



R5100 5G Industrial Router





R5100 Series 5G Industrial Router Datasheet

R5100 series 5G industrial router is designed to build a stable high-speed and ultra-low latency wireless network - enable applications as diverse as remote surgery, autonomous driving, bus WiFi, AI-driven smart manufacturing and robotics.

The router uses MTK7981B ARM Cortex-A53 MPCore, and adopts 802.11ax WIFI6 standard, data transfer rate can be up to 3000Mbps. It's integrated with industrial 5G module based on Qualcomm chipset, supporting SA and NSA mode, compatible with 4G LTE-A Cat18, Cat12, Cat6 networks, to ensure the router works well if 5G signal is poor. Compared with 4G LTE networks, the transmission rate is increased by 10 to 100 times.

Via GPS module soldered to the router motherboard, R5100 can report the location information in NEMA-0183 formats to the user-defined TCP/UDP server for location and tracking.

It adopts software and hardware dual watchdog design, automatically reconnects when the networks was disconnected to ensure that the device is always online. It's also a VPN router, and supports multiple VPN protocols, such as OpenVPN, IPSec, GRE, PPTP and L2TP.

Via YHioT Cloud, customers can monitor, configure and control all the routers for free.

MEET THE R5100 5G INDUSTRIAL ROUTER

- I: Support 5G SA/NSA mode, with ultra-high data rates and ultra-low latency.
- II: Dedicated hardware and software watchdog are designed to support system running reliable.
- III: Single 5G module and Dual SIM card slots are integrated for network backup.
- IV: Full support for IPV4 and IPV6 network technology.
- V: Detects a network problem and redial automatically , ensuring the customer's SLAs are upheld.



- VI: Free service to monitor, configure and control all terminals via Cloud.
- VII: 5 Gigabit Ethernet Ports, 5G, 4G LTE Cat20, Cat18 and Cat12 connectivity.
- VIII: Standard 48V POE power, or 12-36V DC power supply, Low-voltage, over current, over voltage, anti-reverse protection
- IX: IEEE 802.11ax WiFi6 standard, supports 1024QAM modulation, and transmission efficiency is increased by 40% comparing with 802.11ac, 3000Mbps data transfer allows 100 simultaneous WiFi connections.

SPECIFICATIONS



MOBILE

Mobile module	5G SA Sub-6 - up to 2.1 Gbps downlink, 450 Mbps uplink 5G NSA Sub-6 - up to 2.5 Gbps downlink, 600/650 Mbps uplink LTE - up to 1 Gbps downlink, 200 Mbps uplink
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Status	Signal strength (RSSI), Attached network, IMSI, ICCID
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APN	Auto APN, Customized APN
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WIRELESS

Wireless mode	IEEE 802.11ax WiFi6, Access Point (AP)
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WiFi security	WPA2-PSK, WEP, WPA-EAP, WPA-PSK; AES-CCMP, TKIP, Auto Cipher modes, client separation
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SSID	SSID stealth mode and access control based on MAC address
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WiFi users	Up to 100 simultaneous connections
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INTERFACE



WAN	1 x WAN port, 100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX
LAN	4 x LAN port, 100/1000 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX
SIM	2 Standard SIM card slots, 1.8 V/3 V, external SIM holder
Antenna	4 x SMA for 5G, 2 x SMA for WiFi antenna connectors
GPS	Built in external GPS module (option)
LED	PWR, WAN, LAN, 2.4GHz, 5.8GHz, Data, Cellular, Signal
Reset	Reboot/Factory reset button

NETWORK

Routing	Static routing
Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, PPP, PPPoE, UPnP, SSH, DHCP, Telnet client, SNMP
Connection monitoring	Ping Reboot, Periodic Reboot, LCP and ICMP for link inspection



Firewall	Port forwarding
DHCP	Static and dynamic IP allocation
QoS	Traffic priority queuing by source/destination, service, protocol or port
DDNS	Supported >25 service providers, others can be configured manually
Network backup	Mobile and Wired, each of which can be used as backup, using automatic failover

SECURITY

Attack prevention	DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention)
WEB filter	Blacklist for blocking out unwanted websites, whitelist for specifying allowed sites only
Access control	Flexible access control of TCP, UDP, ICMP packets, MAC address filter

VPN

OpenVPN	Multiple clients can be running simultaneously, 10 encryption methods
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OpenVPN Encryption	DES-CBC, RC2-CBC, DES-EDE-CBC, DES-EDE3-CBC, DESX-CBC, BF-CBC, RC2-40-CBC, CAST5-CBC, RC2-64-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC
IPsec	IKEv1, IKEv2, supports up to 10 x VPN IPsec tunnels (instances), with 5 encryption methods (DES, 3DES, AES128, AES192, AES256)
GRE	GRE tunnel
PPTP, L2TP	Client/Server services can run simultaneously

SERIAL TRANSMISSION

TCP/UDP SERVER

Parameters	Port, Baud rate, Parity, Data bits, Stop bits, Flow control
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TCP/UDP CLIENT

Parameters	Port, Baud rate, Parity, Data bits, Stop bits, Flow control, Heartbeat
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Data center	Supported 4 server run simultaneously
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MONITORING & MANAGEMENT

WEB UI	HTTP, status, configuration, FW update, troubleshoot, event log, system log, kernel log
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FOTA	Firmware update from sever, automatic notification
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SNMP	SNMP (v1, v2, v3)
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IOT PLATFORMS

Cloud of Things	Allows monitoring Network info, Availability
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Configure	Configure parameters, Update firmware
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SYSTEM CHARACTERISTICS

CPU	MT7981BA+MT7976CN+MT7531AE
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RAM	256MB DDR3L
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FLASH storage	32MB, SPI Flash
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FIRMWARE / CONFIGURATION

WEB UI	Update FW from file, check FW on cloud, configuration backup and restore
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FOTA	Update FW/configuration from cloud platform
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RMS	Update FW/configuration for multiple devices
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Keep settings	Update FW without losing current configuration
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POWER

Connector	12-36 VDC, 2-pin with 3.5 mm terminal block
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Input voltage range	POE 48V, or 12 – 36 VDC, reverse polarity protection, surge protection
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Power consumption	< 19 W Max
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PHYSICAL SPECIFICATION

Casing material	Metal housing
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Dimensions (W x H x D)	188*137*44mm
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Weight	720g
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OPERATING ENVIRONMENT

Operating temperature	-40 °C to 75 °C
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Operating humidity	10% to 90% non-condensing
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Ingress Protection Rating	IP30
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REGULATORY & TYPE APPROVALS

Regulatory	CE, FCC, CCC
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EMI IMMUNITY

Standards	Draft EN 301 489-1 V2.2.0, Draft EN 301 489-17 V3.2.0, Draft EN 301 489-52 V1.1.0 FCC 47 CFR Part 15B (2017), ANSI C63.4 (2014)
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ESD	EN61000-4-2:2009
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RS EN 61000-4-3:2006 + A1:2008 + A2:2010

EFT EN 61000-4-4:2012

Surge immunity (AC Power Line) EN 61000-4-5:2006

Surge immunity (Ethernet ports) EN 61000-4-5:2014, clause 7.1 of ITU-T K21

CS EN 61000-4-6:2009

DIP EN 61000-4-11:2004

RF

Standards EN 300 328 V2.1.1, EN 301 511 V12.5.1, EN 301 908-1 V11.1.1, EN 301 908-2 V11.1.1, EN 301 908-13 V11.1.1
FCC 47 CFR Part 15C (2017), FCC 47 CFR Part 2 (2017), FCC 47 CFR Part 22H (2017), FCC 47 CFR Part 24E
(2017), FCC 47 CFR Part 27C (2017)
RSS-Gen Issue 4 (2014), RSS-247 Issue 2 (2017), RSS-132 Issue 3 (2013), RSS-133 Issue 6 (2013), RSS-139
Issue 3, RSS-130 Issue 1
AS/CA S042.1:2018, AS/ACIF S042.3:2005, AS/CA S042.4:2018, AS/NZS 4268:2017

ORDER

Model	Region	5G Band
R5100G	Global	5G NR NSA: n1/n2/n3/n5/n7/n8/n12/n20/n25/ n28/n38/n40/n41/n48/n66/n71/ n77/n78/n79 5G NR SA: 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(B17)/ B13/B14/B18/B19/B20/B25/B26/ B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/B39/B40/B41/B42/B43/B48
R5100E	Global (except the USA)	5G NR NSA: n41/n77/n78/n79 5G NR SA: 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/B66/B71 LTE-TDD: B34/B38/B39/B40/B41/B42/B43/B48

STANDARD PACKAGE

				
R5100 5G Router	24W PSU	Ethernet cable, 1m	4 5G antenna	2 WiFi antenna

Note: All accessories can be customized.