Industrial 5G NR Cellular Wireless Gateway with 5-Port 10/100/1000T

Highlights

- Global 5G NR (NSA/SA)/4G LTE network with dual SIM design for cellular network redundancy
- Automatic failover between 5G NR and Gigabit WAN
- Complies with IEEE 802.11ax and IEEE 802.11a/b/g/n/ac standards
- 2 x DI/DO and 1 serial port (RS485) for Modbus applications
- SSL VPN and robust hybrid VPN (IPSec/PPTP/L2TP over IPSec)
- Stateful packet inspection (SPI) firewall and content filtering
- Blocks DoS/DDOS attack, port range forwarding
- High Availability, AP Controller, Captive Portal and RADIUS
- Planet NMS controller system and CloudViewer app supported
- -45 to 75 degrees C operating temperature; DIN-rail and fanless designs

Powerful 5G NR and Wi-Fi 6 Industrial Network Solution

PLANET ICG-2515W-NR is an industrial-grade wireless cellular gateway for demanding mobile applications, M2M (machine-to-machine) and IoT deployments. Upgraded to the latest cellular technology of **5G NR (new radio)**, the ICG-2515W-NR is able to provide ultra-fast broadband access with 5G cellular network. The ICG-2515W-NR also features five Ethernet ports (4 LANs and 1 WAN), **IEEE 11ax Wi-Fi** capability, serial port (RS485), DI and DO interfaces, and VPN technology bundled in a compact yet rugged metal case. It establishes a fast cellular connection between Ethernet and serial port equipped devices. The ICG-2515W-NR is an integrated 5G NR and Wi-Fi 6 solution for industrial automation, digital factory and other industrial applications.

Hardware

- **4 x 10/100/1000BASE-T** RJ45 LAN ports, auto-negotiation, auto MDI/MDI-X
- **1 x 10/100/1000BASE-T** RJ45 WAN port, auto-negotiation, auto MDI/MDI-X
- **4 x** 5G NR antennas
- **2 x** SIM card slots
- **1 x** serial console port (RS485)
- **1 x** reset button

Cellular Interface

- Supports multi-band connectivity with 5G NR (NSA/SA), LTE-FDD, LTE-TDD, and WCDMA
- Built-in SIM and broadband backup for network redundancy
- Four detachable antennas for 5G NR connection
- LED indicators for signal strength and connection status

Automatic Failover between 5G NR and Gigabit WAN

Designed with 5G NR and Gigabit Ethernet WAN interfaces, the ICG-2515W-NR ensures Internet connectivity by featuring failover functionality between 5G NR and GbE WAN. The ICG-2515W-NR provides flexibilty to set priority for 5G NR or GbE WAN connection. When the main WAN interface fails, the secondary WAN interface will automatically back up the connection to ensure always-on connectivity.

RF Interface Characteristics

- Features 2.4GHz (802.11b/g/n/ax) and 5GHz (802.11a/n/ac/ax) dual band for carrying high load traffic
- 2T2R MIMO technology for enhanced throughput and coverage
- Provides multiple adjustable transmit power control
- High speed up to 1.8Gbps (600Mbps for 2.4GHz or 1200Mbps for 5GHz) wireless data rate

Ultra-Fast Speed 4G/5G Network

The ICG-2515W-NR supports 5G NR DL speeds higher than 2.4 Gbps and 4G LTE DL speeds of up to 1 Gbps. The wide spectrum bandwidth accelerates internet speeds and reduces network latency for premium and time-sensitive connectivity services. The ICG-2515W-NR also supports multi-band connectivity including LTE FDD/TDD, WCDMA and GSM for a wide range of applications.

*The real 5G NR/4G LTE data rate is dependent on local service provider.

Up to download speed 2.4 Gbps

5G

10x faster than 4G
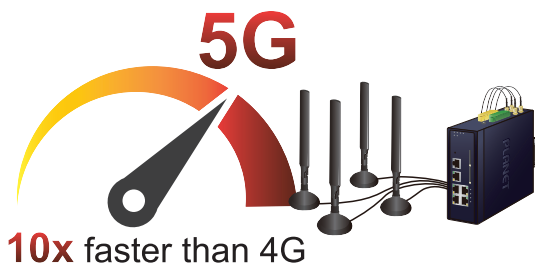
Wireless 11ax Brings Excellent Data Link Speed

The ICG-2515W-NR is designed with high power amplifier and 2 highly-sensitive antennas which provide stronger signal and excellent coverage even in the wide-ranging or bad environment. With adjustable transmit power option, the administrator can flexibly reduce or increase the output power for various environments, thus reducing interference to achieve maximum performance. Equipped with the next-generation Wi-Fi 6 (802.11ax) wireless network standard, the total bandwidth reaches **1800Mbps**, and the 2-stream transmission technology improves the transmission efficiency of multiple devices, making AR/VR/IoT applications smoother. The IEEE 802.11ax also optimizes MU-MIMO (Multi-User MIMO) mechanism to serve multiple devices simultaneously.

Dual SIM Design

To enhance reliability, the ICG-2515W-NR is equipped with dual SIM slots that support failover and roaming over to ensure uninterrupted connectivity for mission-critical cellular communications. It provides a more flexible and easier way for users to create an instant network sharing service via 5G-NR in public places like transportations, outdoor events, etc.

Dual 5G NR

IP Routing Feature

- Static Route
- Dynamic Route
- OSPF

Firewall Security

- Cybersecurity
- Stateful Packet Inspection (SPI) firewall
- Blocks DoS/DDoS attack
- Content Filtering
- MAC Filtering and IP Filtering
- NAT ALGs (Application Layer Gateway)
- Blocks SYN/ICMP Flooding

VPN Features

- IPSec/Remote Server (Net-to-Net, Host-to-Net), GRE, PPTP Server, L2TP Server, SSL Server/Client (Open VPN)
- Max. Connection Tunnel Entries: 60 VPN tunnels,
- Encryption methods: DES, 3DES, AES, AES-128/192/256
- Authentication methods: MD5, SHA-1, SHA-256, SHA-384, SHA-512

Networking

- Outbound load balancing for Ethernet WANs
- Auto-failover between Ethernet WANs and cellular network
- High Availability
- Captive Portal
- RADIUS Server/Client
- Static IP/PPPoE/DHCP client for WAN
- DHCP server/NTP client for LAN
- Protocols: TCP/IP, UDP, ARP, IPv4, IPv6
- Port forwarding, QoS, DMZ, IGMP, UPnP, SNMPv1,v2c, v3
- MAC address clone
- DDNS: PLANET DDNS, Easy DDNS, DynDNS and No-IP

Others

- Setup wizard
- Dashboard for real-time system overview
- Supported access by HTTP or HTTPS
- Auto reboot
- PLANET NMS System and Smart Discovery Utility for deployment management
- Planet CloudViewer App for real-time monitoring

GPS Included

The ICG-2515W-NR is equipped with (global positioning system) feature. It adapts 5G-NR technology to incorporate multiple global navigation systems (GPS/ GLONASS/BeiDou/Galileo/QZSS). It helps to position location of cellular gateway based on a network of satellites that continuously transmits necessary data. More signals transmitted from more satellites can triangulate its location on the ground, meaning any location can be easily tracked.

GNSS Positioning

Ideal High-Availability VPN Security Router Solution for Industrial Environment

The ICG-2515W-NR provides complete data security and privacy for accessing and exchanging the most sensitive data, built-in IPSec VPN function with DES/3DES/AES encryption and MD5/SHA-1/SHA-256/SHA-384/SHA-512 authentication, and GRE, SSL, PPTP and L2TP server mechanism. The full VPN capability in the ICG-2515W-NR makes the connection secure, more flexible, and more capable.
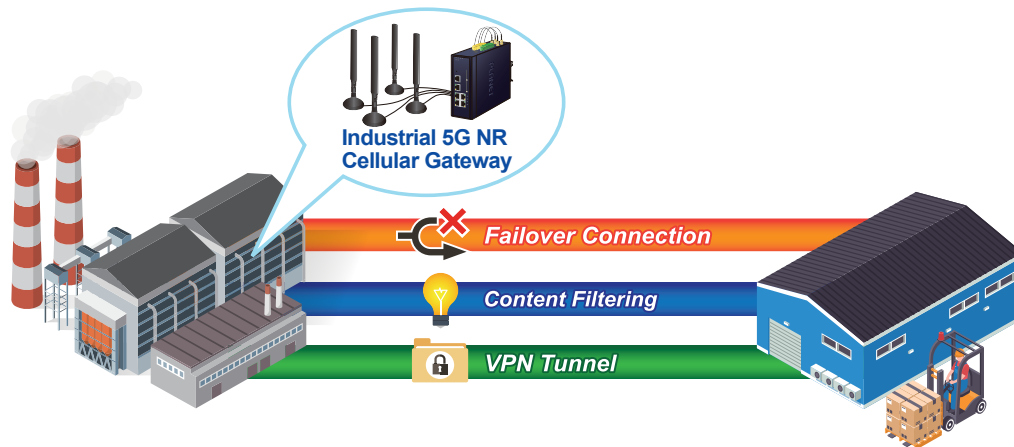
Wi-Fi Deployments and Authentication with Simplified Management

The ICG-2515W-NR also provides a built-in AP Controller, Captive Portal, RADIUS and a DHCP server to facilitate small and medium businesses to deploy secure employee and guest access services without any additional server. The ICG-2515W-NR can offer a secure Wi-Fi network with easy installation for your business.

Captive Portal

Centralized Remote Control of Managed APs

The ICG-2515W-NR provides centralized management of PLANET Smart AP series via a user-friendly Web GUI. It's easy to configure AP for the wireless SSID, radio band and security settings. With a four-step configuration process, wireless profiles for different purposes can be simultaneously delivered to multiple APs or AP groups to minimize deployment time, effort and cost.

Central wireless controller
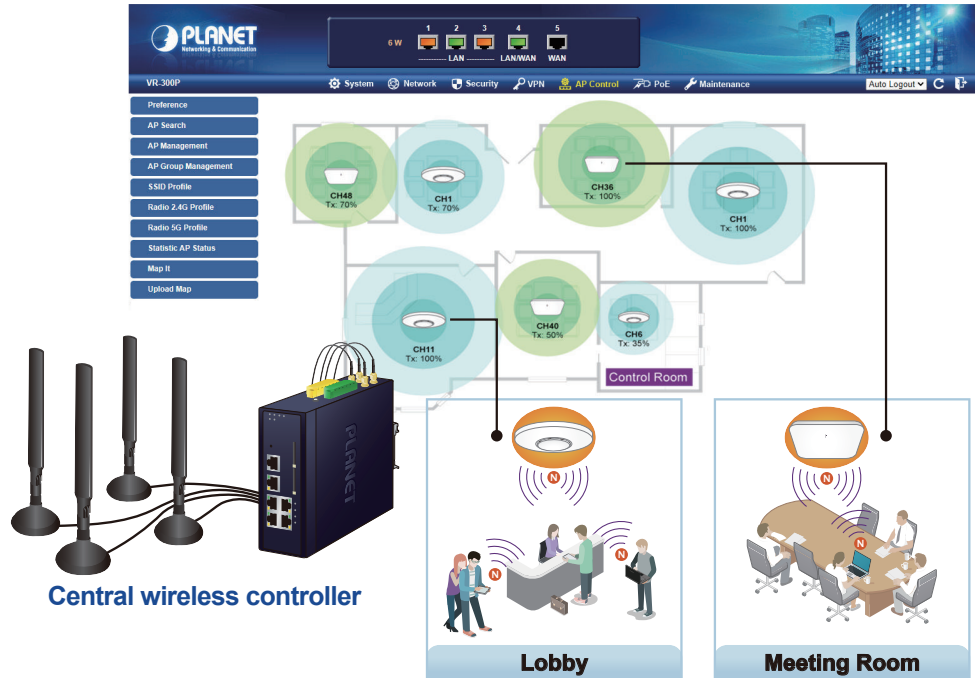
For example, to configure multiple Smart APs of the same model, the ICG-2515W-NR allows clustering them to a managed group for unified management. According to requirements, wireless APs can be flexibly expanded or removed from a wireless AP group at any time. The AP cluster benefits bulk provision and bulk firmware upgrade through single entry point instead of having to configure settings in each of them separately.

Simplified Cluster Management with 4 Steps

Step 1	Step 2	Step 3	Step 4
Search	Add Profile	Batch Provisioning	Map It
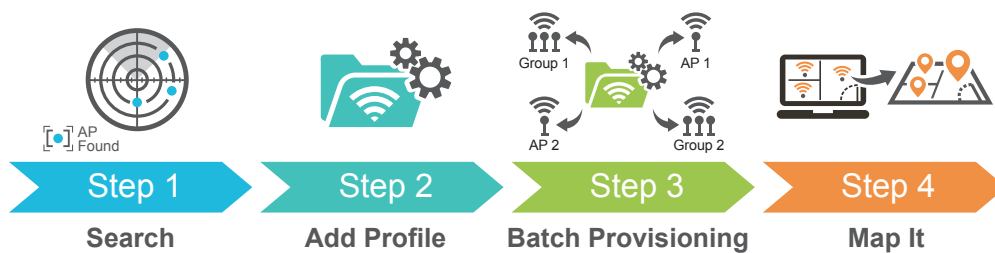
Excellent Ability in Threat Defense

The ICG-2515W-NR has built-in SPI (stateful packet inspection) firewall and DoS/DDoS attack mitigation functions to provide high efficiency and extensive protection for your network. Thus, virtual server and DMZ functions can let you set up servers in the Intranet and still provide services to the Internet users.
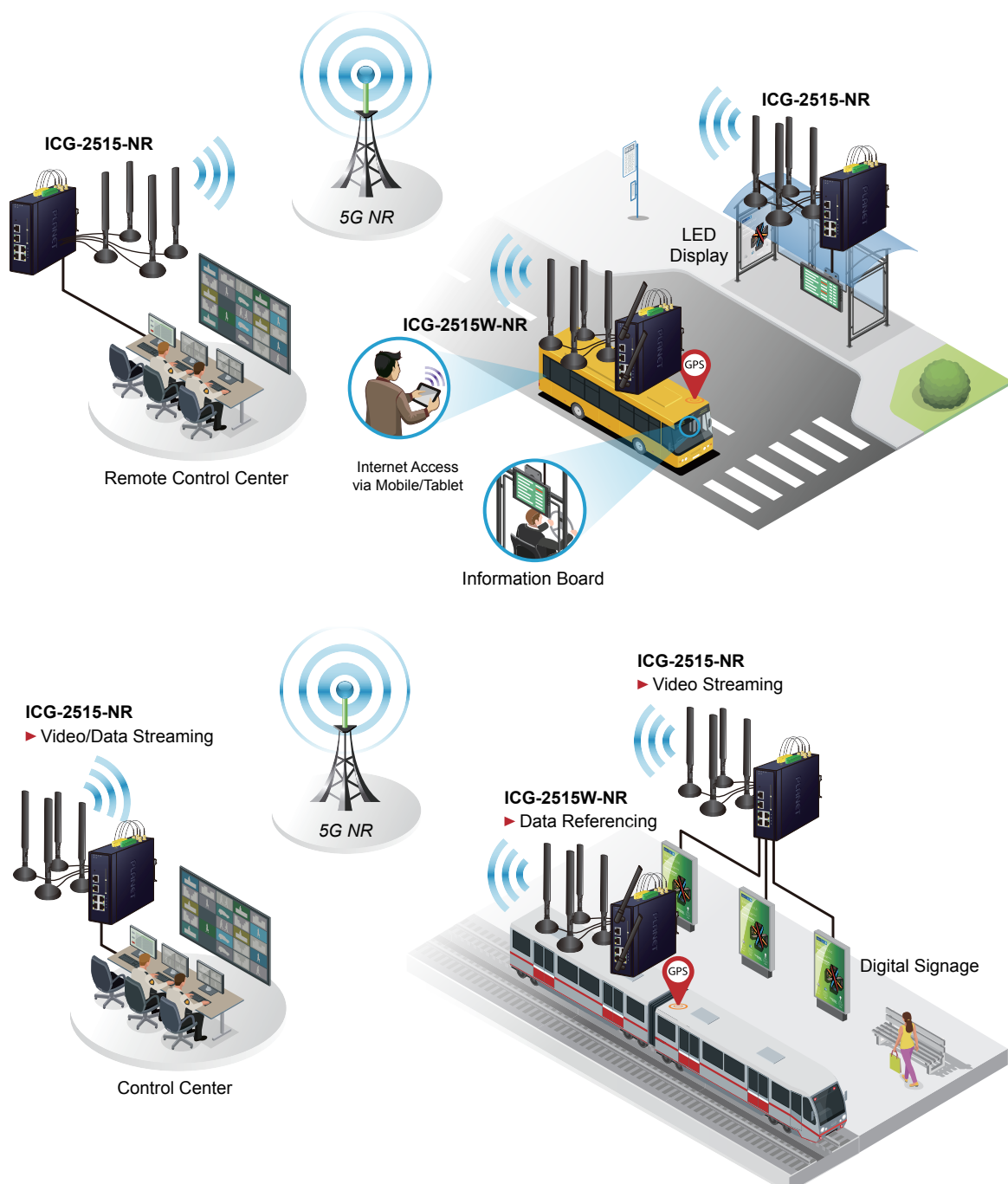
Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. For efficient management, the ICG-2515W-NR is equipped with HTTPS web and SNMP management interfaces. With the built-in web-based management interface, the ICG-2515W-NR offers an easy-to-use, platform independent management and configuration facility. The ICG-2515W-NR supports SNMP and it can be managed via any management software based on the standard SNMP protocol.

Applications

5G NR Cellular Communication Solution

PLANET ICG-2515W-NR adopts 5G NR cellular technology and thus breaks the 100m limitation of RJ45 transmission. To avoid data loss affected by an unexpected breakdown connection on the part of ISP, the ICG-2515W-NR provides dual SIM card slots and failover functions and advanced features like VLAN, VPN, Modbus, and network management to cover more applications.
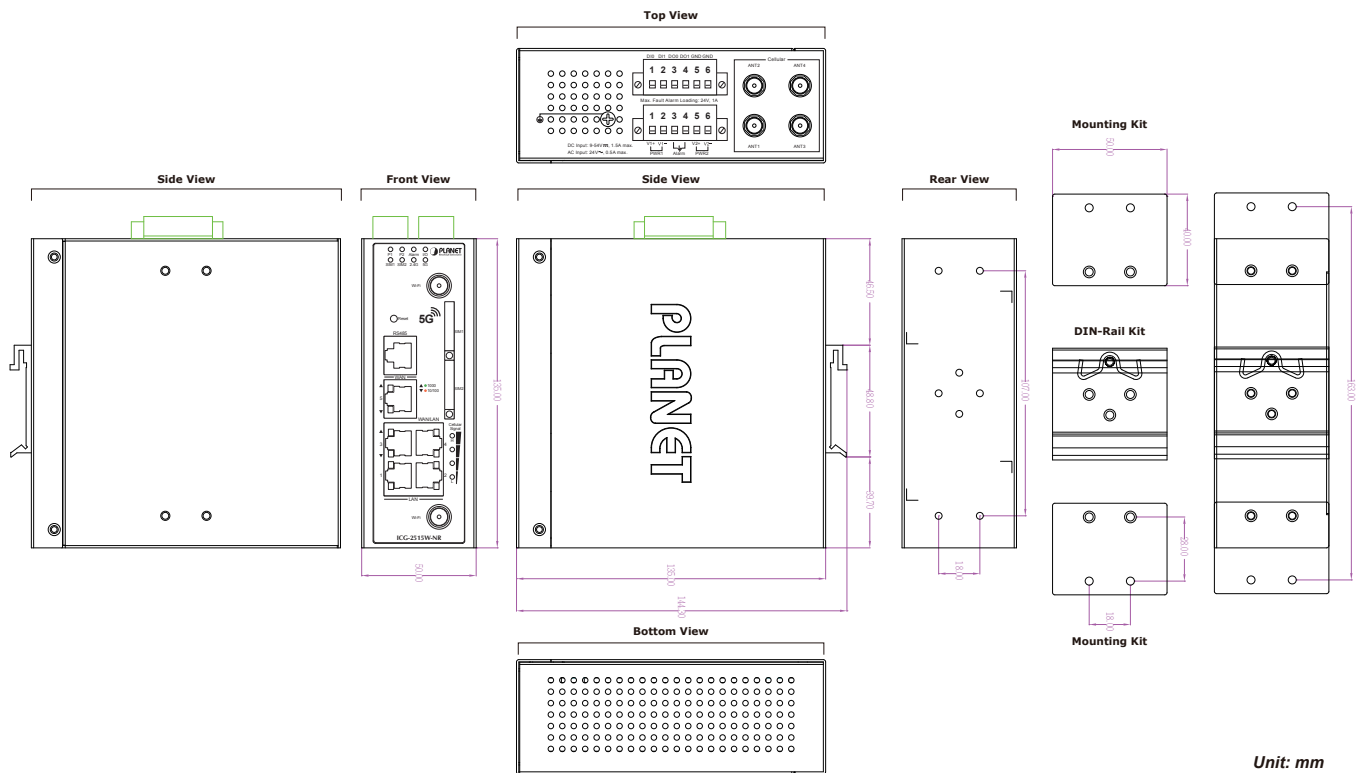
Specifications

Product	ICG-2515W-NR
Hardware Specifications	
Copper Ports	5 10/100/1000BASE-T RJ45 Ethernet ports including 3 LAN ports (Ports 1 to 3) 1 LAN/WAN port (Port 4) 1 WAN port (Port 5
Serial Interface	RJ45 serial port
SIM Interface	2 SIM card slots with mini SIM card tray
Cellular Antenna	5 dBi external antennas with SMA connectors for 5G-NR
DI & DO Interfaces	2 Digital Input (DI): Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input Load to 24V DC, 10mA max. 2 Digital Output (DO): Open collector to 24V DC, 100mA max.
Connector	Removable 6-pin terminal block for power input Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Enclosure	IP30 metal case
Installation	DIN rail, desktop, wall-mounting
LED Indicators	System: P1 (Green) P2 (Green) Alarm (Red) I/O (Red) Ethernet Interfaces (Ports 1-4 and WAN Port): 1000 LNK/ACT (Green) 10/100 LNK/ACT (Amber) Cellular SIM: SIM1 and SIM2 (Green) Wi-Fi: 2.4G(Green) 5G(Green) Cellular signal: 4 levels (Green)
Dimensions (W x D x H)	50 x 135 x 135 mm
Weight	0.9 kg
Power Requirements – DC	9~54V DC, 1.5A
Power Consumption	10 W / 34.12 BTU
Multi Band Supports	
5G NR	n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79
LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B46/B66/B71
LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B48
WCDMA	B1/B2/B3/B4/B5/B8
GNSS	GPS L1+L5 dual bands/GLONASS/BeiDou/Galileo/QZSS
Data Transmission Throughput	2.4Gbps (DL)/500Mbps (UL) for NR 1Gbps (DL)/200Mbps (UL) for LTE 42Mbps (DL)/5.76Mbps (UL) for HSPA+
Wireless	
Standard	IEEE 802.11a/n/ac/ax 5GHz IEEE 802.11g/b/n/ax 2.4GHz
Band Mode	2.4G & 5G concurrent mode
Frequency Range	2.4GHz	America FCC: 2.412~2.462GHz Europe ETSI: 2.412GHz~2.472GHz
	5GHz	5.15GHz ~5.875GHz

Operating Channels	2.4GHz	America FCC: 1~11 Europe ETSI: 1~13
	5GHz	America FCC: Non-DFS: 36, 40, 44, 48, 149,153,157,161,165 DFS: 52, 56, 60, 64, 100, 104, 108, 112, 116, 132, 136, 140 Europe ETSI: Non-DFS: 36, 40, 44, 48 DFS: 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140 5GHz channel list will vary in different countries according to their regulations.
Channel Width	20MHz, 40MHz, 80MHz	
Data Transmission Rates	Transmit: 600 Mbps* for 2.4 GHz and 1200 Mbps* for 5 GHz Receive: 600 Mbps* for 2.4 GHz and 1200 Mbps* for 5 GHz ***The estimated transmission distance is based on the theory. The actual distance will vary in different environments.**	
Transmission Power	11b: 23dbm+/- 1.5dbm @11Mbps 11g: 20dbm+/- 1.5dbm @54Mbps 11g/n: 20dBm +/- 1.5dbm @MCS7, HT20 17dBm@MCS7,HT40 11a: 19.5dBm +/- 1.5dbm @54Mbps 11a/n: 19.5dBm+/- 1.5dbm @MCS7, HT20 17dBm@MCS7, HT40 11ac HT20: 20+/-1.5dBm @MCS8 11ac HT40: 17+/-1.5dBm @MCS9 11ac HT80: 14.5+/-1.5dBm @MCS9 11ax HT20: 20+/-1.5dBm @MCS9 11ax HT40: 17 +/- 1.5dBm @MCS9 11ax HT80: 14.5 +/- 1.5dBm @MCS11	
Encryption Security	WEP (64/128-bit) encryption security WPA / WPA2 (TKIP/AES) WPA-PSK / WPA2-PSK (TKIP/AES) / WPA3-PSK (TKIP/AES) 802.1x Authenticator	
Wireless Advanced	Wi-Fi Multimedia (WMM) Auto channel selection Wireless output power management MAC address filtering	
Advanced Functions		
VPN	■ IPSec/Remote Server (Net-to-Net, Host-to-Net) ■ GRE ■ PPTP Server ■ L2TP Server ■ SSL Server/Client (Open VPN)	
VPN Tunnels	Max. 60	
VPN Throughput	Max. 60Mbps	
Encryption Methods	DES, 3DES, AES or AES-128/192/256 encrypting	
Authentication Methods	MD5/SHA-1/SHA-256/SHA-384/SHA-512 authentication algorithm	
Management		
Basic Management Interfaces	Web browser SNMP v1, v2c PLANET Smart Discovery utility and NMS controller supported	
Secure Management Interfaces	SSHv2, TLSv1.2, SNMP v3	
System Log	System Event Log	
Others	Setup wizard Dashboard System status/service Statistics Connection status Auto reboot Diagnostics	

Standards Conformance	
Regulatory Compliance	CE, FCC
Environment	
Operating	Temperature: -40 ~ 75 degrees C Relative humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -40 ~ 85 degrees C Relative humidity: 5 ~ 90% (non-condensing)

Dimensions

Top View

Side View **Front View** **Side View** **Rear View** **Mounting Kit**

DIN-Rail Kit

Bottom View

Mounting Kit

Unit: mm

Ordering Information

ICG-2515W-NR	Industrial 5G NR Wireless Cellular Gateway with 5-Port 10/100/1000T

Related Products

ICG-2515-NR	Industrial 5G NR Cellular Gateway with 5-Port 10/100/1000T
IVR-100	Industrial 5-Port 10/100/1000T VPN Security Gateway
ICG-2510WG-LTE	Industrial 4G LTE Cellular Wireless Gateway with 5-Port 10/100/1000T
VCG-1500WG-LTE	Vehicle 4G LTE Cellular Wireless Gateway with 5-Port 10/100TX
WGR-500-4PV	Industrial Wall-mount Gigabit Router with 4-Port 802.3at PoE+ and LCD Touch Screen
WGR-500-4P	Industrial Wall-mount Gigabit Router with 4-Port 802.3at PoE+
WGR-500	Industrial 5-Port 10/100/1000T Wall-mount Gigabit Router