

Application Note:
At last - One Protection Relay that does it all!

- * Liquid Level Control
- * Phase Failure
- * Under and Over Voltage
- * Current Monitoring with a Re-start Timer – All at the push of a button !

The Protechtor MP830 Motor/Pump Protection Relay, manufactured by Rhomberg Electronics, is unique in that it is the only pump/motor protection relay on the market which incorporates the filling (or draining) functions of a liquid level control relay. Furthermore, it has an in-built adjustable timer to allow a borehole to recover after running dry, and one pushbutton for automatic set-up and commissioning.

The MP830 is primarily aimed at the submersible pump market and caters for induction motor driven pumps from .375 kW to 3.75 kW without the need for external current transformers. It can also be used for general purpose induction motor protection and for larger pumps/motors by using an external current transformer.

An electrically driven pump requires protection, which the MP830 provides, for the following reasons:

- If the pump runs dry it will heat up and wear out, without the lubricating and cooling effects of the water. The pump can be protected by detecting an underload condition, through the measurement of the phase angle between voltage and current. This is better than using undercurrent which does not vary as linearly as phase angle.
- If the pump outlet is blocked, the water will remain in the pump as it cavitates (snores). This results in heat build-up and ultimately damage to the pump. Again phase angle is superior to current measurement.
- In the case of a locked rotor, overcurrent will result, (which will damage the motor rather than the pump) and measuring current is a good method of protection.
- Phase sequence and phase failure are old enemies of induction motors.

Furthermore, the MP830 sports the following unique features for borehole pump control:

- Re-start timer - this is useful to allow a borehole to recover if it has been pumped dry.
- Restart attempt limit - another useful feature to limit pump abuse.
- Level control – controls the pump directly via its C/O relay contact.

