

USR-G816 Specification

5G SA/NSA Industrial Router



Introduction

USR-G816 Industrial Multi-Carrier 5G Router is a high performance all-in-one fixed/mobile wireless communications platform with advanced software enabling high availability, reliable and secure connectivity for mission critical applications. The compact rugged design integrates dual SIMs, four-port Gigabit Switch, 802.11ac and 802.11n Wi-Fi Access Point, RS232/485, embedded cellular module that supports WCDMA, 4G LTE and 5G sub-6 GHz NSA and SA network.

USR-G816 supports an extended operating temperature range from $-35^{\circ}\text{C} \sim +75^{\circ}\text{C}$ and a flexible power input voltage range of 9-36V DC making it suitable for diverse environments and applications.

USR-G816 is particularly suitable for smart grid, digital media installations, industrial automation, telemetry equipment, AGV, inspection robot, intelligent storage, UAV, medical device, digital factory, finance, payment device, environment protection, water conservancy and so on.

Features

■ Stable And Reliable

- Industrial grade design, Rugged enclosure with IP30 protection, optimized for DIN rail or shelf mounting.
- Wide operating temperature. Wide voltage input, reverse polarity protection.
- ESD, Surge, EFT protection.
- Embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.

■ Ultra Fast Connectivity

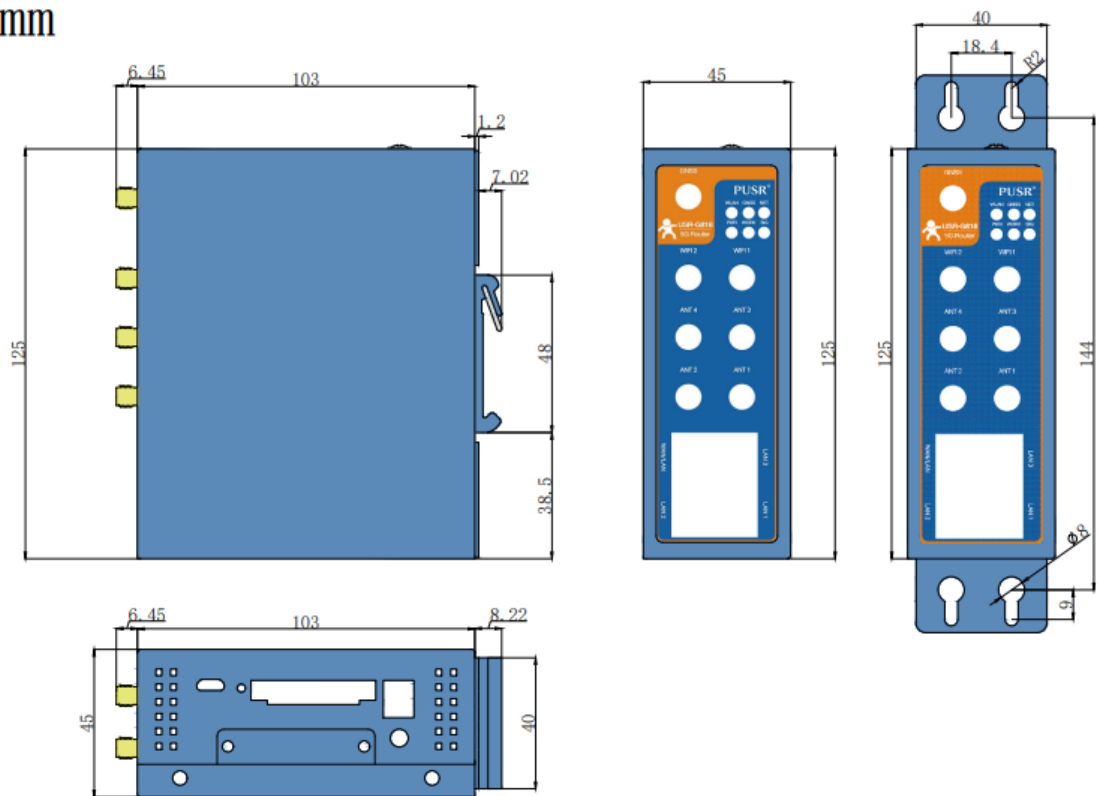
- Global 5G (NSA/SA)/4G LTE network with dual SIM cards for backup between multiple carrier networks
- Plug& play, supply lightning transmission via Gigabit Ethernet ports
- Support 802.11b/g/n/ac Wave 2 (Wi-Fi 5), allows 2.4G & 5.8G dual band concurrent data transmission rates up to 867 Mbps (Dual Band, MU-MIMO), Access Point (AP), Station (STA), repeater
- 4 x 10/100/1000 Ethernet ports: 1 x WAN (configurable as LAN), 3 x LAN

■ Rich functions

- Automated failover/failback backup among Ethernet, Cellular (dual SIM) and Wi-Fi
- Secure transmission with VPN tunnels like PPTP/L2TP/enhanced OpenVPN
- Supports APN/VPDN sim card.
- Supports serial port transparent transmission, Modbus RTU to TCP, HTTP.
- Supports ICMP keepalive check and heartbeat packet check to ensure the highest level of availability
- Supports DDNS, static routing, easy access to routers and subnets under routers.
- Firewalls, NAT, DMZ, port forwarding, and access restriction are supported.
- Supports PUSR cloud platform to facilitate remote monitoring and central management of large-scale device networks.
- Local and Remote management via Web GUI, SNMP
- Embedded GNSS option for real-time asset tracking and location data-based applications
- Supports serial ports (RS232/RS485), enabling you to scale up M2M applications.

Dimensions

UNIT: mm



- Unit: mm.
- Dimensions: 125.0*103.0*45.0mm(L*W*H).Power terminal, antenna connector are not included.
- Installation Method: 35mm DIN-rail mounting, Panel mounting.

Specifications

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Cellular Interface	Frequency	5G NR sub-6 GHz (3GPP Rel-16) Band(NA/NSA): n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/ 79; 4G LTE (CAT 19 DL / CAT 18 UL) LTE-FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71; LTE-TDD: B34/38/39/40/41/42/43/48; LAA: B46; 3G WCDMA: B1/2/4/5/8/19			
	Maximum Transmission Data Rate	5G SA Sub-6: Max. 2.4Gbps (DL)/Max. 900Mbps (UL); 5G NSA Sub-6: Max. 3.4Gbps (DL)/Max. 550Mbps (UL) LTE-FDD: Max. 1.6Gbps (DL)/Max. 200Mbps (UL) WCDMA: Max. 42 (DL)/Max. 5.76 (UL)			
	Antennas	4 × SMA-K Connectors (Center PIN: SMA Female)			
	SIM Slot	2 × (3 V/1.8 V) mini-SIM(2FF) Push-push type slot (SIM Card 2 can be configured with built-in eSIM)			
	Ethernet Interface	<table border="1"> <tr> <td>WAN</td> <td>1 × WAN port (can be configured as LAN) 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, supports auto MDI/MDIX crossover, Ethernet Isolation 1.5 KV RMS</td> </tr> <tr> <td>LAN</td> <td>3 × RJ45 port, 10/100/1000 Mbps, supports auto MDI/MDIX crossover, Ethernet Isolation 1.5 KV RMS</td> </tr> </table>	WAN	1 × WAN port (can be configured as LAN) 10/100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u, supports auto MDI/MDIX crossover, Ethernet Isolation 1.5 KV RMS	LAN
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LAN	3 × RJ45 port, 10/100/1000 Mbps, supports auto MDI/MDIX crossover, Ethernet Isolation 1.5 KV RMS				
Indicators	PWR	red, always on after powered on			
	WORK	green, blinking every 1 second when the router is ready and working properly			
	NET	Mobile network type LEDs NET lights on after device is connected to the network. Green stands for 5G, green and red for 4G, and red for 3G			
	SIG	Mobile signal strength indication LED Green represents excellent signal, two-color light represents good signal, red represents poor signal			
	WLAN	always solid on when WiFi is enabled and working properly			
	WAN	LED blinking When Connection established and data is being transferred over this port.			
	LAN	LED blinking When Connection established and data is being transferred over this port.			
Wi-Fi Interface	Antennas	2 × SMA-K Connectors (Center PIN: SMA Female)			
	MIMO	2×2			
	Standards	Concurrent dual-band 802.11a/n/ac (5.8GHz) and 802.11b/g/n (2.4GHz)			
	Modes	AP/AP+STA/AP+WDS repeater			
	Data speed	Up to 1733Mbps wireless operation rate at 5.8GHz			
	Security	Wi-Fi security with WPA-PSK, WPA2-PSK, Mixed WPA/WPA2-PSK, WPA2-PSK+CCMP			
	Transmission distance	200 meters by line of sight. Actual transmission distance depends on environment of the site.			
GNSS(Optional)	Antenna	1 × SMA-K Connector (Center PIN: SMA Female)			
	Technology	GPS, GLONASS, BeiDou, Galileo			
	Protocol	NMEA 0183			

Power Supply	Adapter	DC 12V/2A
	Connector	DC Power Jack Barrel Type Female 5.5*2.1mm Round socket or industrial terminal block(V+,V-),reverse polarity protection
	Input voltage range	DC9-36V
	Power consumption	Average current 630mA@12V and the maximum current 1.6A@12V
Serial Interface	Numbers	1 × RS485/RS232
	Connector	Terminal block
	Baud Rate(bps)	1200,2400,4800,9600,19200,38400,57600,115200,230400,460800(only 485)
	Signal definition	RS232: TXD, RXD, GND RS485: A, B, GND
	Data bits	7,8
	Stop bits	1,2
	Parity	NONE,ODD,EVEN
Physical Characteristics	Casing material	Metal shell, ingress protection IP30
	Dimensions	125.0*103.0*45.0mm(L*W*H,antenna pedestal,terminal block and DIN Rail are not included)
	Installation	Desktop, wall mounting and DIN-rail mounting
	EMC	Static IEC61000-4-2, level 3
		Pulsed Electric Field IEC61000-4-4, level 3
		Surge IEC61000-4-5, level 3
	Operating Temperature	-35°C ~ +75°C
Storage Temperature	-40°C~+125°C(Non-condensing)	
Relative Humidity 0	5%~95%(Non-condensing)	
Others	Reload button	1 × Reload
	TBD	Debug interface (TTL Level)
	Ground protection	Screw
	Built-in	Watchdog
Software	Network Protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, ARP, NTP, Telnet, SSH, DDNS, etc.
	VPN	LT2P, PPTP, OpenVPN
	Security	Access Control, DMZ, Port Forwarding, SYN-Flood Protection, Filtering(IP& MAC & Domain)
	Management	Web UI, PUSR cloud
	Reliability	WAN Failover, Dual SIM Backup
	Serial port	Transparent (TCP Client/Server, UDP), Modbus Gateway(Modbus RTU to Modbus TCP)
Certificate	In progress	CE, *FCC, *WEEE, RoHS, *RCM, *WPC

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