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.
- **Manageability**: Auto SmartPort, Web Device Manager, Telnet, HTTPS access, SNMP, CNA, and Cisco Prime Infrastructure.
- **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.
- **Layer 3 routing**: IPv4 and IPv6.
- **Industrial PoE**: PoE (IEEE 802.af) and PoE+ (802.3at) supported on selected models.
- **Industrial automation protocols**: EtherNet/IP (CIP) and PROFINET MRP (IEC 62439-2) 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): 1005
- IPv4 MAC security ACEs: 384 (default ternary content-addressable memory [TCAM] template)
- Bidirectional, 128 NAT translation entries
- IPv4 routing: 3500 routes, IPv6 routing: 1750 routes

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

Table 1. Industrial Ethernet 2000 Series Configurations

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Total Ports</th>
<th>RJ45 Ports</th>
<th>Combo Ports</th>
<th>SFP Ports</th>
<th>Manufacturing License</th>
<th>Type of possible Upgrade</th>
<th>IEEE 1588</th>
<th>NAT</th>
<th>PoE(+)</th>
<th>Conformal Coating</th>
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</thead>
<tbody>
<tr>
<td>IE-2000-4TS-L 1</td>
<td>6</td>
<td>4 FE</td>
<td>2 FE</td>
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<td>LAN Lite</td>
<td>3</td>
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<tr>
<td>Product Number</td>
<td>Total Ports</td>
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<td>IE-2000-16PTC-G-E</td>
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<td>IE-2000-16PTC-G-NX</td>
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<td>Enhanced LAN Base</td>
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</table>

*Type of possible Upgrade* Legend:
1: LAN Base to IP Lite Cisco IOS Software Upgrade
2: Enhanced LAN Base to IP Lite Cisco IOS Software Upgrade
3: LAN Lite to LAN Base Cisco IOS Software Upgrade
4: LAN Base to Enhanced LAN Base Cisco IOS Software Upgrade and License Upgrade

Table 2. Accessories and License Upgrade PIDs

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD-IE-1GB=</td>
<td>1 GB Ruggedized SD memory card (must be ordered, not included by default)</td>
</tr>
<tr>
<td>STK-RACKMNT-2955=</td>
<td>19 in. DIN Rail mount kit</td>
</tr>
<tr>
<td>L-IE2000-L-B</td>
<td>IE2000 LAN Lite to LAN Base e-license</td>
</tr>
<tr>
<td>IE2000-L-B</td>
<td>IE2000 LAN Lite to LAN Base paper license</td>
</tr>
<tr>
<td>L-IE2000-B-E</td>
<td>IE2000 LAN Base to Enhanced LAN Base e-license</td>
</tr>
<tr>
<td>IE2000-B-E</td>
<td>IE2000 LAN Base to Enhanced LAN Base paper license</td>
</tr>
<tr>
<td>LIC-IE2000-IP-L</td>
<td>IE2000 LAN Base or Enhanced LAN Base to IPLite e-license</td>
</tr>
<tr>
<td>LIC-MRP-MANAGER=</td>
<td>MRP Ring Manager license</td>
</tr>
<tr>
<td>LIC-MRP-Client=</td>
<td>MRP Ring Client license</td>
</tr>
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</table>

Table 3. Product Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>- 256 MB DRAM with ECC memory</td>
</tr>
<tr>
<td></td>
<td>- IEEE 1588v2 FPGA</td>
</tr>
<tr>
<td></td>
<td>- 64 MB on-board flash memory</td>
</tr>
<tr>
<td></td>
<td>- 1GB removable SD flash memory card (optional)</td>
</tr>
<tr>
<td></td>
<td>- Mini-USB connector</td>
</tr>
<tr>
<td>Alarm</td>
<td>- Alarm I/O: Two alarm inputs to detect dry contact open or close; one alarm output relay</td>
</tr>
</tbody>
</table>
**Table 4. IE 2000 Series Power Supplies**

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Wattage</th>
<th>Rated Nominal Input Operating Range</th>
<th>Supported Input Voltage Operating Range</th>
<th>Power Output</th>
<th>PoE/PoE+ Support</th>
<th>Use Case Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR-IE170W-PC-AC</td>
<td>170W</td>
<td>AC 100-240V/2.3A 50-60Hz or DC 125-250V/2.1A</td>
<td>AC 90-264V or DC 106-300V</td>
<td>54VDC/3.15A</td>
<td>Yes</td>
<td>Maximum PoE/PoE+ port support in a AC or high DC environment</td>
</tr>
<tr>
<td>PWR-IE170W-PC-DC</td>
<td>170W</td>
<td>DC 12-54V/23A</td>
<td>DC 10.8-60V</td>
<td>54VDC/3.15A</td>
<td>Yes</td>
<td>Maximum PoE/PoE+ port support in a DC environment</td>
</tr>
<tr>
<td>PWR-IE50W-AC</td>
<td>50W</td>
<td>AC 100-240V/1.25A 50-60Hz or DC 125-250V/1.25A</td>
<td>AC 90-264V or DC 106-300V</td>
<td>24VDC/2.1A</td>
<td>No</td>
<td>Provides power to main system, not used for PoE in an AC or high DC environment</td>
</tr>
<tr>
<td>PWR-IE50W-AC-IEC</td>
<td>50W</td>
<td>AC 100-240V/1.25A 50-60Hz or DC 125-250V/1.25A</td>
<td>AC 90-264V or DC 106-300V</td>
<td>24VDC/2.1A</td>
<td>No</td>
<td>Provides power to main system, not used for PoE in DC environment</td>
</tr>
<tr>
<td>PWR-IE65W-PC-AC</td>
<td>65W</td>
<td>AC 100-240V/1.4A 50-60Hz or DC 125-250V/1.0A</td>
<td>AC 90-264V or DC 106-300V</td>
<td>54VDC/1.2A</td>
<td>Yes</td>
<td>Supports up to 4 ports PoE or 2 ports PoE+ when used in PoE power input in an AC or high DC environment</td>
</tr>
</tbody>
</table>

- **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 MFM (2 km), -LX SMF (10 km) -ZX SMF (100 km), BX10 SMF (10 km) SFP and CWDM SFP- based ports: LC fiber connectors
  - 10/100/100BASE-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 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-IE170W-PC-AC=: 5.93 x 3.72 x 5.60 in. (150.6 x 94.5 x 142.2mm)
  - PWR-IE170W-PC-DC=: 5.93 x 4.47 x 5.75 in. (150.6 x 113.5 x 145.8mm)

- **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)
  - 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)
  - PWR-IE170W-PC-AC=: 3.88 pounds (1.76 kg)
  - PWR-IE170W-PC-DC=: 3.7 pounds (1.67 kg)

- **Supplies**
  - FX MMF (2 km), ZY SMF (10 km), BX10 SMF (100 km), SFP and CWDM SFP-based ports:
    - 100BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling

- **Power Output**
  - PWR-IE170W-PC-AC: 54VDC/3.15A
  - PWR-IE170W-PC-DC: 54VDC/3.15A
  - PWR-IE50W-AC: 24VDC/2.1A
  - PWR-IE50W-AC-IEC: 24VDC/2.1A
  - PWR-IE65W-PC-AC: 54VDC/1.2A

- **Use Case Scenario**
  - Maximum PoE/PoE+ port support in a AC or high DC environment
  - Maximum PoE/PoE+ port support in a DC environment
  - Provides power to main system, not used for PoE in an AC or high DC environment
  - Provides power to main system, not used for PoE in DC environment
  - Supports up to 4 ports PoE or 2 ports PoE+ when used in PoE power input in an AC or high DC environment

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<table>
<thead>
<tr>
<th>Product Number</th>
<th>Wattage</th>
<th>Rated Nominal Input Operating Range</th>
<th>Supported Input Voltage Operating Range</th>
<th>Power Output</th>
<th>PoE/PoE+ Support</th>
<th>Use Case Scenario</th>
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<tbody>
<tr>
<td>PWR-IE65W- PC-DC=</td>
<td>65W</td>
<td>DC 24-48VDC/4.5A</td>
<td>DC 18-60V</td>
<td>54VDC/1.2 A</td>
<td>Yes</td>
<td>Supports up to 4 ports PoE or 2 ports PoE+ when used in PoE power input in a DC environment</td>
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1 The 170W (both AC and DC) power supplies have enough power for the base unit and the PoE. Connect one power output from the 170W PSU to the main power input of the IE2000, and the other power output of the 170W PSU to the PoE power input of the IE2000.

Table 5. Cisco IE 2000 Software Features

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<th>Features</th>
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<tr>
<td>Security</td>
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<tr>
<td>Multicast</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Industrial Ethernet</td>
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</tr>
<tr>
<td>LAN Base License</td>
<td>Additional Features</td>
</tr>
<tr>
<td>Layer 2 Switching</td>
<td>VTPv3, EtherChannel, Voice VLAN, Flexlink</td>
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<tr>
<td>Security</td>
<td>IPv4 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, Access-List (ACL)</td>
</tr>
<tr>
<td>Quality of Service</td>
<td>IPv4 Ingress Policing, Rate-Limit, Egress Queueing/Shaping, AutoQoS</td>
</tr>
<tr>
<td>Management</td>
<td>Port-Based DHCP, Storm Control - Unicast, Multicast, Broadcast, SPAN Sessions, RSPAN, DHCP Server, Customized TCAM/SDM Size Configuration, Embedded Event Manager (EEM)</td>
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<tr>
<td>Industrial Ethernet</td>
<td>IEEE 1588 PTPv2,</td>
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<tr>
<td>IPv4 Routing</td>
<td>IPv4 static routing</td>
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<tr>
<td>IPv6 Routing</td>
<td>IPv6 host support, HTTP over IPv6, SNMP over IPv6</td>
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<td>Enhanced LAN Base</td>
<td>Additional Features</td>
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<tr>
<td>Industrial Management</td>
<td>Layer 2 switching with 1:1 static Network Address Translation (NAT)</td>
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<tr>
<td>IP Lite License</td>
<td>Additional Features</td>
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<tr>
<td>IPv4 Routing</td>
<td>RIP, OSPF, EIGRP, VRF Lite</td>
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<tr>
<td>IPv6 Routing</td>
<td>IPv6 Static routing, OSPFv3</td>
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<tr>
<td>Security</td>
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<td>Embedded Event Manager</td>
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Table 6. Compliance Specifications

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<th>Specification</th>
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<td>UL/CSA 60950-1</td>
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</tr>
<tr>
<td>EN 60950-1</td>
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</tr>
<tr>
<td>CB to IEC 60950-1 (with country deviations)</td>
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<tr>
<td>NOM to NOM-019-SCF1 (through partners and distributors)</td>
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</tr>
<tr>
<td>CE Marking</td>
<td></td>
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<tr>
<td>Hazard Location</td>
<td></td>
</tr>
<tr>
<td>ANSI/ISA 12.12.01 (Class1, Div2 A-D)</td>
<td></td>
</tr>
<tr>
<td>EN 60079-0, -15 ATEX Certificate (Class 1, Zone2 A-D)</td>
<td></td>
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<tr>
<td>Cabinet enclosure required</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Specification</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **EMC Emissions and Immunity Compliance** | • FCC 47 CFR Part 15 Class A  
• EN 55022A Class A  
• VCCI 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 - Korea  
• CE Marking  
• C-Tick (Australia)  
• Russia certification  
• Brazil certification  
• China certification  
• Russia certification  
• Brazil certification  
• IEC/EN/EN61000-4-2 (Electro Static Discharge), 15kV air/8kV contact  
• IEC/EN 61000-4-3 (Radiated Immunity, 10 and 20 V/m)  
• IEC/EN 61000-4-4 (Fast Transients - 4kV power line, 4kV data line)  
• IEC/EN 61000-4-5 (Surge 2 kV/1 kV)  
• IEC/EN 61000-4-6 (Conducted Immunity, 10 V/ emf)  
• 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 61000-4-29 (Voltage Dips Immunity)  
• IEC/EN 61000-6-1 (Immunity for Light Industrial Environments)  
• IEC/EN 61000-6-2 (Immunity for Industrial Environments)  
• IEC/EN 61000-6-4 Class A  
• EN 61326  |
| **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**             | • UL508  
• CSA C22.2 No. 142  
• EN 61131-2 (EMC/EMI, environmental, mechanical)  
• Protective coating (specific models only)  
• Marine Dnv  
• Substation KEMA (IEEE 1613, IEC 61850-3)  
• Railway EN 50155 (EMI/EMC, environmental, mechanical)  
• EN50121-3-2  
• EN50121-4  
• NEMA TS-2 (EMC, environmental, mechanical)  
• ABB Industrial IT certification  
• IP30  
• ODVA Industrial Ethernet/IP support  
• PROFINETv2.3 support  |
| **Corrosive Testing**              | • ISO-12944-6  
• 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)  
• Operational altitude: Up to 15,000 ft  |
### Management and Standards

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
</table>
| **IEEE Standards** | - IEEE 802.1D MAC bridges, STP  
- IEEE 802.1p Layer 2 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 150W DC power to each end device  
- IEEE 802.3z 1000BASE-T  
- IEEE 802.3ab 100BASE-TX specification  
- IEEE 802.32 1000BASE-X specification  
- IEEE 1588v2 PTP Precision Time Protocol | - 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 100BASE-T specification  
- IEEE 802.3z 1000BASE-X specification  
- RFC 1057 Telnet  
- RFC 1290 Bootstrap Protocol  
- RFC 1305 NTP  
- RFC 1336 SMF/MMF only  
- RFC 1416 Bridge MIB Objects  
- RFC 1492 TACACS+  
- RFC 1534 DHCP and BootP interoperation  
- RFC 1542 Bootstrap Protocol  
- RFC 1634 Ethernet Interface MIB  
- RFC 1757 RMON  
- RFC 2046 HTTP  
- RFC 2131, 2132: DHCP  
- RFC 2236 IGMP v2  
- RFC 2376 IGMP v3  
- RFC 2474 DiffServ Precedence  
- RFC 3046 DHCP Relay Agent Information Option  
- RFC 3580: 802.1x RADIUS  
- RFC 4250-4252 SSH 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 915: 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 |
| **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-SNMP-TARGET-EXT-MIB  
- CISCO-STACK-MIB  
- CISCO-STACKMAKER-MIB  
- CISCO-TP-POLICY-MIB  
- CISCO-TP-EXTENSIONS-MIB  
- CISCO-SYSLOG-MIB  
- CISCO-TC-P-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 |
### Table 8. SFP Transceivers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Specification</th>
<th>SFP Type</th>
<th>Max Distance</th>
<th>Cable Type</th>
<th>Temp Range</th>
<th>DOM Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLC-FE-100FX-RGD</td>
<td>100BASE-FX</td>
<td>FE</td>
<td>2km</td>
<td>MMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-FE-100LX-RGD</td>
<td>100BASE-LX10</td>
<td>FE</td>
<td>10km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-FE-T-Lt</td>
<td>100BASE-T</td>
<td>FE</td>
<td>100m</td>
<td>Copper</td>
<td>IND</td>
<td>NA</td>
</tr>
<tr>
<td>GLC-FE-100FX-Lt</td>
<td>100BASE-FX</td>
<td>FE</td>
<td>2km</td>
<td>SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-FE-100LX-Lt</td>
<td>100BASE-LX10</td>
<td>FE</td>
<td>10km</td>
<td>SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-FE-100EX</td>
<td>100BASE-EX</td>
<td>FE</td>
<td>40km</td>
<td>SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-FE-1002X</td>
<td>100BASE-ZX</td>
<td>FE</td>
<td>80km</td>
<td>SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-FE-1008X-Dt</td>
<td>100BASE-BX10</td>
<td>FE</td>
<td>10km</td>
<td>SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-SX-MM-RGD</td>
<td>100BASE-SX</td>
<td>GE</td>
<td>550m</td>
<td>MMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-LX-MM-RGD</td>
<td>100BASE-LX/LH</td>
<td>GE</td>
<td>550m/10km</td>
<td>MMF/SMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-ZX-MM-RGD</td>
<td>100BASE-ZX</td>
<td>GE</td>
<td>70km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
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<tr>
<td>GLC-BX40-U-Ht</td>
<td>100BASE-BX40</td>
<td>GE</td>
<td>40km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
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<tr>
<td>GLC-BX40-D-Ht</td>
<td>100BASE-BX40</td>
<td>GE</td>
<td>40km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-BX40-DA-Ht</td>
<td>100BASE-BX40</td>
<td>GE</td>
<td>40km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-BX80-U-Ht</td>
<td>100BASE-BX80</td>
<td>GE</td>
<td>80km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
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<tr>
<td>GLC-BX80-D-Ht</td>
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<td>GE</td>
<td>80km</td>
<td>SMF</td>
<td>IND</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-SX-MMD</td>
<td>100BASE-SX</td>
<td>GE</td>
<td>550m</td>
<td>MMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-LH-SMD</td>
<td>100BASE-LX/LH</td>
<td>GE</td>
<td>550m/10km</td>
<td>MMF/SMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>Part Number</td>
<td>Specification</td>
<td>SFP Type</td>
<td>Max Distance</td>
<td>Cable Type</td>
<td>Temp Range</td>
<td>DOM Support</td>
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<tr>
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<td>--------------</td>
<td>------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>GLC-EX-MMD=</td>
<td>1000BASE-EX</td>
<td>GE</td>
<td>40km</td>
<td>SMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-ZX-MMD=</td>
<td>1000BASE-ZX</td>
<td>GE</td>
<td>70km</td>
<td>SMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-BX-D=</td>
<td>1000BASE-BX10</td>
<td>GE</td>
<td>10km</td>
<td>SMF</td>
<td>COM</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-BX-U=</td>
<td>1000BASE-BX10</td>
<td>GE</td>
<td>10km</td>
<td>SMF</td>
<td>COM</td>
<td>Yes</td>
</tr>
<tr>
<td>CWDM-SFP-xxxx= (8 freq)</td>
<td>CWDM 1000BASE-X</td>
<td>GE</td>
<td>SMF</td>
<td>COM</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>DWDM-SFP-xxxx= (40 freq)</td>
<td>DWDM 1000BASE-X</td>
<td>GE</td>
<td>SMF</td>
<td>COM</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>SFP-GE-S=</td>
<td>1000BASE-SX</td>
<td>GE</td>
<td>550m</td>
<td>MMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>SFP-GE-L=</td>
<td>1000BASE-LX/LH</td>
<td>GE</td>
<td>550m/10km</td>
<td>MMF/SMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>SFP-GE-Z=</td>
<td>1000BASE-ZX</td>
<td>GE</td>
<td>70km</td>
<td>SMF</td>
<td>EXT</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-SX-MM=</td>
<td>1000BASE-SX</td>
<td>GE</td>
<td>550m</td>
<td>MMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-LH-SM=</td>
<td>1000BASE-LX/LH</td>
<td>GE</td>
<td>550m/10km</td>
<td>MMF/SMF</td>
<td>COM</td>
<td>No</td>
</tr>
<tr>
<td>GLC-ZX-SM=</td>
<td>1000BASE-ZX</td>
<td>GE</td>
<td>70km</td>
<td>SMF</td>
<td>COM</td>
<td>Yes</td>
</tr>
<tr>
<td>GLC-TE=</td>
<td>1000BASE-T</td>
<td>GE</td>
<td>100m</td>
<td>Copper</td>
<td>EXT</td>
<td>NA</td>
</tr>
<tr>
<td>GLC-T=</td>
<td>1000BASE-T</td>
<td>GE</td>
<td>100m</td>
<td>Copper</td>
<td>COM</td>
<td>NA</td>
</tr>
</tbody>
</table>


MMF = multi-mode fiber
SMF = Single-mode fiber

**Warranty Information**


**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 9.** Cisco Services and Support Programs

<table>
<thead>
<tr>
<th>Service and Support</th>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cisco Total Implementation Solutions (TIS), available directly from Cisco</td>
<td>• Project management</td>
<td>• Supplements existing staff</td>
</tr>
<tr>
<td>• Cisco Packaged TIS, available through resellers</td>
<td>• Site survey, configuration, and deployment</td>
<td>• Helps ensure that functions meet needs</td>
</tr>
<tr>
<td>• Cisco SMARTnet® and SMARTnet Onsite support, available directly from Cisco</td>
<td>• Installation, text, and cutover</td>
<td>• Mitigates risk</td>
</tr>
<tr>
<td>• Cisco Packaged SMARTnet support program, available through resellers</td>
<td>• Training</td>
<td>• Helps enable proactive or expedited issue resolution</td>
</tr>
<tr>
<td>• Cisco SMB Support Assistant</td>
<td>• Major moves, adds, and changes</td>
<td>• Lowers TCO by taking advantage of Cisco expertise and knowledge</td>
</tr>
<tr>
<td></td>
<td>• Design review and product staging</td>
<td>• Reduces network downtime</td>
</tr>
<tr>
<td></td>
<td>• 24-hour access to software updates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Web access to technical repositories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Telephone support through the Cisco Technical Assistance Center (TAC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Advance replacement of hardware parts</td>
<td></td>
</tr>
</tbody>
</table>
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Asia Pacific Headquarters Cisco Systems (USA) Pte. Ltd. Singapore
Europe Headquarters Cisco Systems International BV Amsterdam, The Netherlands

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