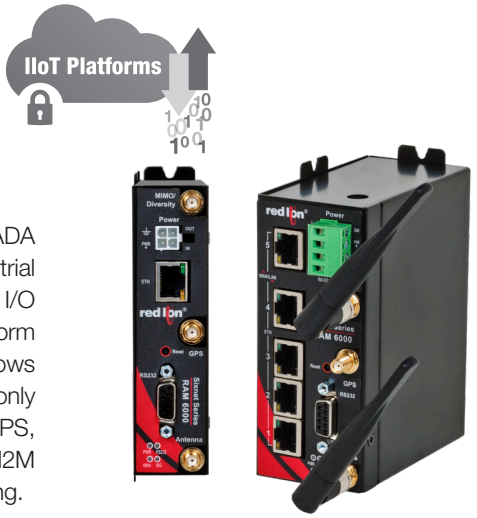
RAM® 6000 Cellular RTUs

Sixnet® Networking Series

▶▶▶ Multi-Carrier RTUs with GPS and Local Control

Red Lion's Sixnet series RAM 6000 cellular RTUs with multi-carrier 4G LTE support, provide advanced control and communication in IIoT applications for remote assets and processes in extreme conditions.



RAM 6000 industrial cellular RTUs seamlessly connect Modbus and DNP3 enabled SCADA equipment via software selectable multi-carrier 4G LTE to remote networks or select Industrial Internet of Things (IIoT) Cloud platforms. Featuring a web-based event engine that can trigger I/O or send SMS text messages based on real-time operational data, RAM cellular RTUs can perform advanced local edge control and alert personnel of critical events. A built-in I/O concentrator allows the RAM to collect sensor data and optimize cellular data consumption by optionally reporting only on an exception or only transmitting relevant data points. With built-in Ethernet, serial, I/O and GPS, RAM RTUs easily integrate with existing equipment enabling remote monitoring and control for M2M applications in industries including oil and gas, water/wastewater, utility, transportation and mining.

APPLICATIONS

- Mining
- Oil & Gas
- Transportation
- Utility
- Water/Wastewater

PRODUCT HIGHLIGHTS

- Multi-Carrier 4G LTE Connectivity
- Natively Supports Modbus & DNP3 Protocols
- Cloud Connectivity to IIoT Cloud Platforms
- Routing Capabilities Provide Secure, Reliable Communication
- Active GPS Receiver Tracks Device Location
- Event Engine can Trigger I/O or Send SMS Messages
- Optional PoE (Powered Device) Support

SUPPORTED IIOT PLATFORMS*

- Amazon®—AWS™ IoT
- AT&T®—M2X
- Autodesk®—Fusion Connect
- Cumulocity
- Inductive Automation's Ignition SCADA
- LEC—IQ Web SCADA
- Microsoft—Azure®
- Nokia—IMPACT
- Set-Point Control—IPwebcontrol
- Skkynet®—SkkyHub™
- Telenor—Connexion Cloud Connect
- Telit®—deviceWISE®

FEATURES & BENEFITS

- Multi-Carrier 4G LTE Connectivity
  - Select the best carrier during or post deployment via software configuration
- Multiple Communication Ports
  - One RS-232 serial port, and up to five Ethernet ports provide seamless connectivity to remote devices
- Rugged, Industrial Design
  - Reliable operation in extreme environments
  - -40° to 70°C operating temperature**
- Modbus and DNP3 Support
  - Easily communicates with SCADA equipment with native protocols
- Cloud Connectivity to IIoT Cloud Platforms
  - Allows for seamless communication with leading IIoT cloud platforms using MQTT messaging protocol
- Out-Of Band Management (OOBM)
  - Secure remote CLI access via serial port
  - Pre-loaded with many console port configurations
- Secure Ethernet Connectivity
  - Routing capabilities for reliable communication
  - Stateful firewall, SSL, GRE and VPN services reduce the risk of unwanted access
- Advanced Event Engine Functionality
  - Easily configure control engine via drop-down menus
  - Trigger I/O, alarms and send SMS messages based on operational data

industrial networking

CE FC cULus LISTED RoHS compliant

RAM 6000 LTE Multi-Carrier Specifications

WIRELESS INTERFACE
AT&T LTE with fallback to HSPA+
Generic LTE with fallback to HSPA+
Verizon LTE with fallback to EVDO

SELECTABLE IIOT CLOUD PLATFORMS*
Amazon® - AWS™ IoT
AT&T® – M2X
Autodesk® – Fusion Connect
Cumulocity
Inductive Automation's Ignition SCADA
LEC – IQ Web SCADA
Microsoft – Azure®
Nokia – IMPACT
Set-Point Control – IPwebcontrol
Skkynet® – SkkyHub™
Telenor – Connexion Cloud Connect
Telit® – deviceWISE®

PROGRAMMABLE PLATFORM
Configurable Events: up to 99 events can be triggered by I/O, Modbus registers, or over 200 system variable which in turn can send text messages or control I/O
Software Development Kit (SDK)
C/C++/Perl

SYSTEM PERFORMANCE
32-bit ARM9 400 MHz CPU
512 MB NAND
128 MB RAM

TUNNELING
IPsec, GRE, OpenVPN

Routing Protocols
OSPF, BGP, RIP

Clustering
VRRP

IP
NAT, Port Forwarding, Dynamic DNS, DHCP
Stateful Inspection Firewall, IP Transparency

GPS
GNSS supported: GPS L1, GLONASS L1, Galileo E1 high RF sensitivity plus jamming detection/removal

Connectors
Ethernet: One (1) or five (5) 10/100Base-T RJ-45 ports
WAN capability on port 5
Serial: One (1) RS-232 (DB9) 115,200bps
USB: One (1) USB 2.0 (mini)
Antennas: Three (3) SMA connectors (antenna, diversity, GPS)

INPUTS & OUTPUTS
Input: One (1) digital/analog
Output: One (1) digital (open-collector)

POWER INPUT
Input Voltage: 8-30 VDC (12 or 24 VDC nominal)
Standby Power: 1.4W - 4.0W (typical)
Transmitting:
690x: 2.6W – 6.9W
6921: 4.3W – 8.7W
PoE Operation (EB models only)
IEEE 802.3af compliant
Powered Device (PD)
PoE Input: 37-57 VDC (48 VDC nominal)
Heat dissipation: 30 BTU/hour max

MECHANICAL
RAM-690x
Dimensions: 120 x 96 x 32 mm (4.7" x 3.77" x 1.25")
Weight: 453g (1 lb)
RAM-6921
Dimensions:120 x 96 x 51 mm (4.7" x 3.77" x 2.0")
Weight: 500g (1.1 lbs)

ENVIRONMENTAL
Operating Temperature: -40° to +70°C**
Shock: IEC60068-2-27
Vibration: IEC60068-2-6
Humidity: 5 to 95% non-condensing
Ingress: IP30 protection

CERTIFICATION
EMI/EMC:
Emissions: FCC, Part 15 and Industry Canada, ICES-003; Class A; EN55022, IEC61000-6-4
Immunity: IEC61000-6-2 (EN61000-4-2,3,4,5,6,8)
Hazardous Locations: Class I, Div. 2, Groups A, B, C, D, ISA 12.12.01
Electrical safety: UL508/CSA22.2/14 (CUL); IEC61010-1
Carrier Specific Approvals
RoHS compliant

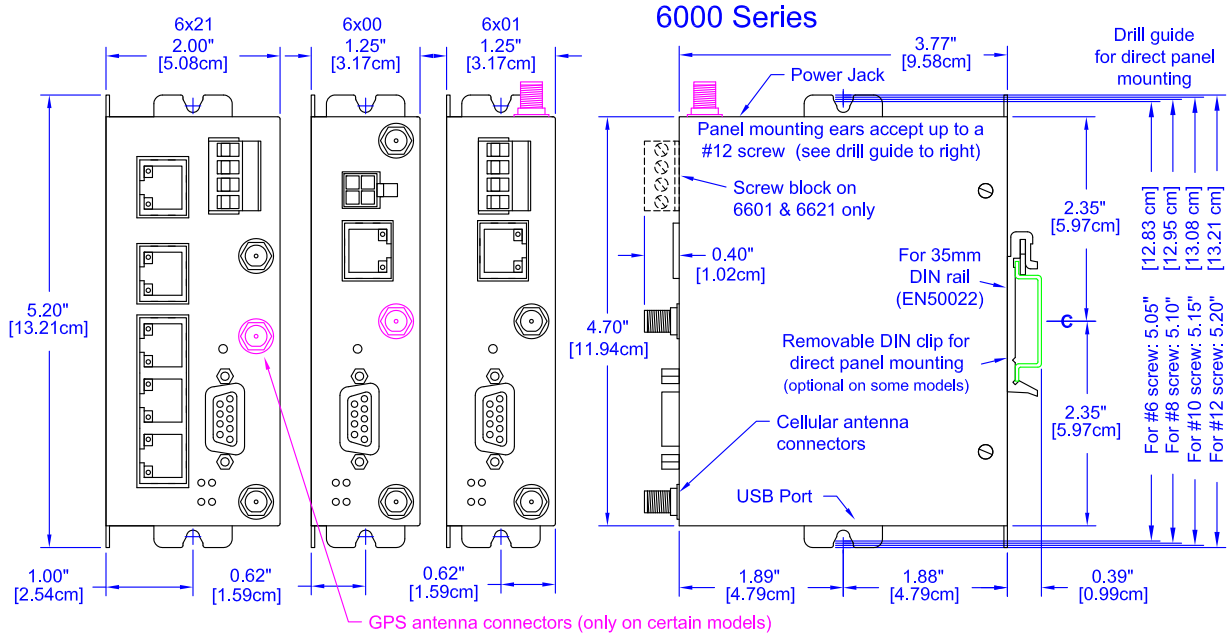
WARRANTY
3 years on design and manufacturing defects

Specifications are subject to change. Visit www.redlion.net for more information.

* Monthly service fees may be required for cloud platform access, not every platform client is preloaded.

**See Hardware Manual for thermal considerations.

DIMENSIONS



RAM 6000 LTE Multi-Carrier Specifications

ORDERING GUIDE

PART NUMBER	PRODUCT LINE	SERIAL RS-232	ETHERNET 10/100	CELLULAR	POWER CONNECTOR	CARRIER CODES
RAM-6900-(Carrier Code)	RAM	1	1	4G LTE	Molex end connector cable	(AT) AT&T; (VZ) Verizon; (AM) Generic; (EU) Europe and Asia; (JP) Japan
RAM-6901-(Carrier Code)	RAM	1	1	4G LTE	DC powered	
RAM-6901EB-(Carrier Code)	RAM	1	1	4G LTE	PoE (Power Over Ethernet)	
RAM-6921-(Carrier Code)	RAM	1	5	4G LTE	DC powered	

Notes: 1. See Band/Frequency table for compatibility.

2. Carrier Code indicates the carrier pre-configured on the device. Alternate carrier can be selected via software.

3. AM (Generic) model includes Bell Mobility, TELUS and Rogers carriers or other North American carriers.
EU (Europe/Asia) model is not supported in North America. JP (Japan) model only supported in Japan.

FREQUENCY SPECIFICATIONS

North America Models (AT/VZ/AM)

TECHNOLOGY	BANDS	FREQUENCIES	ANTENNA CONFIGURATION
LTE	2, 4, 5, 13, 17, 25	700/850/1900 & 1700(AWS)/2100(AWS) MHz	MIMO Required
Fallback CDMA/EVDO	BC0, BC1, BC10	800/1900 MHz	Diversity Support
Fallback HSPA+	1, 2, 4, 5, 8	850/900/1900/2100 & 1700(AWS)/2100(AWS) MHz	Diversity Support
Fallback GSM/GPRS/EDGE	-	850/900/1800/1900 MHz	-

Rest of World Model (EU)

TECHNOLOGY	BANDS	FREQUENCIES	ANTENNA CONFIGURATION
LTE	1, 3, 7, 8, 20	800/900/1800/2100/2600 MHz	MIMO Required
Fallback HSPA+	1, 2, 5, 8	850/900/1900/2100 MHz	Diversity Support
Fallback GSM/GPRS/EDGE	-	850/900/1800/1900 MHz	-

Japanese Model (JP)

TECHNOLOGY	BANDS	FREQUENCIES	ANTENNA CONFIGURATION
LTE	1, 19, 21	850/1500/1900/2100 MHz	MIMO Required
Fallback HSPA+	1, 5, 6, 19	800/850/2100 MHz	Diversity Support
Fallback GSM/GPRS/EDGE	-	850/900/1800/1900 MHz	-

All specifications are subject to change. Consult the company website for more information.

RED LION®