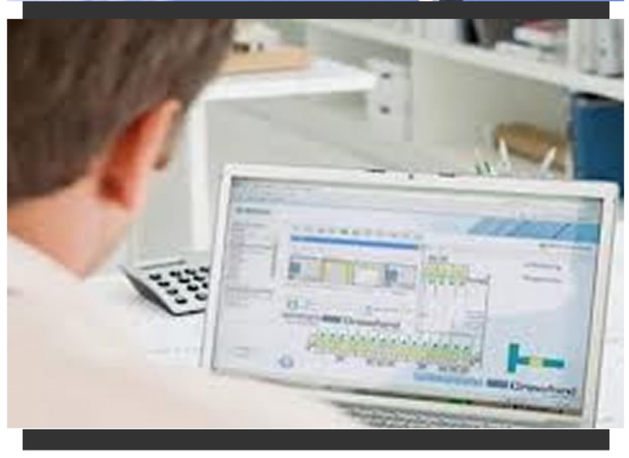
CASE STUDY: wireless monitoring of medical equipment



CHALLENGE:

High-quality medical care at affordable cost is nowadays among the greatest challenges. Medical equipment like magnetic resonance imaging (MRI), computed tomography machines are becoming a standard in every hospital. World leading medical equipment producer, GE Healthcare, globally provides technologically advanced medical equipment. However, significant increase of the medial equipment in use makes a big impact on GE Healthcare maintenance and service cost. GE wanted to guarantee better profit by increasing the number of the installed equipment and on the same time improving service and reducing medical equipment maintenance costs.

SOLUTION:

RICON came across these challenges and globally delivers to GE Healthcare secure and reliable medical equipment monitoring solution that allows real-time notification of potential issues and maintenance to be delivered remotely, avoiding expensive on-site visits whilst improving customer response times and service levels. RICON secure RMS Ricon Management System:

- Utilizing the latest in state-of-the-art wireless networks technologies;
- Maximizing uptime value to minimize downtime risk;
- Provides the highest security parameters;
- Easily and seamlessly upgrades to new technologies, if desired.

Solutions is based RICON hardware (VPN cellular routers), software (RMS Ricon Management System) and network (xDSL /3G/4G technologies). 3G mobile network gives a great flexibility in cases where medical equipment are install on remote/rural location with no landlines available. Only mobile signal is needed then. Moreover, RICON solution goes with the future technologies' changes in mind. System working on the cellular mobile network can be easily upgraded from 3G to 4G, only module replacement is needed and no additional changes on the system is required. RICON solution also guarantees security and privacy on the network, provided remote management software and custom scripting. RICON RMS solution multiplies the supply density of medical services, facilitating treatment also in remote rural regions. In selected countries RICON cooperates with the local network operators and provides to GE Healthcare its RMS networking technologies along with the mobile internet access data plan.

GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demands for increased access, enhanced quality and more affordable healthcare around the world. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

RICON

Portfolio of RICON Mobile products and services enables to deploy secure and robust wireless networks for industrial, commercial and consumer applications. Embracing connectivity over fixed-line, wireless 3G and 4G technologies our Customers benefit from reliable network.

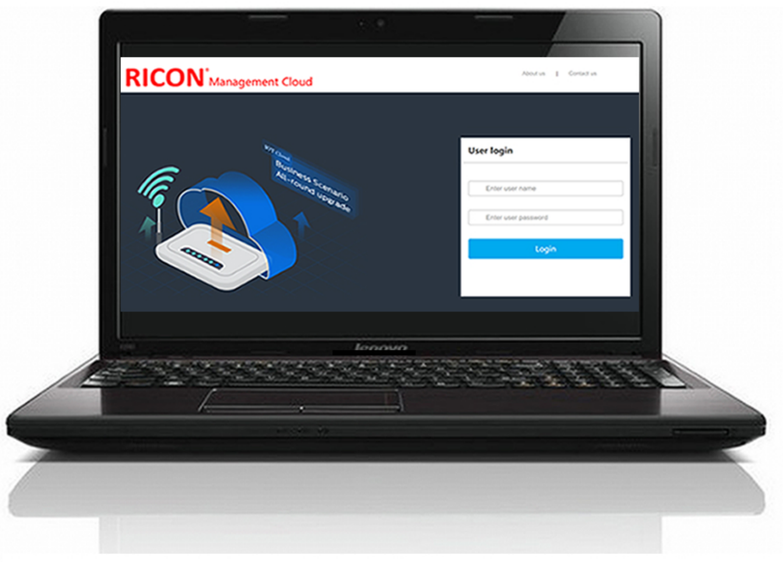
RICON SOLUTION FOR WIRELESS HEALTHCARE APPLICATIONS

1. hardware:

RICON VPN 3G/4G routers

2. software:

RMS Ricon Management System



RMS

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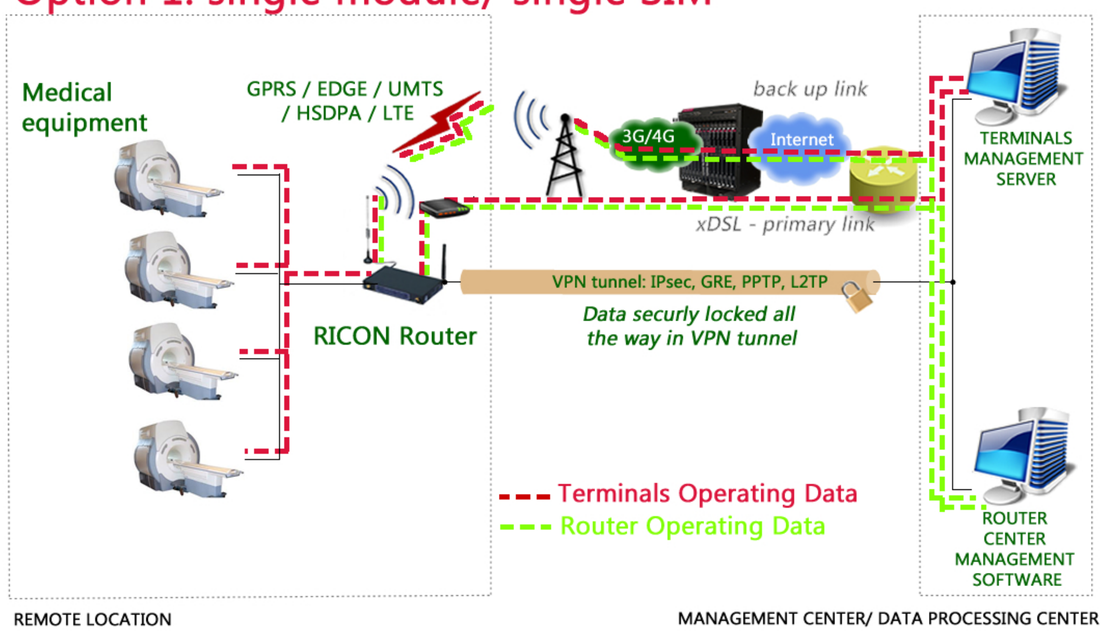
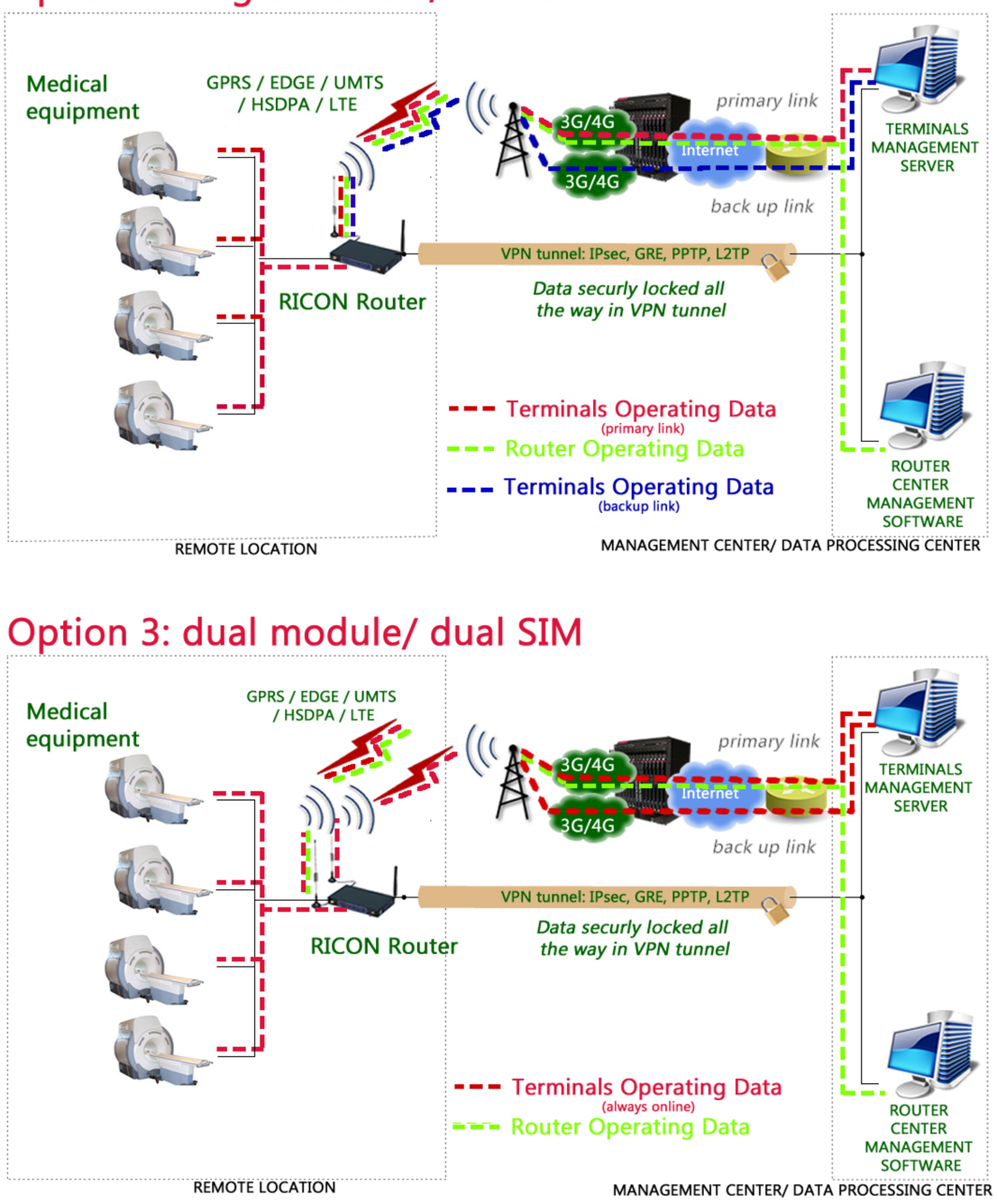
VPN · Dual RF-Module · Dual SIM · Wi-Fi Optional · GPS optional · LTE · Cellular/WAN link backup · NAT Virtual server · WAN/PPPoE · WPS

Option 1: single module/ single SIM



Option 2: single module/ dual SIM



Option 3: dual module/ dual SIM

RICON Portfolio of RICON products and services enables to deploy secure and robust wireless network. Embracing connectivity usuing 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.

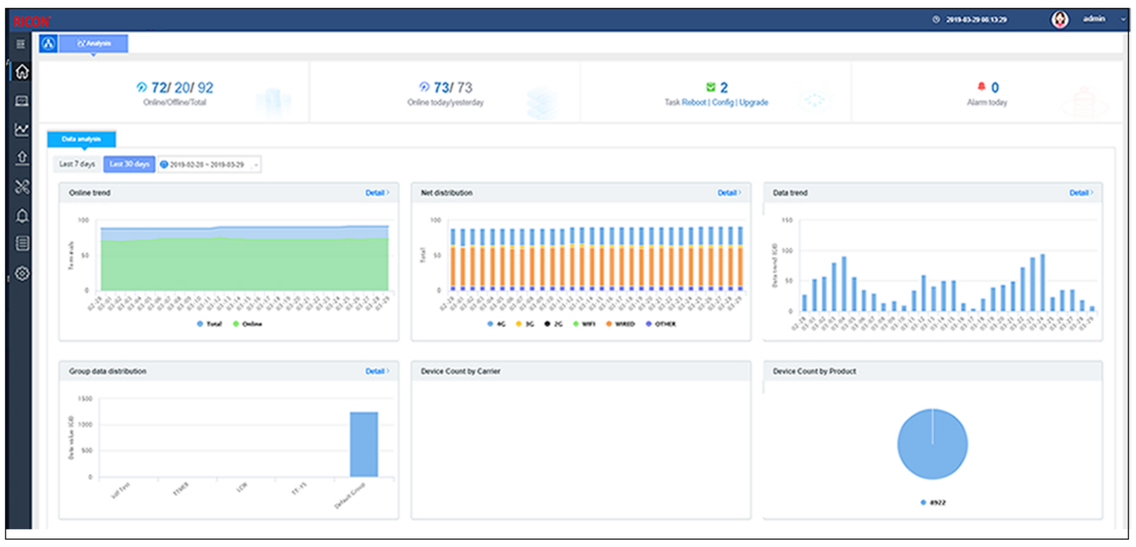
RICON routers and management platform major features are specially designed to meet multiply requirements of RMS projects:

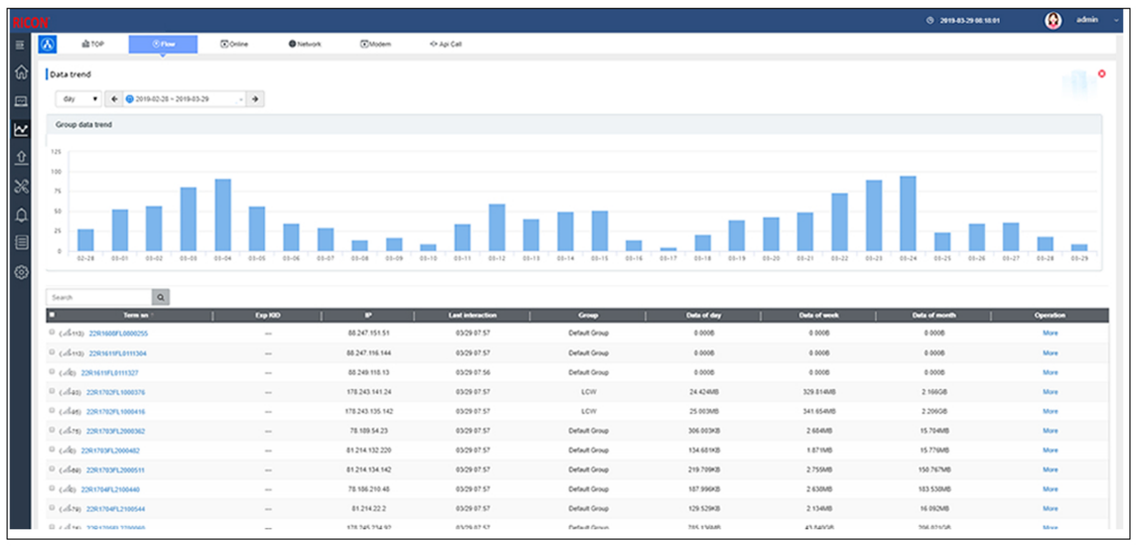
- Dual SIM functionality enable seamlessly alternative between two networks when one of the network signal is poor or enable to switch upon desire to other network with flexible switching time,
- Dual GSM module enable persistent network connectivity with no break in time during the network switch,
- 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/ HSUPA/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 RMS Ricon Management System,
- 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 RMS Ricon Management System,
- 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.

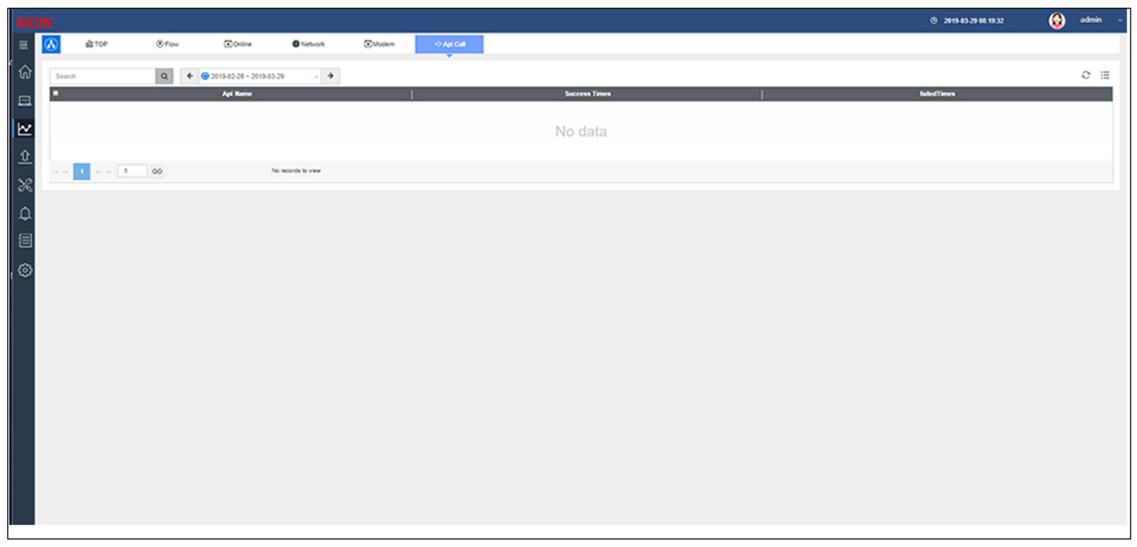
RMS Ricon Management System centralizes access to all remote nodes, giving the user ultimate management control over the hardware. RMS Ricon Management System provides full control over data transfer and network diagnostics of thousands of routers and mobile devices on the network. Remote accessibility 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.

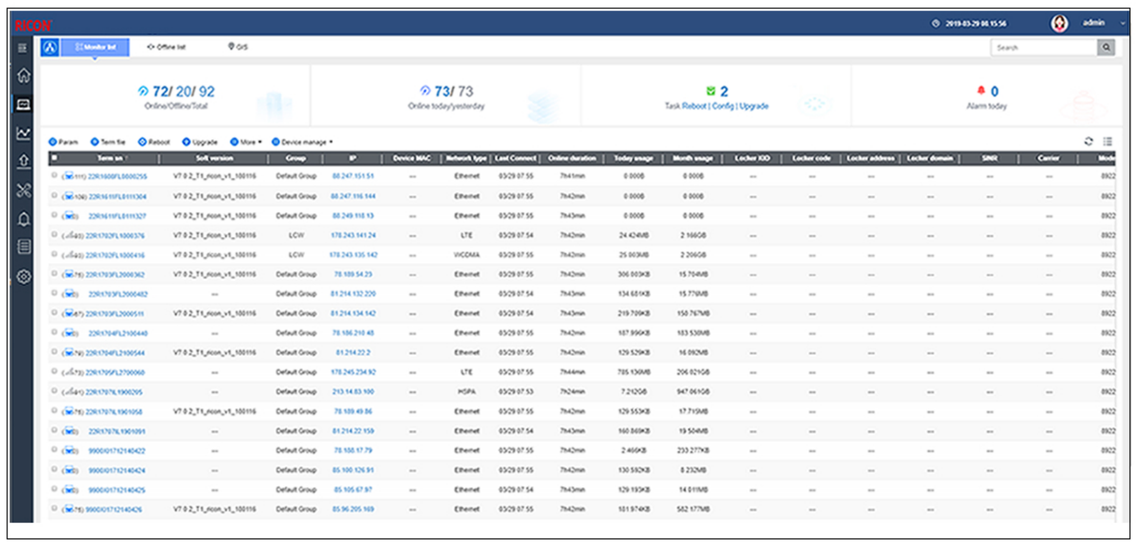
Some of the RMS Ricon Management System features include:

- 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









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

- 4×10/100Mb LAN interface
- 1×10/100Mb WAN interface
- 1× RS-232 console port(RJ45)
- 2× SMA-K antenna interface
- 2× SMA-K antenna interface (Wi-Fi)
- 2× Standard SIM/R-UIM interface
- 1× 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

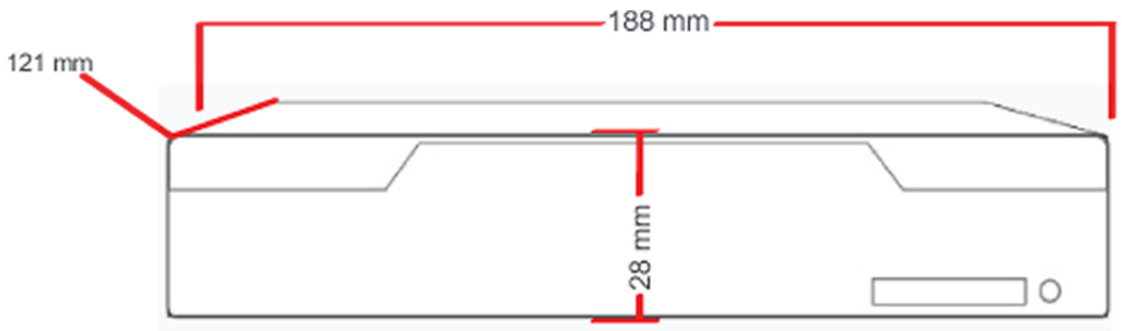
- IP packet/Domain/MAC filter
- NAT
- DMZ

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 routers for diagnostics and maintenance of all the mobile devices on the network.

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