

Cisco Industrial Ethernet 3000 Layer 2/Layer 3 Series Switches

Product overview

The Cisco® Industrial Ethernet 3000 Series (IE 3000 Series) is a family of Layer 2 and Layer 3 switches that bring Cisco's leadership in switching to Industrial Ethernet applications with Innovative features, robust security, and superior ease of use. The Cisco IE 3000 Series features:

- Industrial design and compliance
- Tools for easy deployment, management, and replacement
- Network security based on open standards
- Integration of IT and industrial automation networks

The Cisco IE 3000 Series is an ideal product for Industrial Ethernet applications, including factory automation, energy and process control, and Intelligent Transportation Systems (ITSs).

The Cisco IE 3000 offers:

- Design for Industrial Ethernet applications, including extended environmental, shock/vibration, and surge ratings; a complete set of power input options; convection cooling; and DIN-rail or 19" rack mounting
- Support for Power over Ethernet (PoE) up to 15.4W per port
- Support for Power over Ethernet Plus (PoE+) for the PoE+ capable devices up to 30W per port
- Easy setup and management using Cisco DNA Center software and the Cisco Device Manager web interface and supporting tools, including Cisco Network Assistant (CNA) and Cisco Prime LMS 4.2
- Easy switch replacement using removable memory, allowing the user to replace a switch without having to reconfigure
- High availability, guaranteed determinism, and reliable security using Cisco IOS® Software
- Recommended software configurations for industrial applications that can be applied at the touch of a button
- Compliance to a wide range of Industrial Ethernet specifications covering industrial automation, ITS, substation, railway, and other markets
- Support for IEEE1588v2, a precision timing protocol with nanosecond-level precision for high-performance applications
- Improved ring resiliency with the support of Resilient Ethernet Protocol (REP)
- Transparent IT integration with the support of Layer 3 routing protocols (IP Services)
- PROFINET v2 certification, with PROFINET conformance class B compliance
- ABB Industrial IT certification

Configurations

The Cisco IE 3000 Series software, based on Cisco IOS Software, is a rich suite of intelligent services, supporting high availability, Quality of Service (QoS), and security features.



The Cisco IE 3000 Series includes the products listed in Table 1.

Table 1. Cisco IE 3000 Switches




Description	Specification
Cisco IE-3000-4TC 	<ul style="list-style-type: none"> • 4 Ethernet 10/100 ports and 2 dual-purpose uplinks (each dual-purpose uplink port has one active port either 10/100/1000 copper or SFP fiber) • Support up to two expansion modules with various combinations • DC input range 18VDC-60VDC • Layer 2 LAN Base Image
Cisco IE-3000-4TC-E	<ul style="list-style-type: none"> • Same as IE-3000-4TC with Layer 3 IP Services Image
Cisco IE-3000-8TC 	<ul style="list-style-type: none"> • 8 Ethernet 10/100 ports and 2 dual-purpose uplinks (each dual-purpose uplink port has one active port either 10/100/1000 copper or SFP fiber) • Support up to two expansion modules with various combinations • DC input range 18VDC-60VDC • Layer 2 LAN Base Image
Cisco IE-3000-8TC-E	<ul style="list-style-type: none"> • Same as IE-3000-8TC with Layer 3 IP Services Image
Cisco IEM-3000-8TM= 	<ul style="list-style-type: none"> • Expansion copper Module for Cisco IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, eight 10/100 TX ports

Table 3. Cisco IE 3000 Series switch hardware

Description	Specification
Performance	<ul style="list-style-type: none"> • Wire-speed switching, 16 Gbps switching fabric • Forwarding rate based on 64-byte packets: 6.5 Mpps • 128 MB DRAM • 64 MB Compact Flash memory • Configurable up to 8000 MAC addresses (Layer 2) • Configurable up to 2000 MAC addresses (Layer 3) • Configurable up to 256 IGMP multicast groups (Layer 2) • Configurable up to 1000 IGMP groups and multicast routes (Layer 3) • Configurable up to 3,000 unicast routes (Layer 3) • Support jumbo frames up to 9018 bytes on Gigabit uplink port and mini-jumbo frame (system MTU) up to 1998 bytes on both 10/100 and 10/100/1000 ports
Connectors and cabling	<ul style="list-style-type: none"> • 10BASE-T ports: RJ-45 connectors, two-pair Category 3, 4, or 5 Unshielded Twisted-Pair (UTP) cabling • 100BASE-TX ports: RJ-45 connectors, two-pair Category 5 UTP cabling • 1000BASE-T ports: RJ-45 connectors, four-pair Category 5 UTP cabling • 1000BASE-SX, -LX/LH, -ZX SFP-based ports: LC fiber connectors (single/multimode fiber) • 100BASE-LX10, -FX: LC fiber connectors (single/multimode fiber)
Indicators	<ul style="list-style-type: none"> • Per-port status LED: Link integrity, disabled, activity, speed, full-duplex indications • System-status LED: System, link status, link duplex, link speed, indications
Dimensions (H x W x D)	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-4TC-E: 6.0"W x 5.8"H x 4.4"D (152mm W x 147mm H x 112mm D) • Cisco IE-3000-8TC, Cisco IE-3000-8TC-E: 6.0"W x 5.8"H x 4.4"D (152mm W x 147mm H x 112mm D) • Cisco IEM-3000-8TM=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco IEM-3000-8FM=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco IEM-3000-4SM=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco IEM-3000-8SM=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco IEM-3000-4PC=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco IEM-3000-4PC-4TC=: 3.5"W x 5.8"H x 4.4"D (89mm W x 147mm H x 112mm D) • Cisco PWR-IE50W-AC=: 2.0"W x 5.8"H x 4.4"D (51mm W x 147mm H x 112mm D) • Cisco PWR-IE50W-AC-IEC=: 2.0"W x 5.8"H x 4.4"D (51mm W x 147mm H x 112mm D) • Cisco PWR-IE65W-PC-AC=: 2.6"W x 5.9"H x 4.6"D (66mm W x 150mm H x 117mm D) • Cisco PWR-IE65W-PC-DC=: 2.6"W x 5.9"H x 4.6"D (66mm W x 150mm H x 117mm D)
Weight	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-4TC-E: 4.4 lb (2.0 kg) • Cisco IE-3000-8TC, Cisco IE-3000-8TC-E: 4.4 lb (2.0 kg) • Cisco IEM-3000-8TM=: 2.2 lb (1.0 kg) • Cisco IEM-3000-8FM=: 3.2 lb (1.45 kg) • Cisco IEM-3000-4SM=: 2.5 lb (1.1 Kg) • Cisco IEM-3000-8SM=: 3.0 lb (1.38 Kg) • Cisco IEM-3000-4PC=: 2.4 (1.08 Kg) • Cisco IEM-3000-4PC-4TC=: 2.5 (1.16 Kg) • Cisco PWR-IE50W-AC=: 1.4 lb (0.65 kg) • Cisco PWR-IE50W-AC-IEC=: 1.4 lb (0.65kg) • Cisco PWR-IE65W-PC-DC=: 2.6 (1.18 Kg) • Cisco PWR-IE65W-PC-AC=: 2.7 (1.24 Kg)
Operating environment	<p>Operating temperature: -40C to +75C</p> <ul style="list-style-type: none"> • -40C to +70C (Vented Enclosure – 40 LFM Air Flow) • -40C to +60C (Sealed Enclosure – 0 LFM Air Flow) • -24C to +75C (Fan or Blower equipped Enclosure – 200 LFM Air Flow) • -40C to +85C (IEC 60068-2-2 Environmental Type Testing – 16 hours) • Storage temperature: -40C to +85C • Operating relative humidity: 10 to 95% (non-condensing) • Operating altitude: Up to 13,000 ft (3963m) • Storage altitude: Up to 15,000 ft (4573m)

Description	Specification
Mean Time Between Failures (MTBF)	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-4TC-E: 363,942 • Cisco IE-3000-8TC, Cisco IE-3000-8TC-E: 329,451 • Cisco IEM-3000-8TM=: 926,999 • Cisco IEM-3000-8FM=: 264,689 • Cisco IEM-3000-4SM=: 8,887,990 • Cisco IEM-3000-8SM=: 7,732,890 • Cisco IEM-3000-4PC=: 1,494,990 • Cisco IEM-3000-4PC-4TC=: 1,291,440 • Cisco PWR-IE50W-AC=: 1,662,359 • Cisco PWR-IE50W-AC-IEC=: 1,662,359 • Cisco PWR-IE65W-PC-DC=: 2,468,430 • Cisco PWR-IE65W-PC-AC=: 2,488,401

Table 4. Power specifications for Cisco IE 3000 Series switches

Description	Specification
Maximum power consumption	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-4TC-E: 15.1W • Cisco IE-3000-8TC, Cisco IE-3000-8TC-E: 15.7W • Cisco IEM-3000-8TM=: 2.8W • Cisco IEM-3000-8FM=: 10.1W • Cisco IEM-3000-4SM=: 7.6W • Cisco IEM-3000-8SM=: 12.2W • Cisco IEM-3000-4PC=: 7.3W • Cisco IEM-3000-4PC-4TC=: 7.9W
Input voltage and currents supported	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-8TC, 18-60VDC • Cisco IEM-3000-4PC=: IEM-3000-4PC-4TC=: 44-57V input • Cisco PWR-IE50W-AC=: 100-240VAC/1.25A or 125-250VDC/1A • Cisco PWR-IE50W-AC-IEC=: 100-240VAC/1.25A, 50-60Hz • Cisco PWR-IE65W-PC-DC=: 18-60VDC/4.3A • Cisco PWR-IE65W-PC-AC=: 100-240VAC/1.4A or 125-250V/1A
Power rating	<ul style="list-style-type: none"> • Cisco IE-3000-4TC, Cisco IE-3000-4TC-E: .05KVA • Cisco IE-3000-8TC, Cisco IE-3000-8TC-E: .05KVA

Table 5. Cisco IE 3000 Cisco DNA Essentials

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

Table 6. SFP transceivers support for Cisco IE 3000 Series switches

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-T-I=	100BASE-T	FE	100m	Copper	IND	NA
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

Description	Specification
IE-3000-8TC-E	<ul style="list-style-type: none"> Industrial Ethernet switch 8 Ethernet 10/100 ports and 2 dual-purpose uplinks (each dual-purpose uplink port has 1 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) Each switch supports 2 Cisco IEM-3000-8TM= modules, 1 Cisco IEM-3000-8FM= module, or 1 Cisco IEM-3000-8TM= module and 1 Cisco IEM-3000-8FM= module Layer 3 IP Services image installed
IEM-3000-8TM=	<ul style="list-style-type: none"> Expansion Copper module for Cisco IE-3000-4TC and IE-3000-8TC switches 8 10/100 TX ports
IEM-3000-8FM=	<ul style="list-style-type: none"> Expansion Fiber module for Cisco IE-3000-4TC and IE-3000-8TC switches 8 100 FX ports
IEM-3000-4SM=	<ul style="list-style-type: none"> Expansion SFP module for Cisco IE-3000-4TC and IE-3000-8TC switches 4 100M SFP ports
IEM-3000-8SM=	<ul style="list-style-type: none"> Expansion SFP module for Cisco IE-3000-4TC and IE-3000-8TC switches 8 100M SFP ports
IEM-3000-4PC=	<ul style="list-style-type: none"> Expansion PoE/PoE+ module for Cisco IE-3000-4TC and IE-3000-8TC switches 4 10/100 PoE/PoE+ ports External PoE power source (44-57 VDC for PoE/50-57 VDC for PoE+)
IEM-3000-4PC-4TC=	<ul style="list-style-type: none"> Expansion PoE/PoE+ module for Cisco IE-3000-4TC and IE-3000-8TC switches 4 non-PoE ports and 4 10/100 PoE/PoE+ ports External PoE power source (44-57 VDC for PoE/50-57 VDC for PoE+)
PWR-IE50W-AC=	<ul style="list-style-type: none"> Expansion power module for IE-3000-4TC and IE-3000-8TC switches
PWR-IE50W-AC-IEC=	<ul style="list-style-type: none"> Expansion power module for IE-3000-4TC and IE-3000-8TC switches
PWR-IE65W-PC-AC=	<ul style="list-style-type: none"> AC-DC, 54VDC power module to support 65 watts for PoE/PoE+ modules
PWR-IE65W-PC-DC=	<ul style="list-style-type: none"> DC-DC, 54VDC power module to support 65 watts for PoE/PoE+ modules
CAB-SM-LCSC-1M	<ul style="list-style-type: none"> 1m-fiber single-mode LC-to-SC connectors
CAB-SM-LCSC-5M	<ul style="list-style-type: none"> 5m-fiber single-mode LC-to-SC connectors
CF-IE3000=	<ul style="list-style-type: none"> IE 3000 Compact Flash
PWR-IE3000-CLP=	<ul style="list-style-type: none"> IE 3000 Power Transformer Spare connector clip
PWR-IE3000-CNCT=	<ul style="list-style-type: none"> IE 3000 Power Spare connector
LPNL-IE3000=	<ul style="list-style-type: none"> IE 3000 Left Panel Spare
RPNL-IE3000=	<ul style="list-style-type: none"> IE 3000 Right Panel Spare
DINCLP-IE3000=	<ul style="list-style-type: none"> Din-rail clip 4 pack Spare
BMP-IE3000=	<ul style="list-style-type: none"> Din-rail clip bumper 4 pack Spare
STK-RACKMNT-2955=	<ul style="list-style-type: none"> Din-rail adapter for rack mounting
IE-SW-SPARE	<ul style="list-style-type: none"> Spare IOS software upgrade part number (L2 to L3 features)
IE3000-DNA-E-L	<ul style="list-style-type: none"> Cisco DNA Essentials license
IE3000-DNA-E-L-3Y	<ul style="list-style-type: none"> Cisco DNA Essentials 3-year term license option
IE3000-DNA-E-L-5Y	<ul style="list-style-type: none"> Cisco DNA Essentials 5-year term license option