Cisco IE3500 Heavy Duty Series

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Products overview

The Cisco IE3500 Heavy Duty Series (IE3500H) switches deliver high bandwidth, high power and better switching performance in a dustproof and waterproof form factor. The Cisco IE3500 Heavy Duty Series is designed to support features that enable the industrial network infrastructure to seamlessly accommodate machine vision use cases, AI-driven analysis, virtualization, and robust security for Operational Technology (OT) networks.

Advanced Features for Operational Technology (OT) Networks

- **TSN Frame-Preemption:** With IEEE802.1Qbu and IEEE802.3br based frame-preemption technology, the IE3500H significantly reduces jitter and delay in transmission of time-sensitive control traffic in OT networks.
- **Enhanced Resiliency:** The IE3500H supports protocols such as **Media Redundancy Protocol (MRP), Resilient Ethernet Protocol (REP)**, and **Device Level Ring (DLR)**[1], providing redundancy and fast failover times.
- **Lossless Redundancy:** For deployments requiring uninterrupted connectivity, the IE3505H includes **High-Availability Seamless Redundancy (HSR)**[1] and **Parallel Redundancy Protocol (PRP)**[1], ensuring seamless failover and network continuity.

Network Security and Observability

- **Secure Boot:** The IE3500H features Secure Boot designed to ensure that only trusted and authenticated software is executed during the boot process, with its hardware-anchored root of trust in Cisco Trust Anchor Module.
- **Cyber visibility:** With Cisco Cyber Vision included*, the IE3500H identifies connected assets, their profiles, vulnerabilities, and communication patterns to assess your OT security posture and help drive cybersecurity best practices.
- **Secure remote access:** With Cyber Vision's Secure Equipment Access included*, the IE3500H enables zero-trust remote access to connected assets to help you control risks from remote users.
- **Segmentation:** Cisco TrustSec technology enables policy-based segmentation that helps reduce attack surfaces and contains threats by automatically adapting access based on user and device identity.
- **Network Assurance:** IE3500 can host ThousandEyes Enterprise Agent that gains visibility into owned and third-party network to avoid network outages.

Flexible Management Options

The IE3500H offers multiple management choices to suit various deployment needs:

1. **On-Device Management:** Use the **WebUI or command line tool** for standalone devices, providing an intuitive on-device GUI and CLI options.
2. **On-Premises Management:** Manage the IE3500H via **Catalyst Center** for on-premises deployments.

Fabric Capabilities

The IE3500H supports Layer 3 functionality and can extend the IT fabric into the OT network. With support for Cisco Software Defined Access Fabric Edge and BGP-EVPN, large networks are easy to scale and manage.

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Future-Ready Network Capabilities

The IE3500H is designed to meet the demands of expanding networks, offering:

- **Two 10G (SFP+) uplink ports** for high-speed connectivity.
- **Up to 60W of PoE power per port**, ensuring support for power-intensive devices.

The Cisco IE3500 Heavy Duty Series is a secure, scalable, and reliable solution, ideal for industrial environments requiring high performance, advanced security, and seamless connectivity.

[1] Supported on IE3505H variants only

[*] The included Cyber Vision and SEA License are for 24 end points and a 3-year term. Please see Ordering Information section for more details.

Figure 1.
Cisco IE3500H Product Family

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Features and benefits

Table 1. IE3500H Features and Benefits

Feature	Benefit
Heavy-duty design and industry compliance	• Built for harshest environments and temperature ranges (-40° C to +75° C or -40° F to 167° F) • IP66/IP67 rated, providing protection against dust and submersion in water • Hardened for vibration, shock and surge, electrical noise immunity • Compliant with industrial automation standards; supports Ethernet/IP Common Industrial Protocol (CIP) • Supports Supervisory Control And Data Acquisition (SCADA) protocol, Modbus TCP/IP
Ethernet Interfaces	• Provides secure access for new high-speed applications in the industrial space • Choice of different port counts from 8 to 24 with a mix of X-code, D-code, SFP ports to choose from • Port speed options range from 100M to 10G • Connects high-speed wireless access points (802.11n, 802.11ac, 802.11ax, 802.11be) • Enables High-Definition (HD) IP cameras and Programmable Logic Controllers (PLC) • Supports precision time protocol as a transparent or a boundary clock. • Delivers multiple resilient rings and redundant ring topology for network configurations
High-density industrial Power over Ethernet (PoE)	• Supports up to 14 PoE ports with combination or PoE/PoE+/4PPoE ports and total power budget of up to 240W • Fast and Perpetual PoE ensure seamless PoE experience and quick boot of end points • 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 PoE devices, such as IP phones, cameras, and wireless access points
Network security	• Device security for secure boot with its hardware-anchored root of trust in Cisco Trust Anchor Module • Support for MACSEC-256 to prevent man-in-the-middle attack • Cisco Cyber Vision included* to identify all connected assets, their profiles, vulnerabilities, communication activities, and your OT security posture • Supports Cisco TrustSec technology based network segmentation to help reduce the spread of malware • Cyber Vision's Secure Equipment Access included* for zero-trust remote access to connected assets, enabling secure troubleshooting, monitoring, and maintenance, without requiring VPNs
Management	• Easy configuration through WebUI on device • On-prem management through Catalyst Center

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Feature	Benefit
IOx Application Hosting	• Cisco Cyber Vision for cyber visibility in the industrial environment • Cyber Vision's Secure Equipment Access for zero trust remote access to OT assets • ThousandEyes enterprise Agent
Fabric support	• Scale OT networks by enabling fabric over Layer 3 underlay • Support for Cisco Software Defined Access • Extended and Policy Extended node • Fabric Edge node[1] • Support for BGP-EVPN[1]
Swap Drive: zero-configuration replacement	• True zero-configuration and simple switch replacement when swapping RMA units or system upgrade • No networking expertise required • Helps ensure fast recovery
Full Flexible NetFlow (FNF)	• Provides enhanced flow and threat visibility • Enables optimization of the network infrastructure, reduces operation costs, and improves capacity planning and security incident detection
Advanced data plane features[1]	• Parallel Redundancy Protocol (PRP)[2] • High-availability Seamless Redundancy protocol (HSR)[2] • Device Level Ring (DLR)[2]

[1] Planned to be supported with a future IOS-XE release

[2] Supported on IE3505H variants only

[*] The included Cyber Vision and SEA License are for 24 end points and a 3-year term. Please see Ordering Information section for more details.

Table 2. Product Feature Set

Product family	Platforms supported	Cisco IOS Software images (feature sets) supported
IE3500	IE3500H	Network Essentials, Network Advantage[1]

[1] Network Advantage License includes all Network Essentials Features as well as a 3- year limited term and 24 endpoints Advantage license of Cisco Cyber Vision and Secure Equipment Access at no extra cost.

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Table 3. IE3500H Port Configurations

Product number*	Total ports	1000/100/10M M12 X-Code ports	100/10M M12 D-Code ports	10G/1G SFP ports	mGig/4PPoE (Type 3) ports	PoE budget	Lossless Redundancy Protocol Support	Network Essential/Network Advantage
IE-3500H-8T-E	8	8	N.A.	--	--	--	N	Network Essentials
IE-3500H-16T-E	16	16	N.A.	--	--	--	N	
IE-3500H-24T-E	24	24	N.A.	--	--	--	N	
IE-3500H-12FT4T-E	16	4	12	--	--	--	N	
IE-3500H-20FT4T-E	24	4	20	--	--	--	N	
IE-3500H-14P2T-E	16	16	--	--	--	240W	N	
IE-3500H-12P2MU2XE	16	12	--	2	2	240W	N	
IE-3505H-16T-E	16	16	--	--	--	--	Y	
IE-3500H-8T-A	8	8	--	--	--	--	N	Network Advantage
IE-3500H-16T-A	16	16	--	--	--	--	N	
IE-3500H-24T-A	24	24	--	--	--	--	N	
IE-3500H-12FT4T-A	16	4	12	--	--	--	N	
IE-3500H-20FT4T-A	24	4	20	--	--	--	N	
IE-3500H-14P2T-A	16	16	--	--	--	240W	N	
IE-3500H-12P2MU2XA	16	12	--	2	2	240W	N	
IE-3505H-16T-A	16	16	--	--	--	--	Y	

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Table 4. Hardware Specifications

Hardware specifications	All SKUs
Removable storage	SD card[1]
Alarm[2, 3]	1 alarm output relay, 1 alarm input
Console ports[2]	1
Power input	Mini-change, single power source

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

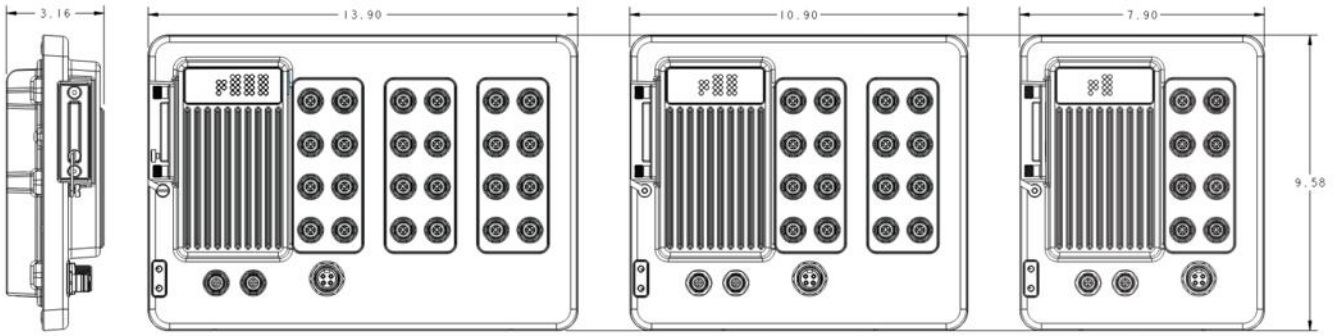
[2] Using an M12 A-coded 5-pin connector.

[3] Relay maximum rating: 30Vdc,1A or 60Vdc, 0.5A.

Table 5. Physical Configurations

Physical specifications	IE-3500H-8T	IE-3500H-16T	IE-3500H-24T	IE-3500H-12FT4T	IE-3500H-20FT4T	IE-3500H-14P2T	IE-3500H-12P2MU2X	IE-3505H-16T
Dimensions (H x W x D)	9.58 x 7.90 x 3.16 in. 24.33 x 20.07 x 8.03 cm	9.58 x 10.90 x 3.16 in. 24.33 x 27.69 x 8.03 cm	9.58 x 13.90 x 3.16 in. 24.33 x 35.31 x 8.03 cm	9.58 x 10.90 x 3.16 in. 24.33 x 27.69 x 8.03 cm	9.58 x 13.90 x 3.16 in. 24.33 x 35.31 x 8.03 cm	9.58 x 10.90 x 3.16 in. 24.33 x 27.69 x 8.03 cm	10.46 x 10.90 x 3.36 in 26.57 x 27.69 x 8.53 cm	9.58 x 10.90 x 3.16 in. 24.33 x 27.69 x 8.03 cm
Weight (including mounting bracket)	8.45 lb 3.83 kg	11.25 lb 5.10 kg	13.90 lb 6.30 kg	11.25 lb 5.10 kg	13.90 lb 6.30 kg	11.25 lb 5.10 kg	11.40 lb 5.17 kg	11.25 lb 5.10 kg
Mounting	Wall mount	Wall mount	Wall mount	Wall mount	Wall mount	Wall mount	Wall mount	Wall mount

IE3500H Product Drawing Images



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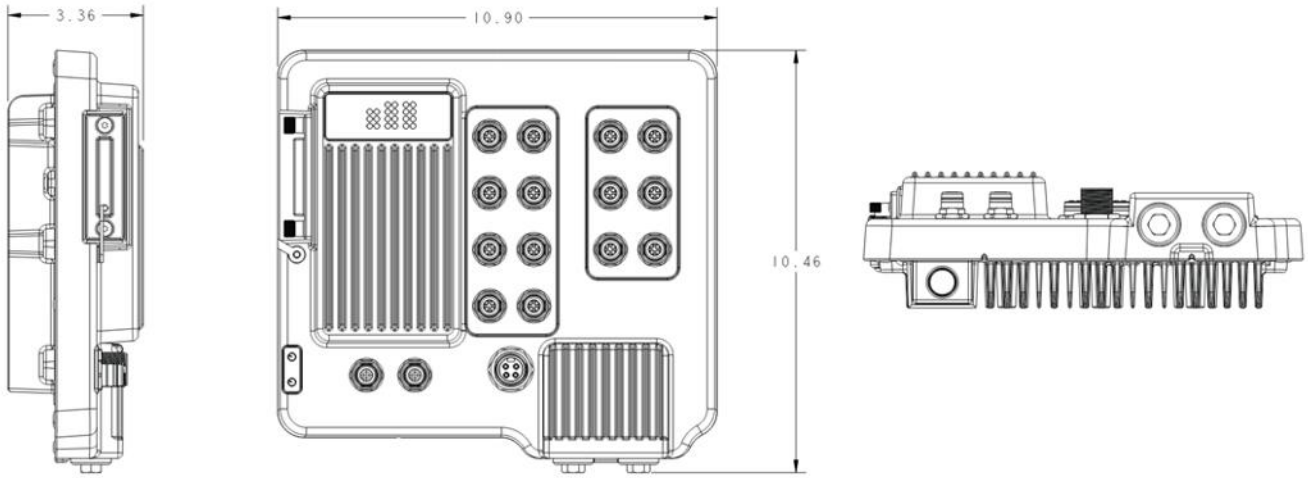
Dimensions of IE-3500H-8T, IE-3500H-16T, IE-3500H-24T, IE-3505H-16T, IE-3500H-12FT4T, IE-3500H-20FT4T, IE-3500H-14P2T



Dimensions of IE-3500H-12P2MU2X

Table 6. Performance and Scalability Features

Resource	All PIDs
Forwarding rate	Line rate for all ports for all packet sizes
Number of queues	8
Unicast MAC addresses	24000
IGMP multicast groups	1024
No. of Active VLANs	1024
No. of VLAN IDs	4096
IPv4 Indirect routes	7000
IPv6 Indirect routes	3500
Spanning Tree Protocol instances	128
Access Control Entries (PACLs)	1536
DRAM	8 GB
Flash (user accessible)	5.1 GB
SD card capacity[1]	16 GB
Jumbo Frames[2]	9198 bytes
Number of SVI	32

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Resource	All PIDs
VNI scale (SD-Access)	L3 VNI: 32; L2 VNI: 200

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

[2] Jumbo Frames are limited to 2000 bytes when using ERSPAN/DLR/PRP/HSR/SGT.

Table 7. Power Specifications

Power specifications	IE-3500H-8T	IE-3500H-16T	IE-3500H-24T	IE-3500H-12FT4T	IE-3500H-20FT4T	IE-3500H-14P2T[1]	IE-3500H-12P2MU2X[1]	IE-3505H-16T
Input voltage range (Absolute)	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-54VDC	12-54VDC	12- 48VDC
Input Voltage for PoE	N.A.	N.A.	N.A.	N.A.	N.A.	44-54VDC	44-54VDC	N.A.
Input current @ (9.6V/60V)	3.1A	3.4A	3.5A	3.4A	3.5A	5.8A	6A	3.7A
Power consumption @ (9.6V/60V)[1]	38W	41W	42W	41W	42W	45W	45W	45W

[1] Power consumption for non PoE supported model is measured at 12V and for the PoE supported model is measured at 54V. Power consumption does not include the power that is provided to attached PoE devices.

Table 8 and Table 9 Highlights the supported software features for Cisco IE3500H Heavy Duty Series switches

Table 8. Key Supported Software Features (Network Essentials)

Network Essentials License (Perpetual)	Features
Layer 2 switching	IEEE 802.1Q, 802.1w,802.1ab,802.1s, 802.3ad, NTP, UDLD, CDP, LLDP, unicast MAC filter, PAgP, LACP VTPv2, VTPv3, EtherChannel, Q-in-Q tunneling, voice VLAN, PVST+, MSTP, RSTP, Selective Q-in-Q, Layer 2 Tunneling
Multicast	IGMPv1, v2, v3 snooping, IGMP filtering, IGMP querier, Multicast Listener Discovery (MLD)
Management	WebUI, MIB, SNMP, syslog, DHCP server, SPAN session, RSPAN, FSPAN, FRSPAN, ERSPAN, Express setup, NETCONF, RESTCONF
Security	Port security, 802.1x, Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, guest VLAN, MAC authentication bypass, 802.1x multidomain authentication, storm control - unicast, multicast, broadcast, SCP, SSH, SNMPv3, TACACS+, RADIUS server/client, MAC address notification, BPDU guard, Access Lists(PACL/RACL/VACL), SUDI 2099 (Secure Unique Device identifier),Full Flexible NetFlow (FNF), NetFlow v9 and v10 (IPFIX) export, MACsec-128
Quality of Service (QoS)	Ingress policing, rate limit, egress queuing/shaping, auto QoS

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Network Essentials License (Perpetual)	Features
IPv6	IPv6 host support, SNMP over IPv6, HTTP/HTTP(s) over IPv6, SNMP over IPv6, Syslog over IPv6, DHCPv6 relay source, DHCPv6 bulk lease query (RFC 5460), IPv6 stateless Auto Config, SCP/SSH, Radius, TACACS+, NTP over IPv6, IPv6 VRF aware BGPv6, IPV6 ND cache expire, IPv6 support for TFTP, IPv6 DNS transport, IPv6 QoS, IPv6 FHS RA Guard, IPv6 FHS DHCPv6 Guard
Layer 3 routing	Inter-VLAN routing, Static routing, Open Shortest Path First, OSPF v3, Routing Information Protocol (RIP), Policy-Based Routing (PBR)
Industrial Ethernet	CIP Ethernet/IP, IEEE 1588 PTP v2 (default and power)[3], PROFINET
TSN	Frame-Preemption (802.3br, 802.1QBu)[1]
Redundancy	Resilient Ethernet Protocol (REP) ring, PROFINET-Multi Ring Protocol (MRP), REP Fast, REP Segment ID Auto-discovery[1], REP ZTP Support, Parallel redundancy protocol (PRP)[2], PTP over PRP[2], PTP over HSR[2], High-Availability Seamless Redundancy (HSR-SAN)[2], Device Level Ring (DLR)[2], HSR-PRP Dual Redbox[2]
Utility	Dying gasp, SCADA protocol classification – GOOSE messaging, MODBUS TCP/IP
Automation	YANG, NETCONF, RESTCONF
Industrial Management	Layer 2 switching with 1:1 switch Network Address Translation (L2NAT) for 1G/10G uplink ports
IOx	Container (Native Docker), Cisco Cyber Vision, Secure Equipment Access, Cisco ThousandEyes

[1] Planned to be supported with a future IOS-XE release

[2] Supported on IE3505H variants only

[3] Mgig ports on IE-3500H-12P2MU2X does not support PTP.

Table 9. Key Supported software features (Network Advantage License)

Network Advantage License (Perpetual)[1]	Features
IP routing Protocols	OSPF (IPv4 and IPv6), BGP (v4 and v6), ISIS (v4 and v6), EIGRP (v4 and v6), HSRP (v4 and v6), BFD Echo Mode for OSPFv3
Virtualization	VRF-lite, VRF-Aware SGT
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, Generic Routing Encapsulation (GRE)
Fabric	Cisco SDA fabric edge, BGP-EVPN leaf node
IP Multicast	PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), MSDP, Multicast routing BSR (IPv4/IPv6), Auto RP (IPv4), Embedded RP (IPv6)

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Network Advantage License (Perpetual)[1]	Features
Industrial Management	Layer 3 Network Address Translation (L3NAT)

[1] Network Advantage License includes all Network Essentials features as well as a 3- year limited term and 24 endpoints Advantage license of Cisco Cyber Vision and Secure Equipment Access at no extra cost.

Table 10. Cisco DNA Essentials and Advantage Features

Feature	Description	Cisco Catalyst Center DNA Essentials[2]	Cisco Catalyst Center DNA Advantage[1,2]
Cisco Catalyst Center	Discovery, topology, inventory, software image management	Yes	Yes
Visibility	Overall Health Dashboard	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
Industrial Support	MRP Monitoring, REP Configuration, REP Topology View	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
Patch/SMU Lifecycle Management	Management of Software Maintenance Upgrades (SMU) or Patches via Cisco Catalyst Center	No	Yes
Application Visibility and Control (NBAR2)	Provides application-level classification, monitoring, and traffic control	No	Yes

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

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

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Table 11. Compliance Specifications[1]

Description	Specification
ITE safety standards/ certifications	UL/cUL Listing to UL/CSA 60950-1 UL/cUL Listing to UL/CSA 62368-1 CB to IEC 62368-1 with all country national deviations
ICE and manufacturing safety standards/ certifications	UL/cUL Listing to UL/CSA 61010-2-201
Water and dust protection standards/ratings	IEC 60529: IP66/IP67 UL 50E, Type 4X rating
EMC emissions and immunity compliance	Emissions (Class A): FCC 47 CFR Part 15 subpart B ICES-003 EN 55011 EN 55032/ CISPR 32 AS/NZS CISPR 32 CNS15936 Immunity: EN55035/CISPR35 AS/NZS CISPR35 KS C 9832
Shock and vibration	IEC 60068-2-6 Vibration: IEC 60068-2-6, IEC60255-21-1 (Vibration) Class 1 Vibration Test IEC 60068-2-27 (Shock) IEC 60068-2-31 (Shock) IEC 60068-2-32 (Shock) IEC 60255-21-2 (Shock) IEC 60068-2-64 (Vibration) IEC 60255-21-3 (Seismic)
Industry standards	EN 61000-6-1 Immunity standards for light industrial ENV EN 61000-6-2 Immunity standards for industrial ENV EN 61000-6-4- Emission standard industrial ENV EN 61326-1 Industrial control ODVA Industrial Ethernet/IP
Automotive	UN ECE R10 E-Mark certification

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Description	Specification
Railway	EN50155:2021 (clauses 13.4.1-6, 13.4.9, 13.4.10, 13.4.13)2 EN50121-3-2:2016+A1:2019, EN50125-3 EN50121-4:2016+A1:2019 EN61373:2010/AC:2017 (in progress) EN50124-1:2017 AREMA C&S Manual Section 11, 19 EN50153:2020 Clause 8.3 EN45545-2
Corrosive testing	IEC 60068-2-52 Salt mist IEC 60068-2-60 Flowing mixed gas corrosion
Humidity	IEC 60068 -2-3 IEC 60068-2-30 Relative humidity: 5% to 95% noncondensing
Operating temperature, environment, reliability	-40° C to +75° C (-40F to 167F) with 200 LFM airflow -40° C to +70° C (-40F to 158F) with 40 LFM airflow -40° C to + 60° C (-40F to 140F) with 0 LFM airflow -40° C to +85° C (-40F to 185F) (type tested to +85° C for 16 hours) IEC 60068-2-1 IEC 60068-2-2 Altitude: up to 15,000 feet, no derating Altitude: up to 40,000 feet, 25° C Max
Storage temperature	-40° C to +85° C (-40F to 185F) IEC 60068-2-14 Altitude: Up to 40,000 feet (12.19 km)
Environment	RoHS, WEEE, REACH compliant

[1] For more detailed information on safety approved power/thermal ratings refer the Hardware Installation Guide

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Table 12. Mean Time Between Failures (MTBF) information – Telecordia Issue 4

Product detail	MTBF (in hours)
IE-3500H-8T	473,949 Hrs
IE-3500H-16T	406,109 Hrs
IE-3500H-24T	387,020 Hrs
IE-3500H-12FT4T	412,063 Hrs
IE-3500H-20FT4T	367,056 Hrs
IE-3500H-14P2T	371,635 Hrs
IE-3500H-12P2MU2X	352,809 Hrs
IE-3505H-16T	404,209 Hrs

Table 13. Industry standards

Descriptions	Specifications	
IEEE standards	IEEE 802.1D MAC Bridges, STP IEEE 802.1p Layer 2 COS prioritization IEEE 802.1q VLAN IEEE 802.1s MSTP IEEE 802.1w RSTP IEEE 802.1X Port Access Authentication IEEE 802.1AB LLDP IEEE 802.3ad Link Aggregation (LACP)	IEEE 1588v2 PTP Precision Time Protocol IEEE 802.3x full duplex on 10BASE-T IEEE 802.3 10BASE-T specification IEEE 802.3u 100BASE-TX specification IEEE 802.3ab 1000BASE-T specification IEEE 802.3z 1000BASE-X specification IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet IEEE 802.3bt Type 3 Power over Ethernet
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 959: FTP RFC 1157: SNMPv1 RFC 1901, 1902-1907 SNMPv2 RFC 2273-2275: SNMPv3 RFC 2571: SNMP Management RFC 1166: IP Addresses	CISCO-IF-EXTENSION-MIB CISCO-IMAGE-MIB CISCO-MEMORY-POOL-MIB CISCO-PING-MIB SNMP-TARGET-EXT-MIB IF_MIB ENTITY-MIB LLDP-EXT-PNO-MIB NOTIFICATION-LOG-MIB OLD-CISCO-CPU-MIB ETHERLIKE-MIB OLD-CISCO-SYSTEM-MIB OLD-CISCO-MEMORY-MIB

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Descriptions	Specifications	
	RFC 1256: ICMP Router Discovery	RMON-MIB
	RFC 1305: NTP	SNMP-COMMUNITY-MIB
	RFC 1492: TACACS+	SNMP-FRAMEWORK-MIB
	RFC 1493: Bridge MIB Objects	SNMP-PROXY-MIB
	RFC 1534: DHCP and BOOTP interoperation	SNMP-MPD-MIB
	RFC 1542: Bootstrap Protocol	SNMP-NOTIFICATION-MIB
	RFC 1643: Ethernet Interface MIB	SNMP-TARGET-MIB
	RFC 1757: RMON	SNMP-USM-MIB
	RFC 2068: HTTP	CISCO-DATACOLLECTION-MIB
	RFC 2131, 2132: DHCP	CISCO-CABLE-DIAG-MIB
	RFC 2236: IGMP v2	CISCO -PORT-SECURITY-MIB
	RFC 3376: IGMP v3	BULK_FILE_MIB
	RFC 2474: DiffServ Precedence	CISCO-ENTITY-ALARM-MIB
	RFC 3046: DHCP Relay Agent Information Option	SNMP-VIEW-BASED-ACM-MIB
	RFC 3580: 802.1x RADIUS	CISCO-MAC-AUTH-BYPASS-MIB
	RFC 4250-4252 SSH Protocol	CISCO-AUTH-FRAMEWORK-MIB
		CISCO-BRIDGE-Ext-MIB
		SNMPv2-MIB
		CISCO-ENTITY-VENDORTYPE-OID-MIB
		CISCO-PRODUCTS-MIB
		IP-FORWARD-MIB
		BGP-CISCO-BGP-MIBv2

Table 14. MIB Object table

SNMP MIB objects	CISCO-DHCP-SNOOPING-MIB
	CISCO-UDLDP-MIB
	CISCO-ENVMON-MIB
	CISCO-PRIVATE-VLAN-MIB
	CISCO-PAE-MIB
	Cisco-Port-QoS-MIB
	CISCO-ERR-DISABLE-MIB
	CISCO- PROCESS-MIB
	LLDP-MIB
	CiscoMACNotification-MIB
	CISCO-CONFIG-COPY-MIB
	LLDP-MED-MIB
	Bridge-MIB

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	CISCO-CAR-MIB CISCO-LAG-MIB CISCO-SYSLOG-MIB CISCO-FTP-CLIENT-MIB CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB CISCO-VLAN-MEMBERSHIP-MIB CISCO-PORT-STORM-CONTROL-MIB CISCO-CDP-MIB CISCO-IP-STAT-MIB CISCO-STP-EXTN-MIB CISCO-VTP-MIB IEEE8023-LAG-MIB SMON-MIB CISCO-ACCESS-ENVMON-MIB CISCO-CALLHOME-MIB CISCO-CONFIG-MAN-MIB CISCO-FLASH-MIB CISCO-ENTITY-SENSOR-MIB IP-MIB CISCO-PAGP-MIB

Table 15. Below GE SFPs supported on IE3500H-12P2MU2X[1]

Product ID	Specifications	SFP type	Temperature range[1]	Maximum distance	Cable type	Dom support
GLC-SX-MM-RGD=	1000BASE-SX	GE	IND	220-550 m	MMF	Yes
GLC-LX-SM-RGD=	1000BASE-LX/LH	GE	IND	550 m/10 km	MMF/SMF	Yes
GLC-ZX-SM-RGD=	1000BASE-ZX	GE	IND	70 km	SMF	Yes
SFP-GE-S=	1000BASE-SX	GE	EXT	220-550 m	MMF	Yes
SFP-GE-L=	1000BASE-LX/LH	GE	EXT	550 m/10 km	MMF/SMF	Yes
SFP-GE-Z=	1000BASE-ZX	GE	EXT	70 km	SMF	Yes
GLC-BX-U=	1000BASE-BX10	GE	COM	10 km	SMF	Yes
GLC-BX-D=	1000BASE-BX10	GE	COM	10 km	SMF	Yes
GLC-SX-MM=	1000BASE-SX	GE	COM	220-550 m	MMF	Yes
GLC-LH-SM=	1000BASE-LX/LH	GE	COM	550 m/10 km	MMF/SMF	Yes
GLC-ZX-SM=	1000BASE-ZX	GE	COM	70 km	SMF	Yes

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Product ID	Specifications	SFP type	Temperature range[1]	Maximum distance	Cable type	Dom support
GLC-EX-SMD=	1000BASE-EX	GE	COM	40 km	SMF	Yes
GLC-TE=[2]	1000BASE-T	GE	EXT	100 m	Cat5e	No
GLC-BX40-U-I=	1000BASE-BX40	GE	IND	40 km	SMF	Yes
GLC-BX40-D-I=	1000BASE-BX40	GE	IND	40 km	SMF	Yes
GLC-BX40-DA-I=	1000BASE-BX40	GE	IND	40 km	SMF	Yes
GLC-BX80-U-I=	1000BASE-BX80	GE	IND	80 km	SMF	Yes
GLC-BX80-D-I=	1000BASE-BX80	GE	IND	80 km	SMF	Yes
GLC-SX-MMD=	1000BASE-SX	GE	EXT	550 m	MMF	Yes
GLC-LH-SMD=	1000BASE-LX/LH	GE	EXT	550m/10km	MMF/SMF	Yes
GLC-ZX-SMD=	1000BASE-ZX	GE	EXT	70 km	SMF	Yes
GLC-T-RGD=[2]	1000BASE-T	GE	IND	100 m	Copper	NA
GLC-BX-U-I=	1000BASE-BX	GE	IND	10km	SMF	Yes
GLC-BX-D-I=	1000BASE-BX	GE	IND	10km	SMF	Yes
ONS-SI-GE-SX=	1000BASE-SX	GE	COM	20-550 m	SMF	Yes
ONS-SI-GE-LX=	1000BASE-LX/LH	GE	COM	550 m/10 km	MMF/SMF	Yes
ONS-SI-GE-EX=	1000BASE-EX	GE	COM	40 km	SMF	Yes
ONS-SI-GE-ZX=	1000BASE-ZX	GE	COM	70 km	SMF	Yes
ONS-SE-GE-BXU=	1000BASE-BX	GE	COM	10km	SMF	Yes
ONS-SE-GE-BXD=	1000BASE-BX	GE	COM	10km	SMF	yes
CWDM-SFP-xxxx=[3]	1000BASE-CWDM	GE	COM	80km	SMF	Yes
DWDM-SFP-xxxx=[3]	1000BASE-DWDM	GE	COM	80km	SMF	Yes

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

[2] Degrades PTP performance

[3] DWDM-SFP-xxxx or CWDM-SFP-xxxx -- 'xxxx' stands for different wavelengths of SFPs, both in case of CWDM and DWDM GE and 10GE SFPs.

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Table 16. Below 10GE SFP+ supported on IE3500H-12P2MU2X[1]

Product ID	Specifications	SFP type	Temperature range[1]	Maximum distance	Cable type	Dom support
SFP-10G-ER=	10GBASE-ER	10GE	COM	40Km	SMF	Yes
SFP-10G-ER-I=	10GBASE-ER-I	10GE	IND	40Km	SMF	Yes
SFP-10G-SR-I=	10GBASE-SR-I	10GE	IND	26m 33m 66m 82m 300m 400m	MMF	Yes
SFP-10G-LR-X=	10GBASE-LR-X	10GE	EXT	10Km	SMF	Yes Yes
SFP-10G-LR=	10GBASE-LR	10GE	COM	10KM	SMF	Yes
SFP-10G-LR-S=	10GBASE-LR-S	10GE	COM	10Km	SMF	Yes
SFP-10G-LRM=	10GBASE-LRM	10GE	COM	220m 100m 220m 300m	MMF SMF	Yes
SFP-10G-SR=	10GBASE-SR	10GE	COM	26m 33m 66m 82m 300m 400m	MMF	Yes
SFP-10G-BX40D-I=	10G-SFP Bidirectional for 40km	10GE	IND	40Km	SMF	Yes
SFP-10G-BX40U-I=	10G-SFP Bidirectional for 40km	10GE	IND	40Km	SMF	Yes
SFP-10G-BXU-I=	10G-SFP Bidirectional for 10km	10GE	IND	10Km	SMF	Yes
SFP-10G-BXD-I=	10G-SFP Bidirectional for 10km	10GE	IND	10Km	SMF	Yes

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Product ID	Specifications	SFP type	Temperature range[1]	Maximum distance	Cable type	Dom support
SFP-H10G-CU1M=	10GBASE-CU SFP+ Cable 1 Meter, passive	10GE	COM	1m	Twinax cable, passive, 30AWG cable assembly	No
SFP-H10G-CU3M=	10GBASE-CU SFP+ Cable 3 Meter, passive	10GE	COM	3m	Twinax cable, passive, 30AWG cable assembly	No
SFP-H10G-CU5M=	10GBASE-CU SFP+ Cable 5 Meter, passive	10GE	COM	5m	Twinax cable, passive, 30AWG cable assembly	No
SFP-10G-ZR=	10GBASE-ZR	10GE	COM	80Km	SMF	Yes
SFP-10G-ZR-I=	10GBASE-ZR-I	10GE	IND	80Km	SMF	Yes
ONS-SI+-10G-SR=	10GBASE-SR	10GE	COM	26m 33m 66m 82m 300m 400m	MMF	Yes
ONS-SI+-10G-LR=	10GBASE-LR-S	10GE	COM	10Km	SMF	Yes
ONS-SI+-10G-ER=	10GBASE-ER	10GE	COM	40Km	SMF	Yes
ONS-SI+-10G-ZR=	10GBASE-ZR	10GE	COM	80Km	SMF	Yes
SFP-10G-T-X=[2]	10GBASE-CU	10GE	COM	30m-100m	Cat5e	No
SFP-10G-LR10-I=	10GBASE-LR	10GE	COM	10Km	MMF/SMF	Yes
SFP-10G-SR-S=	10GBASE-SR	10GE	COM	26m 33m 66m 82m 300m 400m	SMF	Yes

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Product ID	Specifications	SFP type	Temperature range[1]	Maximum distance	Cable type	Dom support
CWDM-SFP10G-xxxx SFP[3]	CWDM 10 Gigabit Ethernet	10GE	COM		SMF	Yes
DWDM-SFP10G-xxxx SFP[3]	DWDM 10 Gigabit Ethernet	10GE	COM		SMF	Yes

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

[2] Degrades PTP performance.

[3] DWDM-SFP-xxxx or CWDM-SFP-xxxx -- 'xxxx' stands for different wavelengths of SFPs, both in case of CWDM and DWDM GE and 10GE SFPs.

Ordering information

Cisco IE3500 Heavy Duty Series switches ordered with a Network Advantage license on or after October 1st, 2025 or upgraded from a Network Essential to a Network Advantage license on or after October 20th, 2025, come with a 3- year limited term and 24 endpoints Advantage license of Cisco Cyber Vision and Secure Equipment Access at no extra cost. Licenses for additional endpoints can be purchased separately.

Table 17. Ordering information

Product ID	Description
IE-3500H-8T-E	IE3500 Heavy Duty with 8 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-16T-E	IE3500 Heavy Duty with 16 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-24T-E	IE3500 Heavy Duty with 24 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-12FT4T-E	IE3500 Heavy Duty with 12 FE D-code and 4 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-20FT4T-E	IE3500 Heavy Duty with 20 FE D-code and 4 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-14P2T-E	IE3500 Heavy Duty with 14 GE X-Code PoE/PoE+ and 2 GE X-Code M12 interfaces, IP67, Network Essentials
IE-3500H-12P2MU2XE	IE3500 Heavy Duty with 2 10G SFP+, 2 mGig UPoE X-Code and 12 GE X-Code interfaces, 240W Power Budget, IP67, Network Essentials
IE-3505H-16T-E	IE3500 Heavy Duty with 16 GE X-Code M12 interfaces, Advance features, IP67, Network Essentials
IE-3500H-8T-A	IE3500 Heavy Duty with 8 GE X-Code M12 interfaces, IP67, Network Advantage
IE-3500H-16T-A	IE3500 Heavy Duty with 16 GE X-Code M12 interfaces, IP67, Network Advantage
IE-3500H-24T-A	IE3500 Heavy Duty with 24 GE X-Code M12 interfaces, IP67, Network Advantage
IE-3500H-12FT4T-A	IE3500 Heavy Duty with 12 FE D-code and 4 GE X-Code M12 interfaces, IP67, Network Advantage

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Product ID	Description
IE-3500H-20FT4T-A	IE3500 Heavy Duty with 20 FE D-code and 4 GE X-Code M12 interfaces, IP67, Network Advantage
IE-3500H-14P2T-A	IE3500 Heavy Duty with 14 GE X-Code PoE/PoE+ and 2 GE X-Code M12 interfaces, IP67, Network Advantage
IE-3500H-12P2MU2XA	IE3500 Heavy Duty with 2 10G SFP+, 2 mGig UPoE X-Code and 12 GE X-Code interfaces, 240W Power Budget, IP67, Network Advantage
IE-3505H-16T-E	IE3500 Heavy Duty with 16 GE X-Code M12 interfaces, Advance features, IP67, Network Advantage
SD-IE-16GB	IE 16GB SD Memory card
CAB-CONSOLE-M12=	Console Cable 6ft with M12 and DB9F for Cisco IE3500 Heavy Duty Series Switch
CW-SFP-KIT1	SFP Installation Kit for IE-3500H-12P2MU2X
IE3500-NW-A=	Cisco Network Advantage license for IE3500 Series, Perpetual
IE3500-DNA-E	Cisco Catalyst Center DNA Essentials license for IE3500/IE3500H Series Switches
IE3500-DNA-E-3Y	IE3500/IE3500H Cisco DNA Essentials, 3 Year Term license
IE3500-DNA-E-5Y	IE3500/IE3500H Cisco DNA Essentials, 5 Year Term license
IE3500-DNA-E-7Y	IE3500/IE3500H Cisco DNA Essentials, 7 Year Term license
IE3500-DNA-A	Cisco Catalyst Center DNA Advantage license for IE3500/IE3500H Series Switches
IE3500-DNA-A-3Y	IE3500/IE3500H Cisco DNA Advantage, 3 Year Term license
IE3500-DNA-A-5Y	IE3500/IE3500H Cisco DNA Advantage, 5 Year Term license
IE3500-DNA-A-7Y	IE3500/IE3500H Cisco DNA Advantage, 7 Year Term license

* MRP Feature Licenses are not required from release IOS XE 17.7.1 onwards. Please refer to the IOS XE 17.7.1 Release Notes.

Connectors and cabling

Table 18. Connectors and Cabling

Type	Options
Data Cables	• Copper 100Base-T M12 D coded 4-Pin connector • Copper GE M12 X coded-8-Pin- connector • 2x SFP (fiber) 1G/10G interfaces • Note: M25 adapters shall be used with SFP interfaces to meet IP67 rating.
Alarm Cable	• M12 A-Coded 5-Pin connector
Console Cable	• M12 A Coded 5-Pin connector

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Type	Options
Power Supply Cables	• Power cord for IP67 switch power input, Mini-Change A-Size single-ended cord set, 4 poles, female to pigtail, 16 AWG PVC cable. Molex part#130006-0737 https://www.molex.com/customer.html?supplierPN=1300060737 • Power cord, IP67 Power supply output to IP67 switch input: Mini-Change A-size double-Ended Cordset, 4 poles male to female. 16 AWG, TPE cable. Molex Part #130010-0863 https://www.molex.com/customer.html?supplierPN=1300100863 • Power cable for AC-DC power source, Mini-change A-size single-ended cord set, Power cord, IP67 AC power supply input, 3 pins, female insert on one end to pigtail, 16 AWG PVC cable, Molex part# 130006-0223 https://www.molex.com/customer.html?supplierPN=1300060223 • Power cord, IP67 DC power supply input: 2 pole female power cord to open for input DC connector https://www.molex.com/customer.html?supplierPN=1300060091

Warranty information

There is a 5-year limited hardware warranty on all Cisco IE3500 Heavy Duty Series switches. For more details, visit https://www.cisco.com/c/en/us/products/warranties/warranty-doc-c99-740591.html.

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Document history

New or Revised Topic	Described In	Date
Added SD-Access VNI scale row (L3=32, L2=200) to Performance and Scalability table; clarified NetFlow v9 and v10 (IPFIX) export wording in the Security feature list	Performance and Scalability table; Security feature list	May 2026
Added EN50125-3 (Railway) certification	Across the Datasheet	May 2026
Updated with Cyber Vision and Secure Equipment Access License updates, PoE Input Voltage and Misc minor updates	Across the datasheet	January 2026
Datasheet publication	All sections	June 2025

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