AMG RM6000 Series

GPRS Modem / Router

DESIGNED IN BRITAIN.
MADE IN BRITAIN.

High performance, secure wireless communication over the GSM cellular network. Connects remote sites and equipment to the internet or point-to-point, M2M.

The RM6000 GPRS modem/router from AMG uses a GSM/GPRS class B, class 10 Quad band radio, allowing operation on any of the major networks. The modem provides communications to remote devices over the GSM cellular network, where cabling or wire-line connections are difficult or in some cases, impossible.

The RM6000 offers connectivity via Ethernet, RS232 or 485 serial ports with a USB port for programming. In addition, there is direct interfacing to sensors and alarms via the on-board I/O, which is expandable with up to three EX6100 I/O Expansion Cards.

The modems offer a number of different operational modes as well as many user programmable features. The modems are supplied with AMG's user-friendly configuration software, enabling easy programming, set-up and monitoring, from any windows based PC or laptop. Operating modes include: internet gateway, client-server, point-to-point as well as all the standard GSM functions such as, SMS, email & FTP.

For point-to-point applications, we offer a number of options for maintaining the GPRS link ('always on'), including a regular heartbeat, inactivity timer and ping.

RM6001 in IP67 Enclosure

Modems can be configured to operate as a single point-to-point link (RM6000 to RM6000), Many-to-One (a number of clients communicate to a central PC based server), or One-to-Many (a server polls a number of clients).

The modems can work with various SIM cards for use on public or private APNs. They can use SIM cards with a static IP address, use standard SIM cards or cards with public dynamic IP addresses and DynDNS where required.

The modem can be supplied as a board module suitable for DIN rail mounting, or in an IP67 weatherproof enclosure suitable for external installation (on a wall or on a 50mm diameter pole). An SMA connector is provided so that various antennas can be used, depending on your application.

Features

- Quad band radio (850/900/1800/1900MHz)
- GSM / GPRS class B, class 10
- Protocols: UDP, TCP, IP, PPP, ARP, PING
- Modes: FTP, HTTP, SMTP, SNMP, POP3
- NAT Routing, DHCP, Port Forwarding
- Interfaces: Ethernet, RS232, USB
- On-board I/O (expandable)
- Configuration via USB
- Point-to-point, Transparent Tunnelling
- GPRS 'Always On', maintained connection
- Dynamic DNS (DDNS)
- 9 to 36V DC Power input

Applications

- General Automation
- Variable Message Signs
- Bus Information
- Tank Monitoring
- Wind Farms
- Sewerage and Water Monitoring
- Security Systems
- Video Surveillance Systems
- Telemetry
- Traffic Information
- Control Systems

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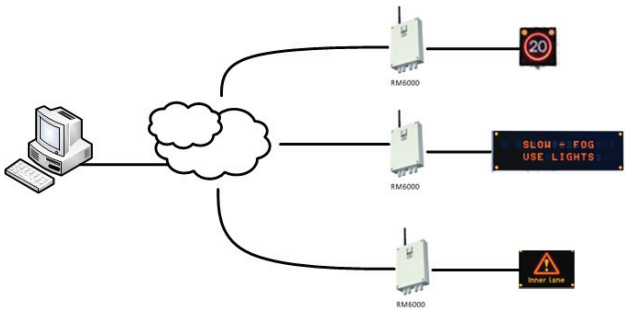
Application Notes

Variable Message Signs

Some message signs are installed during the construction of the road network and are therefore cabled. Many however are added later and to avoid costly and disruptive road works, GPRS modems offer an ideal solution. The RM6000 can be used to control the sign and update the message content. For this reason GPRS is also ideal for temporary installations, such as road works or special events.

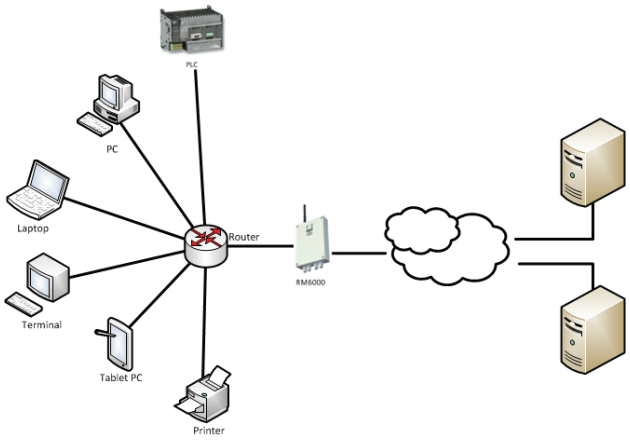


The RM6000 can interface to the sign with either Ethernet or RS232 serial connections and in addition has digital I/O for control and alarms. The message content can be turned on and off at specific times, such as rush hour, school opening times etc. The alarms can also be sent via SMS to a mobile site engineer, reducing response times and increasing efficiency.

Installation is simple, requiring no specialist knowledge or complex radio surveys. If the site is within the coverage footprint of a network operator, then operation is pretty much guaranteed. We can also provide external higher gain antennas for areas with poor or borderline radio coverage.

General Automation

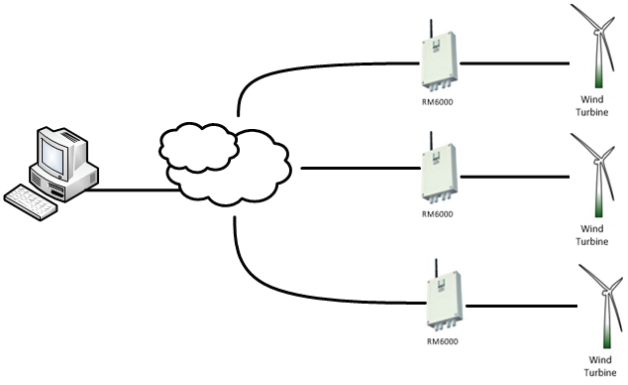
There are numerous applications in the industrial automation and process control industries for remote monitoring, control and alarms. In many of these, the RM6000 GPRS modem is an ideal solution.



The RM6000 can be programmed in different modes to suit a wide variety of situations and operational requirements. It can send data point-to-point or up to a website so that it can be viewed from anywhere with Internet access and, in addition, send emails or text messages to a mobile site engineer, reducing response time and increasing efficiency.

Wind Turbines

Wind farms are a growing industry and are set to account for a large percentage of our renewable energy over the coming years (according to government figures). One problem is that the turbines are very complex with many different mechanical moving parts and operating systems. In order for them to work efficiently, they need constant monitoring.



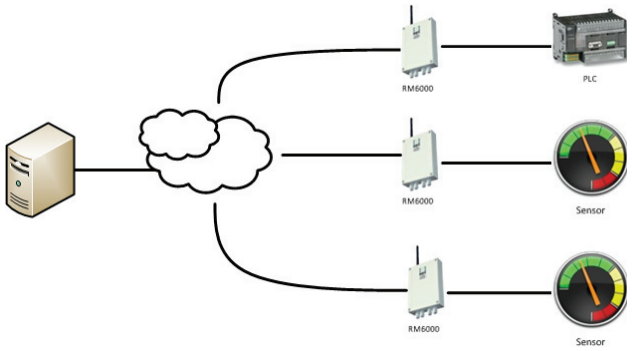
Generally, wind farms are situated in remote or off-shore areas, so monitoring is not straightforward. GPRS is an obvious choice due to the ease of installation and radio coverage area. The RM6000 is particularly suited to this market because of its built-in and expandable I/O capability. In addition to standard data transmission, alarms can be triggered and sent via SMS to a mobile site engineer, reducing down-time and increasing efficiency.

Application Notes

Waste Water

There are many different types of sewerage and waste water treatment plants. Virtually all of them require monitoring to avoid blockages and overspills. Many have rotating bridges for stirring the sludge and these need to rotate constantly.

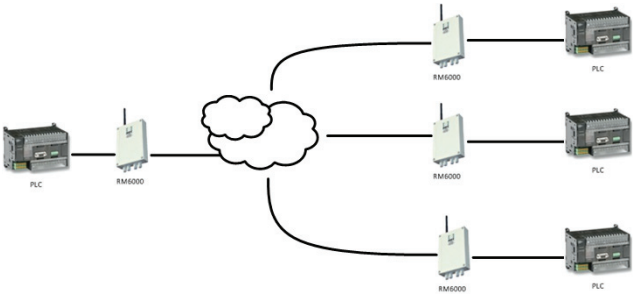
Since the sewerage treatment plants are often in fairly remote areas, GPRS is ideal for monitoring and providing remote alarms. This is particularly relevant to small, privately owned treatment works that are not part of a water company's main SCADA system. They generally need to monitor at least three sensors for rotation, water level and power supplies. As well as sending this data back to a central office, alarms can be sent via SMS direct to a mobile site engineer, reducing the response time and improving efficiency.



Legacy (RS232) Equipment

Most modern equipment PLC's etc. is fitted with an Ethernet port for the greater speed and flexibility, but there is still a lot of existing equipment using RS232. The RM6000 has an RS232 port and can therefore support legacy equipment directly.

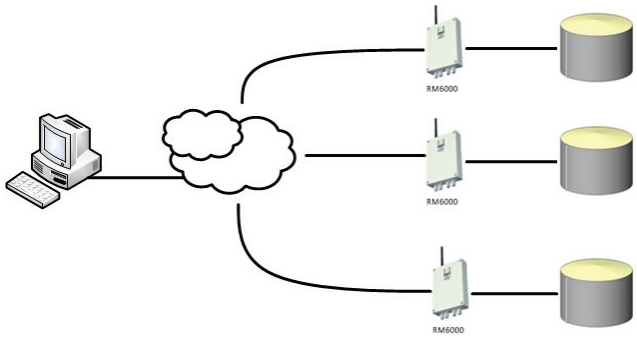
When connecting a PLC to another PLC or group of PLC's using a communications protocol such as Modbus or DF1, the RM6000 allows the Modbus address to be entered and mapped against the IP address of the remote modem. This effectively provides a transparent link across the GPRS network from one RS232 port to another.



Tank Monitoring

The RM6000 GPRS modem is the ideal solution for monitoring remote storage tanks. Whether they contain oil, gas or solid products, with the right sensor selection you can monitor level, flow, temperature and humidity. Having this information readily available at head office greatly improves customer service and inventory management.

The RM6000 can be configured to send data at regular intervals or it can be polled from a central base station. In addition, it can immediately raise an alarm if there is a problem, unauthorised entry, sudden change in level, over temperature etc. These alarms can be sent to the base station and also sent by SMS directly to a mobile site engineer, reducing response times and increasing efficiency. Since this is a GPRS based system, this information can be made available virtually anywhere globally, with Internet access.



Specifications

RM6000 GPRS Modem Specification

Ethernet

IEEE 802.3	10BaseT, data rate 10Mbps Full or half duplex mode (auto) RJ45 connector and spring terminals

Serial

RS232	DB-9 and spring terminals
Support for signals	TXD, RXD, RTS, CTS, DTR, DSR, DCD
Hardware flow control	
Baud rates	300 to 115,200bps
RS485	

USB 2.0

USB	Type 'B' connector and spring terminals

LED Indicators

Signal strength	
GSM	Connected
GPRS	Connected
TX data	
RX data	
Ethernet link	
Ethernet data	

I/O

2x Digital inputs (volt free contacts)
2x Digital outputs (SPCO relay, 1A @ 24V)
1x Analogue input (0-5V or 0-20mA)
Optional I/O expansion card

Power Requirements

Input	9 - 36Vdc
Current	1.2W idle 10W peak max

Surge protection to IEC1000-4-2 and IEC6100-4-2
15kV (air gap) 8kV (contact discharge)

Dimensions

Card (W x H x D)	154 x 100 x 20 mm (max)
Weight	120 grams
IP67 enclosure (W x H x D)	180 x 130 x 36 mm
Weight	420 grams

Environmental

Temperature	-20°C to +75°C
Relative Humidity	5% to 95% (non condensing)

Ethernet Isolation to IEC 6100-4-5
RS232 isolation to IEC 1000-4-2
USB Isolation to IEC 6100-4-2

Enclosure

IP67 weatherproof
Mounting brackets (for 50mm pole)
DIN rail option

Antenna

SMA (female) connector

Approvals

Safety	EN60950:2005
RF	EN301 489-1 v1.8.1 EN301 489-7 v1.3.1 EN301 511 v9.0.2
CE	Notified body 0682
FCC	NTNQ2686

EX6100 I/O Expansion Card Specification

Analogue Inputs	4 Galvanically Isolated Channels
Precision	10 bit
Digital Inputs	4 Channels, opto-isolated
Input Impedance	Analogue - 250Ω for current, 100kΩ for voltage Digital - 4400Ω
Scan Rate	1 second for all 8 channels
User Connections	Spring terminal connectors for analogue and digital inputs Scew terminal for DC Power input
Power Supply	9 - 36Vdc
Current Consumption	154mA max at 12V input (1.85W)
Operating Temperature	-20°C to +75°C
Relative Humidity	5% to 95% (non-condensing)
Dimentions	154 x 100 x 15mm (max)
Weight	100 grams
Max number of Expansion cards per RM6000	3

Part Numbers

Part Numbers	Description
RM6000	GPRS Radio/Modem Card only
RM6001	GPRS Radio/Modem in IP67 Weatherproof Enclosure
RM6002	GPRS Radio/Modem on DIN Carrier
EX6100	I/O Expansion Card only
EX6101	I/O Expansion Card in IP67 Weatherproof Enclosure
EX6102	I/O Explansion Card on DIN Carrier

GPRS Antennas

ANT3011	Whip, 0dB gain
ANT3063	Mag mount with 2.5m cable, 5dB gain
AMT3064	External Grade wall mount, 5m cable 2.5dB gain

D26001-00

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