

# Protection Relays

Remote Indication and Monitoring



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## RM2000 SERIES

### Remote Monitor



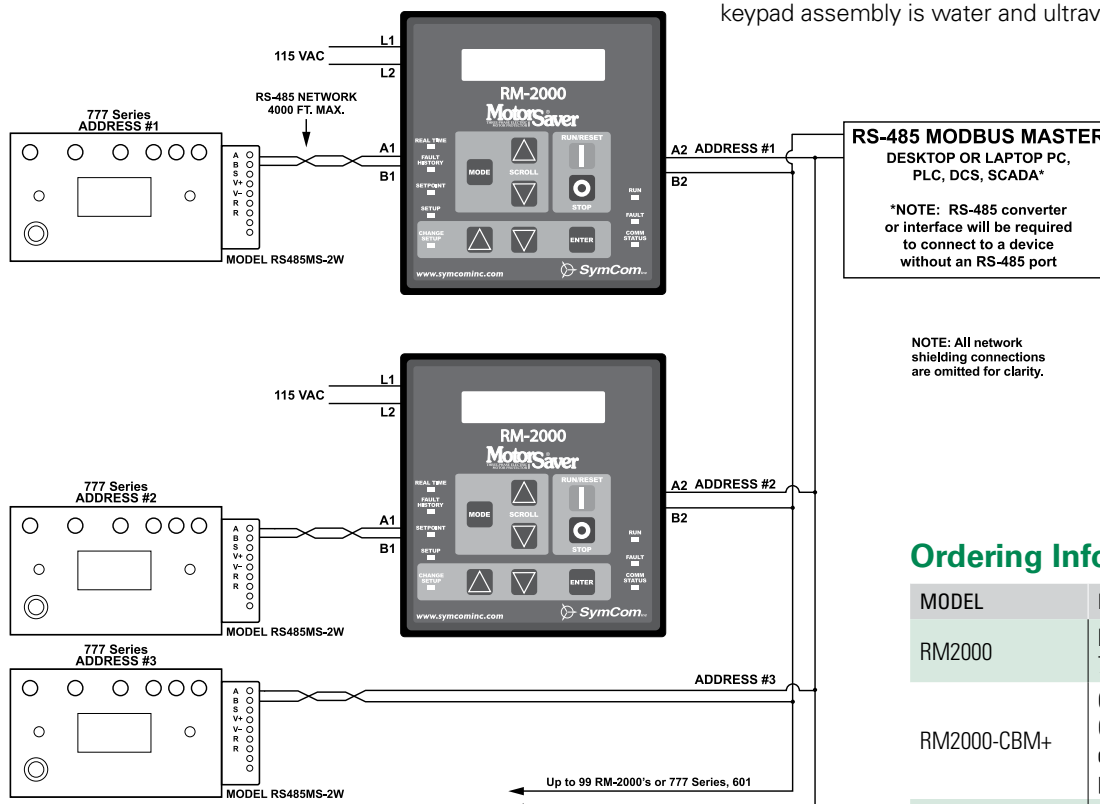
### Description

The RM2000 Series is a motor-monitoring device to be used in conjunction with the 777 family of products (excluding the P1 Series), 77C family of products and the Model 601 voltage monitors, via Modbus protocol with a communications module. The RM2000/777 motor management system combines unsurpassed electronic motor protection and critical, user-friendly, motor monitoring.

The RM2000 has membrane keypad controls which allow both monitoring and control of a 777 MotorSaver® through an RS-485 network using Modbus RTU protocol. A second communication port allows monitoring and control of up to 99 RM2000 devices from a PLC, DCS, or SCADA system or a PC with Solutions software installed. The RM2000 will act as a repeater for its motor protector when accessed from the host computer or PLC. In addition to the monitoring functions, the RM2000 can be used to reset a tripped MotorSaver® or PumpSaver®.

The RM2000 is easily mounted remotely and improves safety for service and operations personnel by allowing them to control and monitor the device without opening the electrical cabinet. Using the RM2000 is a simple, cost-effective method for aiding compliance with arc flash safety regulations. The enclosure and keypad assembly is water and ultraviolet light resistant.

### Wiring Diagram



### Ordering Information

MODEL	DESCRIPTION
RM2000	Remote display monitor for 777 family relays
RM2000-CBM+	Coal Bed Methane Special. Optimizes gas production from coal bed methane wells while protecting submersible pump
RM2000-RTDW	Includes additional input for ground-fault module

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## Features

Displays:

- Average current, individual line currents and current unbalance
- Current to ground
- Average voltage, line-line voltages and voltage unbalance
- Instantaneous power
- Power factor
- Last four faults
- All parameters programmed into 777 MotorSaver®
- Remaining restart delay times

Controls:

- Start and stop buttons
- Key lock input to prevent setpoint changes
- Change 777 setpoints from keypad

The RM2000 is also equipped with a real-time clock, which allows access to the following motor management information (most readings can be reset):

- Total motor run-time
- Time and date of last four faults, along with voltage and current at time of trip
- Time and date of last 10 motor starts
- Total number of motor restarts
- Minimum time between any two starts with time and date
- Run-time since last start
- kWh consumed
- kVARs consumed

## Accessories



### RS485-RS232 Converter with cable & plug

Allows RS485 devices to be connected to a PC via the RS232 (serial) port. Provides convenient terminal blocks for making signal and DC power supply connections. Pre-wired.



### RS485-USB

#### Converter with cable & plug/RS232:USB

Allows RS485 devices to be connected to a PC via the USB port. Provides convenient terminal blocks for making signal and DC power supply connections. Pre-wired.



### Solutions Software: Solutions-M

Software features include data logging, real-time data monitoring and fault and event monitoring.

## Specifications

### Input Characteristics

**Control Voltage** 115VAC ±10%; 50/60Hz

### Transient Protection

**(Internal)** 2500V for 10ms

### Functional Characteristics

#### Communication

##### Baud Rate

##### Setup

**Port #1 for 777** **Port #2 for PC, PLC, etc.**

1200-28800 1200-28800

Even Parity None, Odd, or Even Parity

1 Stop Bit 1 or 2 Stop Bits

Modbus RTU Modbus RTU

RS-485 RS-485

01 A01-A99

#### Protocol

#### Serial Interface

#### Available Addresses

#### Real-time Clock

#### Battery Back-up Life

#### Last fault memory

10 years @ 25°C without external power  
Stores up to 4 faults with time and date stamp, includes voltages and currents at time of trip  
Two independent electro-mechanical Form C (SPDT)  
Silver/Tin Oxide

### Configuration

#### Contact Material

#### Output Characteristics

**(RM2000-RTDW version only)**

#### Pilot Duty Rating

240VA @ 120VAC

#### General Purpose Rating

5A @ 120VAC

#### General Characteristics

#### Ambient Temperature Range

##### Operating

-20° to 70°C (-4° to 158°F)

##### Storage

-30° to 70°C (-22° to 158°F)

#### Maximum Input Power

3 W

#### Class of Protection

NEMA 3R and/or UL Type 12

#### Relative Humidity

Up to 85%, non-condensing

#### Safety Marks

##### UL

UL508 (File #E68520)

##### CSA

C22.2 No. 14 (File #46510)

##### CE

IEC 60947-6-2

#### Enclosure

#### Material

Black polycarbonate

#### Display

Liquid crystal with extended temp. range

#### Size

2 rows x 20 characters

#### Lighting

LED Backlight

#### Keypad

Eight 0.5" stainless steel dome buttons for tactile feedback

#### Mechanical Life

100,000 actuations

#### Overlay Material

Polyester

#### UV Exposure

#### w/o degradation

2000 hrs.

#### Terminal Torque

#### (depluggable terminal block)

3 in.-lbs.

#### Dimensions

**H** 162.56 mm (6.4"); **W** 154.94 mm (6.1");**D** 27.94mm (1.1")

#### Weight

1.2 lbs. (19.2 oz., 544.31 g)

#### Mounting Method

Surface mountable on backplane using 4 screws