R5020 Lite

High Speed Smart 5G Router

2 x Ethernet + 1 x RS-232/485 + optional Wi-Fi and GNSS



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.

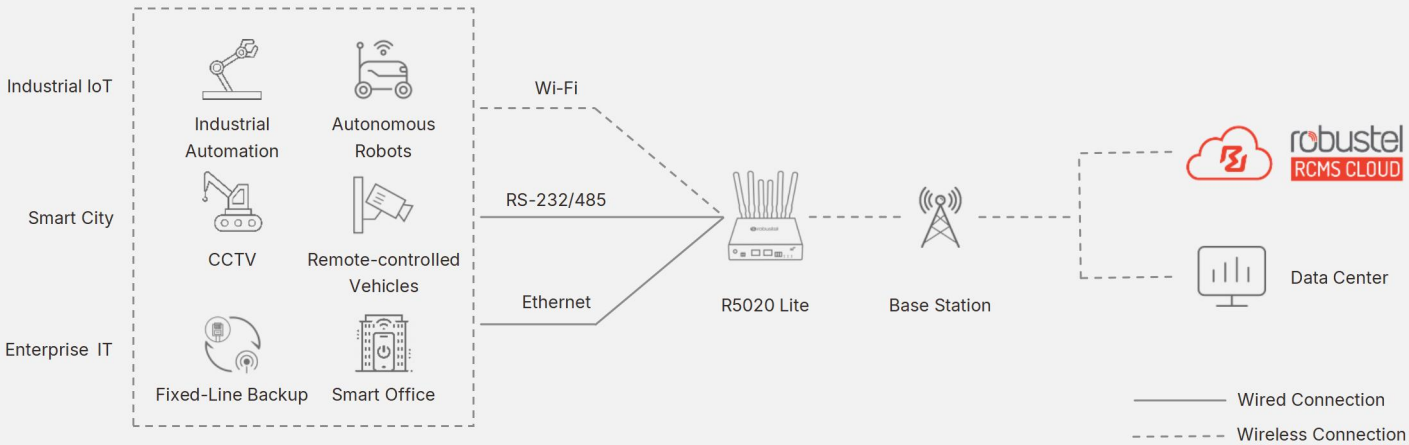
—**SD-WAN:** While many appliances include built-in cellular options, the R5020 Lite provides a cost-effective solution to add a 5G backup route. Its ability to be located externally increases the likelihood of receiving a strong 5G signal.

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. For more information or to get started with RCMS, visit: 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, optional Wi-Fi, and 5G/4G internet with auto-failover
- 1 x software-configurable RS-232/RS-485 port 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

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 x LAN by default, can be configured as 1 x WAN + 1 x LAN
Magnet isolation protection	1.5 kV

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
Baud rate	300–115200 bps
Signal definition	RS-232: TXD, RXD, GND RS-485: Data+ (A), Data- (B), Ground (GND)

Wi-Fi Interface (optional)

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

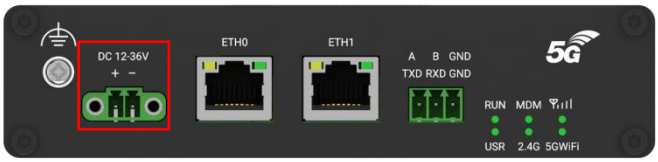
GNSS Interface (optional)

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

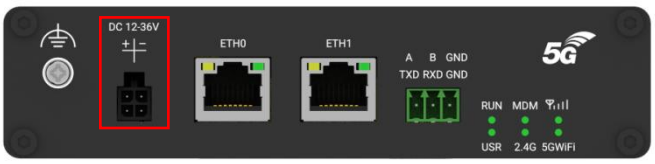
Others

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

Power Connector Options:



2-pin 3.5 mm Terminal Block with Lock



4-pin Micro-Fit Socket

Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock 4-pin Micro-Fit socket (varies by model)
Input voltage	12/24 VDC, 12–36 VDC Reverse polarity protection, surge protection
Power consumption	Idle: 3 W@12 V Max: 11 W@12 V
Rec. power supply	12 VDC/1.5 A power adapter

Note: Different models correspond to different connectors. Please refer to the Ordering Information table for details.

Physical Characteristics

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

Regulatory and Type Approvals

Environmental	RoHS 2.0
Testing	IEC 60068-2-6 (Sinusoidal Vibration) IEC 60068-2-27 (Mechanical Shock) IEC 60068-2-64 (Random Vibration)
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) Level 3 EN 61000-4-3 (RS) Level 3 EN 61000-4-4 (EFT) Level 2, AC Mains Power Port Level 3, Signal Ports EN 61000-4-5 (Surge) Level 3, AC Mains Power Port Level 2, Signal Ports EN 61000-4-6 (CS) Level 3 EN 61000-4-11 (Dips) Class 2

Software

Operating System (Basic Features of RobustOS)

Network protocols	PPP, PPPoE, ARP, VLAN, ICMP, NAT, TCP, UDP, DHCP, DNS, DDNS, NTP, HTTP, HTTPS, Telnet, SSH2, SMTP, 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, RCMS
Serial port protocols	Transparent, TCP Client/Server, UDP, Modbus RTU to TCP
Others	Smart Roaming V3, etc.

SDK

Programming languages	C, C++
Available Flash for SDK	5 MB
Available RAM for SDK	128 MB

App Center (Available Apps for RobustOS)

Apps*	L2TP, PPTP, DMVPN, VRRP, QoS, SNMP, Language, RCMS, Dynamic Routing, Captive Portal, Modbus Master, TR069*, Edge2Cloud

*Available upon request. For more apps, please visit www.robustel.com.

Cloud Platform

Robustel Cloud Manager Service (RCMS)	RobustLink, RobustVPN, Operation Console

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ORDERING INFORMATION

Model	Order Code	Power Connector	Wi-Fi	GNSS	Frequency Bands	Region	Certifications	Package Contents
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 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	Global	CE, UKCA, CB, NTC, TDRA, ANATEL, TELEC, JATE, IMDA, RCM, E-Mark, FCC, PTCRB, AT&T	1 x Router (B Code: B098004) 1 x Wall Mounting Kit
	A009810002	2-pin 3.5 mm Terminal Block with Lock	√	-		Global	CE, UKCA, CB, NTC, TDRA, ANATEL, TELEC, JATE, IMDA, RCM, E-Mark, FCC, PTCRB, AT&T	1 x Router (B Code: B098004) 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter 1 x Wall Mounting Kit
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 4G: LTE FDD: B1/2/3/4/5/7/8/20/28/66 LTE TDD: B38/40/41 3G: WCDMA: B1/2/5/8	EMEA, APAC	CE, UKCA	1 x Router (B Code: B009800009) 1 x Wall Mounting Kit
	A009800011	2-pin 3.5 mm Terminal Block with Lock	√	-		EMEA, APAC	CE, UKCA	1 x Router (B Code: B009800009) 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter 1 x Wall Mounting Kit
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 4G: LTE FDD: B1/3/5/7/8/20/28/32/71 LTE TDD: B38/40/41/42/43 3G: WCDMA: B1/5/8	EMEA, APAC	CE, UKCA, CB, RCM, NTC, TDRA, E-Mark	1 x Router (B Code: B098005) 1 x Power Plug Converter 1 x Wall Mounting Kit
	A009810004	4-pin Micro-Fit Socket	√	√		EMEA, APAC	CE, UKCA, CB, RCM, NTC, TDRA, E-Mark	1 x Router (B Code: B098005) 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x GNSS Antenna 1 x Power Adapter 1 x Wall Mounting Kit
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	ANATEL	1 x Router (B Code: B098008) 4 x Cellular Antenna 1 x Power Adapter 1 x Wall Mounting Kit

NOTE:

1. The models R5020L-A-5G-A25GL and R5020L-C-5G-A25GL currently do not support Telstra certification and are not recommended for use on the Telstra network.
2. For more information about regional and carrier-specific variants, please contact us.
3. * Denotes certification in progress.

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