



Real-Time Monitoring of Industrial Equipment

The real-time data logging feature is extremely valuable for troubleshooting tough problems that require continuous real-time data. The RMS1000 will accept up to a 2 GB Flash card that can store log files for 80 parameters every three seconds for up to 200 days. These log files are stored in raw and CSV formats for

easy import into Microsoft Excel. The trend and historical data provided by this feature are extremely important for high value industrial equipment.

M2M's RMS1000 handles the collection, storage, and communication of data from remote facilities. The RMS1000 is being used in a number of business critical industrial applications where high availability, predictable performance and the ability to hold up to rugged remote environments are key. The RMS1000 application software handles all communications, data processing (including report-by-exception) and security. The RMS1000 supports numerous protocols and interfaces directly to field instruments, electricity meters, equipment control panels, EFMs, RTUs and PLCs. The unit provides direct access to engine monitoring parameters from Caterpillar® equipment via many different Data Maps that are available. Simply connect the RMS1000 to the equipment to be monitored or controlled via Ethernet, serial, analog, and digital I/O. Once

powered up, the RMS1000 connects to the M2M Data Center automatically eliminating the need for costly on-site programming.

The nature of M2M's unique web based approach enables remote diagnostics and software maintenance.

- Certified Class I Div II Groups A-D
- Din rail mountable
- Exception reporting
- Historical data logging
- Option: Simultaneously report to M2M Data Center & interface to traditional SCADA system via various protocols

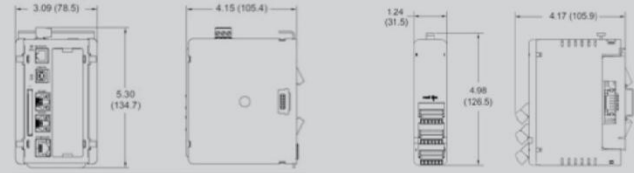
RMS1000 is compatible with the following M2M RMS service products:

SERVICE CODE	DESCRIPTION
S1007	RMS Domestic US narrowband service. 20 data points reported hourly plus RBE.
S1008	RMS Domestic US narrowband service. 40 data points reported hourly plus RBE.
S1009	RMS Domestic US broadband service. 20 data points reported hourly plus RBE.
S1010	RMS Domestic US broadband service. 40 data points reported hourly plus RBE.
S1011	RMS international broadband service. 20 data points reported hourly plus RBE.
S1012	RMS International broadband service. 40 data points reported hourly plus RBE.

Gateway Modules	Power	Ethernet	RS232	RS232 ⁽²⁾	RS485 ⁽²⁾	USB	CDL	J1939
Custom Protocol Gateway - GT Part No: 300-82013 Includes real-time data logging	24 Vdc	1 Comms: Ka	1 Comms: SDT	1	1	1		
CDL Gateway PLUS™ - GT Part No: 300-82012 Includes real-time data logging	24 Vdc	1 Comms: Ka	1 Comms: SDT	1	1	1	1	
J1939 Gateway™ - GT Part No: 300-82014 Includes CANopen® card & real-time data logging	24 Vdc	1 Comms: Ka	1 Comms: SDT	1	1	1		1

I/O Modules	Inputs		Outputs	
Digital I/O : Part No: 100-28027 : Solid state relay output	8	+30 VDC max	6	1 A solid state relays, Form A
Analog I/O : Part No: 100-28028	8	16 bit, 4-20 mA		
Analog I/O : Part No: 100-28029			4	0-5 V, 0-10 V, +/-10 V, 0-20 or 4-20 mA
Temperature I/O : Part No: 100-28030	6	RTD		
Temperature I/O : Part No: 100-28031	8	Thermocouple		

Notes: 1) All modules are certified Class 1 Div II Groups A-D. 2) Serial ports support multiple communications protocols including MODBUS master or slave, A-B, GE Fanuc, and Siemens.



SPECIFICATIONS

POWER: 24 VDC ± 10%
Must use Class 2 or SELV rated power supply.

COMMUNICATIONS:

USB/PG Port: Adheres to USB specification 1.1. Device only using Type B connection.
Serial Ports: Format and Baud Rates for each port are individually software programmable up to 115,200 baud.
RS232/PG Port: RS232 port via RJ12
COMMS Ports: RS422/485 port via RJ45, and RS232 port via RJ12
DH485 TXEN: Transmit enable; open collector, V_{OH} = 15 VDC, V_{OL} = 0.5 V @ 25 mA max.
Ethernet Port: 10 BASE-T / 100 BASE-TX
RJ45 jack is wired as a NIC (Network Interface Card).

MEMORY:

On-board User Memory: 4 Mbytes of non-volatile Flash memory.
On-board SDRAM:
DPSX: 2 Mbytes
DSPGT: 8 Mbytes
Memory Card: CompactFlash Type II slot for Type I and Type II cards.

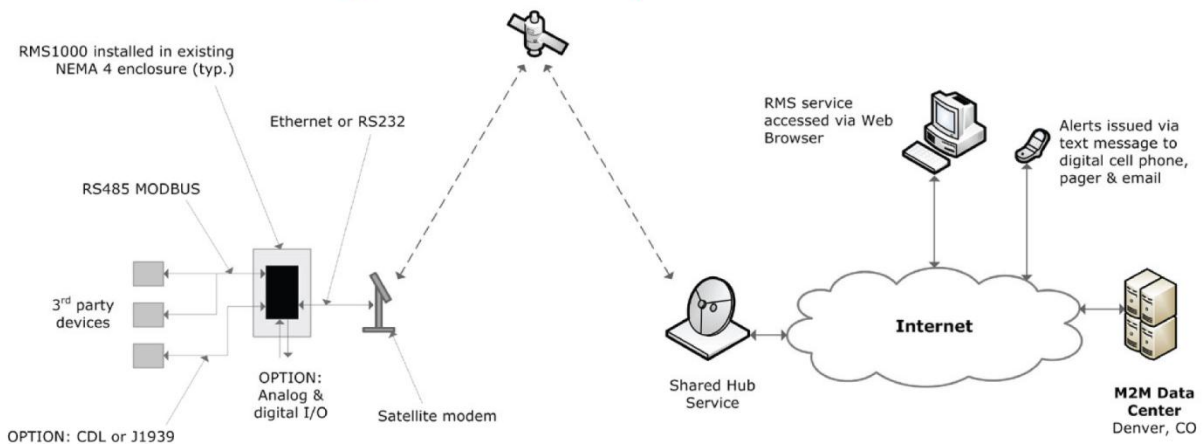
ENVIRONMENTAL CONDITIONS:

Operating Temperature Range: 0 to 50°C
Storage Temperature Range: -30 to +70°C
Operating and Storage Humidity: 80% max relative humidity, non-condensing, from 0 to 50°C
Vibration According to IEC 68-2-6: 5 to 150 Hz, in X, Y, Z direction for 1.5 hours, 2 g's.
Shock According to IEC 68-2-27: Operational 30 g, 11 msec in 3 directions.
Altitude: Up to 2000 meters
MOUNTING: Snaps onto standard DIN style top hat (T) profile mounting rails according to EN50022 -35 x 7.5 and -35 x 15.

CERTIFICATIONS AND COMPLIANCES:

SAFETY
C-UL Class I Division II Groups A-D Approved for Hazardous Locations
UL Listed, File #E317425, ANSI/ISA 12.12.01-2007, CSA 22.2 No. 213-M1987
LISTED by Und. Lab. Inc. to U.S. and Canadian safety standards
UL Listed, File #E302106, UL508, CSA 22.2 No. 14-M05
LISTED by Und. Lab. Inc. to U.S. and Canadian safety standards IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.
WEIGHT: 15.1 oz (456.4 g)

Typical RMS1000 System Schematic



Functional Overview – Typical Application

- RMS1000 scans I/O & polls third party hardware using native protocol, executes report-by-exception (RBE) logic, and pushes exceptions only to M2M Data Center.
- RMS1000 pushes all points to M2M Data Center once per hour.
- RMS1000 receives set point changes & Stop/Start control instructions from M2M's Data Center & writes appropriate command(s) to third party hardware using native protocol.