Cisco Catalyst IE9300 Rugged Series

Contents

The Cisco Catalyst™ IE9300 Rugged Series ushers in mainstream adoption of Gigabit / 10 Gigabit Ethernet connectivity in compact 1RU, rack-mount switches that are purpose-built for a wide variety of industrial and extended enterprise applications.

Product overview

Cisco Catalyst IE9300 Rugged Series switches with 28 ports of Gigabit and 10 Gigabit Ethernet interfaces deliver high-speed Ethernet connectivity in a compact form factor and are designed for a wide range of industrial applications for which hardened products are required. The platform is built to withstand harsh environments in manufacturing, energy, transportation, mining, smart cities, and oil and gas. The switches are ideal for outdoor enclosures or harsh environments while adhering to overall IT network design, compliance, and performance requirements.

These switches run Cisco IOS® XE, an operating system with built-in security and trust, featuring Secure Boot, image signing, and the Cisco® Trust Anchor module. Cisco IOS XE also provides API-driven configuration with open APIs and data models.

The Cisco Catalyst IE9300 Rugged Series can be managed with a powerful management tool, Cisco DNA Center, and can easily be set up with a completely redesigned user-friendly modern GUI tool called WebUI. The platform supports Full Flexible NetFlow (FNF) for real-time visibility into traffic patterns and threat analysis with support for Cisco Cyber Vision and Cisco Secure Network Analytics.

The IE9300 Rugged Series switches offer:

- Robust resiliency enabled by features such as dual ring design, Resilient Ethernet Protocol (REP), Parallel Redundancy Protocol (PRP)[2], PROFINET, Media Redundancy Protocol (MRP)[1] ring, High Availability Seamless Redundancy (HSR)[1,2] ring, EtherChannel, integrated redundant power supplies, dying gasp, etc.

- True zero-touch replacement for middle-of-the-night or middle-of-nowhere failures

- Line-rate, low-latency forwarding

- Simplified software management with universal images

- Support for industrial automation protocols EtherNet/IP (CIP) and PROFINET

[1] Support planned with future software updates.

[2] Supported on IE-9320-26S2C and IE-9320-22S2C4X only.

Figure 1.
IE-9310-26S2C switch

Figure 2.
IE-9320-26S2C switch with advanced feature set

Figure 3.
IE-9320-22S2C4X Switch with advanced feature set, including support for GPS/IRIG-B input

Figure 4.
IE-9320-24P4S Switch

Figure 5.
IE-9320-24T4X Switch

Figure 6.
IE-9320-24P4X Switch

Figure 7.
IE-9320-16P8U4X Switch with multi-gigabit and 4PPoE

Features and benefits

Table 1.   Features and benefits

Feature	Benefits
Robust industrial design	• A utility-grade, fully managed 1-Rack-Unit (1RU) rack-mount Ethernet switch • Built for harsh environments and temperature ranges (-40° to 75°C / -40° to 167°F) • Fanless, convection-cooled with no moving parts for extended durability • Hardened for vibration, shock and surge, and electrical noise immunity • Complies with multi-industry specifications for automation, Intelligent Transport Systems (ITS), and substation environments • Improves the uptime, performance, and safety of industrial systems and equipment • IEEE 1588v2 Precision Timing Protocol (PTP) (both power profile for utility and default profile for manufacturing are supported) • Alarm I/O for monitoring and signaling to external equipment
High density Ethernet switch with GE / mGig / 10G options	• Total of 28 Ethernet ports provide multiple resilient design options • Provides secure access for new high-speed applications in the industrial space • Enables new UHD IP cameras, Wi-Fi access points, and future-ready Gigabit speed automation devices • Allows IP-based Supervisory Control And Data Acquisition (SCADA) connectivity • Delivers multiple rings, redundant ring topology for new network configurations • Extends geographical scalability where connectivity over longer distances is required
High-density industrial Power over Ethernet (PoE)	• Support for up to 24 Ports of Power over Ethernet with 802.3af, 802.3at and 802.3bt options • Controls costs by limiting wiring, distribution panels, and circuit breakers • Reduces equipment needs, thus requiring less space and reducing heat dissipation. • Enables ready-to-use high-power PoE devices, such as IP phones, next-generation PTZ cameras, and Wi-Fi 6 wireless access points. • PoE Power budget of up to 720W with two 400W power supplies on PoE variants with 10G uplinks
User-friendly WebUI	• Allows for easy configuration and monitoring, even by nonspecialist personnel • Eliminates the need for more complex terminal emulation programs • Reduces the cost of deployment
Full Flexible NetFlow (FNF)	• Provides enhanced flow and threat visibility • Enables optimization of the network infrastructure, reduces operating costs, and improves capacity planning and security incident detection

Table 2.   Product feature sets

Product family	Platforms supported	Cisco IOS Software image (feature sets) supported
IE9300	IE-9310-26S2C-E/-A	Network Essentials, Network Advantage
	IE-9320-26S2C-E/-A	Network Essentials, Network Advantage
	IE-9320-22S2C4X-E/-A	Network Essentials, Network Advantage
	IE-9320-24P4S-E/-A	Network Essentials, Network Advantage
	IE-9320-24T4X-E/-A	Network Essentials, Network Advantage
	IE-9320-24P4X-E/-A	Network Essentials, Network Advantage
	IE-9320-16P8U4X-E/-A	Network Essentials, Network Advantage

Product specifications

Table 3 highlights the hardware configuration for Cisco Catalyst IE9300 Rugged Series switches.

Table 3.   Hardware configurations

Product number	Total ports	Downlinks	Uplinks (SFP/SFP+)	Software license (default)
IE-9310-26S2C-E	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 1000M	Network Essentials
IE-9310-26S2C-A	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 1000M	Network Advantage
IE-9320-26S2C-E	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 100/1000M	Network Essentials
IE-9320-26S2C-A	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 100/1000M	Network Advantage
IE-9320-22S2C4X-E	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 1/10G	Network Essentials
IE-9320-22S2C4X-A	28	22 ports 100/1000M SFP and 2 ports Dual-Media (100/1000M SFP or 10/100/1000M RJ45)	4 ports 1/10G	Network Advantage
IE-9320-24P4S-E	28	24 ports 10/100/1000M RJ45 PoE+	4 ports 1000M	Network Essentials
IE-9320-24P4S-A	28	24 ports 10/100/1000M RJ45 PoE+	4 ports 1000M	Network Advantage
IE-9320-24T4X-E	28	24 ports 10/100/1000M RJ45	4 ports 1/10G	Network Essentials

Product number	Total ports	Downlinks	Uplinks (SFP/SFP+)	Software license (default)
IE-9320-24T4X-A	28	24 ports 10/100/1000M RJ45	4 ports 1/10G	Network Advantage
IE-9320-24P4X-E	28	24 ports 10/100/1000M RJ45 PoE+	4 ports 1/10G	Network Essentials
IE-9320-24P4X-A	28	24 ports 10/100/1000M RJ45 PoE+	4 ports 1/10G	Network Advantage
IE-9320-16P8U4X-E	28	16 ports 10/100/1000M PoE+ and 8 ports 100/1000/2500M 4PPoE (up to 90W/port)	4 ports 1/10G	Network Essentials
IE-9320-16P8U4X-A	28	16 ports 10/100/1000M PoE+ and 8 ports 100/1000/2500M 4PPoE (up to 90W/port)	4 ports 1/10G	Network Advantage

Tables 4 and 5 highlight the hardware specifications for the Cisco Catalyst IE9300 Rugged Series switches.

Table 4. Hardware specifications

Hardware specification	IE-9310-26S2C -E/-A	IE-9320-26S2C -E/-A IE-9320-22S2C4X-E/-A IE-9320-24P4S-E/-A IE-9320-24T4X-E/-A IE-9320-24P4X-E/-A IE-9320-16P8U4X-E/-A
Hardware	4-GB DRAM 8-GB onboard flash memory[1]	4-GB DRAM 8-GB onboard flash memory[1]
Removable storage	USB[2,3,] SD card[2]	USB[2,3,] SD card[2]
Alarms	4 dry-contact alarm inputs 1 dry-contact Form-C relay alarm output	4 dry-contact alarm inputs 1 dry-contact Form-C relay alarm output
Console ports	1 RS-232 (via RJ-45), 1 Micro USB	1 RS-232 (via RJ-45), 1 Micro USB
Power inputs	Dual AC/DC power inputs	Dual AC/DC power inputs
Cisco StackWise® ports	–	2 stacking ports

[1] User-accessible flash memory is approximately 2.5 GB.

[2] The SD card and USB are optional and are not shipped by default with the switch.

[3] USB 2.0 to load system images and set configurations.

Table 5. Physical configurations

Product number	Dimensions (H x W x D)	Weight[1]	Mounting	Power consumption[2]
IE-9310-26S2C-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H	12.2 lb (5.53 kg)	Rack mount	61W
IE-9320-26S2C-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H	12.2 lb (5.53 kg)	Rack mount	64W
IE-9320-22S2C4X-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H	12.7 lb (5.76 kg)	Rack mount	73W
IE-9320-24P4S-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H • 1.72 x 17.5 x 15.18 in. with PWR-RGD-AC-DC-250 • 1.72 x 17.5 x 15.57 in. with PWR-RGD-AC-DC-400	9.7 lb (4.4 kg)	Rack mount	37W
IE-9320-24T4X-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H	9.5 lb (4.3 kg)	Rack mount	35W
IE-9320-24P4X-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H • 1.72 x 17.5 x 15.18 in. with PWR-RGD-AC-DC-250 • 1.72 x 17.5 x 15.57 in. with PWR-RGD-AC-DC-400	9.7 lb (4.4 kg)	Rack mount	39W
IE-9320-16P8U4X-E/-A	• 1.72 x 17.5 x 14.0 in. with PWR-RGD-AC-DC-H / PWR-RGD-LOW-DC-H • 1.72 x 17.5 x 15.18 in. with PWR-RGD-AC-DC-250 • 1.72 x 17.5 x 15.57 in. with PWR-RGD-AC-DC-400	9.9 lb (4.5 kg)	Rack mount	45W

[1] Chassis only (does not include power supplies or blank cover).

[2] System power consumption is indicative only and will depend on multiple factors:

- The type and number of Small Form-Factor Pluggable (SFP) modules used.

- The type and efficiency of the power supply used.

- The number of power supplies: One power supply versus two power supplies used in the system.

Table 6 highlights the performance and scalability features of the Cisco Catalyst IE9300 Rugged Series switches.

Table 6.   Performance and scalability features

Feature	IE-9310-26S2C -E/-A	IE-9320-26S2C -E/-A IE-9320-24P4S-E/-A	IE-9320-22S2C4X-E/-A IE-9320-24T4X-E/-A IE-9320-24P4X-E/-A	IE-9320-16P8U4X-E/-A
Forwarding rate	28 Gbps (line rate/nonblocking)	28 Gbps (line rate/nonblocking)	64 Gbps (line rate/nonblocking)	76 Gbps (line rate/nonblocking)
Switching bandwidth	56 Gbps (switching bandwidth is full-duplex capacity)	56 Gbps (switching bandwidth is full-duplex capacity)	128 Gbps (switching bandwidth is full-duplex capacity)	152 Gbps (switching bandwidth is full-duplex capacity)
Number of queues / port	8 egress	8 egress	8 egress	8 egress
Unicast MAC addresses	16,000	16,000	16,000	16,000
Internet Group Management Protocol (IGMP) multicast groups	1000	1000	1000	1000
VLANs	1024	1024	1024	1024
IPv4 indirect routes	4000	4000	4000	4000
IPv6 indirect routes	2000	2000	2000	2000
Spanning Tree Protocol (STP) instances	128	128	128	128
Access Control List (ACL) entries (port ACL [PACL], VLAN ACL [VACL], router ACL [RACL])	1408	1408	1408	1408
DRAM	4 GB	4 GB	4 GB	4 GB
Flash (user accessible)	2.5 GB	2.5 GB	2.5 GB	2.5 GB
SD card capacity[1]	4 GB	4 GB	4 GB	4 GB
SD Access Fabric Edge Support	Yes (32 VNs)	Yes (32 VNs)	Yes (32 VNs)	Yes (32 VNs)
SGT/DGT policies	2000	2000	2000	2000
IPv4 to SGT binding	10000	10000	10000	10000
Maximum SVIs	984	984	984	984
SXP Sessions	200	200	200	200

[1] The SD card is optional and is not shipped by default with the switch.

Table 7 highlights the power supply options for the Cisco Catalyst IE9300 Rugged Series switches.

Table 7. Power supply options

Product number	Wattage	Rated nominal input operating range	Supported input voltage operating range	Use case scenario
PWR-RGD-LOW-DC-H	150W	DC 24–60V/10A	DC 18–75V	Low-voltage DC power source Compliant for use in hazardous locations
PWR-RGD-AC-DC-H	150W	AC 100–240V/2.0A 50–60 Hz or DC 100–250V/2.0A	AC 85–264V or DC 88–300V	High-voltage AC or DC power source. Compliant for use in hazardous locations
PWR-RGD-AC-DC-250	250W	AC 100–240V 3.3A 50–60 Hz or DC 100–250V 3.3A	AC 85–264V or DC 88–300V	High-voltage AC or DC power source Compliant for use in hazardous locations
PWR-RGD-AC-DC-400[1]	400W	AC 100–240V 3.3A 50–60 Hz or DC 100–250V 3.3A	AC 85–264V or DC 88–300V	High-voltage AC or DC power source Compliant for use in hazardous locations

[1] Target shipment September 2023 onwards.

Table 8 highlights the PoE capability of the Cisco Catalyst IE9300 Rugged Series switches.

Table 8. Available power[1] budget for PoE/PoE+ with different power supply wattage

Product number	150W	150W (dual)	250W	250W + 150W	250W (dual)	400W	400W (dual)
IE-9320-24P4S-E/-A	70W	190W	170W	280W	370W	320W	385W
IE-9320-24P4X-E/-A	70W	190W	170W	280W	370W	320W	720W
IE-9320-16P8U4X-E/-A	70W	190W	170W	280W	370W	320W	720W

[1] 150W and 250W Power Supplies cannot be used with the 400W Power Supply in a load sharing configuration.

Tables 9 and 10 highlight the software features supported by the Cisco Catalyst IE9300 Rugged Series switches.

Table 9.   Key supported software features (Network Essentials license)

Network Essentials license (perpetual)	Features
Layer 2 switching	802.1Q, 802.1w, 802.1ab, 802.1s, 802.3ad, Per-VLAN Rapid Spanning Tree (PVRST+), Per-VLAN Spanning Tree (PVST+), Rapid PVST (RPVST), Remote Switched Port Analyzer (RSPAN), Switched Port Analyzer (SPAN), STP, Storm Control, VLAN Trunk Protocol (VTP) v2/v3, 802.1Q Tunneling, Layer 2 Tunneling Protocol (L2TP), Q-in-Q, Selective Q-in-Q, EtherChannel
Multicast	IGMP v1/v2/v3, IGMP snooping, Multicast Listener Discovery (MLD) snooping
Management	WebUI, MIB, Simple Network Management Protocol (SNMP), syslog, Dynamic Host Configuration Protocol (DHCP) server, NETCONF, Embedded Event Manager (EEM), Cisco Plug and Play (PnP), Express Setup
Security	DHCPv6 Guard, IP Source Guard, IPv6 Destination Guard, IPv6 Neighbor Discovery Multicast Suppress, IPv6 Router Advertisement (RA) Guard, IPv6 Snooping, IPv6 Source/Prefix Guard, IPv6 Neighbor Discovery Duplicate Address Detection, Flexible NetFlow, PACL, VACL, Network Edge Authentication Topology (NEAT), HTTPS, RADIUS, TACACS+, X.509v3, Secure Shell (SSH), DHCP Snooping, 802.1X, Client Information Signaling Protocol (CISP), Dynamic ARP Inspection (DAI), authentication, authorization, and accounting (AAA), Secure Copy Protocol (SCP), IEEE 802.1AE MACsec-128, TLS 1.3
Quality of Service (QoS)	802.1p, priority queuing, Modular QoS command-line interface (MQC), class-based shaping and marking, egress policing, egress queuing and shaping, Auto-QoS, Differentiated Services Code Point (DSCP) mapping and filtering, low-latency queuing
Layer 3 routing	Static routing, Open Shortest Path First (OSPF), OSPFv3, Routing Information Protocol (RIP), Policy-Based Routing (PBR)
Industrial Ethernet	Locate Switch, Swap Drive, Generic Object-Oriented Substation Events (GOOSE) messaging, SCADA Protocol Classification, PTP (Default Profile, Power Profile 2011, Power Profile 2017), Network Time Protocol (NTP) to PTP, Bidirectional Forwarding Detection (BFD), PTP as refclock for NTP, PROFINET support, Common Industrial Protocol (CIP) Support, Cisco IOx support, Layer 2 Network Address Translation (L2 NAT)
Redundancy	Resilient Ethernet Protocol (REP) ring, REP Fast, HSR[1,2], PRP[2], MRP[1], PTP over PRP[2]
Automation	YANG, NETCONF, RESTCONF

[1] Support planned with future software updates.

[2] Supported on the IE-9320-26S2C-E/-A and IE-9320-22S2C4X-E/-A only.

Table 10. Key supported software features (Network Advantage license)

Network Advantage license (perpetual)[1]	Features
IP routing protocols	Hot Standby Router Protocol (HSRP), Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Intermediate System-to-Intermediate System (IS-IS), Nonstop Forwarding (NSF), LISP
Virtualization	VRF-lite
Security	Cisco TrustSec®: Security group ACL (SGACL), SGACL logging, Extensible Authentication Protocol – Transport Layer Security (EAP-TLS), IEEE 802.1AE MACsec-256, SD-Access Policy Extended Node, SD-Access Fabric Edge Node
IP Multicast	Auto-RP, Multicast Source Discovery Protocol (MSDP), Protocol Independent Multicast (PIM) v2, IPv6 Multicast with VRF-lite support
Industrial Ethernet	Layer 3 Network Address Translation (L3 NAT)

[1] Network Advantage license includes all Network Essentials features.

Table 11 highlights the details of Cisco DNA Essentials and Cisco DNA Advantage licenses for the IE9300 Rugged Series switches.

Table 11. Cisco DNA Essentials and Cisco DNA Advantage licenses

Feature	Description	Cisco DNA Essentials[2]	Cisco DNA Advantage[1,2]
Cisco DNA Center	Discovery, topology, inventory, software image management	Yes	Yes
Visibility	Overall Health Dashboard, Full Flexible Netflow	Yes	Yes
Day-zero network bring-up automation	Cisco Network Plug-and-Play application	Yes	Yes
SD-Access Extended Node	SD-Access fabric overlay extension	Yes	Yes
LAN Automation	Lan automation helps create error-free underlay network for SDA deployments	No	Yes
SD-Access Policy Extended Node	SD-Access fabric overlay extension and segmentation	No	Yes
SD-Access Fabric Edge Node	A fabric device that connects wired endpoints to the SDA fabric.	No	Yes
Device 360	Device 360, Client 360, and Network Health Insights	No	Yes

Feature	Description	Cisco DNA Essentials[2]	Cisco DNA Advantage[1,2]
Patch/SMU Lifecycle Management	Management of Software Maintenance Upgrades (SMU) or Patches via Cisco DNA Centre	No	Yes
Application Visibility and Control (NBAR2)	Provides application-level classification, monitoring, and traffic control	No	Yes

[1] Cisco DNA Advantage license can be paired only with the Network Advantage license.

[2] Cisco DNA licenses for Industrial Ethernet switches are add-on/optional and not mandatory. They do not include Network Tier features.

Table 12 highlights the compliance specifications for the Cisco Catalyst IE9300 Rugged Series switches.

Table 12. Compliance specifications[3]

Descriptions	Specifications
Electromagnetic emissions	FCC 47 CFR Part 15 Class A EN 55032 Class A VCCI Class A AS/NZS CISPR 32 Class A CISPR 11 Class A CISPR 32 Class A ICES 003 Class A CNS15936[6] EN 300 386 EN 61000-3-2 Harmonic Current Emissions EN 61000-3-3 Voltage Fluctuations and Flicker KS C9832
Radio	EN 303 413[5]
Electromagnetic immunity	EN55024/EN5035 CISPR 24/CISPR35 KS C9835 EN 61000-4-2 Electro Static Discharge EN 61000-4-3 Radiated RF EN 61000-4-4 Electromagnetic Fast Transients EN 61000-4-5 Surge EN 61000-4-6 Conducted RF EN 61000-4-8 Power Frequency Magnetic Field EN 61000-4-10 Oscillatory Magnetic Field EN 61000-4-11 AC Voltage Dips EN 61000-4-29 DC Voltage Dips EN 301 489-19 and -1[5]

Descriptions	Specifications
Industry standards	EN 61000-6-2 Industrial
	EN 61000-6-4 Industrial
	EN 61000-6-1 Light Industrial
	EN 61326 Industrial Control
	IEEE 1613:2009 Electric Power Stations Communications Networking[3, 4]
	IEC 61850-3 Electric Substations Communications Networking[3, 4]
	EN 50121-4[4]
	ODVA Industrial EtherNet/IP
	IP30 (per EN60529)
Safety standards and certifications	Information technology equipment:
	UL/CSA 60950-1
	EN 60950-1, CB to IEC 60950-1 with all country deviations
	UL/CUL 62368-1, CB to IEC62368-1 with country deviations
	NOM to NOM-019-SCFI (through partners and distributor)
	Industrial floor (control equipment):
	CB report and certificate to IEC 61010-2-201
	UL/CSA 61010-2-201
	CSA C22.2, No.142
	Hazardous locations:
	UL 121201 (Class I, Div 2, groups A-D)
	CSA 213 (Class I, Div 2, groups A-D)
	UL/CSA 60079-0, -7 (Class I, Zone 2, Gc/IIC)
	IEC 60079-0, -7 IECEx test report (Class I, Zone 2, Gc/IIC, ec)
	EN 60079-0, -7 ATEX certificate (Class I, Zone 2, Gc/IIC, ec)

Descriptions	Specifications
Operating environment	Operating temperature: -40° to 75°C (-40° to 167°F) (blower-equipped cabinet) -40° to 60°C (-40° to 140°F) (sealed cabinet)[2] -40° to 70°C (-40° to 158°F) (vented cabinet) EN 60068-2-1 EN 60068-2-2 EN 61163 Altitude: Up to 15,000 feet (4572 m) with no temperature derating Up to 40,000 feet (12,192 m) with temperature derating down to 25°C (77°F)
Storage environment	Temperature: -40° to 85°C (-40° to 185°F) Altitude: 15,000 feet (4572 m) IEC 60068-2-14
Humidity	Relative humidity of 5% to 95% noncondensing IEC 60068-2-3 IEC 60068-2-30
Shock and vibration	IEC 60068-2-6 (Vibration) IEC 60068-2-27 (Shock) IEC 60068-2-31 (Shock) IEC 60068-2-32 (Shock) IEC 60068-2-64 (Vibration)
Corrosion	IEC 60068-2-52 (salt fog)[1] IEC 60068-2-60 (flowing mixed gas)[1]
Warranty	Five-year limited hardware warranty on all IE9300 product IDs and all Industrial Ethernet (IE) power supplies. See more information in the Warranty section.

[1] Pending

[2] Safety approved up to 60°

[3] Specifications data pending for IE-9320-24T4X, IE-9320-24P4X, IE-9320-16P8U4X, IE-9320-24P4S

[4] IE-9310-26S2C and IE-9320-26S2C only

[5] IE-9320-22S2C4X only

[6] Pending for IE-9320-22S2C4X

Table 13 highlights the Mean Time Between Failures (MTBF) for the Cisco Catalyst IE9300 Rugged Series switches.

Table 13. MTBF information

Product ID	Rated MTBF (hours) based on Telcordia Issue 4
IE-9310-26S2C -E/-A	435,092
IE-9320-26S2C -E/-A	413,687
IE-9320-22S2C4X -E/-A	312,948
IE-9320-24P4S -E/-A	250,037
IE-9320-24T4X -E/-A	335,936
IE-9320-24P4X -E/-A	250,037
IE-9320-16P8U4X -E/-A	250,733

Table 14 highlights information about management and standards for the Cisco Catalyst IE9300 Rugged Series switches.

Table 14. Management and standards

Description	Specifications	
IEEE standards	• IEEE 802.1D MAC Bridges, STP • IEEE 802.1p Layer2 COS prioritization • IEEE 802.1q VLAN • IEEE 802.1s Multiple Spanning-Trees • IEEE 802.1w Rapid Spanning-Tree • IEEE 802.1x Port Access Authentication • IEEE 802.1AB LLDP • IEEE 802.3ad Link Aggregation (LACP)	• IEEE 802.3ah 100BASE-X SMF/MMF only • IEEE 802.3u 100BASE-TX specification • IEEE 802.3ab 1000BASE-T specification • IEEE 802.3z 1000BASE-X specification • IEEE 1588v2 PTP Precision Time Protocol
RFC compliance	• RFC 768: UDP • RFC 783: TFTP • RFC 791: IPv4 protocol • RFC 792: ICMP • RFC 793: TCP • RFC 826: ARP • RFC 854: Telnet • RFC 951: BOOTP • RFC 959: FTP • RFC 1157: SNMPv1 • RFC 1901,1902-1907 SNMPv2 • RFC 2273-2275: SNMPv3 • RFC 2571: SNMP Management • RFC 1166: IP Addresses • RFC 1256: ICMP Router Discovery	• RFC 1305: NTP • RFC 1492: TACACS+ • RFC 1493: Bridge MIB Objects • RFC 1534: DHCP and BOOTP interoperation • RFC 1542: Bootstrap Protocol • RFC 1643: Ethernet Interface MIB • RFC 1757: RMON • RFC 2068: HTTP • RFC 2131, 2132: DHCP • RFC 2236: IGMP v2 • RFC 3376: IGMP v3 • RFC 2474: DiffServ Precedence • RFC 3046: DHCP Relay Agent Information Option • RFC 3580: 802.1x RADIUS • RFC 4250-4252 SSH Protocol

Description	Specifications	
SNMP MIB objects	• BRIDGE-MIB	• CISCO-SNMP-TARGET-EXT-MIB
	• CALISTA-DPA-MIB	• CISCO-STACK-MIB
	• CISCO-ACCESS-ENVMON-MIB	• CISCO-STACKMAKER-MIB
	• CISCO-ADMISSION-POLICY-MIB	• CISCO-STACKWISE-MIB
	• CISCO-AUTH-FRAMEWORK-MIB	• CISCO-STP-EXTENSIONS-MIB
	• CISCO-BRIDGE-EXT-MIB	• CISCO-SYSLOG-MIB
	• CISCO-BULK-FILE-MIB	• CISCO-TCP-MIB
	• CISCO-CABLE-DIAG-MIB	• CISCO-UDLDP-MIB
	• CISCO-CALLHOME-MIB	• CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB
	• CISCO-CAR-MIB	• CISCO-VLAN-MEMBERSHIP-MIB
	• CISCO-CDP-MIB	• CISCO-VTP-MIB
	• CISCO-CIRCUIT-INTERFACE-MIB	• ENTITY-MIB
	• CISCO-CLUSTER-MIB	• ETHERLIKE-MIB
	• CISCO-CONFIG-COPY-MIB	• HC-RMON-MIB
	• CISCO-CONFIG-MAN-MIB	• IEEE8021-PAE-MIB
	• CISCO-DATA-COLLECTION-MIB	• IEEE8023-LAG-MIB
	• CISCO-DHCP-SNOOPING-MIB	• IF-MIB
	• CISCO-EMBEDDED-EVENT-MGR-MIB	• IP-FORWARD-MIB
	• CISCO-ENTITY-ALARM-MIB	• LLDP-EXT-MED-MIB
	• CISCO-ENTITY-VENDORTYPE-OID-MIB	• LLDP-EXT-PNO-MIB
	• CISCO-ENVMON-MIB	• LLDP-MIB
	• CISCO-ERR-DISABLE-MIB	• NETRANGER
	• CISCO-FLASH-MIB	• NOTIFICATION-LOG-MIB
	• CISCO-FTP-CLIENT-MIB	• OLD-CISCO-CHASSIS-MIB
	• CISCO-IGMP-FILTER-MIB	• OLD-CISCO-CPU-MIB
	• CISCO-IMAGE-MIB	• OLD-CISCO-FLASH-MIB
	• CISCO-IP-STAT-MIB	• OLD-CISCO-INTERFACES-MIB
	• CISCO-LAG-MIB	• OLD-CISCO-IP-MIB
	• CISCO-LICENSE-MGMT-MIB	• OLD-CISCO-MEMORY-MIB
	• CISCO-MAC-AUTH-BYPASS-MIB	• OLD-CISCO-SYS-MIB<
	• CISCO-MAC-NOTIFICATION-MIB	• OLD-CISCO-SYSTEM-MIB
	• CISCO-MEMORY-POOL-MIB	• OLD-CISCO-TCP-MIB
	• CISCO-PAE-MIB	• OLD-CISCO-TS-MIB
	• CISCO-PAGP-MIB	• RMON-MIB
	• CISCO-PING-MIB	• RMON2-MIB
	• CISCO-PORT-QOS-MIB	• SMON-MIB
	• CISCO-PORT-SECURITY-MIB	• SNMP-COMMUNITY-MIB
	• CISCO-PORT-STORM-CONTROL-MIB	• SNMP-FRAMEWORK-MIB
	• CISCO-PRIVATE-VLAN-MIB	• SNMP-MPD-MIB
	• CISCO-PROCESS-MIB	• SNMP-NOTIFICATION-MIB
	• CISCO-PRODUCTS-MIB	• SNMP-PROXY-MIB
	• CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB	• SNMP-TARGET-MIB
	• CISCO-RTTMON-ICMP-MIB	• SNMP-USM-MIB
	• CISCO-RTTMON-IP-EXT-MIB	• SNMP-VIEW-BASED-ACM-MIB
	• CISCO-RTTMON-MIB	• SNMPv2-MIB
	• CISCO-RTTMON-RTP-MIB	• TCP-MIB
		• UDP-MIB

Table 15 highlights information about supported SFP modules for the Cisco Catalyst IE9300 Rugged Series switches.

Table 15. SFP support

Part number	Specification	SFP type	Max distance	Cable type	Temperature range[1]	Digital optical monitoring (DOM) support
GLC-FE-100FX-RGD=	100BASE-FX	FE	2 km	MMF	IND	Yes
GLC-FE-100LX-RGD=	100BASE-LX10	FE	10 km	SMF	IND	Yes
GLC-FE-100FX=	100BASE-FX	FE	2 km	MMF	COM	No
GLC-FE-100LX=	100BASE-LX10	FE	10 km	SMF	COM	No
GLC-FE-100EX=	100BASE-EX	FE	40 km	SMF	COM	No
GLC-FE-100ZX=	100BASE-ZX	FE	80 km	SMF	COM	No
GLC-FE-100BX-D=	100BASE-BX10	FE	10 km	SMF	COM	No
GLC-FE-100BX-U=	100BASE-BX10	FE	10 km	SMF	COM	Yes
GLC-SX-MM-RGD=	1000BASE-SX	GE	550 m	MMF	IND	Yes
GLC-LX-SM-RGD=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	IND	Yes
GLC-ZX-SM-RGD=	1000BASE-ZX	GE	70 km	SMF	IND	Yes
GLC-BX40-U-I=	1000BASE-BX40	GE	40 km	SMF	IND	Yes
GLC-BX40-D-I=	1000BASE-BX40	GE	40 km	SMF	IND	Yes
GLC-BX80-U-I=	1000BASE-BX80	GE	80 km	SMF	IND	Yes
GLC-BX80-D-I=	1000BASE-BX80	GE	80 km	SMF	IND	Yes
GLC-SX-MMD=	1000BASE-SX	GE	550 m	MMF	EXT	Yes
GLC-LH-SMD=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	EXT	Yes
GLC-EX-SMD=	1000BASE-EX	GE	40 km	SMF	EXT	Yes
GLC-ZX-SMD=	1000BASE-ZX	GE	70 km	SMF	EXT	Yes
GLC-BX-D=	1000BASE-BX10	GE	10 km	SMF	COM	Yes

Part number	Specification	SFP type	Max distance	Cable type	Temperature range[1]	Digital optical monitoring (DOM) support
GLC-BX-U=	1000BASE-BX10	GE	10 km	SMF	COM	Yes
CWDM-SFP-xxxx=	CWDM 1000BASE-X	GE		SMF	COM	Yes
DWDM-SFP-xxxx=	DWDM 1000BASE-X	GE		SMF	COM	Yes
SFP-GE-S=	1000BASE-SX	GE	550 m	MMF	EXT	Yes
SFP-GE-L=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	EXT	Yes
SFP-GE-Z=	1000BASE-ZX	GE	70 km	SMF	EXT	Yes
GLC-SX-MM=	1000BASE-SX	GE	550 m	MMF	COM	No
GLC-LH-SM=	1000BASE-LX/LH	GE	550 m/10 km	MMF/SMF	COM	No
GLC-ZX-SM=	1000BASE-ZX	GE	70 km	SMF	COM	Yes
GLC-TE=[2]	1000BASE-T	GE	100 m	Copper	EXT	NA
GLC-T=[2]	1000BASE-T	GE	100 m	Copper	COM	NA
GLC-T-RGD=[2]	1000BASE-T	GE	100 m	Copper	IND	NA
ONS-SI-GE-SX=	1000BASE-SX	GE	500 m	MMF	IND	
ONS-SI-GE-LX=	1000BASE-LX	GE	10 km	SMF	IND	
ONS-SI-GE-EX=	1000BASE-EX	GE	40 km	SMF	IND	
ONS-SI-GE-ZX=	1000BASE-ZX	GE	80 km	SMF	IND	
ONS-SE-GE-BXU=	1000BASE-BX	GE	10 km	SMF	EXT	
ONS-SE-GE-BXD=	1000BASE-BX	GE	10 km	SMF	EXT	
GLC-BX-U-I=	1000BASE-BX	GE	10 km	SMF	IND	
GLC-BX-D-I=	1000BASE-BX	GE	10 km	SMF	IND	
SFP-10G-BXD-I=	10GBASE-BX	10G	10 km	SMF	IND	Yes
SFP-10G-BXU-I=	10GBASE-BX	10G	10 km	SMF	IND	Yes
SFP-10G-BX40D-I=	10GBASE-BX	10G	40 km	SMF	IND	Yes
SFP-10G-BX40U-I=	10GBASE-BX	10G	40 km	SMF	IND	Yes
SFP-10G-SR-X=	10GBASE-SR	10G	400 m	MMF	EXT	Yes
SFP-10G-SR-I=	10GBASE-SR	10G	400 m	MMF	EXT	Yes
SFP-10G-LR-X=	10GBASE-LR	10G	10 km	SMF	EXT	Yes

Part number	Specification	SFP type	Max distance	Cable type	Temperature range[1]	Digital optical monitoring (DOM) support
SFP-10G-SR=	10GBASE-SR	10G	400 m	MMF	COM	Yes
SFP-10G-LR=	10GBASE-LR	10G	10 km	SMF	COM	Yes
SFP-10G-ER=	10GBASE-ER	10G	40 km	SMF	COM	Yes
SFP-10G-ZR=	10GBASE-ZR	10G	80 km	SMF	COM	Yes
SFP-H10GB-CUxM=	Twinax Cable	10G	1m, 3m, 5m	-	COM	-
SFP-H10GB-ACUxM=	Twinax Cable	10G	7m, 10m	-	COM	-
ONS-SI+-10G-SR=	10GBASE-SR	10G	400 m	MMF	IND	Yes
ONS-SI+-10G-LR=	10GBASE-LR	10G	10 km	SMF	IND	Yes
ONS-SI+-10G-ER=	10GBASE-ER	10G	40 km	SMF	IND	Yes
ONS-SI+-10G-ZR=	10GBASE-ZR	10G	80 km	SMF	IND	Yes
SFP-10G-ER-I=	10GBASE-ER	10G	40 km	SMF	IND	Yes
SFP-10G-ZR-I=	10GBASE-ZR	10G	80 km	SMF	IND	Yes
SFP-10G-T-X=	10GBASE-T	10G	30 m	Copper	EXT	NA
SFP-10G-LR10-I=	10GBASE-LR	10G	10 km	SMF	IND	Yes
DWDM-SFP10G-xxxx=	DWDM 10GBASE-X	10G		SMF	COM	Yes
CWDM-SFP10G-xxxx=	CWDM 10GBASE-X	10G		SMF	COM	Yes

[1] If nonindustrial SFPs (EXT, COM) are used, the switch operating temperature must be derated.

[2] Degrades PTP performance.

Ordering information

Table 16 lists the ordering information for the Cisco Catalyst IE9300 Rugged Series switches.

Table 16. Ordering information

Product ID	Description
IE-9310-26S2C-E	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports GE SFP uplinks, NE
IE-9310-26S2C-A	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports GE SFP uplinks, NA
IE-9320-26S2C-E	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports GE SFP uplinks, Stackable, NE
IE-9320-26S2C-A	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports GE SFP uplinks, Stackable, NA
IE-9320-22S2C4X-E	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NE
IE-9320-22S2C4X-A	Catalyst IE9300 w/ 24 Ports GE SFP Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NA
IE-9320-24P4S-E[1]	Catalyst IE9300 w/ 24 Ports GE PoE+ Downlinks and 4 Ports GE SFP uplinks, Stackable, NE
IE-9320-24P4S-A[1]	Catalyst IE9300 w/ 24 Ports GE PoE+ Downlinks and 4 Ports GE SFP uplinks, Stackable, NA
IE-9320-24T4X-E[1]	Catalyst IE9300 w/ 24 Ports GE Cu Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NE
IE-9320-24T4X-A[1]	Catalyst IE9300 w/ 24 Ports GE Cu Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NA
IE-9320-24P4X-E[1]	Catalyst IE9300 w/ 24 Ports GE PoE+ Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NE
IE-9320-24P4X-A[1]	Catalyst IE9300 w/ 24 Ports GE PoE+ Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NA
IE-9320-16P8U4X-E[1]	Catalyst IE9300 w/ 16 Ports GE PoE+ and 8 Ports 2.5G 4PPoE Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NE
IE-9320-16P8U4X-A[1]	Catalyst IE9300 w/ 16 Ports GE PoE+ and 8 Ports 2.5G 4PPoE Downlinks and 4 Ports 10G SFP+ uplinks, Stackable, NA
SD-IE-4GB=	4GB SD memory card for IE
CAB-STK-0.5M=	Cisco 0.5M stack cable
CAB-STK-1M=	Cisco 1M stack cable
RM-RGD-19IN=	Spare 19IN rack-mount kit
RM-RGD-23IN=	23IN NEBS rack-mount kit
RM-RGD-ETSI=	ETSI rack-mount kit
PWR-RGD-AC-DC-H	Hazloc Power Supply High AC/DC 85-264VAC/88-300VDC
PWR-RGD-LOW-DC-H	Hazloc Power Supply Low DC 24-60V/10A
PWR-RGD-AC-DC-250	Hazloc Power Supply 100-240VAC/100-250VDC

Product ID	Description
PWR-RGD-AC-DC-400[1]	Hazloc Power Supply 100-240VAC/100-250VDC, 400W
IE9300-NW-A=	Network Advantage License for IE9300, Perpetual
IE9300-DNA-E	Cisco DNA Essentials license for IE9300 Series
IE9300-DNA-E-3Y	IE 9300 Cisco DNA Essentials, 3 Year Term license
IE9300-DNA-E-5Y	IE 9300 Cisco DNA Essentials, 5 Year Term license
IE9300-DNA-E-7Y	IE 9300 Cisco DNA Essentials, 7 Year Term license
IE9300-DNA-A	Cisco DNA Advantage license for IE9300 Series
IE9300-DNA-A-3Y	IE 9300 Cisco DNA Advantage, 3 Year Term license
IE9300-DNA-A-5Y	IE 9300 Cisco DNA Advantage, 5 Year Term license
IE9300-DNA-A-7Y	IE 9300 Cisco DNA Advantage, 7 Year Term license

[1] Target shipment September 2023 onwards

Warranty

Five-year limited hardware warranty on all IE9300 product IDs and power supplies (see Table 15 above). See the following link for more details on the warranty: https://www.cisco.com/c/en/us/products/warranties/warranty-doc-c99-740591.html.

Cisco environmental sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environment Sustainability" section of Cisco's Corporate Social Responsibility (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Reference links to product-specific environmental sustainability information that is mentioned in relevant sections of this data sheet are provided in the following table:

Sustainability topic	Reference
Power	
Power specifications and consumption	[Table 5. IE9300 physical configurations](#)
Environmental characteristics	
Operating temperature, industry standards, EMC emissions	[Table 12. Compliance specifications](#)
Material	
Unit weight	[Table 5: IE9330 physical configurations](#)

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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For more information

For more information about the Cisco IE 9300 Series, visit https://www.cisco.com/go/ie9300 or contact your local account representative.

Document history

New or Revised Topic	Described In	Date
Updated Features L2 NAT, PTP as Ref for NTP, CIP, PROFINET. REP Fast, Power Profile 2017, SD-Access Fabric Edge Node and Cisco DNA Centre License Matrix	Table 9, Table 10 and Table 11	April 12, 2023

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