

## ► Solar Remote Monitor and Controller

The Remote Monitor and Controller (RMC) provides an integrated solution for monitoring and controlling any electrical or electronic device by means of remote communications using SMS and GPRS.

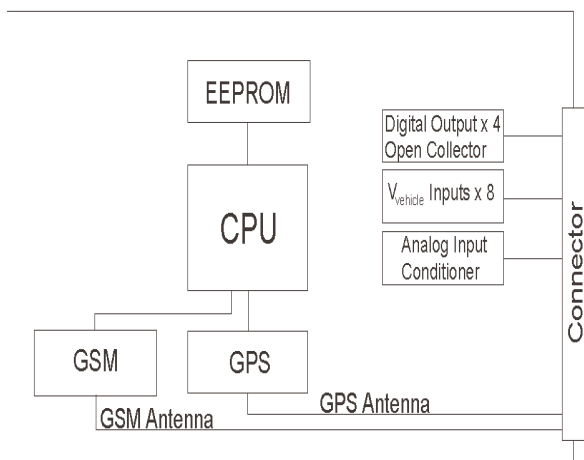
The Solar Remote Monitor and Controller (SRMC) is an RMC configured with solar irradiation sensors, temperature sensors, voltage and current sensors specifically for monitoring and controlling renewable energy systems such as photovoltaic systems, solar/electric geysers and wind turbine generators.

A Global Positioning System (GPS) module, various meteorological sensors and various communication technologies are optional.

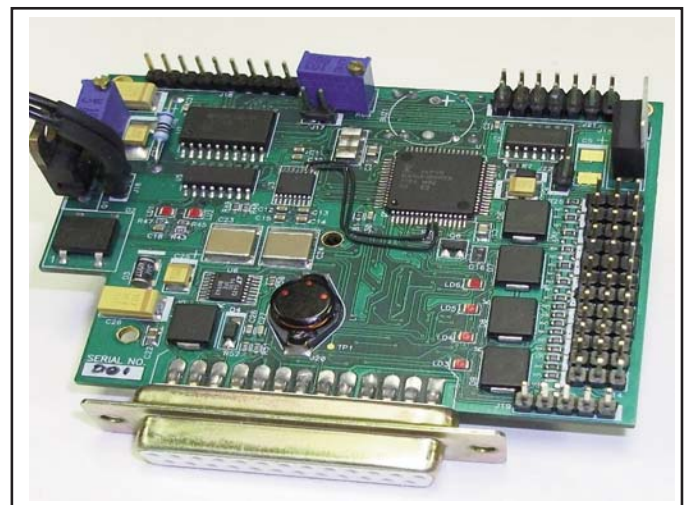
### Architecture

The SRMC incorporates a Global System for Mobile Communication (GSM) module, autonomous data logging to onboard non-volatile memory, digital/analogue input and digital output, real-time clock and watchdog protection. All SRMC functions can be accessed using an Application Program Interface (API).

A suite of sensors provides to the SRMC, after which the onboard microcontroller receives the resulting digital data, performs various calculations and transmits the data to a central collection point or to any other enabled device such as data server, personal computer cellular telephone.



**RMC Architecture**



**Remote Monitor and Controller**

### Features

- GSM V2.5 (GPRS with built-in TCP/IP stack, SMS and CSD communication options)
- up to 4 Mbit of EEPROM for the logging user or onboard data
- software determination of instantaneous, average and power usage or generation
- software determination of average and aggregated energy generation (grid export)
- a powerful API providing flexible access to all onboard monitoring and control functions
- sophisticated reporting functions

### Applications

- photovoltaic monitoring and control
- wind turbine generator monitoring and control
- electric and solar geyser monitoring and control
- diesel/electric generator monitoring and control
- UPS monitoring and control
- remote data logging using GPRS/SMS/CSD
- remote control using GPRS/SMS/CSD
- stand-alone data logging and control
- easy to use GSM (GPRS/SMS/CSD) communications

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Specifications	
<b>Serial Interface</b>	RS232-compatible asynchronous transfer with modem control signals
<b>GSM Module</b>	GPRS, SMS and CSD
<b>GSM Data Format</b>	Serial API
<b>EEPROM</b>	8 kbit for event and data logging (up to 4 Mbit optional)
<b>Solar Irradiation Sensor</b>	1
<b>Temperature Sensors</b>	2
<b>DC Current Sensor</b>	1
<b>DC Voltage Sensor</b>	1
<b>AC Current Sensors</b>	2
<b>Other Analogue Inputs</b>	7
<b>Digital Inputs</b>	8
<b>Digital Outputs</b>	4
<b>Local Alarm Output (Buzzer)</b>	1
<b>Dimensions</b>	100 mm x 80 mm x 30 mm
<b>Power Requirements</b>	6,6 V to 24 V; 24 W
<b>MTBF</b>	> 130 000 hours (MIL-HDBK-217F, Ground Benign)
<b>MTTR</b>	< 30 minutes
<b>Supporting Software</b>	Sample serial API user application software (C/C++ source code)
Options	
<b>WeatherSensors</b>	Wind Speed, Wind Direction, Barometric Pressure, Ambient Temperature, Relative Humidity, Rainfall, Ultra-Violet Radiation, Soil Wetness, Leaf Wetness, Water Salinity
<b>Positioning, Tracking</b>	GPS, DGPS
<b>Communications</b>	Ethernet (10, 100, 1000, 10G), Wi-Fi (802.11), Bluetooth
Environmental Specifications	
<b>Temperature</b> - Operating - Storage	-20 C to +70 C -40 C to +85 C
<b>Humidity</b>	0% - 90%
<b>Vibration</b> - Sine - Random	2 g (peak) 10 Hz to 100 Hz 0,04 g²/Hz at 15 Hz to 2 kHz