



robustOS

R5020 Lite

High Speed Smart 5G Router

2 x ETH + 1 x RS-232/485 + 1 x GNSS (optional) +
2 x Dual-band Wi-Fi



INTRODUCTION

The R5020 Lite is Robustel's latest 5G-capable router supporting 5G, 4G, and 3G networks. It leverages our proven high-performance CPU platform along with **RobustOS**, an in-house developed operating system that has successfully passed extensive third-party penetration testing. The R5020 Lite is compatible with 3GPP Release 16 and is designed for the following applications:

Broadband Failover: The R5020 Lite can be configured to use Ethernet or Wi-Fi as the primary internet connection, with automatic failover to 5G/4G in the event of an outage. This feature provides resilience for retail shops and small offices at a reasonable cost, ensuring sufficient bandwidth for multiple users. It supports various protocols, including IPsec, DMVPN, GRE, and more, for secure connections to core networks.

Primary Broadband: Cellular network operators now offer unlimited 5G plans at competitive prices. For many businesses, the opportunity to eliminate wired connections and utilize a wireless internet solution can be both technically and commercially advantageous.

SD-WAN: While many appliances include built-in cellular options, the R5020 Lite provides a cost-effective solution to add a 5G backup route. Its ability to be located externally increases the likelihood of receiving a strong 5G signal.

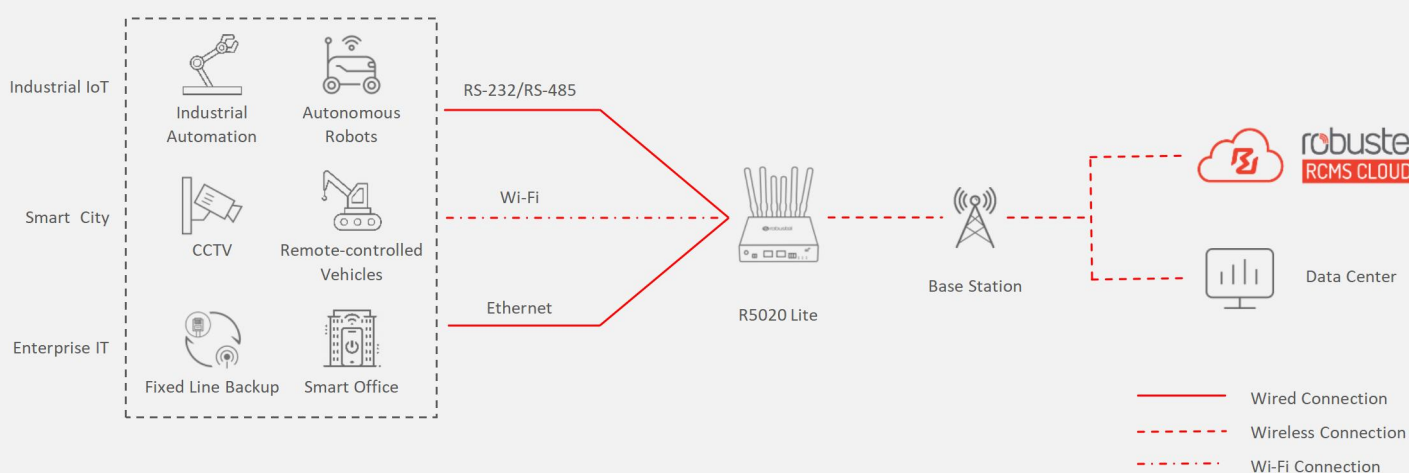
The **Robustel Cloud Manager Service (RCMS)** is a unified cloud-based platform designed for real-time monitoring and centralized management of industrial IoT devices. Fully compatible with Robustel routers and gateways, RCMS delivers an interactive geospatial dashboard that enables users to visualize device locations and track critical metrics such as data usage, signal strength, and network status. To ensure seamless operations, the platform facilitates over-the-air (OTA) updates for firmware, configurations, and applications, minimizing downtime while optimizing system performance. Experience robust, cloud-native device management by registering at: <https://rcms-cloud.robustel.net>

KEY FEATURES

- Low-cost industrial 5G router
- 5G/4G/3G cellular connections
- Cutting-edge 5G 3GPP Release 16 cellular interface
- Supports Ethernet, Wi-Fi and 5G/4G internet with auto-failover
- 1 x RS-232/RS-485 ports (software configurable) for connecting industrial and legacy devices
- Fully programmable operating system with a well-documented SDK
- Multiple VPN options available including DMVPN, IPsec, L2TP, and more
- Free cloud management platform (RCMS)
- Robust metal enclosure with a compact design for DIN-rail and wall mounting



APPLICATION EXAMPLE



SPECIFICATIONS

Hardware System

CPU	Dual-core MIPS, 880 MHz
RAM	256 MB
Flash	32 MB

Cellular Interface

Number of antennas	4 (ANT0 + ANT1 + ANT2 + ANT3)
Connector	SMA-K
SIM	2 x Mini SIM (2FF)

Ethernet Port

Number of ports	2 x 10/100/1000 Mbps
	2 LAN by default, can be configured as 1 WAN + 1 LAN
Magnet isolation protection	1 KV

Wi-Fi Interface

Number of antennas	2 (Wi-Fi1 + Wi-Fi2)
Connector	RP-SMA-K
Standards	802.11 a/b/g/n/ac, 2 x 2 MIMO
	Supports AP and Client modes
Frequency bands	2.412 - 2.472 GHz (2.4 GHz ISM band)
	5.15 - 5.825 GHz (5 GHz ISM band)
Security	WPA, WPA2, WEP, WPA3
Encryption	AES, TKIP, WEP64

Serial Port

Number of ports	1 x RS-232 or 1 x RS-485 (software configurable)
Connector	1 x 3-pin 3.5 mm female socket
ESD protection	± 8 KV air discharge, ± 6 KV contact discharge
Baud rate	300 bps ~ 115200 bps
Signal definition	RS-232: TXD, RXD, GND
	RS-485: Data+ (A), Data- (B), Ground (GND)

GNSS Interface (Optional)

Number of antennas	1
Connector	SMA-K
GNSS frequency	GPS: L1, L5
	QZSS: L1, L5
	Galileo: E1, E5a
	GLONASS: L1OF
	BDS: B1

Others

Reset button	1 x RST
LED indicators	1 x RUN, 1 x MDM, 1 x RSSI, 1 x USR, 1 x 2.4 G (Wi-Fi), 1 x 5G Wi-Fi
Watchdog	External

Software (Basic features of RobustOS)

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, NTP, SMTP, Telnet, VLAN, HTTPs, ARP, SSH2, DDNS, etc.
VPN tunnels	IPsec, OpenVPN, GRE, Wireguard
Firewalls	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	Web, CLI, SMS
Serial port protocols	Transparent, TCP Client/Server, UDP, Modbus RTU to TCP
Routing	Static routing, Dynamic routing (BGP, OSPF v2, RIP v1/v2)
Others	Smart Roaming V2

SDK

Supported programming languages	C, C++
Flash available for SDK	5 MB
RAM available for SDK	128 MB

App Center (Available Apps for RobustOS)

Apps*	L2TP, PPTP, DMVPN, VRRP, QoS, SNMP, Language, RCMS, Captive Portal, WLAN Multi AP, Edge2Cloud
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*Request on demand. For more Apps please visit www.robustel.com.

Cloud Platform

Robustel Cloud Manager Service (RCMS)	RobustLink, RobustVPN, Operation Console
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Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock 4-pin Micro-Fit socket
	Note: Different models correspond to different connectors. Please refer to the Ordering Information table for details.
Input voltage	12/24 V DC, 12 ~ 36 V DC
	Reverse polarity protection, surge protection
Power consumption	Idle: 2.9 W@12 V Max: 10.9 W@12 V
Recommended power supply	12V DC/1.5 A power adapter

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Aluminum, 475 g
Dimensions	32 x 115 x 136 mm
Installations	Desktop, wall mounting and 35 mm DIN rail mounting
Operating temperature	-20 ~ +55 °C (normal temperature) -25 ~ +70 °C (extended temperature)
Storage temperature	-40 ~ +85 °C
Relative humidity	5 ~ 95% RH (non-condensing)

Regulatory and Type Approvals

Environmental	RoHS2.0
Testing	IEC 60068-2-6 (Sinusoidal Vibration) IEC 60068-2-64 (Random Vibration) IEC 60068-2-27 (Mechanical Shock)
EMI	EN 55032 Conducted Emission Class B EN 55032 Radiated Emission Class B
EMS	EN 61000-3-2 (Harmonic Current) EN 61000-3-3 (Voltage Flicker) EN 61000-4-2 (ESD) Contact Level 3, Air Level 3 EN 61000-4-3 (RS) Level 3 EN 61000-4-4 (EFT) Power Ports Level 2, Signal Ports Level 3 EN 61000-4-5 (Surge) Level 3 EN 61000-4-6 (CS) Level 3 EN 61000-4-11 (Dips) Class 2



2-pin 3.5 mm Terminal Block with Lock



4-pin Micro-Fit Socket

ORDERING INFORMATION

Model	Order Code	Power Connector	Wi-Fi	GNSS	Frequency Bands**	Country /Region	Certification (*In Progress)	Package Contains
R5020L-A-5G-A25GL	A009800013	2-pin 3.5 mm Terminal Block with Lock	√	-	5G: NR SA/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	Global	CE, UKCA, CB, NTC, TDRA, ANATEL, TELEC, JATE, IMDA, RCM, E-Mark	1 x R5020 Lite Router (B Code: B098004) 1 x Wall Mounting Kit
	A009810002		√	-	4G: 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 (only supports 2 x 2 MIMO) 3G: WCDMA: B1/2/4/5/8/19			1 x R5020 Lite Router (B Code: B098004) 1 x Wall Mounting Kit 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter
R5020L-A-5G-A43EA	A009800010	2-pin 3.5 mm Terminal Block with Lock	√	-	5G: NSA: n1/3/7/28/38/40/41/77/78 SA: n1/3/5/7/8/20/28/38/40/41/66/77/78	EMEA, APAC	CE, UKCA, RCM*	1 x R5020 Lite Router (B Code: B009800009) 1 x Wall Mounting Kit
	A009800011		√	-	4G: LTE FDD: B1/2/3/4/5/7/8/20/28/66 LTE TDD: B38/40/41 3G: WCDMA: B1/2/5/8			1 x R5020 Lite Router (B Code: B009800009) 1 x Wall Mounting Kit 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter
R5020L-B-5G-A30EU	A009800014	4-pin Micro-Fit Socket	√	√	5G NR NSA/SA: n1/3/5/7/8/20/28/38/40/41/71/75/76/77/78	EMEA, APAC, Brazil	CE, UKCA, CB, RCM*, NTC, TDRA, E-Mark	1 x R5020 Lite Router (B Code: B098005) 1 x Wall Mounting Kit 1 x Power Plug Converter
	A009810004		√	√	4G: LTE FDD: B1/3/5/7/8/20/28/32/71 LTE TDD: B38/40/41/42/43 3G: WCDMA: B1/5/8			1 x R5020 Lite Router (B Code: B098005) 1 x Wall Mounting Kit 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x GNSS Antenna 1 x Power Adapter
R5020L-C-5G-A25GL	A009800009	2-pin 3.5 mm Terminal Block with Lock	-	-	5G NR: 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 SA: 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 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 UMTS WCDMA: B1/2/4/5/8/19	LATAM	-	1 x R5020 Lite Router (B Code: B098008) 1 x Wall Mounting Kit 4 x Cellular Antenna 1 x Power Adapter
R5020L-A-5G-D06CN	A009800008	2-pin 3.5 mm Terminal Block with Lock	√	-	5G: NR NSA: n41/78/79 NR SA: n1/8/28/41/78/79 4G: LTE FDD: B1/3/5/8 LTE TDD: B34/38/39/40/41 3G: WCDMA: B1/8	India, China	-	1 x R5020 Lite Router (B Code: B009800006) 1 x DIN Rail Mounting Kit

**For more information about frequency bands in different countries, please contact your Robustel sales representative.