

## Industrial 5G NR Cellular Wireless Gateway with 1-Port 1000X SFP



PLANET ICG-2515F-NR and ICG-2515FW-NR are industrial-grade cellular gateways for demanding mobile applications, M2M (machine-to-machine) and IoT deployments. Upgraded to the latest cellular technology of **5G NR (new radio)**, the ICG-2515F-NR and ICG-2515FW-NR are able to provide ultra-fast broadband access with 5G cellular network. They feature four Ethernet ports (3 LANs and 1 LAN/WAN), one Fiber port (LAN/WAN), serial port (RS485), DI and DO interfaces, and VPN technology bundled in a compact yet rugged metal case. They establish a fast cellular connection between Ethernet and serial port equipped devices. The ICG-2515F-NR is particularly ideal for industrial automation, digital factory and other industrial applications while the ICG-2515FW-NR is an integrated 5G NR and Wi-Fi 6 solution for industrial automation, digital factory and other industrial applications.



### Automatic Failover between 5G NR and Dual WAN

Designed with 5G NR and dual WAN interfaces (fiber and copper), 1000X SFP and Gigabyte Ethernet, the ICG-2515F-NR and ICG-2515FW-NR ensure Internet connectivity by featuring failover functionality between 5G NR and dual WAN. The ICG-2515F-NR and ICG-2515FW-NR provide flexibility to set priority for 5G NR or dual WAN connection. When the main WAN interface fails, the secondary WAN interface will automatically back up the connection to ensure always-on connectivity.

### 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 (ICG-2515FW-NR only)
- One 1000BASE-X SFP slot for LAN/WAN interface
- 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
- -40 to 75 degrees C operating temperature; DIN-rail and fanless designs

### Hardware

- 1 x 1000BASE-X SFP LAN/WAN port
- 1 x 10/100/1000BASE-T RJ45 LAN/WAN port, auto-negotiation, auto MDI/MDI-X
- 3 x 10/100/1000BASE-T RJ45 LAN ports, auto-negotiation, auto MDI/MDI-X
- 4 x 5G NR antennas
- 2 x SIM card slots
- 2 x 5dB
- 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

### RF Interface Characteristics (ICG-2515FW-NR only)

- 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



**Ultra-Fast Speed 4G/5G Network\***

The ICG-2515F-NR and ICG-2515FW-NR support 5G NR DL (Download Link) 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-2515F-NR and ICG-2515FW-NR also support 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**



**Dual SIM Design**

To enhance reliability, the ICG-2515F-NR and ICG-2515FW-NR are 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

**Wireless 11ax Brings Excellent Data Link Speed (ICG-2515FW-NR only)**

The ICG-2515FW-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

- Provides multiple adjustable transmit power control
- High speed up to 1.8Gbps (800Mbps for 2.4GHz or 1200Mbps for 5GHz) wireless data rate

**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

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.

**GPS Included**

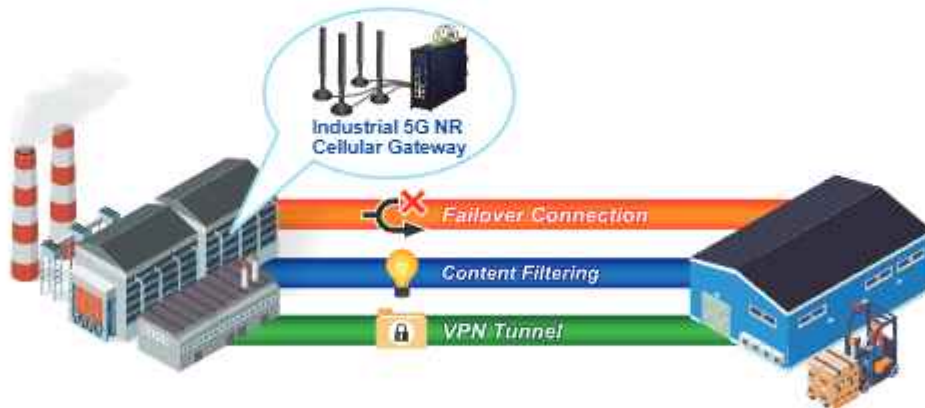
The ICG-2515F-NR and ICG-2515FW-NR are equipped with (global positioning system) feature and 5G-NR technology to for multiple global navigation systems (GPS/GLONASS/BeiDou/Galileo/QZSS). It helps to position location of cellular gateway based on a network of satellites that continuously transmits necessary 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-2515F-NR and ICG-2515FW-NR provide 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-2515F-NR and ICG-2515FW-NR make the connection secure, more flexible, and more capable.



**Wi-Fi Deployments and Authentication with Simplified Management (ICG-2515FW-NR only)**

The ICG-2515FW-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-2515FW-NR can offer a secure Wi-Fi network with easy installation for your business.

### Captive Portal



**Centralized Remote Control of Managed APs**

The ICG-2515F-NR and ICG-2515FW-NR provide 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.



For example, to configure multiple Smart APs of the same model, the ICG-2515F-NR or ICG-2515FW-NR allow 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**



**Excellent Ability in Threat Defense**

The ICG-2515F-NR and ICG-2515FW-NR have 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-2515F-NR and ICG-2515FW-NR are equipped with HTTPS web and SNMP management interfaces. With the built-in web-based management interface, the ICG-2515F-NR and ICG-2515FW-NR offer an easy-to-use, platform independent management and configuration facility. The ICG-2515F-NR and ICG-2515FW-NR support SNMP and it can be managed via any management software based on the standard SNMP protocol.

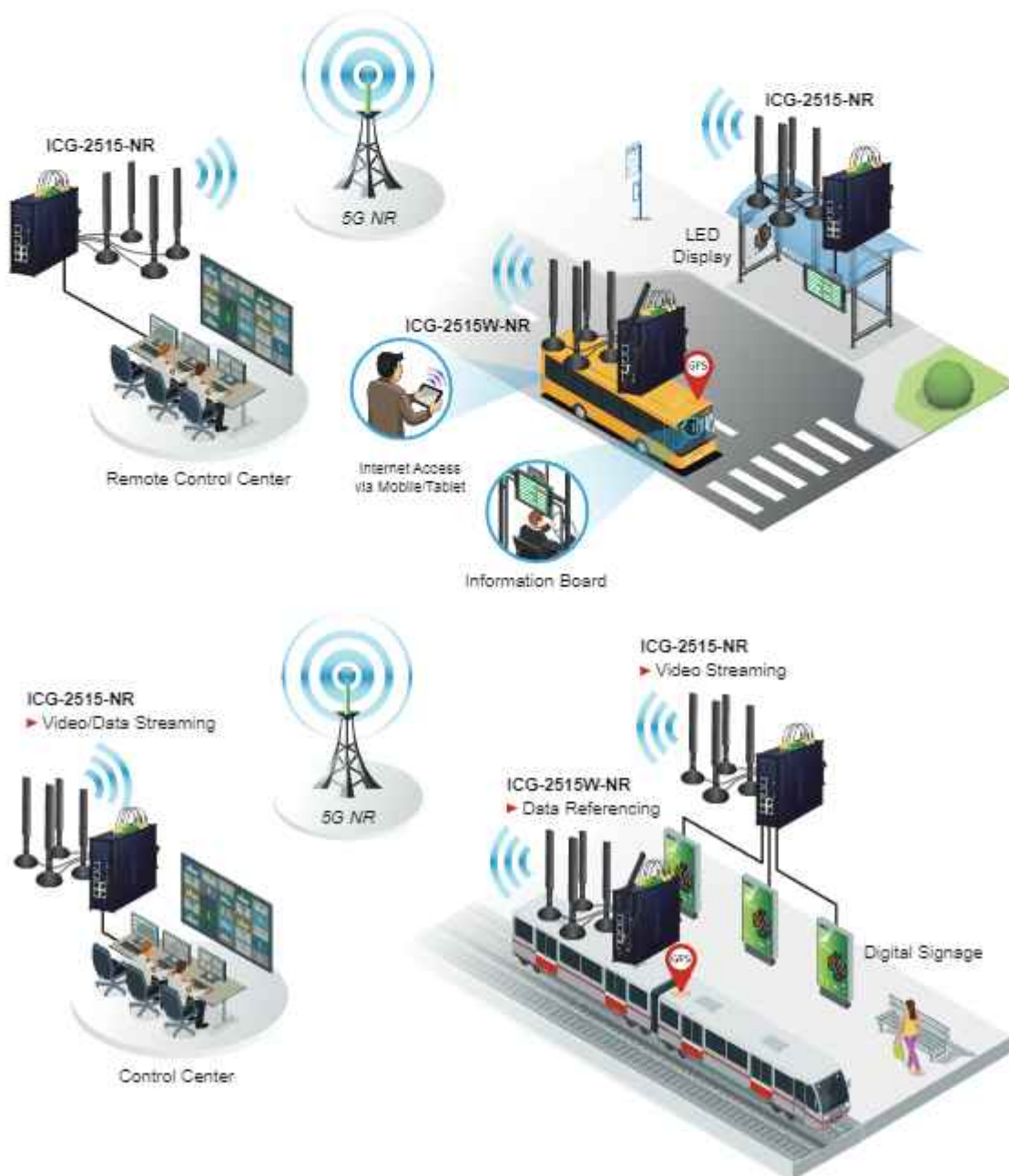
*Maximizing Work Efficiency with PLANET SD-WAN Gateway*

PLANET ICG-2515F-NR and ICG-2515FW-NR incorporated in SD-WAN (software-defined wide area network) function can greatly increase WAN optimization for multiple WAN links to be managed. With SD-WAN, users can connect any application across all available network connections at every site. It improves application performance and provides a high-quality user experience for increasing business productivity and reducing IT costs.

## Applications

*5G NR Cellular Communication Solution*

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



## Specifications

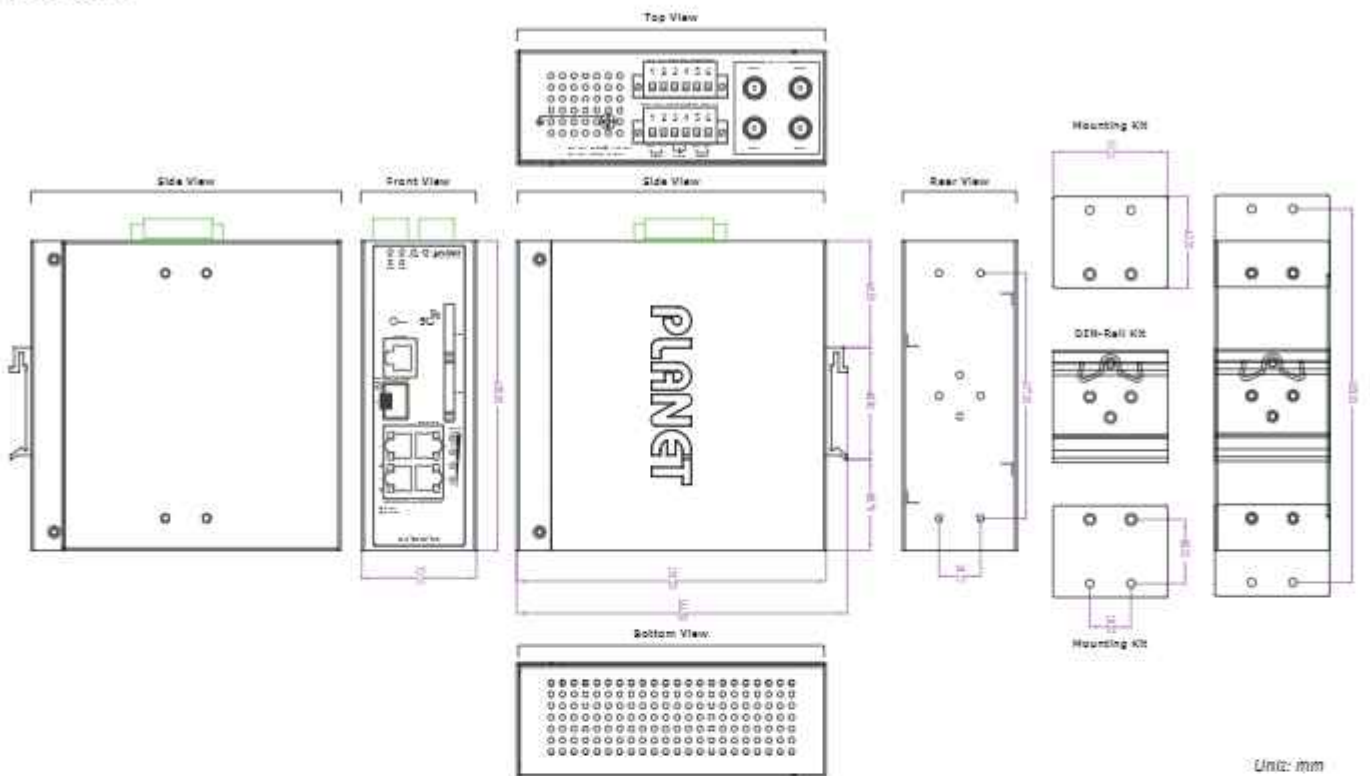
Product	ICG-2515F-NR	ICG-2515FW-NR
<b>Hardware Specifications</b>		
Ethernet	4 10/100/1000BASE-T RJ45 Ethernet ports including 3 LAN ports (Ports 1 to 3) 1 LAN/WAN port (Port 4)	
Fiber	1 1000BASE-X SFP slot 1 LAN/WAN port (Port 5)	
Serial Interface	RJ45 serial port	
SIM Interface	2 SIM card slots with 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): 1000 LNK/ACT (Green) 10/100 LNK/ACT (Amber)  Fiber Interface (Port 5): 1000 LNK/ACT (Green)  Cellular SIM: SIM1 and SIM2 (Green)  Wi-Fi: (ICG-2515FW-NR only) 2.4G (Green) 5G (Green)  Cellular signal: 4 levels (Green)	
Dimensions (W x D x H)	50 x 135 x 135 mm	
Weight	0.8 kg	0.9 kg
Power Requirements – DC	9~54V DC, 1.5A	
Power Consumption	7.02 W / 23.94 BTU	11.34 W / 38.89 BTU
<b>Multi Band Support</b>		
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+	
<b>Wireless (ICG-2515FW-NR only)</b>		
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 5GHz	America FCC: 2.412~2.462GHz Europe ETSI: 2.412GHz~2.472GHz 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, 120, 124, 128, 132, 136, 140  Europe ETSI: Non-DFS: 36, 40, 44, 48, 149,153,157,161,165 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: 800 Mbps* for 2.4 GHz and 1200 Mbps* for 5 GHz Receive: 800 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	WPA / WPA2 (TKIP/AES) WPA-PSK (TKIP/AES) / WPA2-PSK (TKIP/AES) / WPA3-PSK 802.1x Authenticator	
Wireless Advanced	Wi-Fi Multimedia (WMM) Auto channel selection Wireless output power management MAC address filtering	
<b>Wireless (ICG-2515FW-NR only)</b>		
Firewall Security	Cybersecurity Stateful Packet Inspection (SPI) Blocks DoS/DDoS attack	
ALG (Application Layer Gateway)	SIP, RTSP, FTP, H.323, TFTP	
NAT	Port forwarding DMZ Host UPnP	
Content Filtering	MAC filtering IP filtering Web filtering	
Bandwidth Management	Outbound load balancing Failover for dual-WAN QoS (Quality of Service)	
<b>Networking</b>		
Operation Mode	Routing mode	
Routing Protocol	Static Route, Dynamic Route (RIP), OSPF	
VLAN	802.1q Tag-based, Port-based, Multi-VLAN	
Multicast	IGMP Proxy	
NAT Throughput	Max. 900Mbps	
Outbound Load Balancing	Supported algorithms: Weight	

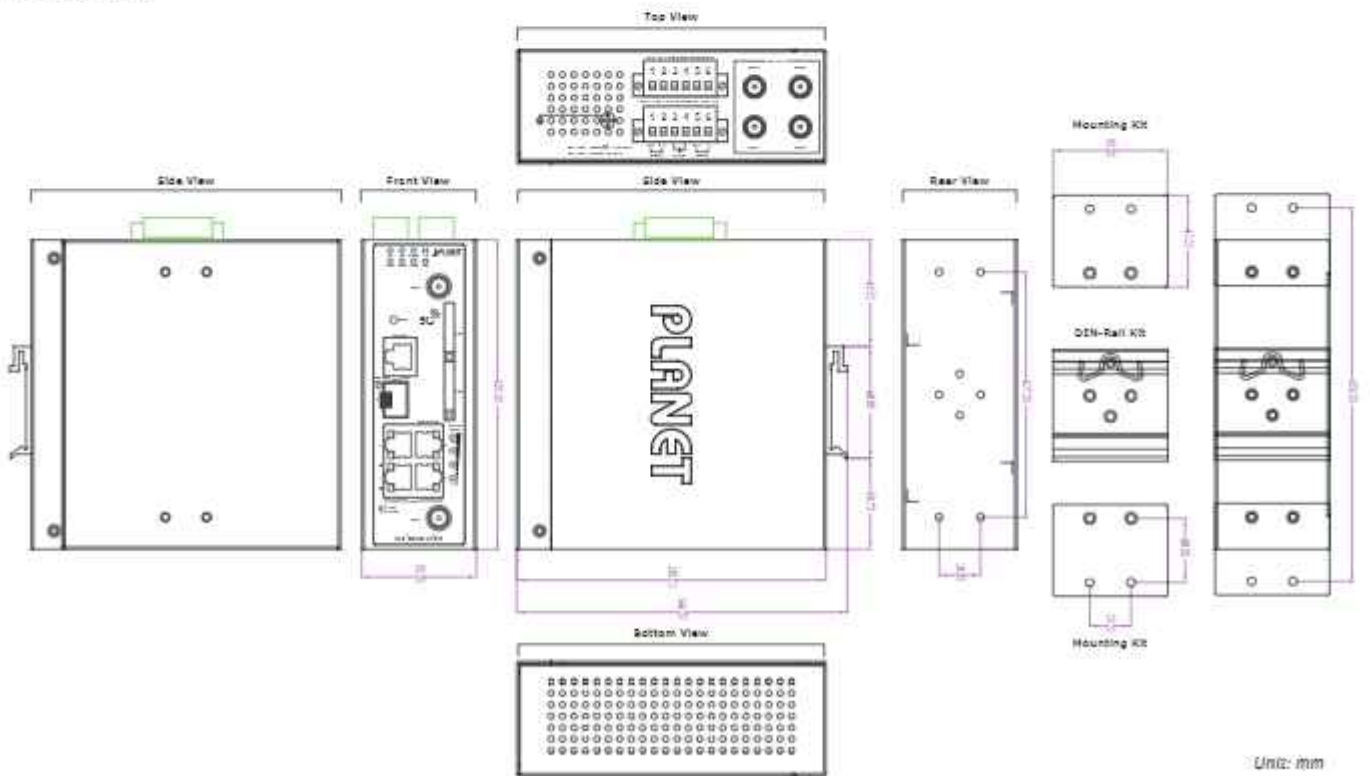
Protocol	IPv4, IPv6, TCP/IP, UDP, ARP, HTTP, HTTPS, NTP, DNS, PLANET DDNS, PLANET Easy DDNS, DHCP, PPPoE, SNMPv1/v2c/v3.
Key Features	HA (High Availability)
<b>Advanced Functions</b>	
VPN	<ul style="list-style-type: none"> <li>■ IPSec/Remote Server (Net-to-Net, Host-to-Net)</li> <li>■ GRE</li> <li>■ PPTP Server</li> <li>■ L2TP Server</li> <li>■ SSL Server/Client (Open VPN)</li> </ul>
VPN Tunnels	Max. 60
VPN Throughput	Max. 108Mbps
Encryption Methods	DES, 3DES, AES or AES-128/192/256 encrypting
Authentication Methods	MD5/SHA-1/SHA-256/SHA-384/SHA-512 authentication algorithm
<b>Management</b>	
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
<b>Standards Conformance</b>	
Regulatory Compliance	CE, FCC
<b>Standards Conformance</b>	
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

■ ICG-2515F-NR



■ ICG-2515FW-NR



## Ordering Information

ICG-2515FW-NR	Industrial 5G NR Cellular Wireless Gateway with 1-Port 1000X SFP
ICG-2515F-NR	Industrial 5G NR Cellular Gateway with 1-Port 1000X SFP

## Related Products

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