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Cisco Connected Factory–PROFINET

Integrate PROFINET Industrial Automation onto Standards-based IP Networks

Companies often build industrial automation networks from point products, or by patching together best-of-breed PROFINET products. But imagine deploying PROFINET-certified products in a validated, scalable architecture for ruggedized, real-time Industrial Ethernet networks?

Cisco® Connected Factory–PROFINET is a validated architecture that integrates PROFINET-based automation onto standards-based IP networks. It delivers industrial IT applications over a resilient Cisco Industrial Ethernet architecture. It is part of the Cisco Connected Factory portfolio of proven end-to-end network architectures allowing you to gain a 360-degree view of operations and gain real-time network diagnostics and troubleshooting.

Management and Ring Convergence Options

You can integrate Cisco Connected Factory–PROFINET Industrial Ethernet switches with your existing PROFINET network. Operators can monitor and manage them and the network's operability across the globe with your existing Siemens SIMATIC Step 7 and TIA portal integration. Or use Cisco network management tools to manage more detailed network configurations from a single location.

The Cisco solution also offers integrated and certified Media Redundancy Protocol (MRP) compliance for rapid ring convergence. MRP functionality is included on Cisco Industrial Ethernet (IE) 2000 and 4000 Series Switches. The entire Cisco IE series switch family offers the Cisco Resilient Ethernet Protocol (REP), which offers rapid ring convergence and allows PROFINET control traffic to traverse the REP ring.

Broader Integration Increases Innovation and Scale

Because industrial automation networks are designed as isolated machine cell islands, companies are cautious about which devices are allowed access to those islands. This isolation leaves manufacturing production systems open to only a limited set of compatible devices–certified devices–that are tested for compliance.

Cisco Connected Factory–PROFINET provides new, flexible plantwide connectivity between things, machines, workflows, databases, processes, and people, which enables you to:

- Achieve optimal machine operation and supply chain workflows for improved efficiencies and cost savings.

Benefits

- **Speed deployment** and lower automation integration costs with standards-based IP networks.

- **Gain greater operational awareness** by integrating manufacturing and business systems on a single network.

- **Reduce risk** with integrated, PROFINET International (PI) switches.

- **Add Media Redundancy Protocol** (MRP) convergence functionality on select Cisco Industrial Ethernet switch models–without additional cost.

- **Create a secure, end-to-end factory** with multiple layers of protection.

- **Improve equipment performance** by achieving real-time visibility into machine operation data.

PROFINET Application Areas

- Discrete Automation
  - Manufacturing
  - Food and beverage
  - Pharmaceuticals
  - Automation
- Process Automation
  - Water and waste water treatment
  - Chemical and petrochemicals
- Power Industry
  - Power plants
  - Substations
- Oil and Gas
- Mining, aggregate, and cement

Next Steps

To learn more about how Cisco can help you deliver industrial IT applications over a resilient Cisco Industrial Ethernet architecture, visit www.cisco.com/go/factoryprofinet.

- Integrate industrial automation with global employee, partner, and vendor ecosystems to drive innovation and scale.
- Mitigate risk with PROFINET International (PI)-certified compliance, IEC 62439-2 with 200 millisecond MRP convergence.

Risks you can minimize with this solution include:

- Security breaches leading to loss of proprietary or confidential information and intellectual property
- Industrial contamination or defects leading to corporate-reputation damage
- Regulatory requirement violations
- Economic/production loss
- Impact on national security

The following converged products and technologies are included in the Cisco PROFINET certified Industrial Ethernet portfolio:

- Cisco Industrial Ethernet 2000 Series Switch
- Cisco Industrial Ethernet 3000 Series Switch
- Cisco Industrial Ethernet 4000 Series Switch
- Cisco Industrial Ethernet 5000 Series Switch

Why Cisco?

Cisco offers **the breadth of infrastructure** and strategic partnerships needed to secure business IT and OT convergence to enable faster decision-making and improved business models without compromising **reliability, security, or network response time**.

Only Cisco encompasses all these key components including:

- One Cisco management tool to manage detailed network configurations from a single location
- Common, scalable, and secure architecture for ruggedized Industrial Ethernet and enterprise networks
- Standards-based Industrial IP Ethernet switching and security services
- Cisco enterprise-level technology delivered on an industrial platform with scalable, secure, real-time performance
- Comprehensive services help plan, build, manage, and support the Connected Factory solution
- Five-year product warranty,10,000 academies in 165 countries, and financing options to optimize cash flow