

Cisco IE 3000 Series

Q. What is the Cisco IE 3000 Series?

A. The Cisco® Industrial Ethernet 3000 (IE 3000) Series is a new family of switches that provides a rugged, easy-to-use, secure switching infrastructure for harsh environments. The Cisco IE 3000 family features:

- Industrial design and compliance
- Tools for ease of deployment, management, and replacement
- Network security based on open standards

The Cisco IE 3000 is an ideal product for Industrial Ethernet applications, including factory automation, intelligent transportation systems, power utilities, and other deployments in harsh environments.

Q. What are the applications?

A. The new Cisco IE 3000 Series is an ideal product for a variety of Industrial Ethernet applications:

- **Industrial automation:** The Cisco IE 3000 is designed to support a wide array of Industrial Ethernet protocols for automation. The Cisco IE 3000 features a programmable logic controller (PLC) form-factor design with extended environmental ratings, convection cooling, DIN-rail mounting, redundant 24VDC power input, alarm relays, and surge/noise immunity. The Cisco IE 3000 software and configuration tools allow for easy setup, optimized for Industrial Ethernet applications. Multicast control, traffic prioritization, and security features are specified in default templates recommended for these configurations.
- **Intelligent transportation systems (ITSs):** The Cisco IE 3000 supports ITSs and other applications for outdoor video and traffic or transportation systems control. The switch supports compliance to National Electrical Manufacturers Association (NEMA) TS2, a variety of gigabit fiber uplinks, and AC and DC power input options, while the Cisco IOS® Software supports critical ITS features, including virtual LAN (VLAN), quality of service (QoS), Internet Group Management Protocol (IGMP) snooping, and security access control lists (ACLs).
- **Power utilities:** The Cisco IE 3000 is fully compliant to International Electrotechnical Commission (IEC) 61850 and IEEE 1613, making it ideal for power utility substation integration/automation projects. The switch supports high-speed ring recovery, fiber access and uplink ports, and a variety of power input options for the substation environments.
- **Other applications:** The Cisco IE 3000 can be deployed in railway, military, Metro Ethernet, and other applications requiring unique environmental, form factor, or power inputs in harsh environments.

Q. What are the configurations?

A. The Cisco IE 3000 Series solution supports hundreds of customized configurations using a modular design that allows for a variety of interfaces. The configurations are extendable from 4-port to 24-port combinations and a variety of copper and fiber options.

The Cisco IE 3000 Series includes the following products:

- **Cisco IE-3000-4TC:** Industrial Ethernet switch with four Ethernet 10/100 ports and two dual-purpose uplink ports (a dual-purpose port has one 10/100/1000BaseTX port and one Small Form-Factor Pluggable [SFP] port, port active).
- **Cisco IE-3000-4TC-E:** Same as IE-3000-4TC with Layer 3 IP Services image.
- **Cisco IE-3000-8TC:** Industrial Ethernet switch with eight Ethernet 10/100 ports and two dual-purpose uplink ports.
- **Cisco IE-3000-8TC-E:** Same as IE-3000-8TC with Layer 3 IP Services image.
- **Cisco IEM-3000-8TM=:** Expansion module for Cisco IE-3000-4TC, Cisco IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E with eight Ethernet 10/100 ports.
- **Cisco IEM-3000-8FM=:** Expansion module for Cisco IE-3000-4TC, Cisco IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E with eight 100BaseFX ports.
- **Cisco IEM-3000-4SM=:** Expansion SFP module for IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, with four 100MB SFP ports (minimum Cisco IOS Software release 15.0(2)EY).
- **Cisco IEM-3000-8SM=:** Expansion SFP module for IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, with eight 100MB SFP ports (minimum Cisco IOS Software release 15.0(2)EY).
- **Cisco IEM-3000-4PC=:** Expansion PoE module for IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, support four ports 10/100 PoE/PoE+; external power source is required (44-57 VDC for PoE/50-57 VDC for PoE+) (minimum Cisco IOS Software release 15.0(2)EY2).
- **Cisco IEM-3000-4PC-4TC=:** Expansion PoE module for IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, support four ports 10/100 PoE/PoE+ and four ports non-PoE ports; external power source is required (44-57 VDC for PoE/50-57 VDC for PoE+) (minimum Cisco IOS Software release 15.0(2)EY2).
- **Cisco PWR-IE3000-AC:** Expansion module supporting AC and extended DC power inputs.
- **Cisco PWR-IE50W-AC=:** Expansion power module for Cisco IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, supports 110/220VAC and 88-300VDC input, 24VDC/2.1 amp output, DIN-rail mount, compatible with PWR-IE3000-AC.
- **Cisco PWR-IE50W-AC-IEC=:** Expansion power module for Cisco IE-3000-4TC, IE-3000-8TC, IE-3000-4TC-E, and IE-3000-8TC-E switches, supports 110/220 VAC input, 24 VDC/2.1 amp output, IEC plug, DIN-rail mount.
- **Cisco PWR-IE65W-PC-AC=:** AC-DC power module for PoE solution, 110/220 VAC and 88-300 VDC input, 54VDC/1.2 amp output, DIN-rail mount.
- **Cisco PWR-IE65W-PC-DC=:** DC-DC power module for PoE solution, 18-60 VDC/4.3 Amp Input, 54 VDC/1.2 amp output, DIN-rail mount.

Each switch supports up to two Cisco IEM-3000-8TM= modules, one Cisco IEM-3000-8FM= module, or one Cisco IEM-3000-8TM= module and one Cisco IEM-3000-8FM= module.

Q. What are zero-configuration replacement and the Cisco IE SwapDrive?

A. This unique ease-of-use feature helps ensure a speedy recovery in the case of hardware failure. The Cisco IE SwapDrive is a flash memory component containing all critical switch attributes. Upon a failure the Cisco IE SwapDrive can be quickly swapped out into a new switch with no reconfiguration or IT expertise needed.

Q. How is the Cisco IE 3000 easily set up, deployed, and managed?

A. The Express Set-Up Wizard gets the switch configured and running quickly and easily. Just power up the Cisco IE 3000, give the switch an IP address through the onboard web-based GUI, and the switch is ready to be configured. Smartports are included for one-touch configuration for industrial automation.

The Cisco IE 3000 Series is based on the Cisco Catalyst® switch architecture and feature set. Utilizing Cisco IOS Software, the Cisco IE 3000 can be managed with command-line interface commands or Cisco Device Manager.

The Cisco IE SwapDrive allows for a zero-configuration replacement in case of a hardware failure.

Q. What are the ease-of-use features?

A.

- Cisco Express Setup simplifies initial configuration with a web browser, eliminating the need for more complex terminal emulation programs.
- Cisco Smartports templates provide the option to apply a default global or interface-level macro with a recommended configuration, allowing the user to easily set up the switch in a configuration optimized for the specific application.
- Smartports templates for Ethernet/IP provide an optimized setup for these Industrial Ethernet protocols at the touch of a button.
- Cisco IE SwapDrive is ideal for quick and easy switch replacement. Memory can be moved from one switch to another, so a switch can be replaced without the need to reconfigure software features.
- Common Industrial Protocol (CIP) management objects are supported. They include a custom profile for primary Ethernet switch features. The Cisco IE 3000 can be managed by CIP-based management tools, allowing the user to manage an entire industrial automation system with one tool.
- Simple Network Management Protocol (SNMP) (v1/v2/v3) support allows for management using traditional IT-based management tools, including CiscoWorks.
- Cisco Network Assistant is a no-charge, Windows-based application that simplifies the administration of networks of up to 250 users. It supports the Cisco IE 3000 and a wide range of Cisco Catalyst intelligent switches. With Cisco Network Assistant, users can manage Cisco Catalyst switches and launch the device managers of Cisco integrated services routers and Cisco Aironet® WLAN access points. Configuration wizards need just a few user inputs to automatically configure the switch to optimally handle different types of traffic: control, voice, video, multicast, and high-priority data.

Q. What software is supported on the Cisco IE 3000?

A. The Cisco IE 3000 Series supports the LAN Base image, which is a Layer 2+ feature set as well as the IP Services image.

Q. What are the primary features for industrial automation?

A.

- Extended temperature, vibration, shock, surge, and noise immunity ratings comply with specifications for industrial automation environments.
- Compact, PLC-style form factor is ideal for deployment in industrial environments.
- DIN-rail, wall, and 19" rack mount options allow for deployments in a variety of control systems.
- 24/48/125VDC and 100-220VAC power input options cover a wide range of power requirements for Industrial Ethernet applications.
- Up to 300 deployment configurations, supporting a range of access port densities, copper and fiber uplinks, fiber access ports, and power input, deliver flexibility in deployment.
- Support for SFP modules provides uplink connectivity supporting 100BASE-LX, 100BASE-FX, 1000BASE-SX, 1000BASE-LX, and 1000BASE-ZX options.
- Includes alarm relay contacts for external alert systems.
- CIP management objects are supported. They include a custom profile for primary Ethernet switch features. The Cisco IE 3000 can be managed by CIP-based management tools, allowing the user to manage an entire industrial automation system with one tool.

Q. How do we implement out-of-the-box optimized configurations for industrial automation?

A. The Cisco IE 3000 Series is based on the Cisco Catalyst switch architecture and feature set. Utilizing Cisco IOS Software, the Cisco IE 3000 can be managed with command-line interface commands or Cisco Device Manager.

The Express Set-Up Wizard gets the switch configured and running quickly and easily. Just power up the Cisco IE 3000 and give the switch an IP address. Cisco Device Manager and Smartports have been included for out-of-the box configuration for industrial automation. Smartports consist of customized templates that have been predesigned by Cisco for one-touch configuration of common industrial automation components based on industrial automation best practices.

Q. What are the primary features for intelligent transportation systems?

A.

- Compliance to NEMA TS2 for extended temperature, vibration, shock, surge, and noise immunity ratings for ITS environments.
- DIN-rail, wall, and 19" rack mount options allow for deployments in a variety of locations.
- 24/48/125VDC and 100-220VAC power input options cover a wide range of power requirements.
- The Cisco IE 3000 Series is based on the Cisco Catalyst switch architecture and feature set. Utilizing Cisco IOS Software, the Cisco IE 3000 can be managed with command-line interface commands or Cisco Device Manager and can integrate securely with the corporate network.
- Support for SFP modules provides uplink connectivity supporting 100BASE-LX, 100BASE-FX, 1000BASE-SX, 1000BASE-LX, and 1000BASE-ZX options.

- Q.** What are the primary features for power and utility substations?
- A.** The Cisco IE 3000 has been designed and tested for both IEC 61850 and IEEE 1613 substation compliance specifications for extended temperature, vibration, shock, surge, and noise immunity for substation compliance.

24/48/125VDC and 100-220VAC power input options cover a wide range of power requirements.

The Cisco IE 3000 Series is based on the Cisco Catalyst switch architecture and feature set. Utilizing Cisco IOS Software, the Cisco IE 3000 can be managed with command-line interface commands or Cisco Device Manager and can integrate securely with the corporate network.

DIN-rail, wall, and 19" rack mount options allow for deployments in a variety of locations.

Software Updates

- Q.** Can I obtain a Cisco IOS Software update for the Cisco IE 3000 Series?
- A.** Customers will be provided with maintenance updates and bug fixes as follows:
- Bug fixes and maintenance updates for critical bugs to maintain the compliance of the software with published specifications, release notes, and industry-standards compliance as long as the original end user continues to own or use the product or up to one year from the end-of-sale date for this product, whichever occurs earlier.
 - Bug fixes and maintenance updates for vulnerability and security bugs as long as the original end user continues to own or use the product or up to three years from the end-of-sale date for this product, whichever occurs earlier.

Customers with IP Services software require a service support contract such as Cisco SMARTnet® Service to download updates.

- Q.** How do I get a Cisco IOS Software update for the Cisco IE 3000 Series?
- A.** Visit <http://www.cisco.com>, click "Downloads," and select "Switch Software." Downloading software requires a Cisco.com username and password. If you do not have a Cisco.com username, you can obtain one by clicking "Register" at the top of any Cisco.com webpage.

Warranty and Service

- Q.** What is the warranty on the Cisco IE 3000 Series?
- A.** The hardware warranty available on the Cisco IE 3000 Series is the five-year limited hardware warranty. This warranty automatically comes with the purchase of eligible Cisco products, free of charge. It offers free advanced replacement of products within 10 business days. For more information about the five-year limited hardware warranty, visit http://www.cisco.com/en/US/docs/general/warranty/English/5year_78-19511-01.pdf.
- Q.** What types of services and support are available for the Cisco IE 3000 Series?
- A.** A full complement of lifecycle services and support is available for the Cisco IE 3000 Series. From implementation to operation and optimization, Cisco offers technical support service delivered either directly or through a Cisco partner. Technical support service is available through Cisco SMARTnet Service and Cisco SMARTnet Onsite support. The Cisco SMARTnet Service augments the resources of your operations staff by providing them with access to expertise, both online and on the telephone, and numerous hardware advance replacement options. Cisco SMARTnet Onsite complements the hardware advance replacement feature by adding the services of a field engineer, services that can be critical for locations where internal staff is unable to perform part replacement activities.

Product Information

- Q.** Where can I find technical and product specifications and other information about the Cisco IE 3000 Series?
- A.** For product literature, including data sheets and product specifications, visit <http://www.cisco.com/go/ie3000>.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

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