



# CASE STUDY: wireless telemetry

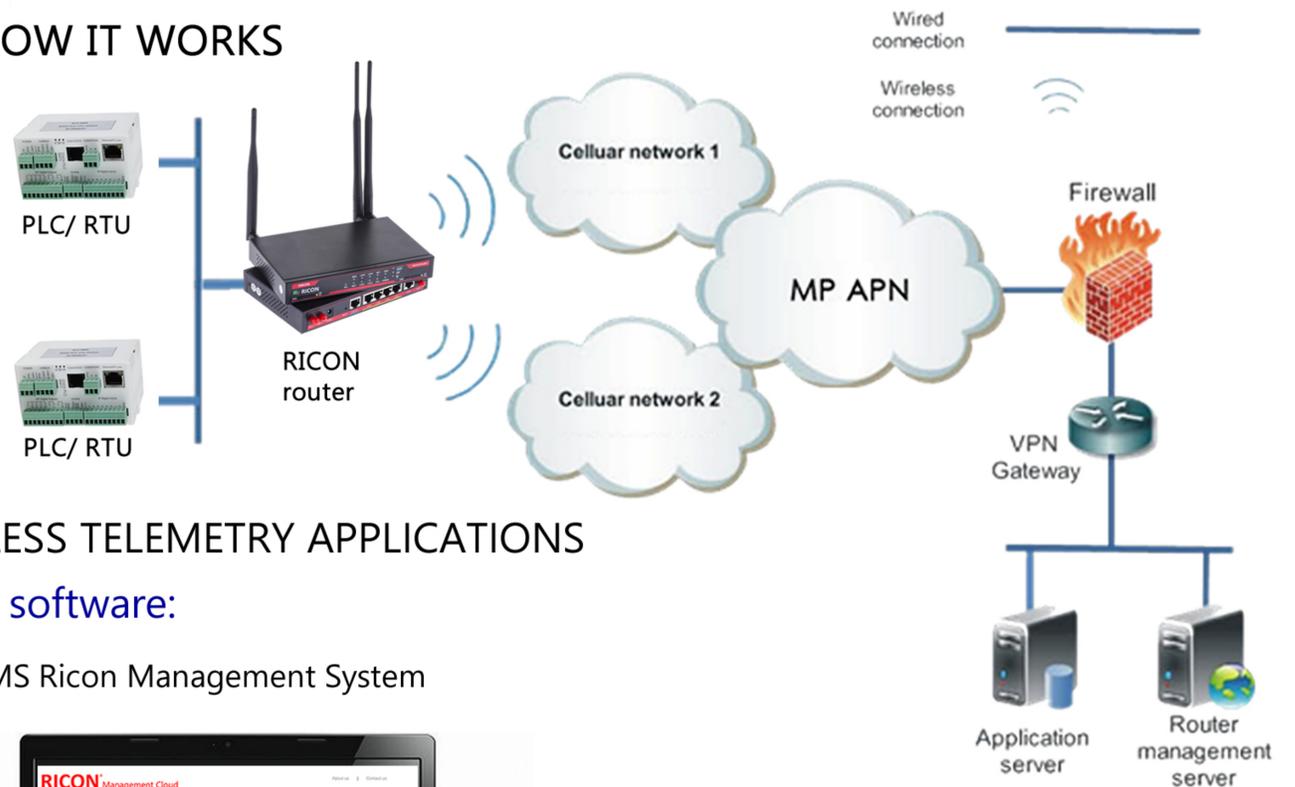


**RICON Technology provides hardware (3G/4.5G routers) and software (RMS Ricon Management System) for telemetry applications across wireless cellular data networks.**

Over the past few years the cost of wireless cellular data network services has made data communication across wireless cellular networks affordable, opening up wireless telemetry to a much wider audience. M2M (Machine-to-Machine) applications across wireless cellular data networks are now a viable option. To enable multiple devices to connect to a cellular network, a gateway is required, which acts as a point of entry/exit to and from your remote sites and machines. RICON routers provides the platform when connecting to remote sites. RICON robust and secure cellular routers offers reliable and secure connectivity for any type of wireless telemetry project. An integrated GPRS/EDGE/3G/4.5G module provides connectivity to the cellular networks, a serial interface provides connectivity for legacy serial equipment such as PLCs, and RTUs, and a Ethernet interface allows access to any Ethernet enabled devices over the existing Ethernet network.

RICON wireless networking solution combines all most advanced parameters and provides secure, reliable, flexible and cost effective networking solutions. RMS Ricon Management System, working together with RICON routers as a part of the RICON solution, monitors connectivity on the wireless cellular network, informs about network availability, signal strengths also controlling devices remotely.

## HOW IT WORKS



## RICON SOLUTION FOR WIRELESS TELEMTRY APPLICATIONS

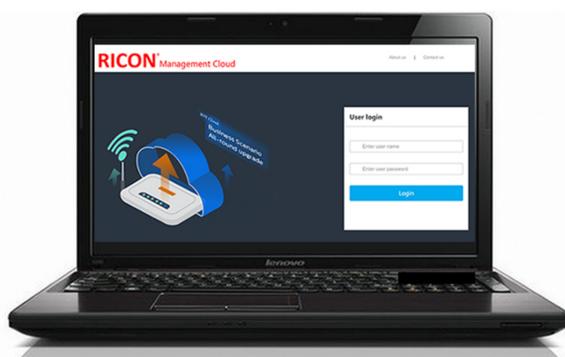
### 1. hardware:

RICON 3G/4.5G routers



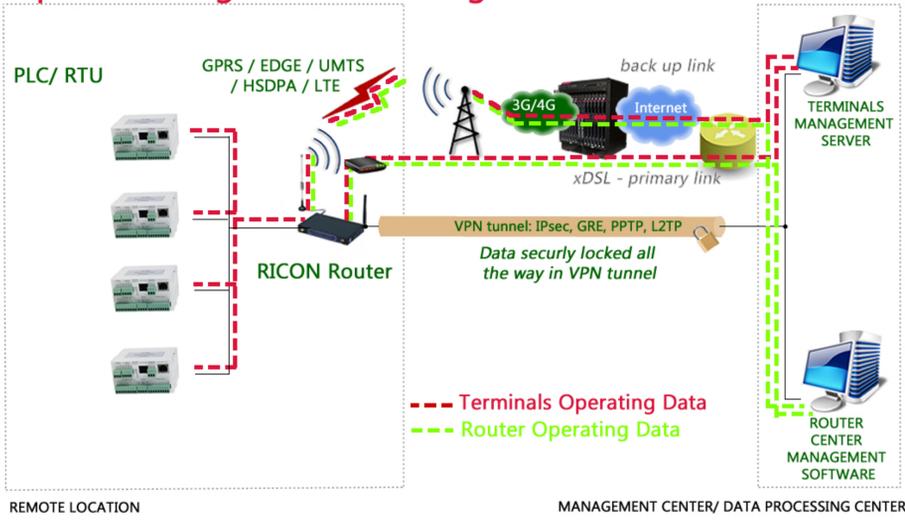
### 2. software:

RMS Ricon Management System



- VPN
- Dual RF-Module
- Dual SIM
- Wi-Fi Optional
- GPS optional
- LTE
- Cellular/WAN link backup
- NAT Virtual server
- WAN/PPPoE
- WPS

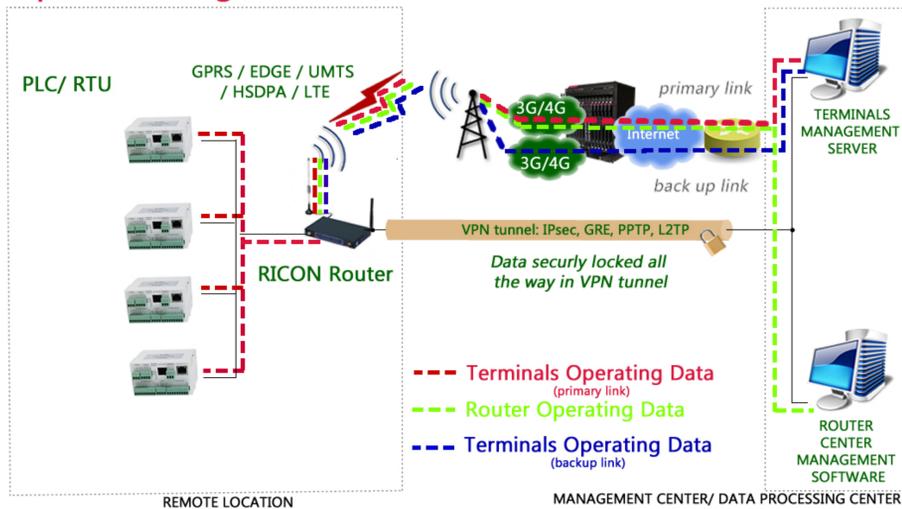
### Option 1: single module/ single SIM



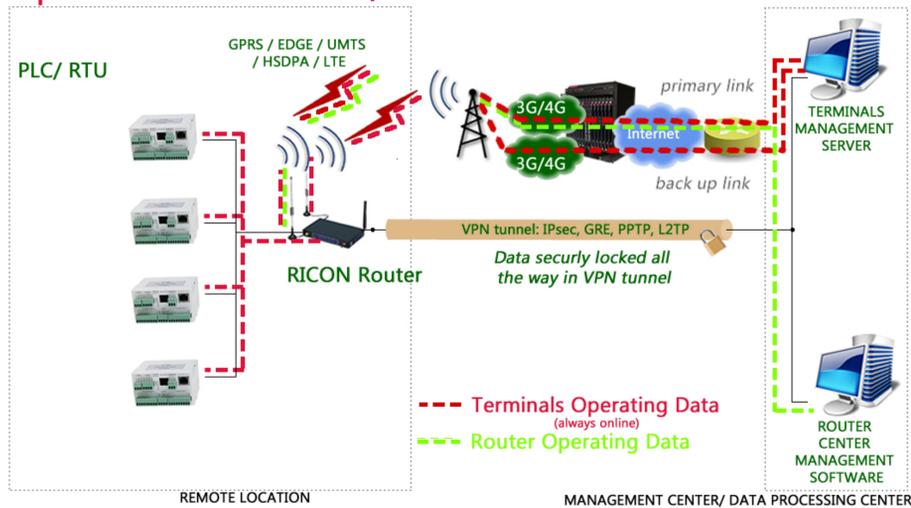
Portfolio of RICON products and services enables to deploy secure and robust wireless network. Embracing connectivity using wireless 3G and 4G technologies our Customers benefit from reliable network even in the most remote, hazardous locations. RICON team cooperates closely with Customers to provide them with a most suitable application. RICON has experience and know-how which we would like to share with you. RICON routers and management platform major features are specially designed to meet multiply requirements of the secure wireless telemetry projects:

- Dual SIM functionality enable seamlessly alternative between two networks when one of the network signal is poor or enable to switch upon desire to other network with flexible switching time,
- Dual GSM module enable persistent network connectivity with no break in time during the network switch,
- Guaranteed security and privacy in all the transactions: VPN support, GRE over IPsec, IPsec over PPTP/L2TP,
- Safety mechanism to avoid unintentional SIM cards manipulations,
- 4 x Ethernet 10/100M is available by default,
- NAT/PAT/Port forwarding dynamically and static options are available by default,
- Router supports DHCP Server, DHCP relay and other standard DHCP features by default,
- HTTPS/HTTP supports are available by default,
- Telnet and SSH accesses,
- SNMP agent,
- LTE/ HSPA/HSDPA/UMTS/EDGE/GPRS Quadband support,
- RMA process for faulty routers,
- Configured via GUI and remotely via RMS Ricon Management System,
- Centralized control for firmware upgrade available as a section of the RICON M2M Management Platform,
- Centralized statistic collection to show router uptime, network attachment, signal strength and where possible latency and packet loss per device and per router group on RICON M2M Management Platform,
- Centralized control for the configuration management and group based configuration.
- For this specific project all the routers can be delivered with a project related pre-configuration.

### Option 2: single module/ dual SIM



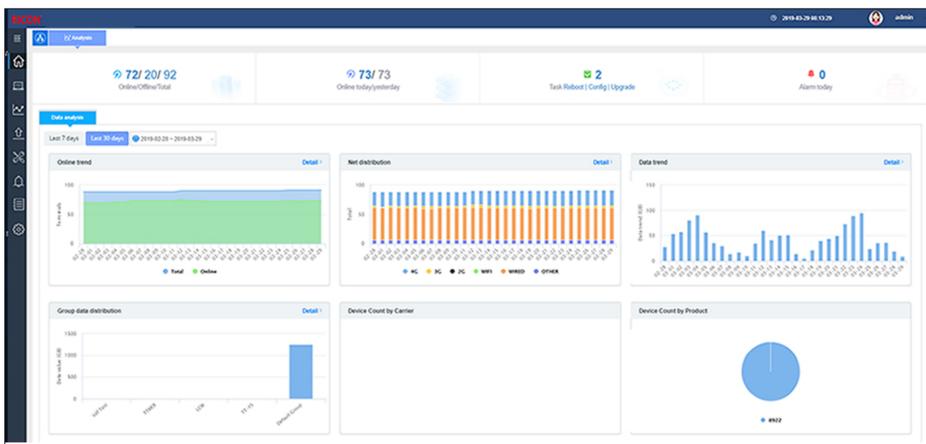
### Option 3: dual module/ dual SIM



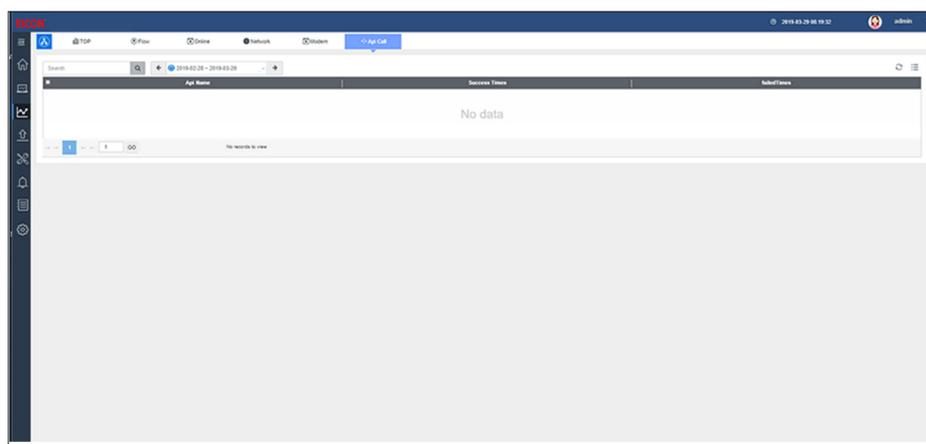
RMS Ricon Management System centralizes access to all remote nodes, giving the user ultimate management control over the hardware. RMS Ricon Management System provides full control over data transfer and network diagnostics of thousands of routers and mobile devices on the network. Remote accessibility to the RMS Ricon Management System from any location gives the user fingertip control over multiple devices allowing the user to assess, diagnose, manage, control and resolve any problem within a very short period of time. Platform has a major impact on the cost of ownership, allowing redistribution of other valuable resources.

Some of the RMS Ricon Management System features include:

- touchless installation by remote configuration,
- device grouping,
- batch remote configuration,
- scheduled remote configuration,
- scheduled remote firmware upgrade/downgrade,
- multiple simultaneous terminal configuration updates,
- setting customized SLA warning thresholds,
- SLA based live alarms,
- live connectivity information,
- live reports,
- terminals detailed data stream info,
- terminals detailed data stream reports for trend analyses,
- terminals alarms reports for trend analyses,
- more information



ID	IMEI	Task name	Group	IP	Device MAC	Network type	Last Connected	Online duration	Today usage	Month usage	Center code	Center name	Center address	SNMP	Center
1	35201701900000	VT 8.2_Telemetry_180116	Default Group	88.247.103.51	9329.97.57	Ethernet	9329.97.55	7h30m	0.000k	0.000k	---	---	---	---	8802
2	35201701900004	VT 8.2_Telemetry_180116	Default Group	88.247.103.144	9329.97.57	Ethernet	9329.97.55	7h30m	0.000k	0.000k	---	---	---	---	8802
3	35201701900007	VT 8.2_Telemetry_180116	Default Group	88.249.103.13	9329.97.56	Ethernet	9329.97.55	7h30m	0.000k	0.000k	---	---	---	---	8802
4	35201701900010	VT 8.2_Telemetry_180116	LC01	178.243.141.24	9329.97.57	LTE	9329.97.54	24.42h0m	2.1800k	2.1800k	---	---	---	---	8802
5	35201701900014	VT 8.2_Telemetry_180116	LC01	178.243.141.142	9329.97.57	LTE	9329.97.54	25.90h0m	341.8540k	2.2800k	---	---	---	---	8802
6	35201701900020	VT 8.2_Telemetry_180116	Default Group	78.188.214.23	9329.97.57	4G	9329.97.55	306.9030h	2.6840k	15.7040k	---	---	---	---	8802
7	35201701900040	VT 8.2_Telemetry_180116	Default Group	81.214.102.228	9329.97.57	Ethernet	9329.97.55	134.6810h	1.8740k	15.7040k	---	---	---	---	8802
8	35201701900041	VT 8.2_Telemetry_180116	Default Group	81.214.104.142	9329.97.57	Ethernet	9329.97.54	219.7090h	2.7080k	153.7070k	---	---	---	---	8802
9	35201701900048	VT 8.2_Telemetry_180116	Default Group	78.188.214.48	9329.97.57	Ethernet	9329.97.55	187.9940h	2.8380k	153.5380k	---	---	---	---	8802
10	35201701900054	VT 8.2_Telemetry_180116	Default Group	81.214.212.212	9329.97.57	Ethernet	9329.97.55	129.5290h	2.1040k	16.8240k	---	---	---	---	8802
11	35201701900058	VT 8.2_Telemetry_180116	Default Group	178.148.174.97	9329.97.57	Ethernet	9329.97.55	165.1160h	41.5400k	168.8700k	---	---	---	---	8802



Task name	Group	IP	Device MAC	Network type	Last Connected	Online duration	Today usage	Month usage	Center code	Center name	Center address	SNMP	Center
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VT 8.2_Telemetry_180116	Default Group	88.247.103.144	9329.97.57	Ethernet	9329.97.55	7h30m	0.000k	0.000k	---	---	---	---	8802
VT 8.2_Telemetry_180116	Default Group	88.249.103.13	9329.97.56	Ethernet	9329.97.55	7h30m	0.000k	0.000k	---	---	---	---	8802
VT 8.2_Telemetry_180116	LC01	178.243.141.24	9329.97.57	LTE	9329.97.54	24.42h0m	2.1800k	2.1800k	---	---	---	---	8802
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VT 8.2_Telemetry_180116	Default Group	81.214.212.212	9329.97.57	Ethernet	9329.97.55	129.5290h	2.1040k	16.8240k	---	---	---	---	8802
VT 8.2_Telemetry_180116	Default Group	178.148.174.97	9329.97.57	Ethernet	9329.97.55	165.1160h	41.5400k	168.8700k	---	---	---	---	8802

# RICON cellular - VPN - 3G/4G routers

## Specifications

- Dual module/WAN/Wi-Fi multiple network mode backup
- WAN port support PPPoE, static IP, DHCP client.
- LCP/ICMP/flow/heartbeat check, ensure network usability
- SNMP network management, NTP support
- Local & remote firmware update
- Local & remote log check
- Supports DNS proxy and Dynamic DNS (DDNS)
- Supports timing operation

## Wi-Fi Characteristics

- Standard: IEEE 802.11b/g/n
- WEP, WPA and WPA2 encryption
- WPS key
- AP, Client, station, bridge mode support

## VPN

- IPSec
- PPTP/L2TP client
- GRE/IPIP

## Available Cellular Network

- LTE 800/900/1800/2100/2600MHz
- UMTS/HSPA+900/2100MHz
- GSM/GPRS 900/1800/1900MHz
- HSPA+/HSUPA/HSDPA/ WCDMA /UMTS 2100/1900/900/850/800MHz ;
- EDGE/GPRS/GSM 1900/1800/900/850MHz
- HSUPA/HSDPA/UMTS 2100/1900/850MHz
- EDGE/GPRS/GSM 1900/1800/900/850MHz
- HSUPA/HSDPA/UMTS 2100/1900/900/850MHz
- EDGE/GPRS/GSM 1900/1800/900/850MHz
- CDMA 2000/EVDO Rev.A 800MHz
- CDMA 2000/EVDO Rev.A 800/1900MHz

## Interfaces

- 4x10/100Mb LAN interface
- 1x10/100Mb WAN interface
- 1x RS-232 console port(RJ45)
- 2x SMA-K antenna interface
- 2x SMA-K antenna interface (Wi-Fi)
- 2x Standard SIM/R-UIM interface
- 1x Standard DC power interface

## Status LEDs

- System
- Power
- WLAN (Optional)
- WAN
- LAN (LAN1~LAN4)
- RF
- NET

## Routing Protocols

- Static route
- RIPv2/OSPF dynamic route

## Ethernet Standard

- IEEE 802.3
- IEEE 802.3u

## Firewall & Filtering

- IP packet/Domain/MAC filter
- NAT
- DMZ

## Other

- 188mm x 121mm x 28mm
- Weight: 580g
- Temperature: -30°C~+70°C

## Device Management

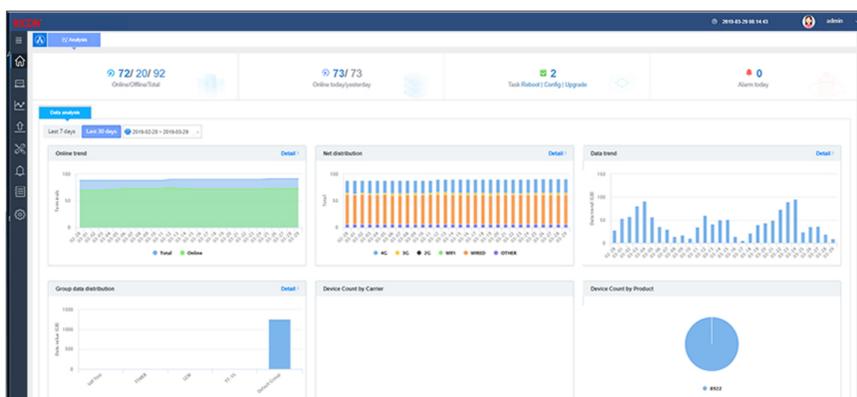
- Local or remote web browser (IE v8 or above)
- CLI/Telnet command
- RMS Ricon Management System (optional)
- SSH config (optional)



## RMS Ricon Management System

provides full control of multiply 3G/4.5G routers for diagnostics and maintenance of all the mobile devices on the network.

CE 0678 RoHS



ID	Device Name	Group	IP	Service MNC	Network Type	Last Connect	Online duration	Timing range	Month usage	Locked BDN	Locker code	Locker address	Locker domain	SNMP	Carrier	Remark
0001	VT82_T1_00000001	Default Group	88.247.181.51	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0002	VT82_T1_00000002	Default Group	88.247.181.52	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0003	VT82_T1_00000003	Default Group	88.247.181.53	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0004	VT82_T1_00000004	Default Group	88.247.181.54	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0005	VT82_T1_00000005	Default Group	88.247.181.55	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0006	VT82_T1_00000006	Default Group	88.247.181.56	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0007	VT82_T1_00000007	Default Group	88.247.181.57	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0008	VT82_T1_00000008	Default Group	88.247.181.58	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0009	VT82_T1_00000009	Default Group	88.247.181.59	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—
0010	VT82_T1_00000010	Default Group	88.247.181.60	—	4G	8/20/2016	7d20m	8:00:00	8:00:00	—	—	—	—	—	—	—