

Features

Monitor and control blower.

Monitor water output.

Control water level.

Liquid crystal display.

LED's indicate mode of operation, fault status, communication status, and run status.

Easily mounted on the front of a panel and rated for environmental protection.

Can be mounted up to 4000 feet from the motor starter.

Second communication port is standard.



MotorSaver
THREE-PHASE ELECTRIC
MOTOR PROTECTOR

**Model
RM-2000
CBM PLUS**

•
**Engineered
Protection**

•
**Motor
Management**

The RM-2000 Coal Bed Methane Special / 777 combination optimizes gas production from coal bed methane wells while protecting the submersible pump. The 777 provides unmatched pump protection while the RM-2000 CBM Special cycles the pump based on pressure measurements from one or two 4-20 mA pressure transducers. Built-in flow meter and RTD signal conditioners provide low cost water output monitoring and blower control features.

The first transducer measures down hole pressure while an optional second transducer can be used to measure annulus pressure (gas pressure). The second transducer corrects head measurements caused by high annulus pressure. The pump is started when the maximum head set point is exceeded and stopped when the minimum head set point is passed. The feet-of-head is displayed in real time with the turn on and turn off head set points. This system is compatible with a wide range of 4-20 mA pressure transducers.

A built in rapid cycle timer prevents over cycling the pump if the water level recovers too quickly. The rapid cycle timer can be used to minimize run cycles or delay pump starts on wells with high annulus pressure when the annulus transducer is not used. A real time display shows the remaining time before the pump can automatically restart.

A RS-485 network communications port allows remote control and monitoring of up to 99 separate wells. PLC, computer and SCADA systems can read current head, raw pressure measurements and the remaining time on the restart delay timer. The restart delay, turn on set point and turn off set point can be adjusted from the network as well.

The RM-2000 CBM Special / 777 combination is a proven, highly reliable system that has many advantages over other gas production systems. Contact the factory for more information on our RM-2000 CBM Special.



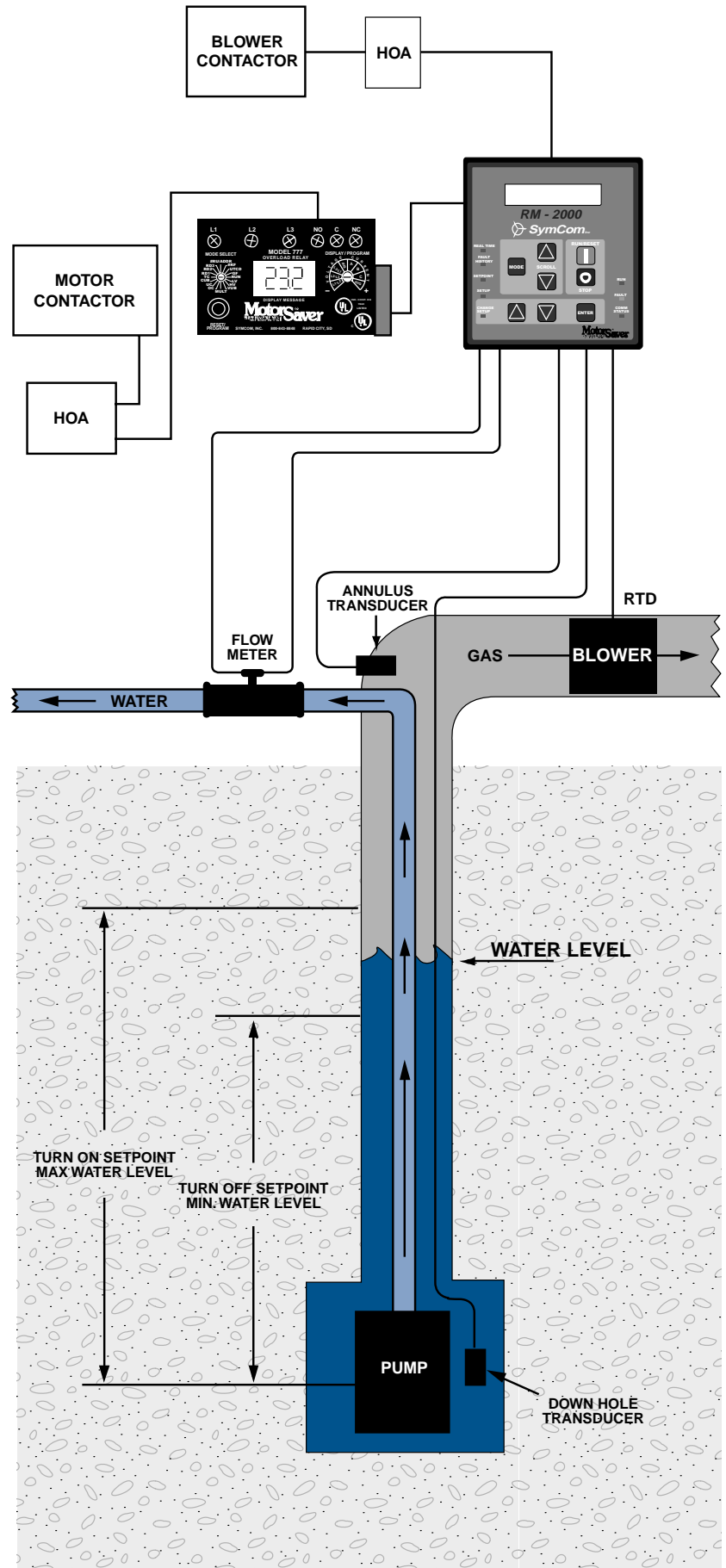
Advantages

- Monitor water flow with built-in flow meter signal conditioner and totalizer.
- Protect your pump and optimize gas production.
- Improved gas production over pumping the well dry.
- Save electricity and pump life by running the pump only when needed.
- Cost effective option to VFDs.
- Does not affect power quality, no harmonic distortion.
- No need for expensive harmonic filters when multiple pumps are powered from one transformer.
- Eliminate clogging and plugging of the pump by running at full speed.
- Network monitoring and control.
- Detect over heated blowers with the built-in RTD signal conditioner transducer.
- Eliminate gas locking problems.

Advanced Control Capability

- Optional Annulus Transducer corrects the pressure measurements for more accurate head readings.
- The annulus pressure (gas pressure) can be scaled to minimize the effect of gas pressure on the head reading.
- Rapid cycle protection.
- Remote access to real time measurements of head and pressure.
- Adjust turn on and turn off setpoints remotely.
- Adjust rapid cycle timer remotely.
- Monitor flow rate and total output.
- Switch to current or power level control if the down hole transducer fails.
- Compatible with all Model 777 versions.

Typical Application for RM-2000 CBM PLUS



Specifications

Control Voltage115 VAC \pm 10%; 50-60 Hz

Transient Protection (Internal)2500 V for 10 ms

Power Consumption3 Watts (max.)

Communication	1 Port for 777	1 Port for PC, PLC, etc.
Baud Rate	9600	300-28800
Setup	Even Parity 1 Stop Bit	None, Odd, or Even Parity 1 or 2 Stop Bits
Protocol	Modbus RTU	Modbus RTU
Serial Interface	RS485MS-2W	RS485MS-2W
Available Addresses	01	A01-A99

Real-time Clock

Battery Back-up Life10 years @ 25°C without external power

Last Fault MemoryStores up to 4 faults with time and date stamp, includes voltages and currents at time of trip

Output RelaysRemote Control/Event Follower

ConfigurationTwo Independent Electro-Mechanical Form C (SPDT)

Contact Material.Silver/Tin Oxide

Pilot Duty Rating.240 VA @ 120 VAC

General Purpose Rating.....5 A @ 120 VAC

Environment

Class of ProtectionNEMA 3R

Ambient Operating

Temperature-20° to 70°C

Ambient Storage

Temperature-30° to 70°C

HumidityUp to 85%, non-condensing

Enclosure

Dimensions.....6" W x 6 ³/₈" H x 1 ¹/₁₆" D

Weight1.2 lbs.

Material.....Black polycarbonate

DisplayLiquid Crystal with extended temp. range

Size.....2 rows x 20 characters

LightingLED Back-Light

KeypadEight 0.5" stainless steel dome buttons for tactile feedback

Mechanical Life50,000 actuations

Overlay MaterialPolyester

UV Resistance2000 hrs. without degradation

TerminalDepluggable terminal block

Max Torque.....3 in lbs.

2 4-20 mA pressure transducer inputs with adjustable full scale ranges.

Down Hole Transducer Full Scale50-600 psi in 5 psi steps

Annulus Transducer Full Scale.....15-600 psi in 5 psi steps

Adjustable Turn Off Set Point10-245 ft. in 5 ft. steps, 1 ft. steps over the network

Adjustable Turn On Set Point15-250 ft. in 5 ft. steps, 1 ft. steps over the network

Adjustable Minimum Off Time.....2-250 minutes

Display Resolution1 ft.

Display Range0-1380 ft.

Specifications Continued

Real time display shows actual head level with the turn on & turn off setpoints.

2 Pressure Transducer Inputs

Accuracy/RangeField calibrate for 0-20mA, 4-20mA, 0-5V or 1-5V

Note: 250 Ω or less shunt resistor must be used with current output transducers

Maximum Input Voltage.....5V Input

Impedance.....10 k Ω Standard
(250 Ω available for fixed current inputs)

Optional Turbine Flowmeter Input (with built-in signal conditioner)

Sensitivity20mV - 30V

Bandwidth3 kHz

Total Output Readings

Displayed16,777,215 gal or barrels

Read via the Network....4,294,967,295 gal/102,261,126 barrels

Flow Readings

Instantaneous Flow in barrels/day (bpd)

Output for last 24 hours (barrels)

Low / No Flow Shutdown (with adjustable time delay)

Trip delay1 - 255 min

100 Ω RTD Input

Max Temp400° C / 752° F

Accuracy \pm 2%

Trip Point0 - 400° C

Reset Point0 - Trip Point

Dimensions

