Cisco Industrial Ethernet Switches



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Overview of Cisco DIN rail industrial switching family

Q: What are the models in the Cisco DIN rail industrial switching family?

A: The Cisco DIN rail industrial switching family consists of the Cisco Catalyst™ IE3100 Rugged Series, Catalyst IE3200 Rugged Series, Catalyst IE3300 Rugged Series, Catalyst IE3400 Rugged Series, and the new Cisco® IE3500 Rugged Series.

- The Cisco Catalyst IE3100 Rugged Series base systems have fixed ports. The different product IDs have different numbers of ports (see Table 1).
- The Cisco Catalyst IE3200 Rugged Series base system has a fixed port count of two 1 Gigabit Ethernet (GE) Small Form-Factor Pluggable (SFP) uplinks, and eight copper 1GE downlinks.
- The Cisco Catalyst IE3300 Rugged Series base system can expand its port count with additional modules. The base system has two ports of 1GE SFP or two ports of 10GE SFP+ uplinks, and eight copper 1GE downlinks.
- The Cisco Catalyst IE3400 Rugged Series base system supports advanced hardware features and can expand its port count with additional modules. The base system has two 1GE SFP uplinks and eight copper 1GE downlinks.
- The Cisco IE3500 Rugged Series base system can expand its port count with additional modules. The base system has three ports of 1GE SFP or three ports of 10GE SFP+ uplinks and eight copper 1GE downlinks.
- The Cisco IE3505 Rugged Series base system supports advanced hardware features and can expand its port count with additional modules. The base system has three 1GE SFP uplinks and eight copper 1GE downlinks.
- All Cisco Industrial Ethernet switches are powered by the Cisco IOS® XE operating system.

Q: How do I position different Industrial Ethernet switching products?

A: Each model in the DIN rail family fits specific needs.

- **Cisco Catalyst IE3100 Rugged Series:** The Cisco Catalyst IE3100 Rugged Series is a Layer 2 switch in a very compact form-factor with PoE/PoE+/4PPoE ports and conformal coating for added protection in corrosive environments, making it the ideal solution for use cases where space is an issue (machine builders, small cabinets, etc.), or who require PoE in constrained spaces. It is an upgrade/replacement option to the IE2000 for customers who require PoE or conformal coating. The Catalyst IE3100 offers advanced Power over Ethernet (PoE) capabilities, including the 4PPoE feature, which provides up to 90W per port.
- **Cisco Catalyst IE3200 Rugged Series:** The Cisco Catalyst IE3200 Rugged Series is a Layer 2 switch with PoE/PoE+ ports. It is an upgrade/replacement option to the IE2000 for customers who require PoE.
- **Cisco Catalyst IE3300 Rugged Series:** The Cisco Catalyst IE3300 Rugged Series is a Layer 2/Layer 3 switch offering high-density PoE/PoE+/4PPoE (up to 60W) ports. With the expansion module, it can support 4PPoE (up to 90W). It can be expanded with modules supporting a wide variety of additional ports. It is an upgrade/replacement option to the IE3000 or IE4000 for customers who need advanced networking features, such as Cisco IOx applications or port modularity.

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- **Cisco Catalyst IE3400 Rugged Series:** The Cisco Catalyst IE3400 Rugged Series is a modular Layer 2/Layer 3 switch with PoE/ PoE+ (or 90W 4PPoE with an expansion module). It is the best fit for customers who require advanced features such as full Cisco TrustSec®, High-Availability Seamless Redundancy (HSR), Parallel Redundancy Protocol (PRP), Device Level Ring (DLR), Layer 2 Network Address Translation (L2NAT), and Cisco IOx applications. It is also an upgrade/replacement option to the IE3000 or IE4000 for customers who need advanced networking features, Cisco IOx applications, and port modularity. Check the data sheet for specific feature availability.
- **Cisco IE3500 Rugged Series:** The Cisco IE3500 Rugged Series is a Layer 2/Layer 3 switch offering high-density PoE/PoE+/4PPoE (90W) ports. It is the best fit for customers who require features such as full Cisco TrustSec, L2NAT, and Cisco IOx applications. It can be expanded with modules supporting a wide variety of additional ports. The IE3505 series offers advanced resiliency features such as support for HSR, PRP, and DLR protocols. It is an upgrade/replacement option to the IE3000 or IE4000 for customers who need advanced networking features, a Cisco IOx application execution environment, and port modularity.

  The IE3500 offers additional features that allow low-jitter, high-bandwidth data flows optimized to support time-sensitive OT applications, network assurance from sensor to cloud with an embedded ThousandEyes agent, and a choice of management options, either Cisco Catalyst Center or the Meraki® dashboard.

Q: What are the key benefits of Cisco DIN rail industrial switches?

A: Cisco DIN rail switches provide significant benefits to industrial operations. They offer Gigabit Ethernet connectivity in a compact and power-efficient DIN rail form factor on the modern Cisco IOS XE operating system with built-in security and trust protocols. The switches offer advanced security and industrial protocol support and are managed by Cisco Catalyst Center. Models in the DIN rail family deliver high-density PoE, with up to 16 ports of PoE providing up to 90W per port. The Cisco Catalyst IE3400 and Cisco IE3505 Rugged Series platforms can enforce dynamic and automated network segmentation using TrustSec and advanced industrial redundancy protocols such as HSR, PRP, and DLR.

Q: Where do I deploy Cisco DIN rail industrial switches?

A: Cisco DIN rail switches can be deployed in any industrial sector or wherever a ruggedized network is essential. For instance, they can be deployed in places where there is no temperature control, such as outdoor spaces, warehouses, factory floors, and substations. These switches are fanless (they have no moving parts) and are purpose-built to operate in harsh environments in temperatures ranging from -40° to 75°C (-40° to 167°F). They are built to withstand shock and vibration in industrial environments and are qualified to meet certifications and standards required for industry compliance.

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Table 1. High-level features of the Cisco DIN rail switch models

Base system product ID (PID)	Interfaces	PoE/PoE+	UPOE/ 4PPoE (60W)	Expandable	Advanced hardware features	Conformal coating
IE-3100-3P1U2S-E	2x 1GE SFP and 4x copper 1GE	Yes, 3 ports	Yes, 90W	No	No	No
IE-3100-6P2U2C-E	2x 1GE combo (SFP or copper) and 8x copper 1GE	Yes, 6 ports	Yes, 90W	No	No	No
IE-3100-4T2S-E	2x 1GE SFP and 4x copper 1GE	No	No	No	No	No
IE-3100-4P2S-E	2x 1GE SFP and 4x copper 1GE	Yes	No	No	No	No
IE-3100-8T2C-E	2x 1GE combo (SFP or copper) and 8x copper 1GE	No	No	No	No	No
IE-3100-8T4S-E	4x 1GE SFP and 8x copper 1GE	No	No	No	No	No
IE-3100-8P2C-E	2x 1GE combo (SFP or copper) and 8x copper 1GE	Yes	No	No	No	No
IE-3105-8T2C-E	2x 1GE combo (SFP or copper) and 8x copper 1GE	No	No	No	Yes	No
IE-3100-18T2C-E	2x 1GE combo (SFP or copper) and 18x copper 1GE	No	No	No	No	No
IE-3100-18T2C-CC-E	2x 1GE combo (SFP or copper) and 18x copper 1GE	No	No	No	No	Yes
IE-3105-18T2C-E	2x 1GE combo (SFP or copper) and 18x copper 1GE	No	No	No	Yes	No

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Base system product ID (PID)	Interfaces	PoE/PoE+	UPOE/ 4PPoE (60W)	Expandable	Advanced hardware features	Conformal coating
IE-3300-8T2X-A	2x 10GE SFP and 8x copper 1GE	No	No	Yes	No	No
IE-3300-8U2X-E	2x 10GE SFP and 8x copper 1GE	Yes	Yes	Yes	No	No
IE-3300-8U2X-A	2x 10GE SFP and 8x copper 1GE	Yes	Yes	Yes	No	No
IE-3400-8T2S-E	2x 1GE SFP and 8x copper 1GE	No	No	Yes	Yes	No
IE-3400-8T2S-A	2x 1GE SFP and 8x copper 1GE	No	No	Yes	Yes	No
IE-3400-8P2S-E	2x 1GE SFP and 8x copper 1GE	Yes	No	Yes	Yes	No
IE-3400-8P2S-A	2x 1GE SFP and 8x copper 1GE	Yes	No	Yes	Yes	No
IE-3500-8T3S-E	3x 1GE SFP and 8x copper 1GE	No	No	Yes	Supports TrustSec	No
IE-3500-8T3S-A	3x 1GE SFP and 8x copper 1GE	No	No	Yes	Supports TrustSec	No
IE-3500-8P3S-E	3x 1GE SFP and 8x copper 1GE	Yes	No	Yes	Supports TrustSec	No
IE-3500-8P3S-A	3x 1GE SFP and 8x copper 1GE	Yes	No	Yes	Supports TrustSec	No
IE-3500-8T3X-E	3x 10GE SFP and 8x copper 1GE	No	No	Yes	Supports TrustSec	No
IE-3500-8T3X-A	3x 10GE SFP and 8x copper 1GE	No	No	Yes	Supports TrustSec	No

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Base system product ID (PID)	Interfaces	PoE/PoE+	UPOE/ 4PPoE (60W)	Expandable	Advanced hardware features	Conformal coating
IE-3500-8U3X-E	3x 10GE SFP and 8x copper 1GE	Yes	Yes, 90W	Yes	Supports TrustSec	No
IE-3500-8U3X-A	3x 10GE SFP and 8x copper 1GE	Yes	Yes, 90W	Yes	Supports TrustSec	No
IE-3505-8T3S-E	3x 1GE SFP and 8x copper 1GE	No	No	Yes	Yes	No
IE-3505-8T3S-A	3x 1GE SFP and 8x copper 1GE	No	No	Yes	Yes	No
IE-3505-8P3S-E	3x 1GE SFP and 8x copper 1GE	Yes	Yes	Yes	Yes	No
IE-3505-8P3S-A	3x 1GE SFP and 8x copper 1GE	Yes	Yes	Yes	Yes	No

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Q: How many expansion modules can a Cisco Catalyst IE3300, IE3400, or IE3500 Rugged Series switch have?

A: A single expansion module can be attached to a base system at a time. An expansion module cannot have another expansion module attached. Expansion modules are not hot swappable.

Table 2. Expansion modules for IE3300, IE3400, and IE3500

Module PID	Interfaces and types	Compatible base system(s)	PoE/PoE+	90-W PoE	Advanced hardware features
IEM-3300-8T	8 copper Gigabit	IE-3300-8T2C, IE-3300-8P2S, IE-3300-8T2X, IE-3300-8U2X, IE-3400-8T2S, IE-3400-8P2S	No	No	No
IEM-3300-6T2S	2 SFP and 6 copper Gigabit	IE-3300-8T2C, IE-3300-8P2S, IE-3300-8T2X, IE-3300-8U2X, IE-3400-8T2S, IE-3400-8P2S	No	No	No
IEM-3300-16T	8 copper Gigabit	IE-3300-8T2C, IE-3300-8P2S, IE-3300-8T2X, IE-3300-8U2X, IE-3400-8T2S, IE-3400-8P2S	No	No	No
IEM-3300-14T2S	2 SFP and 14 copper Gigabit	IE-3300-8T2C, IE-3300-8P2S, IE-3300-8T2X, IE-3300-8U2X, IE-3400-8T2S, IE-3400-8P2S	No	No	No
IEM-3300-8P	8 copper Gigabit	IE-3300-8P2S, IE-3300-8U2X, IE-3400-8P2S	Yes	No	No
IEM-3300-8S	8 SFP Gigabit	IE-3300-8T2C, IE-3300-8P2S, IE-3300-8T2X, IE-3300-8U2X, IE-3400-8T2S, IE-3400-8P2S	No	No	No
IEM-3300-16P	16 copper Gigabit	IE-3300-8P2S, IE-3300-8U2X, IE-3400-8P2S	Yes	No	No

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Module PID	Interfaces and types	Compatible base system(s)	PoE/PoE+	90-W PoE	Advanced hardware features
IEM-3300-4MU	4 copper 2.5 Gigabit	IE-3300-8P2S, IE-3300-8U2X, IE-3400-8P2S	Yes	Yes	No
IEM-3400-8T	8 copper Gigabit	IE-3400-8T2S, IE-3400-8P2S	No	No	Yes
IEM-3400-8S	8 SFP Gigabit	IE-3400-8T2S, IE-3400-8P2S	No	No	Yes
IEM-3400-8P	8 copper Gigabit	IE-3400-8P2S	Yes	No	Yes
IEM-3500-6T2S	2 SFP and 6 copper Gigabit	All IE3500 models	No	No	Yes
IEM-3500-8T	8 copper Gigabit	All IE3500 models	No	No	Yes
IEM-3500-8P	8 copper Gigabit	All IE3500 models	Yes	No	Yes
IEM-3500-8S	8 SFP Gigabit	All IE3500 models	No	No	Yes
IEM-3500-14T2S	2 SFP and 14 copper Gigabit	All IE3500 models	No	No	Yes
IEM-3500-16T	16 copper Gigabit	All IE3500 models	No	No	Yes
IEM-3500-16P	16 copper Gigabit	All IE3500 models	Yes	No	Yes
IEM-3500-4MU	4 copper 2.5 Gigabit	All IE3500 models	Yes	Yes	Yes

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Q: What are the advanced hardware features of the Cisco IE3500 and IE3505 Rugged Series switches?

A: These are features that directly impact Ethernet packets in the data path. Features such as Parallel Redundancy Protocol (PRP), High Speed Redundancy Protocol (HSR) and Device Level Ring (DLR) are examples that require special hardware that is available in the Cisco IE3505 Rugged Series base system and in the IEM3500 modules. See the Cisco IE3500 Rugged Series data sheet for a complete list of features.

Q: What are the advanced hardware features of the Cisco Catalyst IE3400 Rugged Series?

A: These are features that directly impact Ethernet packets in the data path. Features such as Cisco's Scalable Group Tagging (SGT) and Security Group Access Control Lists (SGACL), Parallel Redundancy Protocol (PRP), Layer 2 Network Address Translation (L2NAT), High Speed Redundancy Protocol (HSR) and Device Level Ring (DLR) are examples that require special hardware that is available in the Cisco Catalyst IE3400 Rugged Series base system and in the IEM3400 modules. See the Cisco Catalyst IE3400 Rugged Series data sheet for a complete list of features.

Q: What are the IE3105 additional hardware features?

A: These are features that directly impact Ethernet packets in the data path. Features such as L2NAT are examples that require special hardware that is available in the Cisco Catalyst IE3105 Rugged Series system. See the Cisco Catalyst IE3100 Rugged Series data sheet for a complete list of features.

Q: What are some of the unique PoE features on Catalyst IE3100?

A: The Catalyst IE3100 PoE models have features to maintain uninterrupted power to critical industrial assets. The perpetual PoE feature maintains PoE power during a switch reload. This is important for endpoints such as PoE-powered lights, sensors, cameras, and wireless APs, enabling end devices to remain powered on. In event of a power loss to IE3100, as soon as power is restored to the switch, the fast PoE feature starts delivering power to endpoints without waiting for the IOS-XE operating system to fully load, thereby speeding up the time for the endpoint to start up. Its PoE boost feature maintains PoE even when the input voltage to the switch is as low as 12V DC. This is important, especially in space-constrained deployments where it may not be practical to position a large 54VDC power supply unit.

Q: How many total PoE/PoE+/4PPoE ports are available in IE3100 4PPoE models?

A: The IE-3100-3P1U2S-E has 3 x PoE/PoE+ ports and 1 x 4PPoE (90W) port.

The IE-3100-6P2U2C-E has 6 x PoE/PoE+ ports and 2 x 4PPoE (90W) ports.

Q: What is the maximum power budget for the IE-3100-3P1U2S-E and IE-3100-6P2U2C-E models?

A: The IE-3100-3P1U2S-E offers a 120W power budget.

The IE-3100-6P2U2C-E offers a 240W power budget.

Q: What are the hardware differences between the Cisco IE3500 Rugged Series base system and Cisco IE3505 Rugged Series base systems?

A: The primary difference is the presence of an additional field-programmable gate array (FPGA) in the data path. This additional FPGA in the Cisco IE3505 Rugged Series enables advanced features such as, but not limited to, HSR and PRP.

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Q: What is the hardware difference between the Cisco Catalyst IE3300 Rugged Series base system and Cisco Catalyst IE3400 Rugged Series base system?

A: The primary difference is the presence of an additional FPGA in the data path. This additional FPGA in the Cisco Catalyst IE3400 Rugged Series enables advanced features such as, but not limited to, HSR, Cisco TrustSec, and PRP.

Q: What is the primary difference between the Cisco Catalyst IE3200 Rugged Series and Cisco Catalyst IE3300 Rugged Series?

A: The primary difference is modularity. The Cisco Catalyst IE3300 Rugged Series base and the Cisco Catalyst IE3200 Rugged Series base have the same hardware switching capabilities. The Cisco Catalyst IE3300 Rugged Series supports expansion modules to increase the number of ports. The IE-3300-8U2X and IE-3300-8T2X have 10Gig uplink ports. IE3300 Rugged Series supports IOx app hosting, which includes Cyber Vision. The Cisco Catalyst IE3300 Rugged Series is a Layer 3 switch, whereas the Cisco Catalyst IE3200 Rugged Series is a Layer 2 switch.

Q: What is the primary difference between the Cisco Catalyst IE3100 and the IE3200 Rugged Series?

A: The primary differences include size, the IE3100 has a conformal coating option available, PoE features such as PoE boost, 4PPoE, and the IE3105 platform supports L2NAT. The IE3100 Rugged Series has different port counts (see Table 1) and the PoE budget varies between the IE3100 6-port and 10-port models. Because the IE3100 supports different port counts, its size varies. The IE3200 has a fixed size.

Q: Which models of the Cisco Catalyst DIN rail family support the Cisco Cyber Vision sensor?

A: Cyber Vision is a software solution that combines the three OT security capabilities every industrial organization needs into a single, network-native solution: continuous visibility into your OT security posture to help reduce the attack surface, AI-assisted network segmentation to protect industrial operations, and secure remote access to control risks from remote experts. Cyber Vision embeds security capabilities directly into Cisco industrial switches and routers — turning your industrial network into an OT security sensor, an OT security policy enforcer, and secure remote access gateway.

The Cyber Vision sensor application can be installed in all models of the IE3500 and IE3400 (both Rugged and Heavy Duty series) as well as all models of the IE3300 Rugged Series (both 1GE uplinks and 10GE uplinks). Previously only the IE3300 10GE uplink series supported the Cyber Vision sensor application. Starting with hardware version 6, the IE3300 Rugged Series 1GE uplink added support for application hosting, which includes Cyber Vision.

Q: When did all models in the IE3300 series support Cyber Vision Sensor?

A: All IE3300 base systems starting with hardware version 6 support the Cyber Vision Sensor application. Originally only the IE3300 with 10GE uplinks supported the Cyber Vision Sensor application because it has 4 GB of DRAM. The IE3300 models with 1GE uplinks originally had only 2 GB of DRAM and did not support IOx applications or Cyber Vision Sensor. They have since had their DRAM upgraded to 4 GB as well. To verify if an IE-3300-8T2S or IE-3300-8P2S has 4 GB of DRAM, you can check the hardware version. Hardware version 6 or higher has 4 GB of DRAM.

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Q: Do Cisco DIN rail switches support any other IOx application?

A: The Cisco IE3500 can also run ThousandEyes Enterprise Agent. ThousandEyes Enterprise Agent extends network assurance to industrial networks.

Q: Can customers return older IE-3300-8T2S and IE-3300-8P2S for newer models so they can run the Cyber Vision Sensor application?

A: No. Customers who purchased an IE3300 with 2 GB of DRAM cannot exchange or receive a newer-model IE3300 for free just so they can get 4 GB of DRAM.

Q: How can I determine if the IE3300s I have in my network can host the Cyber Vision Sensor?

A: Check the hardware version ID on the packaging box or on the side of the switch) or run the "show version" command on the switch CLI. Cyber Vision is supported if the hardware version of the IE3300 is 6 or above.

Q: If my customer needs advanced switching features, should they use the Cisco IE4000 Series or the Catalyst IE3400 Rugged Series?

A: Advanced features such as PRP and HSR are available on the IE4000, IE3400, and IE3505. Table 3 provides more details on the hardware differences between the two platforms.

Table 3. Hardware feature comparison between the Catalyst IE3400 and IE4000

Feature/hardware resource	Cisco IE3500/IE3505 Rugged Series	Cisco Catalyst IE3400 Rugged Series	Cisco IE4000 Series
Number of 1GE ports	27 (11+16)	26 (10+16)	20
Operating system	Cisco IOS XE	Cisco IOS XE	Cisco IOS
SD-Access for IoT (with Cisco DNA Advantage)	Yes (Fabric Edge Node)	Yes (Policy Extended Node)	Yes (Extended Node)
Advanced industrial features (L2NAT, TrustSec)	Yes	Yes	Yes
TrustSec (SGT/SGACL)	?	Yes (22x22)	1xN
MACsec	Yes (256-bit)	Yes (256-bit)	128-bit
IOX/EFM support (DRAM)	Yes	Yes	No

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Feature/hardware resource	Cisco IE3500/IE3505 Rugged Series	Cisco Catalyst IE3400 Rugged Series	Cisco IE4000 Series
Layer 3 – IP Services/Network advantage	Yes	Yes	Yes
IPv4 indirect routes	7000	3000	8000
VLANs	1000	256	1000
MAC addresses	24,000	16,000	16,000
NetFlow cache	8000	1000	16,000
HSR/PRP	Yes, IE3505	Yes	Yes, plus HSR Quadbox
PoE budget (for models supporting PoE)	480W base	240W base, 480W total with expansion module	120/240W

Note: Only the IE-4000-8GT8GP-4G model supports a 240W PoE budget.

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Hardware details

Q: What are the dimensions of the Cisco Catalyst IE3100 Rugged Series?

A: The IE3100 and IE3105 units have different dimensions based on port count. Please refer to the data sheet for details.

Q: What are the dimensions of Cisco Catalyst IE3200, IE3300, and IE3400, and the Cisco IE3500 Rugged Series switches?

A: Please refer to the data sheet for details.

Q: What are the dimensions of the expansion modules?

A: Expansion modules come in two sizes—single-wide and double-wide. Please refer to the data sheet for details.

Q: What is the total PoE power budget of Cisco DIN rail PoE-capable switches?

A: Please refer to the respective data sheet for details.

Q: How much power do various Cisco DIN rail switches consume?

A: The amount of power consumed will vary depending on the product ID, number of interfaces, and PoE. PoE power is not consumed by the switch itself. PoE power is mostly consumed by powered devices. There is minimal loss of power on the switch to provide PoE. The presence of an expansion module will impact overall power consumption.

Q: How do Cisco DIN rail switches eliminate heat?

A: Cisco DIN rail switches are fanless. They eliminate heat through the chassis and fins. As a consequence, these switches can be hot to the touch. This does not mean that the switches are not operating properly, or that they will be damaged. These switches were designed to operate in hot environments for long periods of time.

Q: Do Cisco DIN rail switches support 100-Mbps SFPs?

A: Yes. See the data sheet for each product or supported transceiver matrix per product here: https://tmgmatrix.cisco.com/home.

Q: Will Cisco DIN rail switches work at 10-Mbps or 100-Mbps speeds?

A: Yes. The copper Ethernet interfaces can operate at speeds as low as 10 Mbps.

Q: Do Cisco DIN rail switches support 10GE interfaces?

A: Yes: The IE-3300-8U2X and IE-3300-8T2X support two 10GE SFP interfaces. The IE-3500-8U3X and IE-3500-8T3X support three 10GE SFP interfaces.

Q: Do Cisco DIN rail switches support M-Gigabit speed interfaces?

A: Yes: The IEM-3300-4MU and IEM-3500-4MU expansion modules support M-Gigabit speed interfaces.

The IE-3500-8U3X, IE-3500-8P3X, IE-3300-8U2X, and IE-3300-8P2X support 10GE uplinks and are recommended when using M-Gigabit downlink connections. The Cisco Catalyst IE3100, IE3200, IE3300, and IE3400, and the Cisco IE3500 base systems do not support M-Gigabit.

Q: Do Cisco DIN rail switches have fans?

A: No. All Cisco DIN rail switch models are fanless. Cooling is achieved by eliminating heat through the shell and fins of the product. There are also no fans on the expansion modules.

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Q: Can Cisco DIN rail switches be mounted on a standard 19-inch rack?

A: For 19-inch rack mounting, you can use a DIN rail rack mount kit. See the Cisco product ID STK-RACK-DINRAIL=.

Management options for industrial switches

Q: What management systems are available for Cisco industrial switches?

A: Cisco industrial switches can be managed using their Command-Line Interface (CLI), the included WebUI, and Cisco Catalyst Center. Select models can also be managed using the Meraki dashboard.

Q: What management functions does Catalyst Center provide?

A: Deployed on-premises, Catalyst Center brings a host of benefits to industrial network management. It streamlines switch deployments through template-driven zero-touch provisioning, intuitive device replacements, and scheduled software updates. It accelerates troubleshooting with AI insights that help identify and resolve network and operational problems. It also facilitates collaboration between IT and OT by providing a unified platform that integrates IT policies, frameworks, and expertise into OT networks to boost operational efficiency. Catalyst Center also controls access using role-based policies that prevent unauthorized access, safeguarding critical functions by helping ensure that users have only the access privileges needed for their responsibilities.

Q: What management functions does Meraki dashboard provide?

A: The cloud-based Meraki dashboard unifies management of Meraki, Cisco Catalyst 9000 family, and Cisco industrial switches, serving the entire enterprise with consistent policies throughout. By doing so, it allows the trusted campus and branch networks to be extended to outdoor and uncarpeted spaces.

Q: What are the differences between managing industrial switches with Meraki dashboard vs. Catalyst Center?

A: Catalyst Center is primarily an on-premises comprehensive, AI-powered network management system designed for Cisco Catalyst 9000 family and Cisco industrial switches with deep integration into Cisco's enterprise infrastructure. It supports extensive customization and automation. Meraki dashboard emphasizes cloud simplicity, ease of use, and operational efficiency with a focus on cloud-native management and remote accessibility.

Q: Which IE switches can be managed with Meraki dashboard?

A: Currently, you can manage Cisco vIE3500 and IE3505 Rugged Series Switches with the Meraki dashboard.

IP66/IP67-rated switches

Q: Which Cisco industrial switches are IP66/IP67-rated?

A: The Catalyst IE3100 Heavy Duty Series, Catalyst IE3400 Heavy Duty Series, and IE3500 Heavy Duty Series switches, IP66/IP67-rated.

Q: What are some of the use cases for IP66/IP67-rated industrial switches?

A: IP66/IP67-rated industrial switches are designed to withstand harsh environments, making them suitable for various applications, such as outdoor installations without cabinets, marine and offshore where they might be exposed to salt water and high-humidity, food processing industries to withstand cleaning processes, railways and transportation systems that may be subject to excessive vibrations, among other applications.

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Q: How do the IP66/IP67-rated switches differ from their corresponding DIN rail switches?

A: The IP66/IP67-rated switches run the same IOS XE operating system and offer the same software capabilities and features as their DIN rail counterparts. The only difference is in their physical characteristics.

Q: What are the differences between the various IP66/IP67-rated industrial Ethernet switching platforms?

A: The Cisco Catalyst IE3100 Heavy Duty Series features a compact design, making it ideal for deployment in space-constrained environments such as within charging stations, robots, and Autonomous Guided Vehicles (AGVs). The Catalyst IE3400 Heavy Duty Series offers high port density and supports advanced security such as MACSEC 256 and Cisco TrustSec based segmentation. In addition, the IE3500 Heavy Duty Series supports VXLAN-based BGP EVPN and can be configured as a Cisco SD-Access Fabric Edge node, while also supporting advanced resiliency protocols. The IE3500 Heavy Duty also offers PoE, and 10GE SFP ports.

Q: Are the IP66/IP67-rated switches modular?

A: No, the IP66/IP67-rated switches are not modular. They come with fixed port counts.

Cisco DIN rail switch software and licensing

Q: Do Cisco DIN rail switches run Cisco IOS XE?

A: Yes. All Cisco DIN rail switches run the latest version of the Cisco IOS XE operating system.

Q: What licensing is available for Cisco DIN rail switches?

A: Cisco DIN rail switches support the following Cisco Smart Licenses:

- **Network Essentials** (-E), which is available by default and is similar to LAN Base on the IE4000. This is a Layer 2 feature set. Network Essentials is perpetual, meaning it doesn't expire.
- **Network Advantage** (-A) is perpetual. This is similar to IP Services on the IE4000. It is the Layer 3 feature set that includes dynamic routing. It can be upgraded from -E or ordered directly on Cisco Workspace (CCW). To order on CCW, you will need details of the customer's Smart Account.
- **Cisco DNA Essentials:** This is an add-on subscription license for Cisco Catalyst Center for basic management, on 3-, 5-, or 7-year terms.
- **Cisco DNA Advantage:** This is an add-on subscription license for Cisco Catalyst Center Software-Defined Access (SD-Access) Extended Nodes. It is also available on 3-, 5-, or 7-year terms. The Network Advantage license is required on the IE switch for the Cisco DNA Advantage license.
- **MRP Client/Manager:** This is an enforced feature license required for running Media Redundancy Protocol (MRP). Its perpetual Smart Account is required. This license is required only for IOS XE releases 17.6.x and earlier. Starting with IOS XE release 17.7.1, an MRP license is not required.

DIN rail switches support Smart Licensing Using Policy as of Release 17.3.2, or Release 17.4.1 of IOS XE.

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Table 4. Cisco Catalyst DIN rail Rugged Series licenses and features

License name/SKU	Duration	Feature set	Where applied
Network Essential "-E"	Perpetual	Layer 2 features, static L3 IPv4 routes, L2NAT, PRP, HSR, and IOx application hosting for those models that support A default license that is installed at the time of manufacture	Enabled on the switch at the time of manufacture No license server needed
Network Advantage "-A"	Perpetual	Layer 3 IPv4 and IPv6 dynamic routing, VRF, Cisco TrustSec, MACsec 256-bit	On the switch A Cisco Smart Account is required
Cisco DNA Essential "-E"	Term-based	Basic network management only by Cisco Catalyst Center, NetFlow	On the switch and on Cisco Catalyst Center A Cisco Smart Account is required
Cisco DNA Advantage "-A"	Term-based	Extended Node, Fabric Edge, ETA	On the switch and on Cisco Catalyst Center A Cisco Smart Account is required
MRP Client/Manager	Perpetual	Enforced Feature license for Media Redundancy Protocol (MRP)	On the switch with Cisco IOS XE version prior to 17.7.1 A Cisco Smart Account is required

Note: The Cisco Catalyst IE3100 and IE3200 Rugged Series support only Network Essentials. L2NAT is supported on the IE3105 and is not supported on IE3100 and IE3200. Cisco TrustSec, PRP, and HSR are available on the Cisco Catalyst IE3400 Rugged Series only.

Note: Cisco DNA Essentials licenses are available for low, medium, and high port counts as well as for different year terms. See the data sheet for a complete detailed list.

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Q: Will customers need a Smart Account for Network Essentials?

A: A Cisco Smart Account is not mandatory for Network Essentials. Customers and partners are advised to create a Smart Account to manage and make sure their Cisco software is compliant.

Q: Will customers and partners need a Smart Account for Network Advantage or Cisco DNA Essentials, Cisco DNA Advantage, or MRP License?

A: Yes. A Cisco Smart Account is needed for these licenses.

Q: Will Cisco DIN rail switches support Smart License and Smart License Reservation?

A: Yes. Cisco DIN rail switches will support Smart License (SL) to interface with cloud-based Smart Account, and the Smart License Reservation (SLR) to manage licenses for switches not able to connect to a cloud-based Smart Account. SL and SLR will be available starting with the release of Cisco IOS XE Release 16.11.1. Smart Licensing Using Policy starts with Cisco IOS XE Release 17.3.2 and 17.4.1.

Q: What is the Cisco Catalyst Center and SD-Access support for Cisco DIN rail switches?

A: Depending upon the model, the Cisco Catalyst Center and SD-Access support will vary. The table below shows which features of Cisco Catalyst Center and SD-Access are supported.

Table 5. Summary of support by Cisco Catalyst Center

Cisco Catalyst Center and SD-Access feature	Switch models that support the feature	Comments
Managed Asset with Cisco DNA Essential license	IE3100, IE3200, IE3300, IE3400, IE3500	All DIN rail products can be managed with the Network Essentials level of support
SD-Access Extended Node support with Cisco DNA Essential license	IE3100, IE3200, IE3300, IE3400, IE3500	Network Essentials is required on the IE3500, IE3400, IE3300, and IE3200
SD-Access Policy Extended Node with Cisco DNA Advantage license	IE3400, IE3500	Policy Extended Node brings support for security with microsegmentation (SGT/SGACL) in an extended role
SD-Access Fabric Edge behavior capable device with Cisco DNA Advantage license	IE3500	

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Learn more

For details about official support of any feature, check the data sheet and Cisco IOS XE release notes for availability of SD-Access Fabric Edge support.

- Cisco Catalyst IE3100 Rugged Series Data Sheet
- Cisco Catalyst IE3100 Heavy Duty Series Data Sheet
- Cisco Catalyst IE3200 Rugged Series Data Sheet
- Cisco Catalyst IE3300 Rugged Series Data Sheet
- Cisco Catalyst IE3400 Rugged Series Data Sheet
- Cisco Catalyst IE3400 Heavy Duty Series Data Sheet
- Cisco IE3500 Rugged Series Data Sheet
- Cisco IE3500 Heavy Duty Series Data Sheet



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