R5020 robustOS

High Speed Smart 5G Router

4 Eth + 1 RS232 + 1 RS485 + 1 DI + 1 DO

INTRODUCTION

The R5020 is Robustel's first 5G capable router supporting global 5G, 4G and 3G bands. The R5020 leverages the tried and tested high performance CPU platform and RobustOS – a mature and stable Operating System developed in-house by Robustel. R5020 is compatible with 3GPP Release 15 and targeted at the following applications:

In-vehicle Applications – whether it is passenger wifi, CCTV debrief, ticketing or a similar "onboard" requirement, the R5020 offers a simple and effective to increase internet speeds and future-proof current installations well into the future. R5020 has achieved E-Mark certification for in-vehicle use and supports GNSS positioning. A version with vehicle ignition sensing is available to protect vehicle batteries when the engine is off.

Broadband Failover – R5020 can be configured to use Ethernet or Wifi as primary internet and failover to 4G/5G in the event of an outage. This can help to provide resilience to outlets such as shops and small offices at a reasonable cost and provide sufficient bandwidth for multiple users.
IPsec, DMVPN and Open VPN protocols can be used for connections into core networks.

Primary Broadband – Cellular networks can now provide unlimited 5G tariffs at very reasonable prices, offering hundreds of Mbps internet over the air. For many, a chance to cut the cables and use a wireless internet connection can be technically or commercially favorable.

KEY FEATURES

› Global 5G/4G/3G cellular connections

› Supports Ethernet, Wifi and 4G/5G internet with auto-failover

› Very cost-effective industrial 5G router solution

› Fully programmable Operating System with well documented SDK

› Multiple VPN options available including DMVPN & IPSEC

› GNSS, ignition sense & E-mark make R5020 ideal for vehicles

› Free cloud management platform - RCMS

› Robust metal enclosure with small footprint – DIN-rail + wall mount options

APPLICATION EXAMPLE
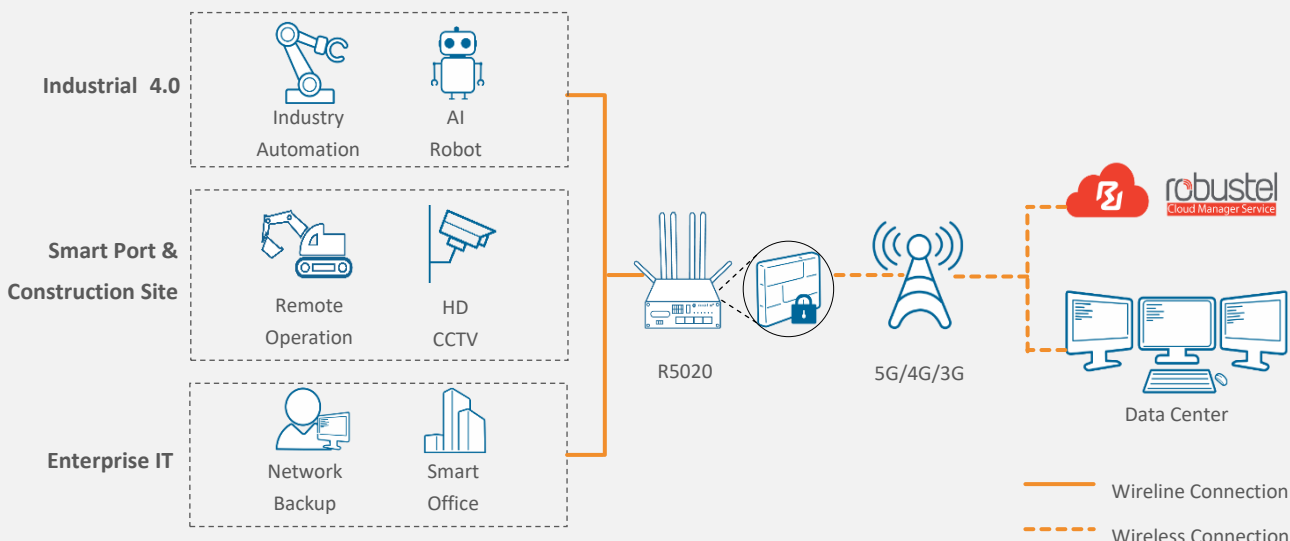
SPECIFICATIONS

Cellular Interface

Number of antennas	4 (ANT0 + ANT1 + ANT2 + ANT3)
Connector	SMA-K
SIM	2 (3 V & 1.8 V), Standard SIM;

GNSS

Number of antennas	2 (ANT1 + ANT2, Multiplexing cellular antenna interface)
Connector	SMA-K
GNSS technology	GPS/GLONASS/BeiDou (Compass)/Galileo
Horizontal position accuracy	< 2m

Ethernet Interface

Number of ports	4 x 10/100/1000 Mbps, 4 LAN by default, can be configured as 1 WAN + 3 LAN Support 802.3at PD feature on ETH0 (optional)
Magnet isolation protection	1 KV

WiFi Interface

Number of antennas	2 (WiFi1 + WiFi2)
Connector	RP-SMA-K
Standards	802.11b/g/n/ac 2*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
Encryption	AES, TKIP, WEP64
Data speed	5G: Up to 867Mbps 2.4G: Up to 300Mbps

Serial Interface

Number of ports	1 x RS232 + 1 x RS485
Connector	2 x 5-pin 3.5 mm female socket
ESD protection	±8 KV
Baud rate	300bps to 115200bps
Signal definition	RS232: TXD, RXD, GND RS485: Data+ (A), Data- (B), Ground (GND)

DI/DO

Type	1x DI + 1 x DO, wet contact
Connector	2 x 5-pin 3.5 mm female socket
Isolation	3.75KV DC (opto-isolator)
Absolute maximum VDC	"V+" +30V DC (DI), +30V DC (DO)
Absolute maximum ADC	100 mA
Signal definition	IN, OUT, IGND, OGND

Others

Reset button	1 x Tactile Switch
Expansion	1 x USB2.0 Host; 5V/500mA
LED indicators	1 x RUN, 1 x Modem, 1 x USR, 1 x RSSI, 1 x NET, 1 x WIFI
Watchdog	Built-in

Software (Basic features of RobustOS)

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, HTTPs, DNS, ARP, NTP, SMTP, Telnet, SSH2, DDNS, etc.
VPN tunnel	IPsec, OpenVPN, GRE
Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/ MAC address), Port Mapping, Access Control
Management	Web, CLI, SMS
Serial port	Transparent, TCP Client/Server, UDP, Modbus RTU to TCP
Others	Smart Reboot, Data Guard, Smart Roaming, etc

SDK

Supported programming languages	C, C++, Linux Shell scripts
Flash available for SDK	5MB
RAM available for SDK	256MB

App Center (Available Apps for RobustOS)

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

*Request on demand. For more Apps please visit www.robustel.com.

Power Supply and Consumption

Connector	3-pin 3.5 mm female socket with lock
Input voltage	9 to 36V DC (without Ignition sensing) ; 10 to 30V DC (with Ignition sensing)
Power consumption	Idle: 500 mA@12 V Data link: 1.2 A (peak) @12 V

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Aluminum, 500 g
Dimension	125 x 100 x 48 mm
Installations	Desktop, wall mounting and DIN rail mounting
Operating temperature	-25 to +70 °C
Storage temperature	-40 to +85 °C
Relative humidity	5 to 95% RH

Approvals

Regulatory	CE*, RCM*, CCC*
Application	E-Mark
Environmental	RoHS2.0*, WEEE*

*in progress

ORDERING INFORMATION

Model	ACC	POE-PD	Frequency Bands*			Region/
			5G	4G	3G	Country
R5020-5G-A09GL-A	Yes	NO	5G NR NSA: 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	WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	Global
R5020-5G-A09GL-B	NO	Yes	5G NR SA: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/ n38/n40/n41/n48*/n66/n71/n77/n78/n79	LTE TDD: B34/B38/B39/B40/B41/B42/B43/B48		Global

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