



R1520

robustOS

Industrial Dual SIM Cellular VPN Router
Suitable for 2G, 3G, 4G networks



INTRODUCTION

The R1520 router from Robustel is a versatile 4G router with 5 x Ethernet ports, GPS and E-mark certification for in-vehicle use. Other hardware features include optically isolated digital inputs and outputs as well as a 10-bit analogue input capable of interfacing directly with sensors in the range of 0 to 24Vdc or 0 to 20mA.

R1520 also has a 2-wire RS485 interface for connection to legacy instruments with full support for Modbus. The RS232 port features RTS/CTS lines so the product can accommodate applications that require hardware handshaking.

Despite being cost-effective, the R1520 is a powerful router with high packet-forwarding capability – way beyond the typical requirements of LTE CAT4 networks. The Linux based Operating System, **RobustOS**, has been developed entirely in-house which leads to a very high standard of technical support and infrequent firmware updates due to modular nature of the OS. Many unique software innovations are built on top of RobustOS, these include:

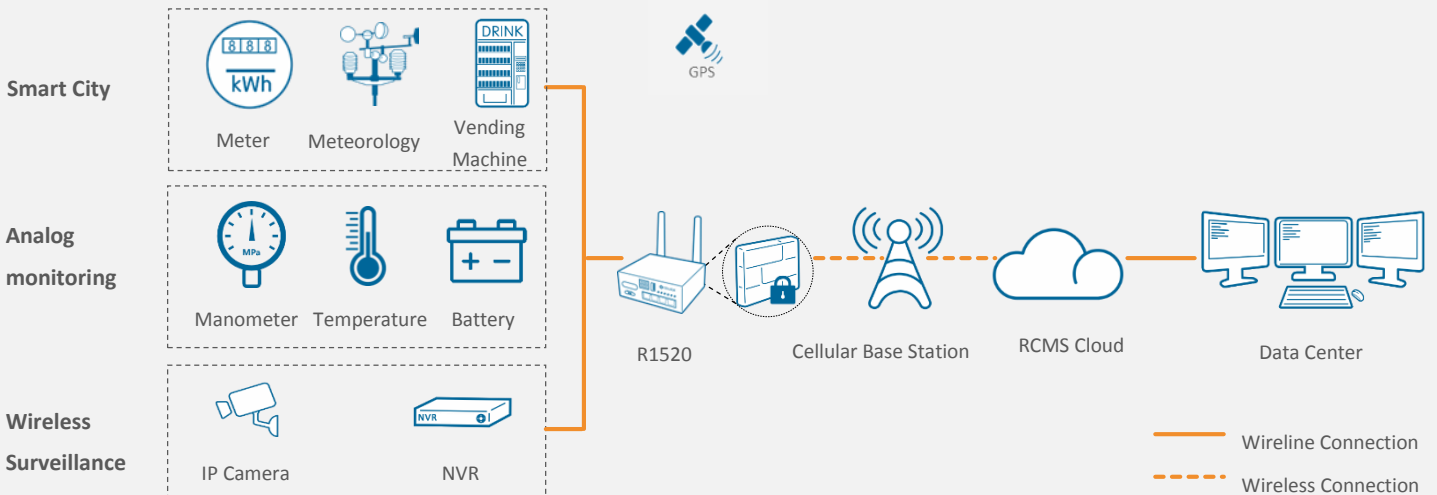
- RobustVPN** – highly flexible hosted VPN service so customers can easily enjoy a “fixed IP router”
- Data-Guard** – invaluable failsafe in case of a system failure and runaway data usage
- Smart Reboot** – SMS tool to push roaming SIMs from a non-working to working state
- Sniffer** – run a Wireshark trace directly on the router for invaluable diagnostic information. Customers can also easily write their own applications using the extensive SDK supplied free of charge.

RCMS is Robustel’s free router monitoring service that is fully compatible with the R1520. It allows customers to see a location overview of their routers quickly and simply on a map. Features such as data usage, signal strength, current network and much more can then be viewed on a per router. Over-the-air updates are supported for Firmware, router configuration and Apps serving as essential ‘insurance’ if anything was not quite right during deployment. For a free trial of RCMS, visit: <https://rcms-cloud.robustel.net>

KEY FEATURES

- Cost-effective & high performance 3G/4G router
- Rugged design with 9 to 36Vdc power
- “Global” 4G version available
- E-mark certification for in vehicle use
- Optically isolated digital IO
- 10-bit Analogue interface for direct sensor connections
- Supports Dual SIMs & Wifi/Ethernet as WAN
- Cellular keep-alive and fast failover
- Extensive range of software “apps” for enhanced functionality
- RobustVPN – hosted service providing a “fixed IP” router
- IPsec/OpenVPN/GRE/L2TP/PPTP/DMVPN supported
- Extensive global certifications

APPLICATION EXAMPLE



SPECIFICATIONS

Cellular Interface

| | |
|--------------------|-------------------------|
| Number of antennas | 2 |
| Connector | SMA-K |
| SIM | 2, Standard SIM or eSIM |

Ethernet Interface

| | |
|------------------|--|
| Number of ports | 5 x 10/100 Mbps, 5LAN by default, can be configured as 1WAN + 4LAN |
| WAN port | Support 802.3af & 802.3at PD feature on ETH0 |
| Magnet isolation | 1.5 KV |

WiFi Interface

| | |
|--------------------|---|
| Number of antennas | 2 |
| Connector | RP-SMA-K |
| Standards | 802.11b/g/n, supports AP and Client modes |
| Frequency bands | 2.4 GHz |
| Security | WEP, WPA, WPA2 |
| Encryption | 64/128 AES, TKIP |
| Data speed | 2*2 MIMO, 300 Mbps |

DI/DO

| | |
|----------------------|------------------------------------|
| Type | 1 x DI + 1 x DO, wet contact |
| Isolation | 3 KV |
| Socket form | 2 * 3-pin 3.5 mm female socket |
| Level | 3 to 30Vdc = HIGH, 0 to 1Vdc = LOW |
| Absolute maximum VDC | 30Vdc (DI/DO) |
| Absolute maximum ADC | 10mA (DI/DO) |

Analogue Input

| | |
|---------------------|--|
| Type | 1X AI (can be configured as voltage type or current type) |
| Voltage input range | 0 to 24Vdc |
| Current input range | 4-20mA(current-type input requires external resistance, and finally measured by voltage) |
| Socket form | 2 * 3-pin 3.5 mm female socket |
| Signal definition | AI, AGND |

Serial Port

| | |
|-------------------|---|
| Type | 1 x RS-232 + 1 x RS-485 serial port |
| Socket form | 2 * 4-pin 3.5 mm female socket |
| Signal definition | RXD TXD SGND RTS CTS (RS-232) Data+ (A), Data- (B), ground(GND);(RS-485) |

Device Interface

| |
|--|
| 1 x GPS interface (Optional, depending on the cellular module) |
| 1 x 480Mbps high-speed USB2.0 interface |

Others

| | |
|----------------|---|
| Reset button | 1 x reset button (RST button) |
| RTC | External RTC clock , Backup energy storage capacitor can be maintained for 2 days |
| LED indicators | 1 x RUN, 1 x MDM, 1 x USR, 1 x RSSI, 1 x WiFi |
| Built-in | Watchdog, Timer |

Software (Basic features of RobustOS)

| | |
|-------------------|---|
| Network protocols | PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, HTTPS, DNS, ARP, NTP, SMTP, Telnet, VLAN, SSH2, DDNS, etc. |
| VPN tunnel | IPsec, OpenVPN, GRE |
| Firewall | DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control |
| Remote Management | Web, CLI, SMS |

App Center (Available Apps for RobustOS)

| | |
|-------|---|
| Apps* | L2TP, PPTP, DMVPN, VRRP, QoS, Captive Portal, WLAN Multi AP, SNMP, Language, RCMs |
|-------|---|

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

Power Supply and Consumption

| | |
|-------------------|---|
| Connector | 2 pin 3.5 mm socket with lock |
| Input voltage | 9 to 36V DC |
| Power consumption | Idle: 100 mA@12 V Data link:1.0 A (peak) @12 V |

Physical Characteristics

| | |
|--------------------|--|
| Ingress protection | IP30 |
| Housing & Weight | Plastic, 250 g |
| Dimensions | 105 x 90 x 46 mm |
| Installations | Desktop, wall mounting and 35 mm DIN rail mounting |

Approvals

| | |
|---------------|--|
| Regulatory | CE*, FCC*, RCM*, CCC* , Telec*, JATE*, IC* |
| Application | E-Mark* |
| Carrier | PTCRB*, AT&T*, Verizon*, Rogers*, Telus* |
| Environmental | RoHS2.0, WEEE |
| EMC | |
| EMI | EN 55032: 2012/AC: 2013 (CE & RE) Class B |
| EMS | IEC 61000-4-2 (ESD) Contact Level 2; IEC 61000-4-3 (RS) Level 2 IEC 61000-4-4 (EFT) Level 2 IEC 61000-4-5 (Surge) Level 2 IEC 61000-4-6 (CS) Level 2 IEC 61000-4-11 (DIP) Level 2 |

*(In progress)

ORDERING INFORMATION

| | | |
|------------------------------|--|---|
| Model | R1520-4L | |
| Router Type | LTE Router | |
| Air Interface | GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/HSPA+/DC-HSPA+/TD-SCDMA/CDMA (CDMA 1X/EVDO)/FDD LTE/TDD LTE | |
| Frequency Bands | Global: B1/ B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28/B38/B39/B40/B41 AU: B1/B2 ^① /B3/B4/B5/B7/B8/B28; B40 EMEA: B1/B3/B7/B8/B20/B28A CN: B1/B3, B38/B39/B40/B41 | |
| 4G* | | |
| 3G | Global: WCDMA B1/B2/B4/B5/B6/B8/B19 AU: WCDMA B1/B8 EMEA: WCDMA B1/B8 CN: WCDMA B1, TD-SCDMA B34/B39, CDMA2000 1x/EVDO BC0 | |
| 2G | Global: B2/B3/B5/B8 | AU: B2/B3/B5/B8 EMEA: B3/B8 CN: B3/B8 |
| Operating Temperature | -25 to +70 °C | |
| Storage Temperature | -40 to +85 °C | |
| Relative Humidity | 5 to 95% RH | |

*For more information about 4G frequency bands in different countries, please contact your Robustel sales representative.