

Cisco Catalyst IR8300 Rugged Series Router

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5G, all-in-one, industrial-grade routing and switching platform

The Cisco® Catalyst® IR8300 Rugged Series Router is Cisco's first industrial-grade fully integrated routing and switching platform. Built on the Cisco Unified Access® Data Plane (UADP) Application-Specific Integrated Circuit (ASIC) and Quantum Flow Processor (QFP), which powers the industry-leading Cisco Catalyst products, the IR8300 is designed to provide outstanding flexibility and adaptability to address the latest needs of the network evolution. The IR8300 supports U.S. public safety FirstNet services and new 5G services and is built for accelerated services, multilayer security, and edge intelligence. It can be deployed in the harsh, rugged environments found in the energy, transportation, and oil and gas industries.

The Catalyst IR8300 is designed to support the communications needs of the energy delivery infrastructure. This infrastructure includes substation applications supporting electrical transmission and distribution, renewable generation, oil and gas, water, distributed generation, co-generation, and trackside operations. Additional applications include transmission pipelines, distribution mains, and service lines for oil and gas and water. Router has been extensively tested to meet challenging substation compliance standards, including IEEE 1613 and IEC 61850-3.

The Catalyst IR8300 with Cisco IOS® XE supports Cisco vManage, delivering Cisco's secure, cloud-scale SD-WAN solution. It is purpose-built for high performance and integrated SD-WAN services, with the flexibility to deliver security and networking services together from the cloud or on premises. Powered by the Cisco IOS XE fully programmable software architecture with API support, the platform can facilitate automation at scale. It comes with a Trustworthy Solutions 2.0 infrastructure that secures the platform against threats and vulnerabilities with integrity verification and remediation of threats.



Figure 1.
The Cisco Catalyst IR8340 Rugged Router

Product overview

Table 1. Product highlights

Product feature	Benefits and description
Multicore processors	<ul style="list-style-type: none"> • Intel® x86 CPU with 8 GB Cache Memory • High-performance multicore processors that support high-speed WAN traffic • Configurable core profiles based upon Service-Plane, Data-Plane and Control-Plane requirements
Embedded IPsec VPN hardware acceleration	<ul style="list-style-type: none"> • IPsec Internet Mix (IMIX) traffic • SSL and crypto hardware acceleration • FlexVPN, DMVPN, IKEv1, IKEv2, IPSEC
Integrated Gigabit Ethernet (GE) ports	<ul style="list-style-type: none"> • Provides 14 built-in Gigabit Ethernet ports for WAN or LAN: • 4 RJ45 (with POE/POE+/UPOE), 4 combo (RJ45/SFP), 4 SFP LAN ports, and 2 combo (RJ45/SFP) WAN ports
DRAM	<ul style="list-style-type: none"> • 8 GB
Flash memory support	<ul style="list-style-type: none"> • Integrated on-board 16 GB flash, 7.2GB usable
SD card/mSATA/USB storage	<ul style="list-style-type: none"> • Additional storage options: • SD-Card 1GB • mSATA 100 GB • USB 16 & 32 GB
Modularity and form factor	<ul style="list-style-type: none"> • 2-Rack-Unit (RU) form factor • Supports 2 x Network Interface Module (NIM), and 2 x Pluggable Interface Module (PIM) slots
Integrated security	<ul style="list-style-type: none"> • Hardware-anchored Secure Boot and Secure Unique Device Identification (SUDI) support for Plug and Play to verify the identity of the hardware and software
Time Synchronization and distribution	Timing module with support for IRIG-B (in/out), GNSS, TOD/1PPS and IEEE 1588 v2 (PTP) and SyncE. GNSS support for Stratum 3 NTP redistribution.

Platform details

The IR8300 platform has 2 NIM slots and 2 PIM slots as well as a timing module. IR8300 has 12 LAN interfaces. 4 copper with POE, 4 combo SFP/copper and 4 SFP ports as well as 2 combo SFP/copper ports for WAN connectivity. All LAN & WAN are 1 GE..



Overall platform benefits

Accelerated services with Cisco Software-Defined WAN

Cisco SD-WAN is a set of intelligent software services that allows you to connect users, devices, and branch office locations reliably and securely across a diverse set of WAN transport links. The Catalyst IR8300 router can dynamically route traffic across the “best” link based on up-to-the-minute application and network conditions for great application experiences. You get granular control over application performance, bandwidth usage, data privacy, and availability of your WAN links—control you need as your branches conduct greater volumes of mission-critical business with both on-premises and cloud controllers. With dual 5G module support on this platform customers can have multiple wireless carrier options to route their WAN traffic depending upon their needs.

Application performance optimization

Enable SD-WAN networks to meet Service-Level Agreements (SLAs) and maintain strong performance, even if network problems occur. With branch multicloud access, you can accelerate your Software-as-a-Service (SaaS) applications with a simple template push from the SD-WAN controller. Features such as Transmission Control Protocol (TCP) optimization, Forward Error Correction, and packet duplication help improve application performance for a better user experience.

Multilayer security

You can now move your traditional and complex WAN networks to a more agile software-defined WAN with integrated security. The Catalyst IR8300 Rugged Router connects branch offices to the internet and cloud, with industry-leading protection against major web attacks. Secure Direct Internet Access (DIA) to the branches helps optimize branch workloads for improved performance, specifically for cloud-hosted applications. At the same time, DIA helps protect your branches from external threats.

Ability to run Cisco® Cyber Vision or Unified Threat Defense allows organizations to ensure the continuity, resilience, and safety of their industrial operations by providing continuous visibility into their industrial control networks and managing the risks of cyber attacks.

Cloud-native agility with a programmable software architecture

Cisco continues to offer a feature-rich traditional Cisco IOS XE routing stack on the Catalyst IR8300 platform. IP routing, IPsec, Quality of Service (QoS), firewall, Network Address Translation (NAT), Network-Based Application Recognition (NBAR), Flexible NetFlow (FNF), L2 Loop Protection & Redundancy Protocols and many other features are part of Cisco IOS XE, a fully programmable software architecture with API support and a wide variety of protocols and configurations. With an integrated software image and a single binary file, you can now choose between Cisco IOS XE SD-WAN and Cisco IOS XE. And you can easily move from one to the other when you choose to do so.

5G

The Catalyst IR8300 Rugged Series Router is built for 5G networks. With higher throughputs with Cat18 LTE and 5G, WAN networks are looking at wireless WAN as primary transports for different use cases. The IR8300 supports both integrated pluggable modules and external cellular gateway modules with LTE/5G capability for improved throughputs that address these use cases. Based on a specific branch’s direct line of sight and cellular coverage, either an integrated or external gateway can be chosen.

Table 2. Product SKUs

Name and SKU	Description
Cisco Catalyst IR8300 Rugged Series Router	
IR8340-K9	Cisco Catalyst IR8340 Rugged Router
Power supplies	
PWR-RGD-AC-DC	High AC/DC (100-250 VDC/100-240 VAC)
PWR-RGD-LOW-DC	Low DC (24-60 VDC)
PWR-RGD-AC-DC-250	High AC/DC (100-250 VDC/100-240 VAC) 250 W

Supported modules

Table 3. Modules supported

Product number	Description
Interface modules	
IRM-NIM-2T1E1	IR Series 2 port T1/E1 Network Interface Module
IRM-NIM-RS232	IR Series RS232 8 Port Serial Network Interface Module
IRM-TIMING-MOD	IR Series Timing Module - PTP IEEE 1588 v2, GNSS (SMA Connector), IRIG-B, SyncE, TOD/1PPS
Wireless WAN (LTE) - 4.4 Watts, 0.5Lbs/0.2Kg	
P-LTEAP18-GL	4G/CAT18 LTE Advanced Pro Pluggable - Global
P-LTE-MNA	4G/CAT6 LTE Advanced Pluggable for North American and Europe
P-LTE-EA	CAT6 Advanced Pluggable for Europe and North America
P-LTE-LA	CAT6 Advanced Pluggable for APAC, LATAM and ANZ

LTE (3GPP Category 4) modules

	P-LTE-MNA
LTE bands	LTE bands 2, 4, 5, 12, 13, 14, 17, and 66 FDD LTE 1700 MHz and 2100 MHz (band 66 Ext AWS), 700 MHz (bands 17, 14, 13, 12), 850 MHz (band 5 CLR), 1700 MHz and 2100 MHz (band 4 AWS), 1900 MHz (band 2)
Backward compatibility	UMTS, HSPA+ (bands 2,4,5)
Theoretical download and upload speeds	150 and 50 Mbps
United States	Multicarrier (AT&T and Verizon)
Europe	-
Band 14	Yes
FirstNet Ready	Approved by AT&T FirstNet (IR8300 platform certification pending)

LTE Advanced (3GPP Category 6) modules

Feature	P-LTEA-EA	P-LTEA-LA
LTE bands	LTE bands 1-5, 7, 8, 12, 13, 20, 25, 26, 29, 30, and 41 FDD LTE 700 MHz (band 12), 700 MHz (band 29), 800 MHz (band 20), 850 MHz (band 5 CLR), 850 MHz (band 26 Low), 900 MHz (band 8), 1800 MHz (band 3), 1900 MHz (band 2), 1900 MHz (PCS band 25), 1700 MHz and 2100 MHz (band 4 AWS), 2100 MHz (band 1), 2300 MHz (band 30), or 2600 MHz (band 7) TDD LTE 2500 MHz (band 41) Carrier aggregation band combinations: 1+8; 2+(2,5,12,13,29); 3+(7,20); 4+(4,5,12,13,29); 7+(7,20); 12+30, 5+30, and 41+41	LTE bands 1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, and 41 FDD LTE 700 MHz (band 28), 850 MHz (band 5 CLR), 850 MHz (bands 18 and 19 Low), 900 MHz (band 8), 1500 MHz (band 21), 1800 MHz (band 3), 2100 MHz (band 1), or 2600 MHz (band 7) TDD LTE 1900 MHz (band 39), 2300 MHz (band 40), 2500 MHz (band 41), or 2600 MHz (band 38) Carrier aggregation band combinations: 1+(8,18,19,21); 3+(5,7,19,28); 7+(5,7,28); 19+21, 38+38, 39+39,40+40, and 41+41
Theoretical download and upload speeds³	300 and 50 Mbps	300 and 50 Mbps
Dying Gasp	Yes	Yes
United States	AT&T and Verizon	-
Europe	Yes	-
Band 14	Yes	-
Canada	Yes	-

Feature	P-LTEA-EA	P-LTEA-LA
Australia and New Zealand	-	Yes (approved by Telstra)
Japan	-	Yes (NTT Docomo, KDDI, Softbank)
India, Singapore, Malaysia, Thailand	-	Yes
China	-	Yes
United Arab Emirates	Yes	-

LTE Advanced Pro (3GPP Category 18) modules

Feature	P-LTEAP18-GL
LTE bands	LTE bands 1-5, 7, 8, 12-14, 17, 18-20, 25, 26, 28-30, 32, 38-43, 46, 48, 66, and 71. FDD LTE 600 MHz (band 71), 700 MHz (bands 12, 13, 14, 17, 28, and 29), 800 MHz (band 20), 850 MHz (bands 5, 18, 19, and 26), 900 MHz (band 8), 1500 MHz (band 32), 1700 MHz (bands 4 and 66), 1800 MHz (band 3), 1900 MHz (bands 2 and 25), 2100 MHz (band 1), 2300 MHz (band 30), 2600 MHz (band 7) TDD LTE 1900 MHz (band 39), 2300 MHz (band 40), 2500 MHz (band 41), 2600 MHz (band 38), 3500 MHz (bands 42 and 48), 3700 MHz (band 43), 5200 MHz (band 46)
Theoretical download and upload speeds ³	1.2 Gbps/200 Mbps
Dying Gasp	Yes
United States	Multicarrier (AT&T and Verizon)
Europe	Yes
Canada	Yes
Australia	Yes
China	Yes
Japan	Yes
Band 14	Yes
FirstNet certification	Yes (IR8300 platform certification pending)
Band 48 (CBRS)	Yes

Memory, storage, and accessory options

Table 4. Memory, storage, and accessory options

Product number	Description
IRM-SSD-100G	mSATA storage - 100 GB, Spare
IRM-NIM-BLNK	Blank for NIM slot
IRM-P-Blank	Blank for PIM slot
IRM-SSD-Blank	Blank for SSD

Optics and transceivers modules

Part Number	Max Distance	Cable Type	Temp Range
GLC-FE-100FX-RGD	2km	MMF	INDUSTRIAL
GLC-FE-100LX-RGD	10km	SMF	INDUSTRIAL
GLC-FE-100FX	2km	SMF	COMMERCIAL
GLC-FE-100LX	10km	SMF	COMMERCIAL
GLC-FE-100EX	40km	SMF	COMMERCIAL
GLC-FE-100ZX	80km	SMF	COMMERCIAL
GLC-FE-100BX-D	10km	SMF	COMMERCIAL
GLC-FE-100BX-U	10km	SMF	COMMERCIAL
GLC-SX-MM-RGD	550m	MMF	INDUSTRIAL
GLC-LX-SM-RGD	550m/10km	MMF/SMF	INDUSTRIAL
GLC-ZX-SM-RGD	70km	SMF	INDUSTRIAL
GLC-SX-MMD	850m	MMF	EXTENDED
GLC-LH-SMD	550m/10km	MMF/SMF	EXTENDED
GLC-EX-SMD	40km	SMF	EXTENDED
GLC-ZX-SMD	70km	SMF	EXTENDED
CWDM-SFP-xxxx (8 freq)	80km	SMF	COMMERCIAL
DWDM-SFP-xxxx (40 freq)	80km	SMF	COMMERCIAL
GLC-BX-D	10km	SMF	COMMERCIAL
GLC-BX-U	10km	SMF	COMMERCIAL

Part Number	Max Distance	Cable Type	Temp Range
GLC-TE	100m	GE	EXTENDED
GLC-T-RGD	100m	GE	INDUSTRIAL

Resiliency and high availability

Platform redundancy is critical for branch operations, as any downtime has a direct impact on a customer's business. To address that priority, Cisco makes a dual power supply the default on the Catalyst IR8300 to help ensure that backup power is available in case the primary power supply fails.

Power supplies

Table 5. Power supply specifications

Product number	Wattage	Rated nominal input operating range	Use case scenario
PWR-RGD-AC-DC	150W	AC 100-240V/2.0A 50-60Hz or DC 100-250V/2.0A	High voltage AC or DC power source
PWR-RGD-LOW-DC	150W	DC 24-60V/10A	Low voltage DC power source
PWR-RGD-AC-DC-250	250W	AC 100-240V 3.3A 50-60Hz or DC 100-250V 3.3A	High voltage AC or DC power source

Software requirements

Table 6. Minimum software requirements

Platform product ID	Description	Minimum software requirement
IR8340-K9	Cisco Catalyst IR8340 Rugged Router	Cisco IOS XE Software Release 17.7.1

Table 7. Software features and protocols for autonomous mode

Feature	Description
Cisco IOS Software requirements	<ul style="list-style-type: none"> • Cisco IOS XE Software: Universal Cisco IOS Software image • Cisco IOS XE Software Release 17.7.1 or later (17.8.1 with Timing Module) • Cisco IOS XE Software: Unified image for Autonomous and Controller (SD-WAN) mode
LAN features	<ul style="list-style-type: none"> • Spanning Tree Protocol (STP/RPVST/PVST/MSTP/RSTP) 802.1d, 802.1w, 802.1s • L2 EtherChannel (LACP 802.3ad/PAgP) • MACsec 802.1ae • VLAN and Switch Virtual Interface • VLAN Trunking 802.1q • REP, HSR, PRP Protection

Feature	Description
	<ul style="list-style-type: none"> • SPAN and RSPAN • Root Guard, BPDU Guard, Loop Guard, UniDirectional Link Detection (UDLD) • Q in Q Tunneling • LLDP and Cisco Discovery Protocol (CDP) • VTPv2 and VTPv3 (VLAN Trunking Protocol) • L2 Multicast, IGMPv2, IGMPv3, IGMP Snooping, IGMP Querier • Private VLAN
IPv4 and IPv6 services features	<ul style="list-style-type: none"> • Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2) and RIPv6 (IPv6) • Generic Routing Encapsulation (GRE) and Multipoint GRE (MGRE) • Network Address Translation (NAT) • Dynamic Host Configuration Protocol (DHCP) server, relay, and client for IPv4 and IPv6 • Access control lists (ACLs) for IPv4 and IPv6 • IPv4 and IPv6 multicast • IP Service-Level Agreement (IP SLA) • Open Shortest Path First (OSPF) v2 and v3 • Multiprotocol Border Gateway Protocol (MP-BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) for IPv4 and IPv6 • Virtual Route Forwarding (VRF) and VRF Lite • Next-Hop Resolution Protocol (NHRP) • Asynchronous serial data encapsulation and relay • Layer 2 Tunneling Protocol (L2TP) v3 over subinterfaces and VLAN • MPLS, LSP with BFD (OAM) and FRR, TE, L2 and L3 VPN • Policy Based Routing (PBR)
Security features	<p>Secure connectivity</p> <ul style="list-style-type: none"> • Trusted Anchor Module (TAM) • Hardware-accelerated encryption with minimal impact to system performance • Next-Generation Encryption (NGE) and Quantum Computing Resistant (QCR) algorithms such as AES- 256, SHA-384, and SHA-512 • Public-Key Infrastructure (PKI) support • 20 IPsec tunnels • Cisco Easy VPN solution client and server • NAT transparency • Dynamic Multipoint VPN (DMVPN) • Tunnel-less Group Encrypted Transport VPN (GETVPN) • Flex VPN • IPsec stateful failover • Secure Sockets Layer (SSL) VPN for secure remote access • VRF-aware IPsec • IPsec over IPv6 • 802.1x Authentication and TrustSEC <p>Cisco IOS Firewall</p> <ul style="list-style-type: none"> • Zone-based policy firewall • VRF-aware stateful inspection routing firewall

Feature	Description
	<ul style="list-style-type: none"> • Stateful inspection transparent firewall • Advanced application inspection and control • Secure HTTP (HTTPS), FTP, and Telnet Authentication Proxy • Dynamic and static port security • Firewall stateful failover • VRF-aware firewall <p>Integrated threat control</p> <ul style="list-style-type: none"> • Control-Plane Policing (CoPP) • Flexible packet matching • Network foundation protection <p>Cisco Umbrella</p> <ul style="list-style-type: none"> • As supported by IOS-XE
Quality of Service (QoS) features	<ul style="list-style-type: none"> • Provides LTE QoS with support for up to 8 concurrent bearers on each cellular WAN interface for traffic classification and prioritization • Provides traffic precedence to delay-sensitive and mission-critical services • Facilitates low-latency routing of delay-sensitive industrial applications • Supported on all LAN and WAN interfaces, including cellular • Low Latency Queuing (LLQ) • Weighted Fair Queuing (WFQ) • Class-Based WFQ (CBWFQ) • Class-Based Traffic Shaping (CBTS) • Class-Based Traffic Policing (CBTP) • Policy-Based Routing (PBR) • Class-Based QoS MIB • Class of Service (CoS) to Differentiated Services Code Point (DSCP) mapping • Class-Based Weighted Random Early Detection (CBWRED) • Resource Reservation Protocol (RSVP) • Real-Time Transport Protocol (RTP) header compression (cRTP) • Differentiated Services (DiffServ) • QoS pre-classify and pre-fragmentation
High-availability features	<ul style="list-style-type: none"> • Dual active LTE backhaul • Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • Dual SIM support on the LTE module for cellular failover • WAN monitoring to handle dual-SIM failover
IPv6 features	<ul style="list-style-type: none"> • IPv6 addressing architecture • IPv6 unicast and multicast forwarding • IPv6 ACLs • IPv6 over cellular, including DHCP Prefix Delegation • IPv6 routing (Static, RIPng, OSPFv3, EIGRP, MP-BGP) • IPv6 domain name resolution • IPv6 DHCP services

Table 8. Software features and protocols for controller mode

Feature	Description
Core features	IPv4, IPv6, static routes, OSPF, EIGRP, BGP, Overlay Management Protocol (OMP), Application-Aware Routing (AAR), Traffic Engineering, Service Insertion, zero-trust, whitelisting, tamper-proof module, DTLS/TLS, IPsec, classification, prioritization, low-latency queuing, remarking, shaping, scheduling, policing, mirroring, Multicast IPv4 support, service advertisement and insertion policy, Simple Network Management Protocol (SNMP), Network Time Protocol (NTP), DNS client, (DHCP, DHCP client, DHCP server, DHCP relay, archival, syslog, Secure Shell (SSH), Secure Copy (SCP), Cflowd v10 IPFIX export, IPv6 for transport-side, Virtual Router Redundancy Protocol (VRRP), MPLS, NAT (DIA, Service-side, overload/PAT, NAT64, etc.), NAT pools, split DNS, ACL, BFD, NETCONF over SSH, Command-Line Interface (CLI), NTP server support, BFD with service-side BGP, BGP community propagation to OMP, 6 SLA classes for AAR, Cisco TrustSec®/SD-Access (inline Scalable Group Tag [SGT] propagation), custom app with Software-Defined Application Visibility and Control (SD-AVC), multicast AAR, dynamic on-demand tunnels, PIM-SM, OSPFv3, route policies, multi-VRF support
Encapsulations	GRE, Ethernet, 802.1q VLAN
Application experience	QoS, Forward Error Correction (FEC), CoS Marking, WRED, Hierarchical QoS, PBR, NBAR, SD-AVC, per-tunnel QoS, Cloud OnRamp for SaaS, Enhanced Office 365 traffic steering, DIA, FNF
Cryptographic algorithms	Encryption: AES-256 (in CBC and GCM modes), IKE, Cisco Public Key Infrastructure (PKI) Authentication: AAA, RSA (2048 bit), ESP-256-CBC, HMAC-SHA1, ECDSA (256/384 bit) Integrity: SHA-1, SHA-2
Security	Built-in end-to-end segmentation (VPNs), zone-based firewall (ZBFW), PKI, Cisco DNA Layer Security, Snort® intrusion prevention and detection (IPS/IDS), URL filtering, Cisco Secure Firewall (formerly AMP), Cisco Secure Malware Analytics (formerly Threat Grid), Application-Level Gateway (ALG) for ZBFW

Table 9. Network Management Tools

Operational Phase	Application	Description
Device staging and configuration for a few routers	Cisco WebUI	A GUI-based device-management tool that simplifies provisioning of devices for a small-scale deployment through easy-to-use wizards.
Extend your enterprise network to configure, monitor, and manage industrial assets	Cisco Digital Network Architecture (Cisco DNA) with SD-WAN	<ul style="list-style-type: none"> • Cisco DNA offers a network infrastructure that is not only fully programmable and open to third-party innovation, but can also fully and seamlessly integrate the cloud as an infrastructure component. • Simplifies and automates processes and workflow by bringing the notion of user-aware and application-aware policies into the foreground of network operations. • With Cisco DNA, the network can provide continuous feedback to simplify and optimize network operations. • Single management dashboard for configuration and management of WAN. <p>Cisco SD-WAN (vManage) automates application flexibility over multiple connections, such as the internet, MPLS, and wireless 4G LTE/5G (advanced SDWAN security features).</p>

Licensing

The Cisco Catalyst IR8300 offers two licensing packages

Network stack:

- Network Essentials
- Network Advantage

Cisco DNA stack:

- Cisco DNA Essentials
- Cisco DNA Advantage

Specifications

Table 10. Mechanical specifications

Description	Specification
Substation hardening compliance	IEC 61850-3 IEEE1613
Embedded hardware-based cryptography acceleration (IPsec + SSL)	Yes
Gigabit Ethernet WAN ports	2 x Combo (RJ45/SFP)
Gigabit Ethernet LAN ports	12 GE LAN ports 4 x RJ45 4 x Combo (RJ45/SFP) 4 x SFP
POE/POE+/UPOE Budget	120W: Ports 1 & 2 - Up to UPOE (60W) each Ports 3 & 4 - Up to POE+ (30W) each
Number of slots	4 (2 NIM, 2 PIM)
Memory (DDR4)	8 GB
eMMC flash	Integrated on-board 16 GB flash, 7.2GB usable
External USB 3.0	1
RJ-45 console port	1
RJ-45 alarm port	1 x RJ45 with 2 x Alarm IN and 1 x Alarm OUT

Description	Specification
Power supply options	Three power supply options: <ul style="list-style-type: none"> • 150W Low-voltage DC power supply • 150W AC or high-voltage DC power supply • 250W AC or high-voltage DC power supply
Power specifications	
150W AC/DC input voltage	Nominal Range: 100 - 240 VAC / 100-250VDC
150W Low DC input voltage	Nominal Range: 24 - 60 VDC
250W AC/DC input voltage	Nominal Range: 100 - 240 VAC / 100 - 250 VDC
AC input frequency	50 to 60 Hz
System power consumption (with no modules and POE)	Typical : 60W, Max : 86W
T1/E1 NIM power consumption	Typical : 6W, Max : 7W
RS232 NIM Power consumption	Typical : 6W, Max : 7W
Physical specifications	
Dimensions (H x W x D)	3.5 x 17.25 x 15 in. (88.9 x 438.2 x 381 mm)
Rack height	2 Rack Units (2RU)
Rack-mount 19 in. (48.3 cm) EIA	Yes - Included
Weight with 1 power supply (no modules)	24 lbs (10.9 kg)
Typical weight fully configured with 2 power supplies 4 modules, timing module	28 lb (12.7 kg)
Airflow	Convection and conduction cooling (no fans)
Mean time between failures (hrs)	239,274 hours.
Environmental specifications	
Operating conditions	
Operating temperature	-40°F to 140°F (-40 to +60°C) continuous operating temperature range
Shock/vibration	30G at 11 ms
Altitude	10,000 ft (3,048 m) Max operating temp is de-rated with increasing altitude per IEEE 1613-2009
Relative humidity	5% to 95% noncondensing

Description	Specification
Nonoperating conditions	
Temperature	-40° to 185° F (-40° to 85° C)
Relative humidity	5% to 95% noncondensing
Altitude	16,000 ft (4,876 m) Max operating temp is de-rated with increasing altitude per IEEE 1613a-2008
Nonoperating free-fall drop	4 in. (100 mm) per ENG-339611
Operating seismic/earthquake	IEC 60255-21-3 Class 1
Nonoperating shock/vibration	40 to 50G (3.26 m/s minimum)
Regulatory compliance*	
Environmental substation compliance	IEC-61850-3 IEEE1613
Immunity	EN61000-6-2 <ul style="list-style-type: none"> • IEC 61000-6-4 • IEC 61000-6-5 (AC, I/O) • EN61000-4-2 (ESD) • EN61000-4-3 (RF) • EN61000-4-4 (EFT) • EN61000-4-5 (SURGE) • EN61000-4-6 (CRF) • EN61000-4-11 (VDI) • IEC 61000-4-12 (AC, I/O) • EN 55024, CISPR 24 • EN50082-1 (AC) • IEEE 1613: High Voltage Impulse
EMC - Emissions	IEC / CISPR 22 EN/KN 61000-3-3 NM EN 61000-3-3 EN/KN 61000-3-2 NM EN 61000-3-2 47 CFR Part 15 Subpart B CISPR32 CNS13438 EN300 386 EN55032 ICES-003: Iss:6 KS C 9832

Description	Specification
	<p>NM EN 55032</p> <p>VCCI-CISPR 32</p> <p>EAC</p> <p>SDPPI SNI ISO/ IEC CISPR 32</p> <p>CNCA / SAC GB</p> <p>AS/NZ CISPR 32</p>
Industrial EMC	<p>EN 61000-6-2 - Industrial (Immunity)</p> <p>EN 61000-6-4 - Industrial (Emissions)</p> <p>EN 61000-6-1 - Generic Immunity standard</p>
Safety	<p>UL/CSA 62368-1</p> <p>IEC/EN 60950-1</p> <p>IEC/EN 62368-1</p> <p>CB report and certificate to IEC 62368-1 with all country deviations</p> <p>NOM to NOM-019-SCFI (via UL certificate of conformity) UL/CSA 61010-2-201</p>
Radio - Cellular and Global Navigation Satellite System (GNSS)	<p>FCC CFR Part 22H, 24E, 27, 90, 96 - GSM/WCDMA/LTE</p> <p>RSS - 130, 132, 133, 139, 140, 195, 199</p> <p>EN 301 908 Part 1/2/13 - WCDMA/LTE</p> <p>EN 301 511 - GSM</p> <p>AS/NZ: ACMA EMR, AS/CA S042.1, 4 -WCDMA, LTE</p> <p>MIC Article 2 Paragraph 1, Item 11-3,7,19 - GSM/WCDMA/LTE</p> <p>2017.3.31 (RRA notice# 2017-3), (KS X 3123:2017), (KS X 3142:2018, draft) - WCDMA/LTE</p> <p>ETSI TS 151 010-1 V6.5.0 (2005-11), ETSI TS 134 121-1 V9.1.0 (2010-07), 3GPP TS 36.521-1 V9.5.0 (2011-06) - GSM/WCDMA/LTE</p> <p>Resolutions: 1463/2016, 1474/2016, 271/2017 - GSM/WCDMA/LTE</p> <p>3GPP TS 36.521-1 V9.7.0 - LTE, TS 51.010-1-S12 10.1.0 - GSM/WCDMA</p> <p>EN 301 489 - 1/52</p> <p>EN 301 489 -1/19</p> <p>EN 303 413 - GNSS</p>
RF exposure	<p>FCC Part 2.1091, 2.1093</p> <p>RSS 102</p> <p>EN62311</p> <p>AS/NZ 2772</p>

Description	Specification
Railway	<p>AREMA C&S Manual Part 11</p> <p>IEC 62236-4 (description)</p> <p>EN 50121-4</p> <p>EN 50125-3</p> <p>EN 50153</p> <p>EN 50155</p>
Automotive	NEMA TS-2
Industry standards	<p>Public Safety:</p> <ul style="list-style-type: none"> • FirstNet Ready™ <p>Smart grid:</p> <ul style="list-style-type: none"> • IEC 61850-3 • IEEE 1613 <p>Security:</p> <ul style="list-style-type: none"> • FIPS 140-2 • Common Criteria <p>Department of Defense</p> <ul style="list-style-type: none"> • DoDIN APL <p>IPv6</p> <ul style="list-style-type: none"> • USGv6
EMC (ETSI/EN)	<p>EN300 386: Telecommunications Network Equipment (EMC)</p> <p>EN55032: Multimedia Equipment (Emissions)</p> <p>EN55024: Information Technology Equipment (Immunity)</p> <p>EN55035: Multimedia Equipment (Immunity)</p> <p>EN61000-6-1: Generic Immunity Standard</p>
Telecom	<p>T1/E1 (excluding ISDN)</p> <ul style="list-style-type: none"> • AS/ACIF S016 • DGT ID 0002 • HKTA • IC; CS-03, Part II, Issue 9 • ITU-T G.703 • G.704 • G.706 • G.823 • TBR 12 , TBR 13 • KS X 3074, KS X 3078 • K.21 <p>Serial</p> <ul style="list-style-type: none"> • ITU V.10, V.11, V.28, V.36, X.21 • TBR 1, 2

Warranty information

The Catalyst IR8340 comes with the Cisco 1-year limited hardware warranty. Adding a contract for a technical service offering, such as Cisco Smart Net Total Care® Service, provides benefits not available with the warranty, including access to OS updates, Cisco.com online resources, and Cisco Technical Assistance Center (TAC) support services. Table 9 shows the available technical services.

Find more information about [Cisco product warranties](#).

Learn more about [Cisco Technical Services](#).

Table 11. Cisco technical services for the Catalyst IR8340

Technical services

Cisco Smart Net Total Care Service

- Global access to the Cisco TAC 24 hours daily
- Unrestricted access to the extensive Cisco.com resources, communities, and tools
- Next-business-day (NBD), 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement and onsite parts replacement and installation available
- Ongoing operating system software updates within the licensed feature set
- Proactive diagnostics and real-time alerts on Cisco Smart Call Home-enabled devices

Cisco Smart Foundation Service

- NBD advance hardware replacement, as available
- Business-hours access to Small and Medium-Sized Business (SMB) Cisco TAC (access levels vary by region)
- Access to Cisco.com SMB knowledge base
- Online technical resources through the Cisco Smart Foundation portal
- OS software bug fixes and patches