



# Cisco Industrial Ethernet 4000 Series Switches

## Ruggedized Switches Built for Rugged Industrial Environments

Industrial environments can be tough on any equipment, but especially on networking hardware. Your typical IT equipment was never designed to withstand the poundings, dirt, and grime found in most industrial environments. Plus, these pieces of equipment require significant reconfiguring to serve the computing and technology needs of industrial manufacturers and utilities.

The Cisco® Industrial Ethernet (IE) 4000 Series Switches are today's most flexible and scalable industrial Ethernet switches that will grow with your network. They were developed specifically to withstand rugged industrial environments, while powering solutions designed to meet industrial customers' needs.

The ruggedized Cisco IE 4000 Series forms the foundation of a wide array of technology solutions for industrial manufacturers and processes, such as:

- Factory automation
- Energy and process control
- Intelligent transportation systems
- Substation automation
- Mining operations
- Oil and gas refining and delivery systems
- Surveillance and remote-monitoring functions

## How It Works

The Cisco IE 4000 Series complements other Cisco IE product families, delivering greater performance, increased bandwidth, richer feature sets, and advanced hardware options.

The switches can be set up and operated easily by your internal IT and operations staff, helping you automate industrial processes much more quickly. The embedded Cisco IOS® Software also allows you to quickly integrate new switches and connect all your industrial endpoints for greater visibility, control, access and can automatically detect new endpoints whenever they're brought online. Plus, with the built-in Cisco SmartPorts technology, your staff can assign the correct Quality-of-Service (QoS) functions for a desired connection quickly and easily.

An embedded web-based Device Manager provides real-time visibility of your switch configuration and performance. The color-coded displays and animated indicators of the application help simplify management and monitoring tasks. It also has alert functions that help you identify and solve networking problems when they arise.

## Benefits

- **Lower total cost of ownership** using real-time connectivity and data analytics that help improve efficiency and optimize your processes.
- **Gain real-time visibility into your network** through the ability to manage it from nearly anywhere.
- **Help improve the uptime, performance, and safety** of your industrial systems and equipment.
- **Improve the efficiency** of your internal IT and operations teams using a single, standardized platform.
- **Increase the speed and flexibility** needed to bring products to market and adapt to changing business challenges.

## Use Case Examples

- Increase solution redundancy and connect high-speed automation devices in connected factories and electrical substations by using uplinks to form redundant ring topology and provide multiple Gigabit Ethernet connectivity.
- Connect access points and provide high-speed Wi-Fi coverage along oil/gas pipelines and mining fields in remote locations.
- Provide increased connectivity in roadside cabinets for traffic signal control, surveillance cameras, and IP phones.
- Connect mass transportation to provide voice, video, and data services to passengers.

## Next Steps

For more information about the Cisco Industrial Ethernet 4000 Series Switches, please visit [www.cisco.com/go/ie4000](http://www.cisco.com/go/ie4000).

## Solution Highlights and Capabilities

The Cisco IE 4000 Series Switches come loaded with powerful features and capabilities, including:

- Twelve models offering from 4 to 20 Gigabit Ethernet ports, Gigabit Ethernet Combo (copper and fiber) ports, multiple optical reach options (SFPs)
- FE and GE (10/100/1000 autosensing) down-links options
- In-line powering for up to 8 PoE/PoE+ devices
- Resiliency through multiple Gigabit Ethernet rings, REP (Resilient Ethernet Protocol), Flexlink, redundant power input, dying gasp
- True zero-touch replacement for middle-of-the-night or middle-of-nowhere failure
- Layer 2 and Layer 3 support
- Simplified software upgrade path with universal image, pay-as-you-go development
- Extensive, pervasive security based on open standards

## Designed Tough and Built for Industrial Use

The Cisco IE 4000 Series Switches were built to withstand and even thrive in harsh operating environments and temperatures ranging from -40 to 70° C. With no moving parts, the switches come enclosed in tough casings designed for serious protection from dust, dirt, grime, high humidity, electromagnetic fields, and extreme vibrations. They support network standards and protocols such as Ethernet/IP, CIP, and Profinet so you can set up and connect industrial equipment and automation applications quickly and easily.

## Easy to Deploy and Manage

Cisco IE 4000 Series Switches use the same Cisco IOS Software you're already familiar with, so switch integration and connecting endpoints are simple. Out-of-the-box configuration enables you to set a switch up with one click. It also contains line-rate, low-latency forwarding with advanced hardware assist features – such as Network Address Translation (NAT), Multilayer Traffic Prioritization, Multicast, IEEE 1588, and more – to make interoperability and management tasks easier and more efficient.

## Strong Security

The solution supports all of the security features you expect in a Cisco switch, including 802.1x port security, dynamic port-based authentication, encrypted administrative traffic, centralized authentication and more.

## Industrial Power over Ethernet

With options for Power over Ethernet (PoE), you can connect and power devices using a single cable. These switches support high-density, industrial PoE/PoE+ support (on select models) for up to eight devices, including IP cameras and phones, badge readers, wireless access points, and more. PoE helps you reduce complexity in your warehouse or factory, lower costs of necessary wiring and other equipment, and enjoy the flexibility and freedom of ready-to-use devices.