

Cisco Catalyst IE3400 Rugged Series

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The Cisco Catalyst® IE3400 Rugged Series ushers in mainstream adoption of advanced Gigabit Ethernet connectivity in a compact form-factor, modular switch purpose-built for a wide variety of extended enterprise and industrial applications.

Product overview

The Cisco Catalyst IE3400 Rugged Series switches deliver advanced, high-speed Gigabit Ethernet connectivity in a compact form factor, and are designed for a wide range of industrial applications where hardened products are required. The modular design of the Cisco Catalyst IE3400 Rugged Series offers the flexibility to expand up to 26 ports of Gigabit Ethernet with a range of expansion module options. The platform is built to withstand harsh environments in manufacturing, energy, transportation, mining, smart cities, and oil and gas. The IE3400 platform is also ideal for extended enterprise deployments in outdoor spaces, warehouses, and distribution centers.

The IE3400 Series runs Cisco IOS® XE, a next-generation 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 IE3400 Rugged Series can be managed with powerful management tools such as Cisco DNA Center, and can be easily set up with a completely redesigned, user-friendly, modern GUI tool called WebUI. The platform also supports Full Flexible NetFlow (FNF) for real-time visibility into traffic patterns and threat analysis with Cisco Stealthwatch®.

Robust Resiliency enabled by feature such as Media Redundancy Protocol (MRP), Resilient Ethernet Protocol (REP), Device Level Ring (DLR) and dual-input power supplies.

The IE3400 series (with expansion module) supports power budget of up to 480W for PoE/PoE+, shared across 24 ports, and is ideal for connecting PoE-powered end devices such as IP cameras, phones, wireless access points, sensors, and more.



Figure 1.
Cisco Catalyst IE3400 Rugged Series

Features and benefits

Table 1. IE3400 Features and benefits

Feature	Benefit
Robust industrial design	<ul style="list-style-type: none"> • Built for harsh environments and temperature ranges (-40° C to +75° C) • 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, ITS, and substation environments • Improves uptime, performance, and safety of industrial systems and equipment • Covers a wide range of Power over Ethernet (PoE) application requirements • Alarm I/O for monitoring and signaling to external equipment
Full Gigabit Ethernet interfaces	<ul style="list-style-type: none"> • Provides secure access for new high-speed applications in the industrial space • Packs up to 10 ports of GE - 2x1 Gigabit Small Form-Factor Pluggable (SFP) uplinks plus 8x1 Gigabit Copper or PoE+ RJ45 downlinks in a small form-factor base system • Expandable to 26 ports of GE by attaching one of 10 compatible modules (copper, fiber options) • Connects high-speed wireless access points (802.11n, 802.11ac) • Enables High-Definition (HD) IP cameras and Programmable Logic Controllers (PLC) • Supports delay-sensitive applications and time-sensitive networks • Delivers multiple rings and redundant ring topology for new network configurations • Extends geographical scalability where longer-distance connectivity is required
High-density industrial Power over Ethernet (PoE)	<ul style="list-style-type: none"> • Supports up to 24 PoE/PoE+ ports or up to 8 PoE/PoE+ Ports and 4 “802.3bt type 4” Ports with the 2.5G expansion module [System Power budget - 480W] • 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
User-friendly WEB-based UI (WebUI)	<ul style="list-style-type: none"> • Allows for easy configuration and monitoring • Eliminates the need for more complex terminal emulation programs • Reduces the cost of deployment
SwapDrive zero-configuration replacement	<ul style="list-style-type: none"> • True zero-configuration and simple switch replacement in case of a failure • No networking expertise required • Helps ensure fast recovery
Full Flexible NetFlow (FNF)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Parallel redundancy protocol (PRP)¹ • Advanced Security with SGT/SGACL
IPv6 Ready Logo	<ul style="list-style-type: none"> • IPv6 Ready Logo Certified

¹ Parallel Redundancy Protocol (PRP) is available on IE3400 base switch on select ports only (Gig1/1 - Gig1/4). Single instance of PRP is supported.

Products overview

Table 2. Product feature sets

Product family	Platforms supported	Cisco IOS Software images (feature sets) supported
IE3000	IE3400	Network Essentials ¹ , Network Advantage ¹

¹ The Hardware PID with “-E” suffix is Network Essentials and with “-A” suffix is Network Advantage. Network Advantage License includes all Network Essentials Features.

Product specifications

Table 3 highlights the hardware configuration for Cisco Catalyst IE3400 Rugged Series switches and the supported modules with these switches.

Table 3. IE3400 Hardware configurations (incl. IE3400 and IE3300 modules)

Product number*	Total ports	10/100/1000 RJ45 Copper ports	100/1000 SFP ports	1GE/2.5G RJ45 Copper ports	Software license (Default)**	PoE/ PoE (+) budget
IE-3400-8T2S-E	10	8	2	N.A.	Network Essentials	N.A.
IE-3400-8T2S-A	10	8	2	N.A.	Network Advantage	N.A.
IE-3400-8P2S-E	10	8	2	N.A.	Network Essentials	240W (base), 480W (with expansion module)
IE-3400-8P2S-A	10	8	2	N.A.	Network Advantage	240W (base), 480W (with expansion module)
IEM-3400-8T=	8	8	N.A.	N.A.	N.A.	N.A.
IEM-3400-8S=	8	N.A.	8	N.A.	N.A.	N.A.
IEM-3400-8P=	8	8	N.A.	N.A.	N.A.	Supported with IE3400 PoE base modules only to provide a total PoE budget of 480W
IEM-3300-8P=	8	8	N.A.	N.A.	N.A.	Supported with IE3400 PoE base modules to provide a total PoE budget of 480W
IEM-3300-16P=	16	16	N.A.	N.A.	N.A.	Supported IE3400 PoE base modules to provide a total PoE budget of 480W
IEM-3300-8S=	8	N.A.	8	N.A.	N.A.	N.A.

Product number*	Total ports	10/100/1000 RJ45 Copper ports	100/1000 SFP ports	1GE/2.5G RJ45 Copper ports	Software license (Default)**	PoE/ PoE (+) budget
IEM-3300-8T=	8	8	N.A.	N.A.	N.A.	N.A.
IEM-3300-16T=	16	16	N.A.	N.A.	N.A.	N.A.
IEM-3300-6T2S=	8	6	2	N.A.	N.A.	N.A.
IEM-3300-14T2S=	16	14	2	N.A.	N.A.	N.A.
IEM-3300-4MU=	4	N.A.	N.A.	4	N.A.	Supported IE3400 PoE base modules to provide a total PoE budget of 480W

* PoE modules can only be plugged with PoE base switch. IE3300 expansion modules can also be plugged with IE3400 base switch. However, this combination prevents support for advanced security feature such as SGT/SGACL on the IE3400 base switch.

** Network Advantage License includes all Network Essentials features.

Table 4 highlights the hardware specifications for Cisco Catalyst IE3400 Rugged Series switches.

Table 4. IE3400 hardware Specifications

Hardware specifications	Cisco IE-3400-8T2S-E/ -A	Cisco IE-3400-8P2S-E/ -A
PoE power budget	Not applicable	480W ¹ (including expansion module)
Removable storage	USB ^{2,3} , SD card ²	USB ^{2,3} , SD card ²
Alarms	2 alarms in, 1 alarm out	2 alarms in, 1 alarm out
Console ports	1 RS-232 (via RJ-45), 1 USB Mini Type B	1 RS-232 (via RJ-45), 1 USB Mini Type B
Power inputs	Dual DC power input	Dual DC power input

¹ In order to achieve 480W power budget, the minimum power requirements as specified in Table 8 for the switch need to be considered when selecting the power supply.

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

³ USB 2.0 to load system images and set configurations



Figure 2. Expansion modules

Table 5 highlights the hardware configuration for Cisco Catalyst IE3400 Rugged Series modules.

Table 5. Hardware configuration for Cisco Catalyst IE3300 and IE3400 Rugged Series modules

Product ID	Total ports on expansion module	Copper (RJ45)	PoE/PoE+	SFP	Copper (RJ45) 1GE/2.5G (with up to 802.3bt type 4 PoE)	Total system ports (including expansion module)
IEM-3400-8T=	8	8	-	-	-	18
IEM-3400-8S=	8	-	-	8	-	18
IEM-3400-8P=	8	-	8	-	-	18
IEM-3300-8P=	8	-	8	-	-	18
IEM-3300-16P=	16	-	16	-	-	26
IEM-3300-8S=	8	-	-	8	-	18
IEM-3300-8T=	8	8	-	-	-	18
IEM-3300-16T=	16	16	-	-	-	26
IEM-3300-6T2S=	8	6	-	2	-	18
IEM-3300-14T2S=	16	14	-	2	-	26
IEM-3300-4MU= ¹	4	-	-	-	4	14

¹ Please refer to the conditions for using IEEE 802.3bt type 4 standard power in the Hardware Installation Guide

Table 6 highlights the physical configuration for Cisco Catalyst IE3400 Rugged Series switches and modules.

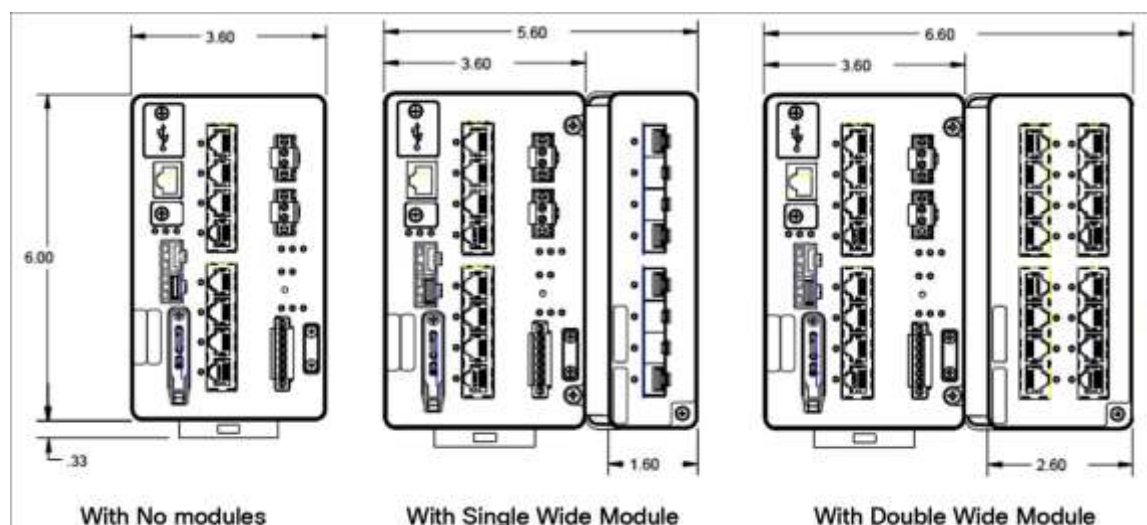
Table 6. IE3400 physical configurations

Product ID	Dimensions (H x W x D)	Weight	Mounting
IE-3400-8T2S-E	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	3.8 lbs 1.7 Kg	DIN rail
IE-3400-8T2S-A	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	3.8 lbs 1.7 Kg	DIN rail
IE-3400-8P2S-E	6 in. X 4.4 in. X 5.3 in. 15.2 cm. x 11.2 cm. x 13.5cm	5.0 lbs 2.3 Kg	DIN rail
IE-3400-8P2S-A	6 in. X 4.4 in. X 5.3 in. 15.2 cm. x 11.2 cm. x 13.5cm	5.0 lbs 2.3 Kg	DIN rail
IEM-3300-8T=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail

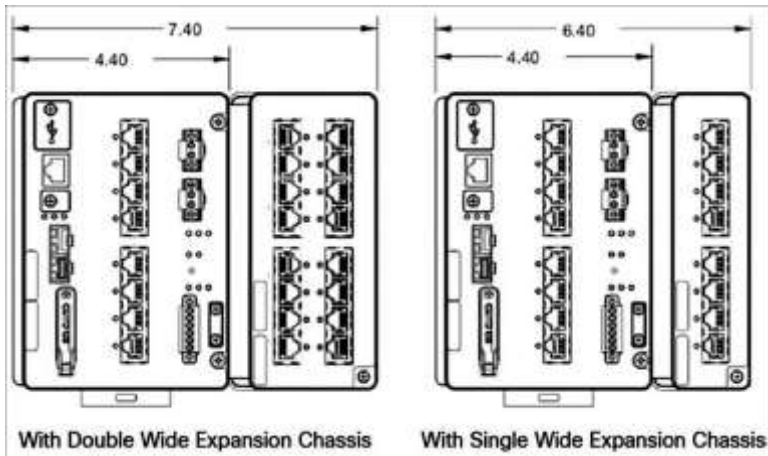
Product ID	Dimensions (H x W x D)	Weight	Mounting
IEM-3300-8S=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail
IEM-3300-16T=	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	2.7 lbs 1.2 Kg	DIN rail
IEM-3300-6T2S=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail
IEM-3300-14T2S=	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	2.7 lbs 1.2 Kg	DIN rail
IEM-3300-8P=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail
IEM-3300-16P=	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	2.7 lbs 1.2 Kg	DIN rail
IEM-3400-8T=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail
IEM-3400-8S=	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	3.6 lbs 1.6 Kg	DIN rail
IEM-3400-8P=	6 in. X 2.6 in. X 5.3 in. 15.2 cm. x 6.6 cm. x 13.5cm	2.0 lbs 0.9 Kg	DIN rail
IEM-3300-4MU=	6 in. X 3.6 in. X 5.3 in. 15.2 cm. x 9.1 cm. x 13.5cm	3.0 lbs 1.4 Kg	DIN rail

System dimensions

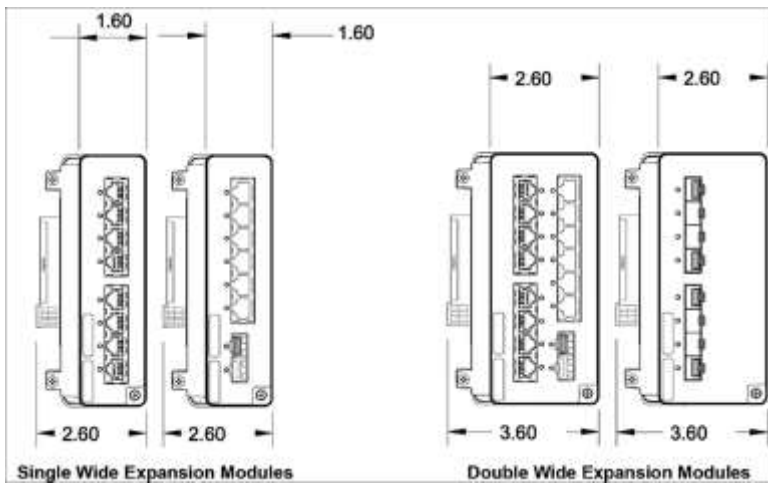
Front view <IE3400 Non-PoE>



Front View <IE3400 PoE>



Module dimensions – Front View



Single wide expansion modules add 2 inches to the system width effectively.

Double wide expansion modules add 3 inches to the system width effectively.

Top view

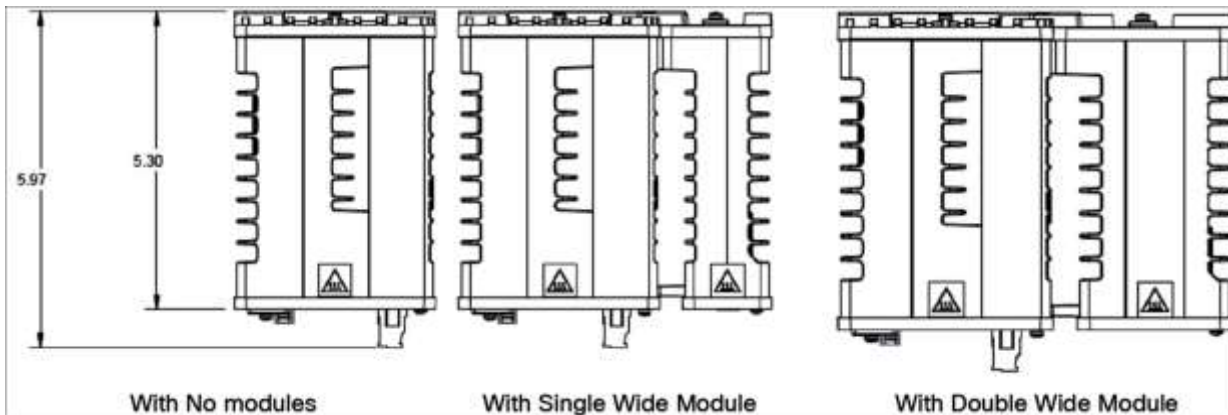


Table 7 highlights the performance and scalability features for Cisco Catalyst IE3400 Rugged Series switches.

Table 7. IE3400 performance and scalability features

Features	Cisco IE-3400-8T2S-E/-A	Cisco IE-3400-8P2S-E/-A
Forwarding rate	Line rate for all ports and all packet sizes	Line rate for all ports and all packet sizes
Number of queues	8	8
Unicast MAC addresses	16K	16K
Internet Group Management Protocol (IGMP multicast groups)	1K	1K
No. of VLANs	256	256
IPv4 Indirect routes¹	3000	3000
IPv6 Indirect routes¹	512	512
Spanning Tree Protocol (STP) instances	128	128
Access Control Entries (PACL/VACL/RACL)	3K	3K
DRAM	4 GB	4 GB
Flash [User Accessible]	1.5 GB	1.5 GB
SD card capacity²	4 GB	4 GB
Jumbo Frames	2000 bytes	2000 bytes

¹ Supported with -A SKUs or -E SKUs (with Network Advantage license).

² The SD card is optional and is not shipped by default with the switch.

Table 8 highlights the power specifications for Cisco Catalyst IE3400 Rugged Series switches.

Table 8. IE3400 power specifications

	Cisco IE-3400-8T2S-E/-A	Cisco IE-3400-8P2S-E/-A
Input voltage range	Redundant DC input voltage: 9.6 to 60VDC	Redundant DC input voltage: 9.6 to 60VDC 48VDC is required for PoE and 54VDC is required for PoE+
Input current	6.3A	10.6A
Power consumption¹	36W	47W

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 PoE power.

Table 9 highlights the power specifications for supported expansion modules in Cisco Catalyst IE3400 Rugged Series switches.

Table 9. IEM3300/IEM3400 expansion modules power consumption

Product ID	Power Consumption ¹
IEM-3300-8T=	6W
IEM-3300-8S=	19W
IEM-3300-16T=	12W
IEM-3300-6T2S=	9W
IEM-3300-14T2S=	16W
IEM-3300-8P=	14W
IEM-3300-16P=	21W
IEM-3400-8T=	12W
IEM-3400-8S=	27W
IEM-3400-8P=	20W
IEM-3300-4MU=	20W

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 PoE power.

Table 10 highlights the power supply options for Cisco Catalyst IE3400 Rugged Series switches.

Table 10. Power supply options

Product ID	Wattage	Rated nominal input operating range	PoE/PoE+ support ¹	More Details
PWR-IE50W-AC=	50W	AC 100-240V/1.25A 50-60Hz or DC 125-250V/1.25A	No	Click here for more details on these DIN Rail power supplies
PWR-IE50W-AC-IEC=	50W	AC 90-264V	No	
PWR-IE50W-AC-L= ²	50W	AC 100-240V/1.0A 50-60Hz	No	
PWR-IE65W-PC-AC=	65W	AC 100-240V/1.4A 50-60Hz or DC 125-250V/1.0A	Yes	
PWR-IE65W-PC-DC=	65W	DC 24-48VDC/4.5A	Yes	
PWR-IE170W-PC-AC=	170W	AC 100-240V/2.3A 50-60Hz or DC 125-250V/2.1A	Yes	
PWR-IE170W-PC-DC=	170W	DC 12-54VDC/23A	Yes	

Product ID	Wattage	Rated nominal input operating range	PoE/PoE+ support ¹	More Details
PWR-IE240W-PCAC-L= ²	240W	AC 100-240V/2.5A 50-60Hz	Yes	
PWR-IE480W-PCAC-L= ²	480W	AC 100-240V/5.0A 50-60Hz	Yes	

¹ The entire power budget for the switch and PoE ports must stay within the power supply wattage.

² The power supplies are not certified for smart grid and hazardous locations. These power supplies are IP20 rated.

Table 11 and 12 highlights the supported software features for Cisco Catalyst IE3400 Rugged Series switches.

Table 11. Key supported software features (Network Essentials License)

Network Essentials License (Perpetual)	Features
Layer 2 switching	IEEE 802.1, 802.3 standard, NTP, UDLD, CDP, LLDP, unicast MAC filter, PaGP, LACP VTPv2, VTPv3, EtherChannel, Q-in-Q tunneling, voice VLAN, PVST+, MSTP, and RSTP
Multicast	IGMPv1, v2, v3 snooping, IGMP filtering, IGMP querier
Management	WebUI, MIB, SmartPort, SNMP, syslog, DHCP server, SPAN session, RSPAN, FSPAN, 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), MACsec-128, FIPS 140-2
Quality of Service (QoS)	Ingress policing, rate limit, egress queuing/shaping, auto QoS
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
Industrial Ethernet	CIP Ethernet/IP, ³ IEEE 1588 PTP v2 (default and power), PROFINET
Redundancy	Resilient Ethernet Protocol (REP) ring, PROFINET-Multi Ring Protocol (MRP), REP Negotiated, Fast REP, Parallel redundancy protocol (PRP) ² , PTP over PRP, High-Availability Seamless Redundancy (HSR-SAN), Device Level Ring
Utility	Dying gasp, SCADA protocol classification - GOOSE messaging, MODBUS TCP/IP

Network Essentials License (Perpetual)	Features
Automation	YANG, NETCONF, RESTCONF
Industrial Management	Layer 2 switching with 1:1 switch Network Address Translation (L2NAT) ¹
IOx	Container (Native docker)

¹ Supported on Uplink ports

² Parallel Redundancy Protocol (PRP) is available on IE3400 base switch on select ports only (Gig1/1 - Gig1/4). Single instance of PRP is supported.

³ IEM-3300-4MU expansion module does not support PTP.

Table 12. Key supported software features (Network Advantage License)*

Network Advantage License (Perpetual)	Features
IP routing Protocols	OSPF (IPv4 and IPv6), BGP (v4 and v6), ISIS (v4 and v6), RIP (v1 and v2), EIGRP (v4 and v6), Policy based routing (PBR), VRRP (v4 and v6), HSRP (v4 and v6), BFD Echo Mode for OSPFv3
Virtualization	Vrf-lite
Security	MACsec-256, SGT/SGACL ¹
IP Multicast	PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), and PIM sparse-dense mode, MSDP, Multicast routing BSR (IPv4/IPv6), Auto RP (IPv4), Embedded RP (IPv6)

* Network Advantage License includes all Network Essentials features.

¹ SGT/SGACL is supported on IE3400 base switch and only on IEM-3400 expansion modules.

Table 13 highlights the details on Cisco DNA Essentials and Cisco DNA Advantage License for Cisco Catalyst IE3400 Rugged Series switches.

Table 13. Cisco IE3400 Cisco DNA Essentials and Cisco DNA Advantage license

Feature	Cisco DNA Essentials	Cisco DNA Advantage
Element Management Discovery, Topology, Inventory, software image management, Config Change Audit	Yes	Yes
Basic Assurance Health dashboard - Network, Client monitoring; switch and wired client health monitoring	Yes	Yes
Assurance and Analytics Compliance, Custom Reports, Device 360 and Client 360 -Display device and client connectivity for granular troubleshooting	No	Yes

Feature	Cisco DNA Essentials	Cisco DNA Advantage
Basic Automation Cisco Network Plug-and-Play application	Yes	Yes
Element Management Patch/SMU	No	Yes
Software-defined Access Extended Node, REP Ring Workflow for Extended Nodes	Yes	Yes
Software-defined Access Policy based automation and assurance for wired clients, IE3400 can function as an SD-Access Policy extended node in a REP ring Workflow	No	Yes

Cisco DNA licenses for Industrial Ethernet switches are add-on/optional and not mandatory, and need to be purchased separately. These do not include Network Tier features. Network Advantage License is a mandatory requirement on the Switch for DNA Advantage License.

Table 14 highlights the compliance specifications for Cisco Catalyst IE3400 Rugged Series switches.

Table 14. Compliance specifications¹

Specifications	
Industrial Automation Control System	IEC 62443-4-1 IEC 62443-4-2
Electromagnetic emissions	FCC 47 CFR Part 15 subpart B Class A EN 55032/CISPR 32 Class A VCCI Class A AS/NZS CISPR 32 Class A CISPR 11 Class A ICES 003 Class A CNS 13438 Class A KN 32 Class A EN 300 386

Specifications

Electromagnetic immunity

CISPR 24
 EN 55024
 KN 35
 EN 61000-4-2 Electro Static Discharge (air – 15kV, contact – 8kV)
 EN 61000-4-3 Radiated RF (10V/m UTP, 20V/m STP)
 EN 61000-4-4 Electromagnetic Fast Transients (4kV)
 EN 61000-4-5 Surge (2KV/1KV Power, 4KV STP)
 EN 61000-4-6 Conducted RF (10Vrms UTP)
 EN 61000-4-8 Power Frequency Magnetic Field (1000A/m)
 EN 61000-4-10 Damped Oscillatory Magnetic Field (100 A/m)
 EN 61000-4-16 Conducted CM Disturbances (30V, Cont/ 300V, 1 sec)
 EN 61000-4-17 Ripple Immunity DC Power (10%)
 EN 61000-4-18 Damped Oscillatory Wave (2.5kV, 1MHz)
 EN-61000-4-29 DC Voltage Dips and Interruptions

Industry standards

EN 61000-6-2 Industrial Immunity
 EN 61000-6-4 Industrial Emissions
 EN 61000-6-1 Light Industrial Immunity
 EN 61326-1 Measurement, Control and Laboratory Equipment
 IEEE 1613 Electric Power Stations Communications Networking
 EN/IEC 61850 -3 Electric Substations Communications Networking
 ODVA Industrial EtherNet/IP
 NEMA TS 2-2016
 AREMA C & S section 11, 19
 IP30

Marine I

DNC Certification according to class guideline DNV-CG-0339
 Additional Standards:
 IEC 60945, IACS UR E10
 Marine DNV GL – Ships; High speed and light craft

Specifications	
Safety standards and certifications	<p>Information Technology Equipment:</p> <p>UL/CSA 60950-1, IEC 60950-1 CB with all country deviations</p> <p>UL/CSA 62368-1, IEC 62368-1 CB with all country deviations</p> <p>Industrial floor (control equipment):</p> <p>UL/CSA 61010-2-201</p> <p>CB report and certificate to IEC/EN 61010-2-201</p> <p>Hazardous Locations:</p> <p>UL121201(Class I, Div 2, groups A-D)</p> <p>CSA 213 (Class I, Div 2, groups A-D)</p> <p>UL/CSA 60079-0, -15 (Class I, Zone 2, Gc/IIC)</p> <p>IEC 60079-0, -15 IECEx test report (Class I, Zone 2, Gc/IIC)</p> <p>EN 60079-0, -15 ATEX certificate (Class I, Zone 2, Gc/IIC) cabinet enclosure required</p>
Operating environment	<p>Operating temperature:</p> <p>-40°C to +70°C (40 LFM vented enclosure)</p> <p>-40°C to +60°C (sealed enclosure)</p> <p>-34°C to +75°C (Min. 200 LFM fan or blower-equipped enclosure)</p> <p>+85°C (type tested for 16 hours)</p> <p>Altitude: up to 15,000 feet</p>
Storage environment	<p>Temperature: -40°C to +85°C</p> <p>Altitude: 15,000 feet</p> <p>IEC 60068-2-14</p>
Humidity	<p>Relative humidity of 5% to 95% non-condensing</p> <p>IEC 60068-2-78</p> <p>IEC 60068-2-30</p>
Shock and vibration	<p>IEC 60068-2-27 (operational shock, 50G, 3ms, half sine)</p> <p>IEC 60068-2-27 (non-operational shock, 65-80G, 9ms, trapezoidal)</p> <p>IEC 60068-2-6 (vibration-sinusoidal, 5Hz-150Hz)</p>
Corrosion	<p>IEC 60068-2-52 (salt fog)</p> <p>IEC 60068-2-60 (flowing mixed gas)</p>
Railway	<p>EN50125-1: 2014</p> <p>EN50125-3: 2003</p> <p>EN50121-4 Railway – Signaling and Telecommunications Apparatus</p>
Warranty	<p>Five-year limited hardware warranty on all IE3400 product IDs and all Industrial Ethernet (IE) power supplies. See more information under the Warranty section</p>

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

Table 15 highlights Mean-Time-Between-Failures (MTBF) for Cisco Catalyst IE3400 Rugged Series switches.

Table 15. MTBF information (Telcordia Issue 3)

Product ID	Rated MTBF (hours)
IE-3400-8T2S-E	549,808
IE-3400-8T2S-A	549,808
IE-3400-8P2S-E	401,313
IE-3400-8P2S-A	401,313
IEM-3300-8T=	3,041,040
IEM-3300-8S=	6,810,960
IEM-3300-16T=	1,594,210
IEM-3300-6T2S=	3,729,130
IEM-3300-14T2S=	1,865,300
IEM-3400-8T=	3,385,166
IEM-3300-8P=	2,931,233
IEM-3300-16P=	1,043,520
IEM-3400-8S=	5,572,640
IEM-3400-8P=	1,802,010
IEM-3300-4MU=	1,272,430*

* Figures are Predicted MTBF numbers, measured according to Telcordia Issue 4. The numbers may vary at availability.

Table 16 highlights information about management and standards for Cisco Catalyst IE3400 Rugged Series switches.

Table 16. 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 1588v2 PTP Precision Time Protocol	IEEE 802.3ah 100BASE-X SMF/MMF only 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 802.3 at Power over Ethernet plus
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 RFC 1256: ICMP Router Discovery RFC 1305: NTP RFC 951: BootP	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 RFC 5460: DHCPv6 bulk lease query

Description	Specifications	
SNMP MIB objects	802.1X MIB CISCO-DHCP-SNOOPING-MIB CISCO-UDLD-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 CISCO-CAR-MIB CISCO-LAG-MIB CISCO-SYSLOG-MIB CISCO-FTP-CLIENT-MIB CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB CISCO-VLAN-MEMBERSHIP-MIB Cisco-REP-MIB CISCO-PORT-STORM-CONTROL-MIB CISCO-CDP-MIB CISCO-IP-STAT-MIB CISCO-LICENSE-MGMT-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	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 RMON-MIB SNMP-COMMUNITY-MIB SNMP-FRAMEWORK-MIB SNMP-PROXY-MIB SNMP-MPD-MIB SNMP-NOTIFICATION-MIB SNMP-TARGET-MIB SNMP-USM-MIB CISCO-DATACOLLECTION-MIB CISCO-CABLE-DIAG-MIB CISCO-PORT-SECURITY-MIB BULK_FILE_MIB NAC-NAD-MIB CISCO-ENTITY-ALARAM-MIB SNMP-VIEW-BASED-ACM-MIB CISCO-MAC-AUTH-BYPASS-MIB 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 17 highlights information about supported SFPs for Cisco Catalyst IE3400 Rugged Series switches and IEM3400 Modules.

Table 17. SFP support

Product ID	Specifications	SFP type	Temperature range ¹	Maximum distance	Cable type	Dom support
GLC-FE-100FX-RGD=	100BASE-FX	FE	IND	2 km	Multimode fiber (MMF)	No
GLC-FE-100LX-RGD=	100BASE-LX10	FE	IND	10 km	Single-Mode Fiber (SMF)	No
GLC-FE-100FX=	100BASE-FX	FE	COM	2 km	MMF	No
GLC-FE-100LX=	100BASE-LX10	FE	COM	10 km	SMF	No
GLC-FE-100EX=	100BASE-EX	FE	COM	40 km	SMF	No
GLC-FE-100ZX=	100BASE-ZX	FE	COM	80 km	SMF	No
GLC-FE-100BX-U=	100BASE-BX10	FE	COM	10 km	SMF	No
GLC-FE-100BX-D=	100BASE-BX10	FE	COM	10 km	SMF	No
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
GLC-EX-SMD=	1000BASE-EX	GE	COM	40 km	SMF	Yes
GLC-TE=	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

Product ID	Specifications	SFP type	Temperature range ¹	Maximum distance	Cable type	Dom support
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=	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
CWDM-SFP-1470=	1000BASE-CWDM	10GE	COM	80km	SMF	Yes
CWDM-SFP-1610=	1000BASE-CWDM	10GE	COM	80km	SMF	Yes
CWDM-SFP-1530=	1000BASE-CWDM	10GE	COM	80km	SMF	Yes
CWDM-SFP-1490=	1000BASE-CWDM	10GE	COM	80km	SMF	Yes
DWDM-SFP-3033=	1000BASE-DWDM	10GE	COM	80km	SMF	Yes
DWDM-SFP-3112=	1000BASE-DWDM	10GE	COM	80km	SMF	Yes

¹ If non-industrial SFPs (EXT, COM) are used, the switch operating temperature must be derated.

Ordering information

Table 18 lists the ordering information for fixed system, expansion modules and memory that are commonly used with the Cisco Catalyst IE3400 switches.

Table 18. Ordering information

Product ID	Description
IE-3400-8T2S-E	Catalyst IE3400 with 8 GE Copper and 2 GE SFP, Adv. Modular, Network Essentials
IE-3400-8T2S-A	Catalyst IE3400 with 8 GE Copper and 2 GE SFP, Adv. Modular, Network Advantage
IE-3400-8P2S-E	Catalyst IE3400 with 8 GE PoE/PoE+, 2 GE SFP, Adv. Modular, Network Essentials
IE-3400-8P2S-A	Catalyst IE3400 with 8 GE PoE/PoE+, 2 GE SFP, Adv. Modular, Network Advantage
IEM-3300-8T=	Catalyst IE3300 with 8 GE Copper ports, Expansion Module
IEM-3300-8S=	Catalyst IE3300 with 8 GE SFP Fiber ports, Expansion Module
IEM-3300-16T=	Catalyst IE3300 with 16 GE Copper ports, Expansion Module

Product ID	Description
IEM-3300-6T2S=	Catalyst IE3300 with 6 GE Copper + 2 GE SFP, Expansion Module
IEM-3300-14T2S=	Catalyst IE3300 with 14 GE Copper + 2 GE SFP, Expansion Module
IEM-3300-8P=	Catalyst IE3300 with 8 GE PoE/PoE+ Copper ports, Expansion Module
IEM-3300-16P=	Catalyst IE3300 with 16 GE PoE/PoE+ Copper, Expansion Module
IEM-3400-8T=	Catalyst IE3400 with 8 GE Copper ports, Expansion Module
IEM-3400-8S=	Catalyst IE3400 with 8 GE SFP ports, Expansion Module
IEM-3400-8P=	Catalyst IE3400 with 8 GE Copper PoE/PoE+, Expansion Module
IEM-3300-4MU=	Catalyst IE3300 with 4 2.5G Copper (4PPoE), Expansion Module
SD-IE-4GB=	IE 4GB SD memory card for IE
STK-RACK-DINRAIL=	19" DIN Rail mount kit
IE3400-NW-A=	Network Advantage License for IE3400, Perpetual
IE3400-DNA-E	Cisco DNA Essentials license for IE3400 Series
IE3400-DNA-E-3Y	IE 3400 Cisco DNA Essentials, 3 Year Term license
IE3400-DNA-E-5Y	IE 3400 Cisco DNA Essentials, 5 Year Term license
IE3400-DNA-E-7Y	IE 3400 Cisco DNA Essentials, 7 Year Term license
IE3400-DNA-A	Cisco DNA Advantage license for IE3400 Series
IE3400-DNA-A-3Y	IE 3400 Cisco DNA Advantage, 3 Year Term license
IE3400-DNA-A-5Y	IE 3400 Cisco DNA Advantage, 5 Year Term license
IE3400-DNA-A-7Y	IE 3400 Cisco DNA Advantage, 7 Year Term license
LIC-MRP-MGR-XE=	MRP Ring Manager License
LIC-MRP-CLIENT-XE=	MRP Ring Client 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](#).

Warranty

Five-year limited HW warranty on all IE3400 PIDs and all IE Power Supplies ([see table 9 above](#)). See link below for more details on 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 8. IE3400 power specifications
Environmental Characteristics	
Operating temperature, industry standards, EMC emissions	Table 14. Compliance specifications
Material	
Unit Weight	Table 6. IE3400 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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Document history

New or Revised Topic	Described In	Date
Updated AREMA Certification, DNV GL, Railway certifications	Table 14	December 19, 2022
Updated IPv6 Ready Logo, HSR-SAN, BFD Feature, Cisco DNA License information, SFP support, Cisco Environmental Sustainability information	Table 1 , 11 , 12 , 13 , 17 , Cisco Environmental Sustainability	October 29, 2021
Updated DNA license information to indicate that DNA Essentials license includes Cisco DNA assurance, Device 360	Table 13	December 22, 2020
Added IEC 60068-2-6 (vibration-sinusoidal, 5Hz-150Hz); added clarification that Network Essentials is included in Network Advantage	Tables 2 , 3 , 12 and 14	November 18, 2020
Added measures in metric system; updated name of standard: EN 61000-4-10 Damped Oscillatory Magnetic Field (100 A/m) and removed "test in progress" from IEEE 1613 & EN/IEC 61850-3	Table 6 and Table 14	October 06, 2020
Updated product dimensions of IEM PIDs	Table 6	July 09, 2020
Added information on IEM-3300-4MU	Tables 1 , 3 , 6 , 9 , 15 and 18	July 09, 2020
Added new product numbers to hardware configurations and updated hardware specifications	Table 3 and Table 4	December 17, 2019
Updated power specifications, power consumption and power supply options	Table 8 and Table 9	December 17, 2019
Added PWR-IE50W-AC-IEC= to Power Supply Options; Added details on IPv6 support and PROFINET support on key supported software features	Table 10 and Table 11	December 17, 2019
Updated key supported software features: IP protocols, IP Multicast	Table 12	December 17, 2019
Updated Management and Standards: RFC 5460 and SNMP MIB objects	Table 16	December 17, 2019
Added new part numbers on SFP support	Table 17	December 17, 2019
Fixed descriptions on product description in ordering information	Table 18	December 17, 2019

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