Cisco IR1000 Rugged Series Secure Routers

Contents

Cisco IR1000 Rugged Series Secure Routers — ultra-compact, ultra-low power industrial routers with threat protection for critical infrastructure. They enable secure and resilient connectivity where space, power, and security requirements leave no room for trade-offs, such as grid networks, roadways infrastructure and oil and gas pipelines.

Product overview

The new Cisco IR1000 Rugged Series Secure Routers are designed for deployments requiring ultra-compact, ultra-low power demands while maintaining high resiliency, robust security, and adaptability to support lifecycles in extreme environments.

- **Ultra-compact.** Cisco's smallest industrial router by 40% fitting into tight spaces with flexible mounting options
- **Ultra-low power.** Measuring at just under 5W when deployed with the new 5G pluggable interface module, the IR1000 is designed for solar- or battery-powered deployments. Its sleep mode offers the most efficient way of delivering critical data while managing energy consumption
- **Comprehensive threat protection for critical infrastructure:** OT-aware NGFW capabilities such as stateful inspection, application awareness, intrusion prevention, malware protection, and continuous threat intelligence updates powered by Cisco Talos. This ensures robust security at the industrial edge without compromising performance
- **Modular** cellular backhaul including the option for the all new 5G Reduced Capability pluggable interface module, featuring support for SGP.32 eSIM standard for over-the-air remote SIM provisioning
- **AI at the edge.** Collect and transform data from assets using intelligence hosted right on the router.

The IR1000 is designed to withstand hostile environments, including shock, dust, humidity and Electrostatic Discharge (ESD). This durability makes it ideal for harsh industrial and distributed IoT deployments such as transportation, oil and gas, distribution substations, industrial automation, and financial institutions.

Cisco IR1001-G2 base platform front view

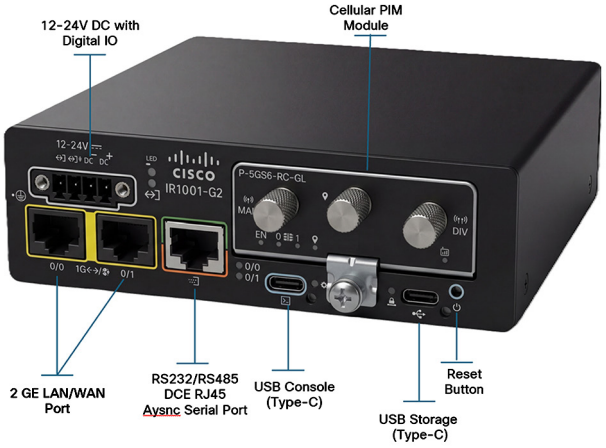

Figure 1. Cisco IR1001-G2 base platform front view

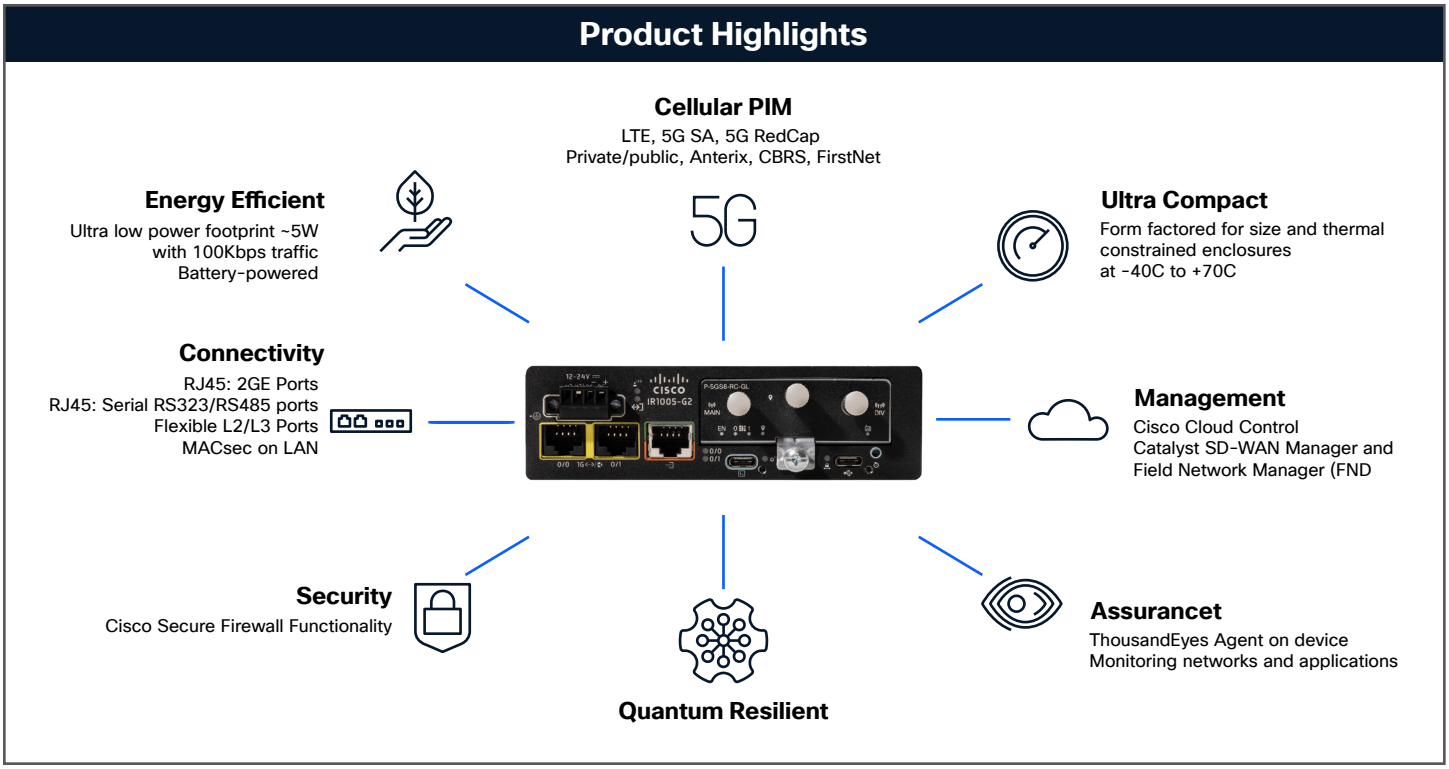

Figure 2. Cisco IR1000 product highlights

The Cisco IR1000 Rugged Series Secure Routers offers a broad range of features for the Internet of Things (IoT).

Table 1. Key features and benefits

Feature	Benefit
	Modularity and investment protection. A single form factor with multiple WAN (LTE7 Advanced, 5G RedCap and 5G SA) and enable flexibility to add or upgrade modules as technologies evolve.
	Dual SIM support (LTE and 5G with carrier aggregation), the IR1000 enables active/standby connectivity to cellular network for WAN reliability, enhanced data throughputs, load balancing, and differentiated services, making it a highly reliable and high-performance platform.
	Cisco IOS XE Software. IOS XE is a highly secure, standards-based and flexible operating system for a new era of IoT deployment. It's an enterprise-class OS with advanced routing and security.
	Software Defined WAN (SDWAN) capable. For high WAN availability and simplicity for large-scale distributed networks.

Feature	Benefit
	**Industrial security**. With Cisco Trust Anchor Technology ensuring authenticity of hardware and software, hardware-accelerated Next Generation Encryption and Quantum Computer Resistant algorithms, firewall and VPN services, and alerts and notifications enabling physical and cyber security, the IR1000 offers a multi-layer security for mission-critical deployments.
	**Edge computing**. Speed up awareness and response to events and conserve network bandwidth by analyzing the most time-sensitive data at the network edge, close to where it is generated. A highly secure, extensible environment for hosting applications ensures authenticity of applications.
	**Supervisory Control and Data Acquisition (SCADA)**. Supports migration of data from legacy control systems in an industrial environment to an IP-based network using DNP3 serial–to–DNP3/IP and IEC 60870 T101–to–T104 protocol translations.
	**Smart grid-compliant**. Designed for installation in harsh secondary substation environments. Complies with IEEE 1613 and IEC 61850-3 for distribution automation.
	**GPS**. Location-based services for tracking assets and protecting from theft and intrusion.
	**Ease of management**. On-premises and cloud-based network management solutions cater to businesses across multiple industry verticals. Tools such as Cisco Catalyst SD-WAN, Cisco IoT Field Network Director (FND), simplify deployment and offer the breadth of cross-network management and the depth of multi-layer visibility.
	**Multiple Packet Data Network (PDN)**. Gain connectivity to different Access Point Names (APNs) for traffic segregation over a cellular link. For example, public Internet traffic can be kept separate from mission-critical traffic emerging from the sensors and devices connected to the router.
	**4G LTE/5G multiple-bearer QoS**. Differentiated treatment of traffic with multiple simultaneous bearers as per 3GPP standards for an enhanced user experience. Multi-bearer QoS depends on the cellular carrier's ability to support the service in their network.
	**Network Segmentation**. Multi-VRF, VLAN, and VPN enable businesses to configure and maintain more than one instance of a routing and forwarding table within the same customer edge device, enabling dynamic changes in the network with a minimal maintenance window. Service providers can enable this feature to support two or more VPNs with IP addresses that overlap across the VPNs.

Table 2. Cisco IR1000 platform comparison (IR1001-G2 vs IR1005-G2)

Features	IR1001-G2	IR1005-G2
Cellular Pluggable Slot	1	1
Low Power Mode	✓	✓
Serial Interface	RS232 or RS485 (DCE or DTE)	RS232 or RS485 (DCE or DTE)
Ethernet Ports	2 GE ports (LAN or WAN)	2 GE ports (LAN or WAN)
Management: SD-WAN, IoT-FND	✓	✓
Post Quantum Communications	✓	✓
Post Quantum Secure Platform (Boot)	✓	✓
Post Quantum Secure Platform (Storage)	-	✓
Cyber Vision and ThousandEyes Assurance	-	✓
Third Party Edge Apps	-	✓
Zone-Based Firewall	✓	✓
Advanced Threat Protection	-	✓

Business benefits and application examples

Industrial customers are looking for real-time monitoring and control of industrial assets to help increase operation efficiency.

Utilities

Utilities are seeking the capability to monitor tens of thousands of miles of electric distribution lines or water infrastructure often located in harsh environments over cellular networks to provide remote assets monitoring and reliable and secure SCADA traffic backhauling. In many cases, these are power constrained and space-constrained environments. Devices that enable this connectivity need to be highly reliable and able to be remotely monitored and configured. They also need to support traditional serial interfaces to interconnect with existing monitoring devices and fiber overlay for long-distance, intranet work connectivity. The device is expected to have a long lifetime to support such a massive scale of deployment.

Oil and gas

Oil and gas companies need to monitor pipeline infrastructure across wide geographic areas and remote locations using 4G LTE and 5G cellular networks to collect data from remote terminal units and securely transport SCADA traffic to a Network Operations Center (NOC).

Transportation

Highways and transportation agencies require reliable, always-on communication between speed cameras, monitoring cameras, ticket terminals, and so on. Wireless devices to support such continuous communication need to support 4G LTE and 5G networks to help ensure good, wide coverage; continuous operation in very harsh environments; compact form factor for deployment in roadside cabinets and ticketing machines; local decision-making for a rapid response time; and serial interfaces to existing traditional devices.

Additional features and benefits

Table 3. Additional features and benefits of the Cisco IR1000

Features	Benefits
Industrial IoT enablement	
I/O ports supporting both wet and dry contact	Save space with built-in I/O ports that allow for versatile monitoring and control in industrial environments.
Raw socket transport and SCADA	The raw socket can be used to transport SCADA data from RTUs. This method is an alternative to the Block Serial Tunnel (BSTUN) protocol. The Cisco IR1000 also supports DNP3 serial-to-DNP3/IP and IEC 60870 T101-to-IEC 60870 T104 protocol translations, serving as a SCADA gateway.
Multiple mounting options	Surface and DIN rail mounting in horizontal or vertical orientations.
Increased performance with multi-core processor	Run simultaneous services while continuing to support business critical workflows

Features	Benefits
Multiple WAN and LAN connections	
2x 10/100/1000 Ethernet interfaces	• Allows multiple Ethernet devices (sensors, Remote Terminal Unit [RTU], PLCs) in an industrial environment to connect for visibility and management of assets • IEEE 802.1Q VLANs • Layer 3 support through VLAN interfaces • 4KV isolation for Electrostatic Discharge (ESD) protection
WAN diversity	• Multiple WAN links for high reliability: Gigabit Ethernet layer 3 and 4G LTE/5G provide WAN diversity and business continuity • Gigabit Ethernet WAN interfaces can be configured for layer 3 routing or layer 2 switching
Serial interface	A serial asynchronous interface (RJ45) with RS-232 (DTE and DCE) and RS-485 (configurable option) can be used with raw socket, protocol translation, and connections to locate Remote Terminal Unit (RTU), sensors, and PLCs for SCADA transport and management.
Transparent roaming between wireless networks	
Dual Subscriber-Identity-Module (SIM) over cellular	Provides active and backup connectivity for high reliability over LTE and 5G networks.
Cisco IOS® mobile IP	• Transparent roaming for mobile networks, enabling mission-critical applications to stay connected, even when moving between networks • The assigned IP addresses to the home network are maintained in private and public networks • Supports Proxy Mobile IP (PMIPv6) and Network Mobility (NEMO)
Cellular fallback	Multiple technologies (5G, 5G RedCap and 4G LTE) are available to support connectivity to the best one available.

Features	Benefits
Software	
Cisco IOS XE	Designed to enable businesses to deploy services more quickly with lower TCO and complexity. ▪ **Openness and programmability:** Standards-based programmable interfaces enable process and workflow automation. NETCONF, RESTCONF, IETF YANG, Python scripting, and custom libraries enable automation of event-based workflows ▪ **Secure:** Multi-level, end-to-end security and trust are built in. The built-in Cisco Next Generation Encryption and Quantum Computing Resistant algorithms are expected to meet security and scalability requirements for the next two decades ▪ **Modular:** Enables patching of software bug fixes and graceful insertion and removal of software modules for ease of maintenance ▪ **Common software stack:** Reduces business and network complexity while managing an array of Cisco devices

Table 4. Network management solutions

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.
Deploy, manage, monitor, and maintain IoT routers and assets at scale	Cisco IoT Field Network Director (FND) for hosting on premises	▪ Rapid scaling - zero-touch deployment and secure enrollment for tens of thousands of gateways ▪ Enhanced security – role-based access and user audit trail and secure communications for data transport across networks, VPN tunnels, geo-fencing, alerts, and notifications for data and physical security ▪ Increased reliability – reliable communications over cellular or Ethernet networks, lifecycle management, and 24/7 real-time monitoring and alerts

Operational phase	Application	Description
Extend your enterprise network to configure, monitor, and manage industrial assets	Cisco SD-WAN Manager	• Cisco SD-WAN automates application flexibility over multiple connections, such as the Internet, MPLS, and Cellular LTE/5G • Simplifies and automates processes and workflow by bringing the notion of user-aware and application-aware policies into the foreground of network operations • Single management dashboard for configuration and management of WAN, that includes advanced security capabilities.

Table 5. Embedded management capabilities

Feature	Description
Cisco IOS Embedded Event Manager (EEM)	A distributed and customized approach to event detection and recovery. Provides the ability to monitor events and take corrective or any other desired action when the monitored events, such as a high or low threshold, occur.
Cisco IOS XE IP Service- Level Agreements (IP SLA)	Helps assure the performance of new, business-critical IP applications as well as IP services by actively monitoring and reliably reporting traffic statistics such as jitter, response time, packet loss, and connectivity.
Simple Network Management Protocol (SNMP), Syslog, NetFlow	Open-standards-based network monitoring and accounting tools, such as SNMP for 3G, 4G and, provide a common management platform for many different devices.

Product specifications

Table 6. Cisco IOS XE Software Features on the IR1000

Feature	Description
Cisco IOS Software requirements	• Cisco IOS XE Software: Universal Cisco IOS Software image • Cisco IOS XE Software Release 26.2.1 or later
IPv4 and IPv6 services features	• Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2) • Generic Routing Encapsulation (GRE) and Multipoint GRE (MGRE) • Standard 802.1d Spanning Tree Protocol (STP) • Network Address Translation (NAT) • Dynamic Host Configuration Protocol (DHCP) server, relay, and client • Dynamic DNS (DDNS) • DNS proxy • DNS spoofing • Access Control Lists (ACLs) • IPv4 and IPv6 multicast • IP Service-Level Agreement (IP SLA) • Open Shortest Path First (OSPFv2 and OSPFv3) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) • Virtual Route Forwarding (VRF) Lite • Next-Hop Resolution Protocol (NHRP) • Serial data encapsulation and relay • L2TPv3 over sub-interfaces and VLAN

Feature	Description
Security features	**Secure connectivity** • Secure Sockets Layer (SSL) VPN for secure remote access • Next Generation Encryption (NGE) and Quantum Computing Resistant (QCR) algorithms such as AES-256, SHA-384, and SHA-512 • Public-Key-Infrastructure (PKI) support • IPsec tunnels • NAT transparency • Dynamic Multipoint VPN (DMVPN) • Tunnel-less Group Encrypted Transport VPN • Flex VPN • IPsec stateful failover • VRF-aware IPsec • IPsec over IPv6 • Cisco IOS-XE Application Aware Firewall (IR1005) • Zone-based policy firewall • VRF-aware stateful inspection routing firewall • Stateful inspection transparent firewall • Advanced application inspection and control (IR1005) • Secure HTTP (HTTPS), FTP, and Telnet Authentication Proxy • Dynamic and static port security • Firewall stateful failover • VRF-aware firewall **Integrated Threat Control** • Control-Plane Policing (CoPP) • Flexible packet matching • Network foundation protection

Feature	Description
QoS features	• 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 • Hierarchical QoS (HQoS)
High-availability features	• Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • Dual SIM support on the LTE/5G module for cellular failover
IPv6 features	• IPv6 addressing architecture • IPv6 unicast and multicast forwarding • IPv6 ACLs • IPv6 over cellular • IPv6 routing • IPv6 domain name resolution
Power Management	• This feature allow to configure the router in low power mode, time-based trigger and voltage-based trigger.

Software licensing

The IR1000 offers two software tiers – Routing Essentials (Default) and Routing Advantage. The Routing Essential license offers the essential elements of routing and security necessary for typical IoT deployments. The Routing Advantage license enables advanced features, including Multiprotocol Label Switching (MPLS) for a highly scalable and cost-effective solution; mobile IP for seamless migration between networks; and application-aware QoS policies for built-in intelligence.

A single Cisco IOS XE universal image encompassing all functions gets delivered with the product. Software feature licenses are pre-installed in the factory depending on the selection made at the time of purchase, thereby simplifying software delivery and decreasing operational costs of the deployment.

Licenses can be upgraded after deployment by going through the Cisco Smart License activation process. For a more detailed overview on Cisco Licensing, go to cisco.com/go/licensingguide.

Table 7. System specifications for Cisco IR1000 Rugged Series Secure Routers

Feature	Specification
Ingress protection rating	IP40
Physical characteristics	
Physical dimensions (H x W x D) Chassis	1.5 in. x 5.22 in. x 4.93 in
Weight Chassis	1.44 lbs and 1.82 lbs with 5G RedCap PIM
Mounting options	Panel, wall, and din rail (vertical and horizontal) mount
Power specifications	Nominal voltage: 12V to 24V DC Minimum and maximum input voltage: 9.6–30V DC Maximum and minimum input current: 1.24A (9.6V DC) and 0.4 (30V DC)

Feature	Specification
Power consumption	Idle: 4.09W Low Traffic: 4.34W Typical: 6.22 W
Interfaces on the base platform	
Console	**USB-C**
WAN/LAN interfaces	• 2x 10/100/1000 Gigabit Ethernet port (L2/L3) • 5G/LTE: Modular with options LTE and 5G
Input and output	• ALARM input and output port
LEDs	• System OK • Link for Ethernet WAN ports • VPN • Tricolor user-configurable LED • ALARM
Serial interface	• Isolated RS-232 /RS-485 RJ45 port (Can be used in DCE or DTE mode) • Support for asynchronous mode with speeds up to 115,200 baud
Serial protocols	SCADA, DNP3, T101-104, Raw Socket TCP, and UDP
Environmental characteristics	
Environmental operating temperature range	-40 to 149°F (-40 to 65°C) in a sealed NEMA cabinet with no airflow -40 to 158°F (-40 to 70°C) in a vented cabinet with 40 Linear Feet per Minute (LFM) of air -40 to 167°F (-40 to 75°C) in a forced air enclosure with 200 LFM of air Type tested at 85°C for 16 hours
Operating altitude	40°C up to 13,800 ft (operating) per IEC 68-2-41
Non-operating temperature	-40 to 185°F (-40 to 85°C)

Feature	Specification
Non-operating shock and vibration	• 50-60G (3.76 m/s minimum) • 3-500Hz at 1.12 GRMS (BP at 10 and 100 Hz)
Standard Safety Certifications	• Information Technology Equipment • UL/CSA 62368-1, IEC 62368-1 CB with all country deviations
Hazardous locations standards	• UL121201(Class I, Div 2, groups A-D) • CSA 213 (Class I, Div 2, groups A-D) • UL/CSA 60079-0 (Class I, Zone 2, Gc/IIC) • IEC 60079-0, -7 IECEx test report (Class I, Zone 2, Gc/IIC) cabinet enclosure required • EN 60079-0, -7 ATEX certificate (Class I, Zone 2, Gc/IIC) cabinet enclosure required
Industry standards	**Public Safety:** • FirstNet Capable™ • Verizon Frontline **Smart Grid:** • IEC 61850-3 • IEEE 1613 and IEC 61850-3 In-Progress where applicable. **Railway:** • EN 50121-4 Security: • FIPS 140-2 • Common Criteria **Department of Defense** • DoDIN APL **IPv6** • USGv6

Feature	Specification
EMC emissions CLASS A	• 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 15936 Class A • KS C9832 Class A • EN 300 386
EMC immunity	• CISPR 35 • EN55035 • KS C9835 • 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 • 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 (In-progress) • EN/IEC 61850 – 3 Electric Substations Communications Networking (In-Progress)

Cellular Modules

Table 8. LTE Advanced (3GPP Category 7) Modules Available with IR1000

Features	P-LTEA7-NA	P-LTEA7-EAL	P-LTE-GB
Countries/Regions	United States, Canada, North America	Europe, LATAM, Australia, New Zealand, India, Singapore, Malaysia, United Arab Emirates	Europe
LTE Bands	B2, B4, B5, B7, B12, B13, B14, B25, B26, B41, B42, B43, B48, B66, B71	B1, B3, B7, B8, B20, B28, B32, B38, B40, B41, B42, B43	B1, B3, B7, B8, B20, B28 700 MHz (B28), 800 MHz (B20), 900 MHz (B8), 1800 MHz, (B3), 2100 MHz (B1), and 2600 MHz (B7)
3G HSPA+ Bands	B2, B4, B5	B1, B5, B8	B1, B8
Theoretical Download and Upload Speeds[1]	300 Mbps/150Mbps	300 Mbps/150Mbps	150 Mbps/50 Mbps
Carrier(s) Certified	US - Verizon, AT&T, T-Mobile, PTCRB[6] Canada – Rogers	LATAM, Europe, APJC - Generic Carrier Firmware (GCF)	Europe -Generic Carrier Firmware (GCF)
FirstNet Capable™ (B14)	Approved by AT&T FirstNet	-	-

Table 9. Standalone/Non-Standalone 5G Sub 6 GHZ Module Available with IR1000

Features	P-5GS6-R16SA-GL
Countries/Regions	United States, Canada, LATAM, Europe, Australia, New Zealand, Japan, Hong Kong, Indonesia, Singapore, India, China
RF Bands	**5G FR1** n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29-n30, n38, n40, n41, n48, n66, n70, n71, n75, n76, n77, n78, n79 **LTE Bands** B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46 (LAA), B48 (CBRS), B66, B71
Theoretical Download and Upload Speeds[1]	4.9 Gbps/660 Mbps

Table 10. 5G NR RedCap (3GPP Release 17) Modules Available with IR1001

Features	P-5GS6-RC-GL
Countries/Regions	United States, Canada, LATAM, Europe, Australia, New Zealand, Japan, Hong Kong, Indonesia, Singapore, India, China
RF Bands	**5G NR Sub-6** n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n30, n38, n40, n41, n48, n66, n70, n71, n77, n78, n79 **LTE Bands** B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B30, B34, B38, B39, B40, B41, B42, B43, B48, B66, B70, B71, B106
Theoretical Download and Upload Speeds1	5G DL/UL: ~220 Mbps / ~120 Mbps LTE: DL/UL: ~195 Mbps / ~75 Mbps
Carrier(s) Certified	US - AT&T, T-mobile, PTCRB, Verizon LATAM, Europe, APJC - Generic Carrier Firmware (GCF)
Carrier(s) Coming Soon	Canada - Bell, Telus, Rogers Australia - Telstra Japan - NTT Docomo, KDDI
FirstNet Capable™ (B14)	Coming soon with AT&T FirstNet
Frontline Capable™ (B13)	Coming soon with Verizon Frontline
Anterix Capable (B106)	Coming soon
eSIM SGP.32 Capable	Supports GSMA SGP.32 remote SIM profile swaps OTA via 3FF removable eSIMs (eUICC)
GPS/GNSS Capable	Designed for passive GPS/GNSS antenna as part of low-power architecture. Active antennas requiring bias voltage are not supported. Learn more about ANT-3-5G2G1-P-O (3-1 Antenna) or ANT-GNSS-P-OUT-SMA (Single Port Antenna)

450MHz LTE Module

Extending connectivity to remote sites can be challenging, especially when connectivity requirements differ depending on location and use case. As organizations are automating and establishing remote operations, Cisco is expanding the capabilities of the IR1000 Rugged Series Secure to meet the connectivity requirements of businesses wherever they operate. Cisco Routing Advantage license is required for Cisco IR1000 series to operate with the Intelliport 450Mhz LTE Module (P-LTE-450)

Cellular communications in the 400-450MHz band, also called 450MHz LTE, have a longer wavelength, lower frequency and lower energy requirements compared to the traditional LTE and 5G. Due to the physical properties of the frequencies, it has benefits of covering a larger geographical area. It has been employed across several parts of Europe for connecting utility grids, maritime and other mission critical networks.

Cisco has partnered with Intelliport, a Hungary based technology provider in developing a module for the IR1101 to meet the market needs. The 450MHz LTE band provides high resiliency and deep indoor signal penetration to connect the Catalyst IR1001/IR1005-G2 anywhere onsite. Datasheet for the module is available here: https://www.intelliport.hu/dinamic/P-LTE-450%20datasheet%20v1dot0.pdf.

Ordering Information

The IR1000 is a Smart License-enabled product. Cisco Smart Accounts and Virtual Accounts are required to order the product. For more information how to order the IR1000 and Cisco Smart Accounts, visit the Cisco Smart Account user guide.

Table 11. Ordering information for Cisco IR1000 Rugged Router

Hardware	Description	
IR1001 Rugged Series Secure Routers	IR1001-G2	Cisco IR1001-G2 Rugged Series Secure Router with IR-OS-S-E or IR-OS-S-A software license
Pick a SW license for IR1001 Rugged Series Secure Routers	Option 1: IR-OS-S-E Option 2: IR-OS-S-A	Cisco IR OS Essentials - Small (Embedded, Perpetual) Cisco IR OS Advantage - Small (Embedded, Perpetual)
IR1005 Rugged Series Secure Routers	IR1005-G2	Cisco IR1001-G2 Rugged Series Secure Router with IR-OS-S-E or IR-OS-S-A software license
Pick a SW license for IR1005 Rugged Series Secure Routers	Option 1: IR-OS-S-E Option 2: IR-OS-S-A	Cisco IR OS Essentials - Small (Embedded, Perpetual) Cisco IR OS Advantage - Small (Embedded, Perpetual)
Management	**SKU**	**Description**
Cisco IoT Field Network Director (FND) for hosting on premises	IOTFND-SOFTWARE-K9 IOTFND-IR1000	FND Top Level Subscription IoT FND License for Managing IR1001-G2 Router
Cisco SDWAN Manager (On-Prem OR Cloud)	CISCO-IOT-NETWORK Option 1:LIC-IR-SWAN-S-E Option 2:LIC-IR-SWAN-S-A	Cisco IoT SDWAN Subscription License for IR1000 Cisco IIOT SD-WAN Essentials License - Small Cisco IIOT SD-WAN Advantage License - Small

Hardware	Description
Cellular module	**Description**
P-LTEA7-NA(=)	Category 7 LTE module for North America
P-LTEA7-EAL(=)	Category 7 LTE module for Europe, LATAM, Australia, New Zealand, India, Singapore, Malaysia, Thailand, United Arab Emirates, China
P-5GS6-RC-GL(=)	5G RedCap Sub 6 GHZ module for North America, LATAM, Europe and Asia Pacific
P-5GS6-R16SA-GL(=)	5G (SA/NSA) Sub 6 GHZ module for North America, LATAM, Europe and Asia Pacific
P-LTE-450	450-MHz LTE module with expansive geographic coverage and deep indoor-signal penetration for Europe & Brazil
P-LTE-GB	Category 4 LTE modem for Europe
Mounting	**Description**
IR1001-G2-DINRAIL(=)	Din-rail clip for vertical or horizontal mounting
IR1000-G2-WALLMNT(=)	Wall-mount kit
Power supply	**Description**
PWR-IE50W-AC-L=	AC power adapter for 110/220V AC and 88-300V DC input (temperature profile: -40C to 60C)
PWR-IE50W-AC=	Expansion power module: Input AC 100-240V/1.25A or DC 125-250V/1A, Output DC 24V/2.1A, DIN-Rail Mount.
Hardware	**Description**
PWR-IE50W-AC-IEC=	Power Module supporting input AC 100-240V/1.25A 50-60Hz, Output DC 24V/2.1A, IEC Plug, DIN-Rail Mount
Antenna and lightning arrestors	**Description**

Refer to the Cisco Antenna and Options Guide

Note: Antennas and other accessories are not included automatically with the IR1001-G2.

Warranty coverage and technical service options

The IR1000 series comes with the Cisco 5-year limited hardware warranty. Adding a contract for a technical service offering, such as Cisco SMARTnet® 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 14 shows the available technical services.

Find more information about Cisco product warranties.

Learn more about Cisco Technical Services.

Table 12. Cisco technical services for the Cisco IR1001-G2

Technical Services
Cisco SMARTnet 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), 8 x 5 x 4, 24 x 7 x 4, and 24 x 7 x 2 advance hardware replacement and onsite parts replacement and installation available4 • Ongoing operating system software updates within the licensed feature set3 • 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

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	System specifications for Cisco IR1000 Rugged Series Secure Routers
Environmental Characteristic	
Operating temperature, industry standards, EMC emissions	System specifications for Cisco IR1000 Rugged Series Secure Routers
Unit Weight	System specifications for Cisco IR1000 Rugged Series Secure Routers

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 Capital

Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

For more information

For more information about the Cisco IR1000 Rugged Series Secure Routers visit https://www.cisco.com/go/ir1000 or contact your local Cisco account representative.

Footnotes reference

[1] Throughput degradation may be observed at a high temperature.

[2] Advance hardware replacement is available in various service-level combinations. For example, 8 x 5 x NBD indicates that shipment is initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within the relevant region), with NBD delivery. Where NBD is not available, same-day shipment is provided. Restrictions apply. Review the appropriate service descriptions for details.

[3] Cisco OS updates include maintenance releases, minor updates, and major updates in the licensed feature set.

[6] PTCRB stands for 'PCS Type Certification Review Board