

## **Specification: Pump Monitor Relay**

The Pump Monitoring Relay shall perform both Motor Over-Temperature and Seal Leakage Monitoring in one unit. The unit shall be powered by 120VAC, with relay contacts rated for 8 Amps at 120VAC.

The Pump Monitoring Relay shall be able to be mounted on the deadfront door of the control panel so that the deadfront door need not be opened to see the status of either the Seal Leakage condition or the Pump Over-Temperature status.

The front of the Pump Monitoring Relay shall contain an LED indicator for power, an LED indicator for a Seal Leakage condition, and an LED indicator for an Over-Temperature condition.

The front of the Pump Monitoring Relay shall also contain a selector switch to choose between "Auto Reset" and "Manual Reset". There shall be a Over-Temperature Reset pushbutton to reset the Pump Monitor relay once the Over-Temperature condition has cleared.

The front of the Pump Monitoring Relay shall also contain a potentiometer adjustment for setting where the unit will trip the alarm for the Seal Leakage condition.

The Pump Monitor Relay shall apply a low voltage DC signal to the Motor Thermal Sensor to check its status. When the Pump Monitor Relay detects that the Motor Thermal Sensor contacts are closed (normal condition), the Over-Temperature indicator shall remain off, and the Over-Temperature Relay shall be energized, closing the contacts between terminals 2 and 11.

When the Motor Thermal Sensor contacts open (Over-Temperature condition), the Over-Temperature Indicator shall energize, and the Over-Temperature Alarm Relay shall de-energize, opening the contacts between terminals 2 and 11 and closing the contacts between terminals 2 and 1.

When the Over-Temperature condition has cleared, the Pump Monitor Relay shall reset based on the selection of Alarm Reset Mode Select Switch (Auto or Manual). When in the Auto position, the Over-Temperature Alarm shall reset automatically. When in the Manual position, the Over-Temperature Reset Push-button must be pushed for approximately 1.5 seconds to clear the alarm.

The Pump Monitor Relay shall detect moisture inside a pump motor by using a low voltage AC signal to measure the resistance between a single (or dual) Leakage Probe(s) and the grounded motor housing, or between two Leakage Probes. A Seal Leakage condition shall be considered present when the amount of moisture in the motor causes the resistance between terminal 6 and 5 to drop below the setting on the potentiometer. When this condition exists, the Pump Monitor Relay shall turn on the Leakage Indicator and energizes the Leakage Alarm Relay, closing the contacts between terminals 9 and 10.

The leakage alarm trip point shall be set by the following procedure: Isolate the Leakage Probe(s) from terminals 5 and 6. Connect a resistor with the desired trip value across terminals 5 and 6. Slowly adjust the potentiometer to the point where the alarm turns on. Remove the resistor and reconnect to the Leakage Probe(s).

The Pump Monitor Relay shall be part number PMR1, as manufactured by Motor Protection Electronics, Apopka, Florida, 407-299-3825.