Cisco Catalyst IE3100 Heavy Duty Series

Contents

The Cisco Catalyst™ IE3100 Heavy Duty Series delivers Gigabit Ethernet connectivity in a compact, IP67 platform that is purpose-built for any industrial application in a wet, vibration-prone and space-constrained scenario.

Product overview

Cisco® Catalyst IE3100 Heavy Duty Series switches deliver the advanced capability similar to the Cisco Catalyst IE3100 Rugged Series, but now in environments with extreme exposure to dust, vibration, and water. The platform is built to withstand the harshest environments found in manufacturing, transportation, mining, and rail. This switch is ideal for space-constrained, vibration-prone, wet deployments often found on production floors, railways and trains, clean rooms, outdoor spaces, and entertainment venues such as theme parks. By providing reliable connectivity to data sources like sensors, cameras, and other equipment located in tight spaces and extreme conditions, Catalyst IE3100 Heavy Duty switches help build a network ready for the demanding requirements of software-defined automation and industrial AI.

The Cisco Catalyst IE3100 Heavy Duty Series switches are available in 8 Gigabit Ethernet (X-coded) or 6 Fast Ethernet (D-coded) with 2 Gigabit Ethernet (X-coded) M12 interfaces. The switches can be wall mounted in all orientations and deployed without the dependency on a housing cabinet.

The IE3100H Series 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. Additionally, you can provide secure Zero-Trust Network Access (ZTNA) to industrial assets at scale with Cisco Secure Equipment Access.

The Cisco Catalyst IE3100 Heavy Duty Series can be managed with a powerful management tool, Cisco Catalyst Center, and can easily be set up with a user-friendly modern GUI tool called WebUI.

The IE3100 Heavy Duty Series switches offer:

- Robust resiliency enabled by features such as Media Redundancy Protocol (MRP) or Resilient Ethernet Protocol (REP)
- Support for removable media (SD card) for local backups and fast recovery
- Simplified software management with universal images
- Support for industrial automation protocols Ethernet/IP (CIP), Modbus, and PROFINET

Figure 1.
IE-3100H-8T-E switch

Figure 2.
IE-3100H-6FT2T-E switch

Features and benefits

Table 1. Features and benefits

Feature	Benefit
Heavy-duty design and industry compliance	• Mount the switch close to where the work is done, in the most demanding environments • IP66/IP67 rated, providing protection against dust and submersion in water • Hardened for vibration, shock and surge, electrical noise, and extreme temperatures (–40°F to 167°F [–40°C to 75°C]) • Compliant with industrial automation standards; supports Ethernet/IP Common Industrial Protocol (CIP) • Supports Supervisory Control and Data Acquisition (SCADA) protocol classification—Generic Object-Oriented Substation Events (GOOSE) messaging, Modbus TCP/IP
Full gigabit Ethernet switch	• Up to 8 Gigabit Ethernet M12 ports provide multiple resilient design options • Provides secure access for new high-speed applications in the industrial space • Allows IP-based Supervisory Control and Data Acquisition (SCADA) connectivity • Delivers multiple rings, redundant ring topology for new network configurations
Redundancy and resiliency	• Resilient Ethernet Protocol (REP) • Media Redundancy Protocol (MRP)
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

Feature	Benefit
Industrial automation protocols	• Ethernet/IP (CIP), Modbus, SCADA, GOOSE, and PROFINET MRP (IEC 62439-2) allow integration with existing management platforms from Rockwell, Siemens, and others • IEEE 1588v2 Precision Timing Protocol (PTP) (both power profile for utility and default profile for manufacturing are supported) • gRPC (open source Remote Procedure Calls) mutual TLS (mTLS) Stream Telemetry
Zero Trust Network Access (ZTNA)	• Secure remote access to Operational Technology (OT) assets efficiency with Cisco Secure Equipment Access (SEA) • Remote users connect to a cloud portal for authentication and authorization to configured devices and protocols for a designed date and time

Platform support

Table 2. Product feature sets

Product Family	Platforms Supported	IOS Images (Feature Sets) Supported
IE3100	IE-3100H-6FT2T-E	Network Essentials
	IE-3100H-8T-E	Network Essentials

Product specifications

Table 3 highlights the hardware configuration for the Cisco Catalyst IE3100 Heavy Duty Series

Table 3. Hardware configurations

Product ID	Total M12 Ports	10/100 Fast Ethernet (C-code) ports	10/100/1000 Gigabit Ethernet (X-code) ports
IE-3100H-6FT2T-E	8	6	2
IE-3100H-8T-E	8		8

Table 4. Hardware specifications

Product ID	IE-3100H-6FT2T-E	IE-3100H-8T
Removable Storage	SD card[1]	SD card[1]
Alarms	No alarm port	No alarm port
Console Ports	1 (A-coded M12)	1 (A-coded M12)
Power Inputs	Single power source (L-coded M12)	Single power source (L-coded M12)

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

Table 5. Physical configurations

Product ID	Dimensions (H x W x D)	Weight	Mounting
IE-3100H-6FT2T-E	7.90 x 2.71 x 2.10 in 20.07 x 6.88 x 5.33 cm	1.75 lbs (0.79 kg)[1]	Wall
IE-3100H-8T-E	7.90 x 2.71 x 2.33 in 20.07 x 6.88 x 5.92 cm	1.65 lbs (0.75 kg)[1]	Wall

[1] Chassis only

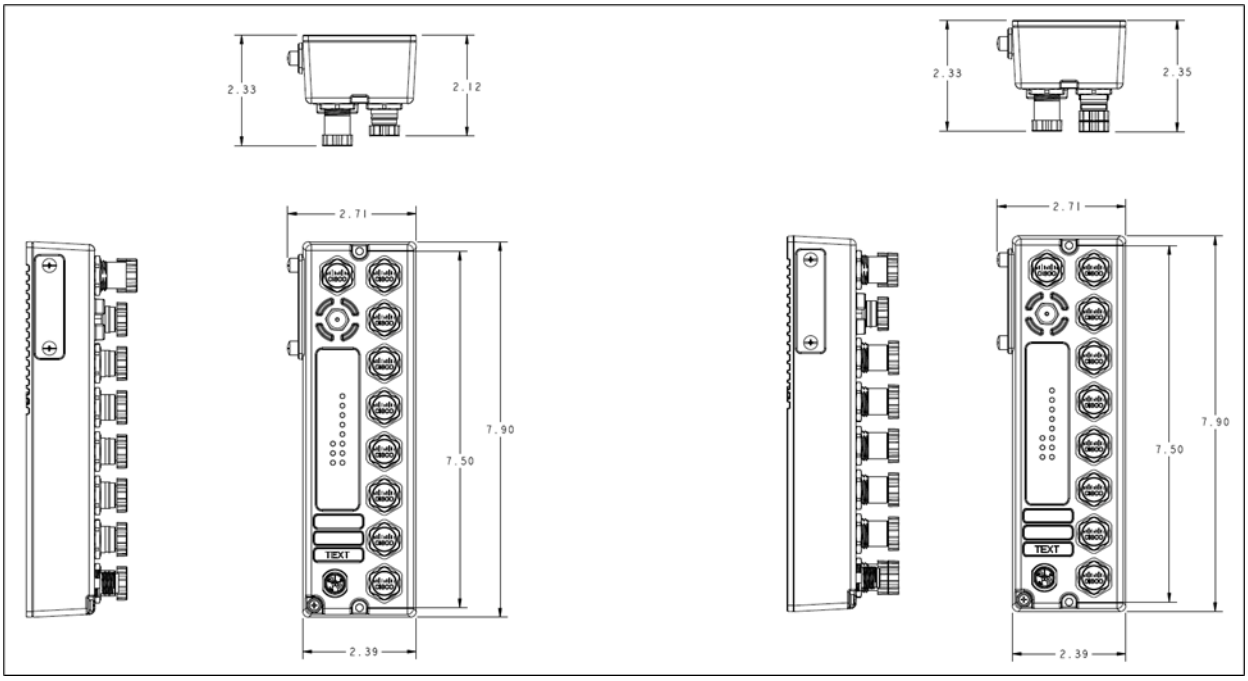

Figure 3.
IE-3100H-8T-E dimensions (left), IE-3100-6FT2T-E (right)

Table 6 highlights power specifications for the Cisco Catalyst IE3100 Heavy Duty Series

Table 6. Power specifications

Product ID	Input Voltage Range	Max current during normal operation	Inrush Current	Power Consumption
IE-3100H-6FT2T-E	12V to 48V nominal 9.6V to 60V absolute	1.2 A with 12V input 0.6 A with 24V input 0.3 A with 48V input	17.4 A for 0.15ms with 12V input 42 A for 0.1ms with 24V input 91.7 A for 0.1ms with 48V input	10.4W

Product ID	Input Voltage Range	Max current during normal operation	Inrush Current	Power Consumption
IE-3100H-8T-E	12V to 48V nominal 9.6V to 60V absolute	1.4 A with 12V input 0.7 A with 24V input 0.35 A with 48V input	17.4 A for 0.15ms with 12V input 42 A for 0.1ms with 24V input 91.7 A for 0.1ms with 48V input	11.6W

[1] Max Current should be used for sizing power supplies and electrical wiring.

[2] Power consumption should be used for thermal load and battery capacity.

[3] Power consumption varies with the local ambient temperature, the input voltage, and the number/type of active interfaces. Please see the IE-310x Power Estimator for more detailed power consumption.

[4] For BTU/hr, please convert the Power Consumption watts to BTU/hr.

Table 7. Performance and scalability features

Feature	Performance
Forwarding rate	Line rate for all ports and all packet sizes
Number of queues	8 egress
Unicast MAC addresses	8000
Internet Group Management Protocols (IGMP) multicast groups	512
VLANs	256
IPv4 indirect routes	2000
Spanning Tree Protocol (STP) instances	128
DRAM	4GB
SD card capacity[1]	16GB

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

Table 8. Power supply options

Product ID	Description
PWR-IE160W-67-DC=	IP67-rated PoE DC-DC power supply, Input:18V-60V Output: 54V, 3.1A max 160W

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), Switch Port Analyzer (SPAN), Remote-SPAN (RSPAN), Flow-Based SPAN (FSPAN), STP, Storm Control, VLAN Trunk Protocol (VTP) v2/v3, 802.1Q Tunneling, Q-in-Q, EtherChannel
Multicast	IGMP v1/v2/v3, IGMP snooping, Multicast Listener Discovery (MLD) snooping
Management	WebUI, Management Information Base (MIB), Simple Network Management Protocol (SNMP), syslog, Dynamic Host Configuration Protocol (DHCP) server, NETCONF, RESTCONF, Embedded Event Manager (EEM), Cisco Network Plug and Play (PnP), Express Setup, Delayless IPDT
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, 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), Security Exchange Protocol (SXP)
Quality of Service (QoS)	802.1p, priority queuing, Modular QoS command-line interface (MQC), class-based shaping and marking, Ingress policing, egress queuing and shaping, Auto-QoS, Differentiated Services Code Point (DSCP) mapping and filtering, low-latency queuing
Layer 3 routing	Inter-VLAN routing, static routing
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[1]), Network Time Protocol (NTP) to PTP, Sampled Values
Redundancy	Resilient Ethernet Protocol (REP) ring, Media Redundancy Protocol (MRP)
Automation	YANG, NETCONF, RESTCONF

[1] Support planned with future software updates

Table 10 highlights the details of Cisco Catalyst Center Essentials for the Cisco Catalyst IE3100 Heavy Duty Series

Table 10. Cisco Catalyst Center Essentials license

Features[2]	Description	Cisco Catalyst Center Essentials[1]
Cisco Catalyst Center	Discovery, topology, inventory, software image management	Yes
Visibility	Overall Health Dashboard	Yes
Day-zero network bring-up automation	Cisco Network Plug-and-Play application	Yes

Features[2]	Description	Cisco Catalyst Center Essentials[1]
SD-Access Extended Node	SD-Access fabric overlay extension	Yes
Industrial Support	MRP Monitoring, REP Configuration	Yes

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

[2] Does not represent all supported Cisco Catalyst Center features. Refer to Catalyst Center datasheet for additional information

Table 11 highlights the compliance specifications for the Cisco Catalyst IE3100 Heavy Duty Series

Table 11. Compliance specifications

Product ID	Specifications
Industrial Automation	IEC 62443-4-1 IEC 62443-4-2
Emissions, immunity and regulatory compliance	Emissions (Class A): FCC 47 CFR Part 15 Subpart B EN55032/CISPR 32 VCCI AS/NZS CISPR 32 CISPR 11 ICES 003 CNS 15936 KS C9832 Immunity: CISPR35/EN55035 AS/NZS CISPR 35
Industry standards	EN 61000-6-2 Immunity standards for Industrial Environment (ENV) EN 61000-6-4 Emission standards for Industrial ENV EN 61000-6-1 Immunity standards for Light Industrial ENV EN 61326-1 Industrial Control EN 61131-2 Programmable Controllers NEMA T2S Traffic Controller Assemblies IP66/IP67 ODVA Industrial Ethernet/IP ABB Industrial IT Certificate

Product ID	Specifications
Safety standards and certifications	UL/CSA 60950-1 NOM to NOM-019-SCFI (through partners and distributor) UL/CSA 62368-1, EN62368-1, CB to IEC623680-1 with country deviations UL61010-2-201 CSA C22.2, No 142
Operating environment	Operating temperature: –40° to 167°F (–40° to 75°C) (fan cooled enclosure) –40° to 158°F (–40° to 70°C) (vented enclosure with minimum 40 lfm on unit) –40° to 140°F (–40° to 60°C) (sealed enclosure operating) +185°F (85°C) (short term operating for 16 hours) EN 60068-2-1 EN 60068-2-2 EN 61131 Altitude: Up to 15,000 feet (4,572 m) with no temperature derating Up to 40,000 feet (12,192 m) with temperature derating down to 25°C (77°F)
Storage environment	–40 to 185°F (–40 to 85°C) Altitude: 40,000 feet (12,192 m) IEC 60068-2-14
Humidity	IEC60068-2-3 IEC60068-2-30
Shock and vibrations	EC 60068-2-27 (Operational shock: 30G 11ms, half sine) IEC 60068-2-27 (Non-operational shock 55-70G, trapezoidal) IEC 60068-2-6, IEC 60068-2-64, EN 61373 (operational vibration) IEC 60068-2-6, IEC 60068-2-64, EN 61373 (non-operational vibration)
Corrosion	IEC 60068-2-52 (salt mist, method 3)[1] IEC60068-2-60 (flowing mixed gases)[1]
Railway	EN50155:2021 (clauses 13.4.1-6, 13.4.9, 13.4.10, 13.4.13)[1] EN50121-3-2:2021[1] EN50121-4:2021[1] EN61373:2010[1] EN50124-1:2017[1] AREMA C&S Manual:2022[1] EN50153:2020 Clause 8.3[1] EN45545-2[1]

Product ID	Specifications
Warranty	Five-year limited hardware warranty on all IE3100 Rugged Series product IDs and all Industrial Ethernet (IE) power supplies. See more information in the Warranty section.

[1] Certification in progress

Table 12 highlights the hardware configuration for the Cisco Catalyst IE3100 Heavy Duty Series

Table 12. MTBF Information

Product ID	Rated MTBF (House) based on Telcordia Issue 4[1]
IE-3100H-6FT2T-E	997,510 Hrs
IE-3100H-8T-E	960,120 Hrs

[1] Telcordia Issue 4 tested at 25°C

Table 13 highlights information about management and standards for the Cisco Catalyst IE3100 Heavy Duty Series

Table 13. Management and standards[1]

Description	Specifications	
IEEE Standards	• IEEE 802.1p Layer2 COS prioritization • IEEE 802.1D MAC Bridges, STP • 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 Link Layer Discovery Protocol LLDP • IEEE 802.3ad Link Aggregation Control Protocol (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 Precision Time Protocol (PTP)
Request for Comments (RFC) compliance	• RFC 768: User Datagram Protocol (UDP) • RFC 783: Trivial File Transfer Protocol (TFTP) • RFC 791: IPv4 protocol • RFC 792: Internet Control Message Protocol (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: Remote Monitoring (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
SNMP MIB objects	• BRIDGE-MIB	• CISCO-SNMP-TARGET-EXT-MIB

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

Description	Specifications	
	• CISCO-RTTMON-RTP-MIB	

[1] The list of standards is not final and may change.

Ordering information

Table 14 lists the ordering information for the Cisco Catalyst IE3100 Heavy Duty Series

Table 14. Ordering information

Product ID	Product Description
IE-3100H-6FT2T-E	IE3100 IP67 w/6FE 2GE M12 Ports, Fixed sys, NE
IE-3100H-8T-E	IE3100 IP67 w/8GE M12 Ports, Fixed sys, NE
PWR-IE160W-67-DC=	IP67-rated PoE DC-DC power supply, Input:18V-60V Output: 54V, 3.1A max 160W
IE3100-DNA-E-L	Cisco Catalyst Center Essentials license for IE3100 Series (up to 12 ports)
IE3100-DNA-E-L-1Y	IE3100 Cisco Catalyst Center Essentials (up to 12 Ports), 1 Year Term license
IE3100-DNA-E-L-3Y	IE3100 Cisco Catalyst Center Essentials (up to 12 Ports), 3 Year Term license
IE3100-DNA-E-L-5Y	IE3100 Cisco Catalyst Center Essentials (up to 12 Ports), 5 Year Term license
IE3100-DNA-E-L-7Y	IE3100 Cisco Catalyst Center Essentials (up to 12 Ports), 7 Year Term license
IE3100-DNA-E-L-10Y	IE3100 Cisco Catalyst Center Essentials (up to 12 Ports), 10 Year Term license

Warranty information

A five-year limited hardware warranty is offered on all IE3100 Heavy Duty Series product IDs and power supplies (see Table 8 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:

Table 15. Links to environmental sustainability topics

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	Waste Electrical and Electronic Equipment 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:

Table 16. Product-specific environmental sustainability information

Sustainability topic	Reference
Power	
Power specifications and consumption	Table 5. Physical configurations
Environmental characteristics	
Operating Temperature, industry standards, EMC emissions	Table 11. Compliance specifications
Material	
Unit weight	Table 5. 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.

Cisco and Partner Services

For information on services, visit https://www.cisco.com/web/services/.

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For more information

For more information about the Cisco IE3100 Heavy Duty Series, visit https://www.cisco.com/go/ie3100H or contact your local account representative.

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