R1511P

robustOS

Embedded 4G Router

2 Ethernet + WiFi + 1 SIM + 1 RS232/RS485

INTRODUCTION

The R1511P is a fully featured embedded 4G router targeted at applications such as EV Charging, traffic signs, vending machines, medical instrumentation, industrial instrumentation and many more IoT-type applications.

An embedded router solves two problems that traditional routers do not – cost and size.

The R1511P is a cost-effective small footprint board with Ethernet WAN, Wifi WAN and 4G WAN interfaces that can all be independently configured in the powerful onboard Operating System – RobustOS.

RobustOS is Robustel's brilliant Linux based router operating system that offers functionality that could take a software engineer many months to write and even more months to adequately test. Key features of RobustOS include:

RobustVPN – innovative use of Open VPN tunneling to provide a fixed IP address on the router anywhere

RCMS – Robustel's Cloud management platform – essential for managing an estate of routers – can be OEM branded

Data Guard – critical 'failsafe' that stops unexpected data overusage within seconds of a threshold being breached

Smart Reboot – essential recovery solution for when your roaming SIM card doesn't roam!
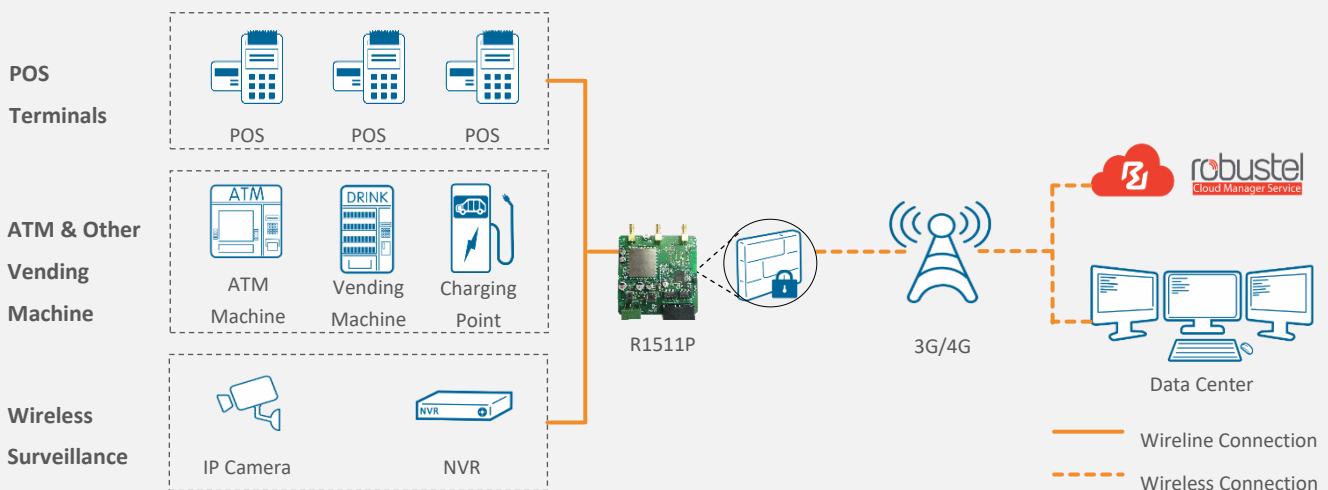
SMS Control – total control of the router using SMS for general status or fixing fault conditions with IP Comms

Automated failover – configure the router to automatically fail from WAN/Wifi to 4G with just a few clicks

KEY FEATURES

- Small footprint powerful 4G router board – fully customizable in software
- Dual Ethernet, Wifi (AP and client) and 4G/3G/2G capability
- RS232 (default) or RS485 port for connection to serial devices + integrated Modbus gateway
- Pre-certified PCB means that manufacturer certification challenges are minimized
- Fully programmable Linux environment with excellent SDK Documentation
- Can be connected directly to Raspberry Pi or similar low cost embedded PC for internet access
- "Smart Reboot" included for enhanced Roaming SIM management
- Bulk packaging + shipping options to minimize addition to customer BOM cost
- RS232 (default) or RS485 port for connection to serial devices + integrated Modbus gateway

APPLICATION EXAMPLE

POS Terminals: POS, POS, POS

ATM & Other Vending Machine: ATM Machine, Vending Machine, Charging Point

Wireless Surveillance: IP Camera, NVR

R1511P — 3G/4G — robustel Cloud Manager Service — Data Center

Wireline Connection
Wireless Connection

SPECIFICATIONS

Cellular Interface
Number of antennas	2 external antenna (MAIN + AUX)
Connector	SMA-K
SIM	1 x (3 V/1.8 V) Standard SIM or eSIM

Ethernet Interface
Number of ports	2 x 10/100 Mbps, 2 x LAN or 1 x LAN + 1 x WAN
Magnet isolation	1.5 KV

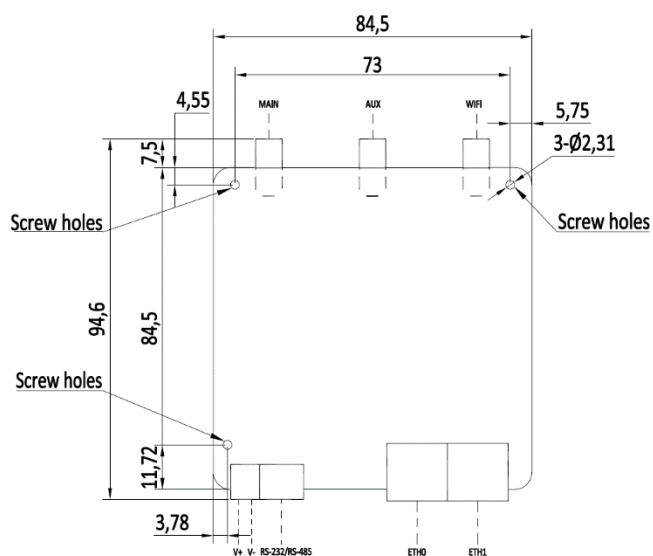## WiFi Interface
Number of antennas	1 external antenna	
Connector	RP-SMA-K (external antenna)	
Standards	802.11b/g/n, supports AP and Client modes	
Frequency bands	2.4 GHz	
Security	WEP, WPA, WPA2	
Encryption	64/128 AES, TKIP	
Data speed	2 x 2 MIMO, 300 Mbps	
RF output power	802.11b	19 dBm
(+/-1 dBm)	802.11g	19 dBm
	802.11n (20 MHz)	18 dBm
	802.11n (40 MHz)	17 dBm
Receiving sensitivity	802.11b	-93 dBm
(+/-1 dBm)	802.11g	-90 dBm
	802.11n (20 MHz)	-88 dBm
	802.11n (40 MHz)	-85 dBm

Serial Interface
Type	1 x RS232 or 1 x RS485 (Hardware configuration)
Connector	3-pin 3.5 mm female socket
Baud rate	300bps to 115200bps

Others
Reset button	1 x RST
LED indicators	1 x RUN, 1 x MDM, 1 x USR, 1 x RSSI, 1 x WLAN
Built-in	Watchdog, Timer

Software (Basic features of RobustOS)
Network protocols	PPPoE, TCP, UDP, DHCP, NAT, DNS, NTP, SMTP, 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

SDK
Supported programming languages	C, C++, Linux Shell scripts
Flash available for SDK	4MB
RAM available for SDK	64MB

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 female socket
Input voltage	9 to 36V DC
Power consumption	Idle: 100 mA@12 V
	Data link: 500 mA (peak) @12 V

Physical Characteristics
Weight	65 g
Installations	Three screw holes are fixed
	ST2 x 8 black cross grooved pan head tapping
Operating temperature	-25 to +70 °C
Storage temperature	-40 to +85 °C
Relative humidity	5 to 95% RH

Approvals
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

*See ordering information for details about other certifications

Dimension diagram

ORDERING INFORMATION

Model	PN	Serial Interface	LTE Category	Frequency Bands*			Region/ Country	Certification (* In progress)
				4G	3G	2G		
R1511P-4L-A02EU-A	B061713	RS232	CAT4	LTE FDD: B1/B3/B7/B8/B20/B28A	WCDMA: B1/B8	GSM: B3/B8	EMEA	CE
R1511P-4L-A02EU-B	B061714	RS485						
R1511P-4L-A03AU-A	B061717	RS232	CAT4	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28 LTE TDD: B40	WCDMA: B1/B2/B5/B8	GSM: B2/B3/B5/B8	Australia/ New Zealand	RCM
R1511P-4L-A03AU-B	B061718	RS485						

* Please note that the different LTE frequency bands are model dependent and not all 4G frequencies are currently supported on a single model of 1511P router.

* Please contact your sales representative for more detailed information on model numbers and for availability of "Global" routers.