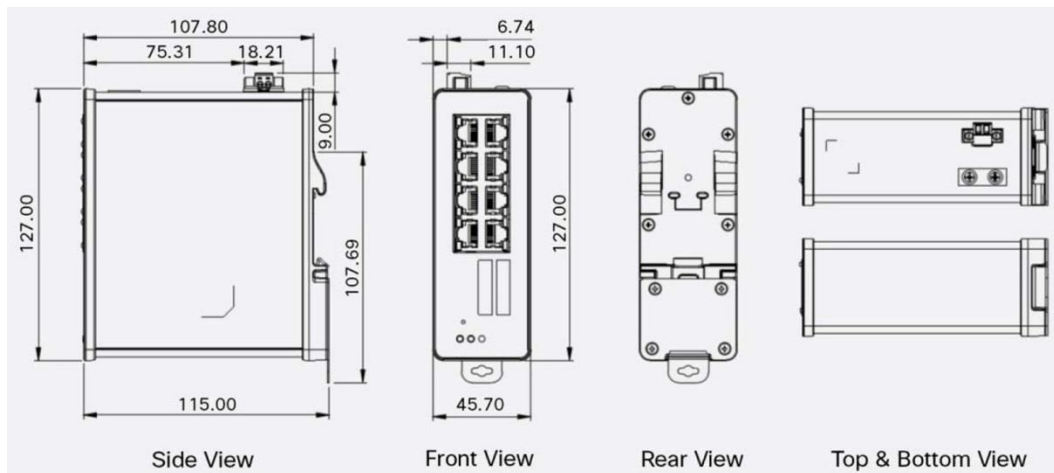


Figure 4. IE1000-4P2S-LM

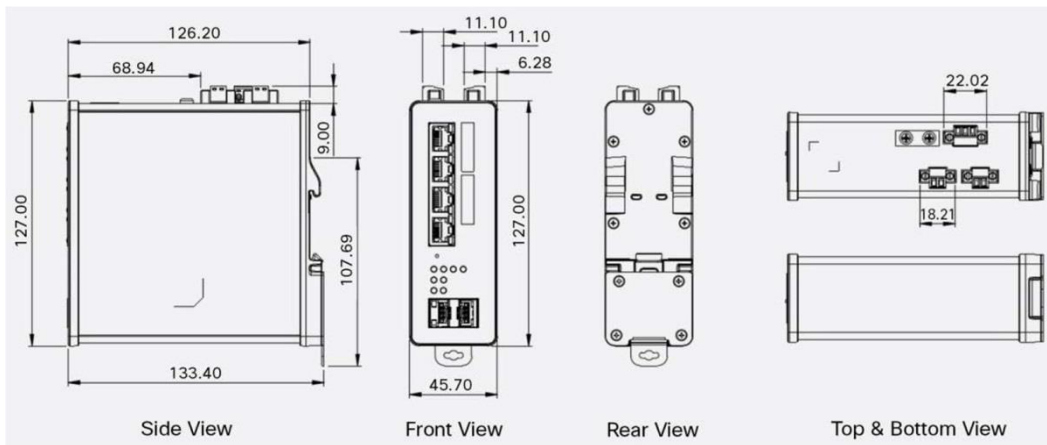
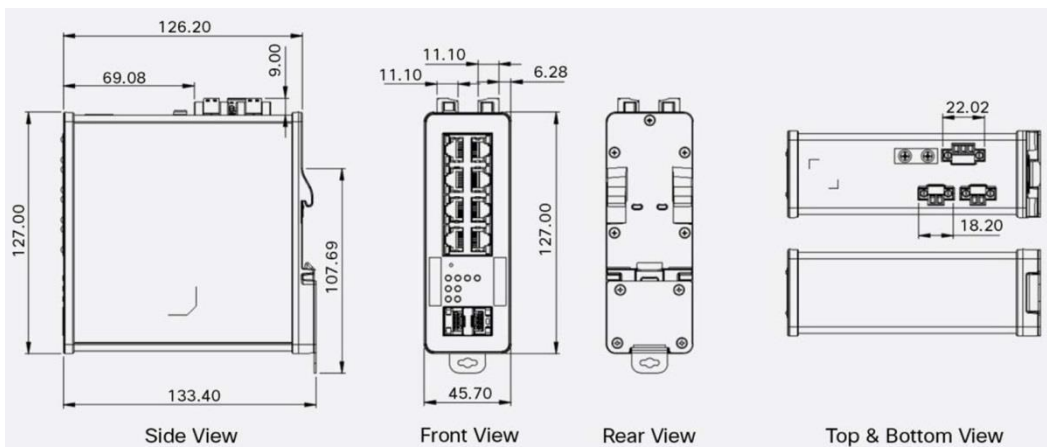


Figure 5. IE1000-8P2S-LM



Warranty Information

Warranty information for the Cisco IE 1000 Series Switches is available at <https://www.cisco-servicefinder.com/warrantyfinder.aspx>.

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For more information about Cisco Services, visit Cisco Technical Support Services or Cisco Advanced Services at <https://connectthedots.cisco.com/connectdots/serviceWarrantyFinderRequest?fl=sf>

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For More Information

For more information about the Cisco IE 1000 Series Switches, visit <https://www.cisco.com/go/ie1000> or contact your local account representative.



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