PMP-25 Pump Load Control
Installation, Set-up & Adjustment

The Model PMP-25 monitors the true power going to a motor. By sensing power (volts x amps x power factor) rather than just amps, there is much greater sensitivity. For loss of load detection, this means a 10X improvement in performance.

Mounting:
Wiring is done to un-pluggable terminal strips on the rear of the unit. Three ways to mount:

- On door or raceway – use cutout template
- Panel Mount – use template + optional Bezel Kit (No Charge)
- On wall – on standard outdoor junction box + optional
- Outlet Box Adapter (No Charge)

Voltage:

120 volts AC is taken from two of the phases. If the motor starter already has a 120-volt control transformer with 10VA of free capacity, it can be used. Otherwise, install a separate transformer. It is okay if the secondary is grounded.

BE SURE TO NOTE WHICH TWO PHASES SUPPLY THE TRANSFORMER.
In 120/208V three-phase system, the 120V MUST come from a transformer connected to two of the phases. The 120V phase to ground voltage cannot be used.

Current:

The current signal is taken from the REMAINING phase. This current sample passes through the Range Finder Toroid.

It is VERY IMPORTANT that the current signal comes from the phase that IS NOT supplying the 120V control transformer. Be extra careful when the machine has reversing starters or multi-speed windings. If a wrong phase is used the control will either:

- Work backwards
- Have reduced sensitivity
**PMP-25 Pump Protector**

**Full Scale Capacity at 460 Volts:**

The Range Finder Toroid has six motor size choices. Select one that is equal or larger than your motor. This will leave some headroom.

- For motors less than 5 HP (460 volt), take extra turns.
- For motors greater than 50 HP, use Range Finder Toroid + Current Transformer.

### Multipliers:

For nominal voltages other than 460 volts, multiply 460V full scale by:
- 208V = .45
- 230V = .5
- 380V = .83
- 415V = .9
- 575V = 1.25

For Kilowatts, multiply Full Scale HP x .746

For motor sizes or capacities not in table:

%Full Load = Full Scale Capacity x 100

Your Motor Size

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<table>
<thead>
<tr>
<th>MOTOR SIZE</th>
<th>FULL SCALE</th>
<th>% FULL LOAD</th>
<th>RANGE FINDER</th>
<th>TURNS</th>
<th>CURRENT TRANSFORMER</th>
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<td>123</td>
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Hooking up the Rest

Control can be reset three ways:
- Manually with the Reset button on the control.
- Remotely with a remotely located reset button or relay.
- Automatic with a jumper

Remote Reset -
Momentarily connect Terminal 4 to Terminal 6 for low
Momentarily connect Terminal 5 to Terminal 6 for high

Automatic Reset -
Jumper Terminal 4 or 5 to Terminal 6

The terminals for Reset generate a small amount of current (8-12 milliamps). To reset, you just need to connect the terminal to the circuit common (Terminal 6).

The switches or relays that you use must be suitable for low current (Gold flashed contacts, Reed Relays, Mercury Switches).

4-20 Milliamp Analog Output

The switches or relays that you use must be suitable for low current (Gold flashed contacts, Reed Relays, Mercury Switches).

For Motors Less than 5HP

Take more “turns” of the leg through the Toroid. Each time the wire passes through the Toroid is a “turn”.

For Motors Greater than 50HP

A Current Transformer is used to reduce the primary current. The 5-amp secondary passes through the Toroid.

Pass secondary of CT through toroid

CAUTION
When current is flowing through the primary of the external current transformer, always have a wire between the two brass Terminals on the CT.

If they are left open, dangerous and destructive voltages can develop.

THE PMP-25 Powers the 4-20MA Signal
Do Not Use an External DC Power Supply

SPECIFICATIONS PMP-25

ENCLOSURE
Glass-filled Polycarbonate
NEMA 4, 4X - STYLE
(3 1/4” x 6 1/4” x 2”)
(83 mm x 160 mm x 54 mm)

CAPACITY
To 50 horsepower directly through Toroid
To 500 horsepower with external Current Transformer & Toroid

DIGITAL LOAD DISPLAY
.4” LED 3 Digit

RELAY OUTPUTS
(2) Form C 3 AMP @ 300 VAC or
1/8 HP @ 240 VAC
Latch when tripped

ANALOG OUTPUT
4-20mA; powered by the PMP-25 500 OHM maximum connected impedance

RESPONSE TIME
500 Milliseconds

TEMPERATURE
0°C - 55°C

TIMERS
Start-up – 0.999 seconds
(16.7 minutes) adjustable
Low Trip Delay – 0.999 seconds
(16.7 minutes) adjustable
High Trip Delay – 0.999 seconds
(16.7 minutes) adjustable
TO SET FULL SCALE
• After hook-up, find your HP, KW or % from the chart.
• Decide if you want to display HP, % or KW.
• The cycles through the choices shown below and blinks slowly for each choice. Each press of moves you to the next choice.

FRONT PANEL SET-UP TIPS
1) None of the settings will be changed until you hold down and the fast blinking stops.
2) Five seconds after you have pressed a button, the control will return to normal operation.
3) If you hold down the digits will continue to change.
4) You only need to do when you install the PMP-25 (or if you change the hook-up).

ADJUSTMENTS
SET POINT - HIGH: The HIGH relay will switch when the load is above the HIGH.
SET POINT - LOW: The LOW relay will switch when the load is below the LOW.

Start-up Timer
The Start-up Timer bypasses the Control during motor startup to avoid false trips because of current inrush. For convenience, the TIMING BEGINS WHEN THE MOTOR STARTS. The Start-up LED stays lit until the start-up period is over.

The start-up time should be:
• Long enough so that the load has stabilized.

Delay Timers
To avoid nuisance trips from short overloads, Delay Timers bypass the Control for the selected time. The relays won’t trip until the time is exceeded. If the trip condition goes away before the time is up, the timer resets to zero.
• Start with minimum Delay. If you are getting trips where you don’t want them, increase the Delay Time.

TO VIEW AND CHANGE THE SET POINTS AND DELAY TIMES
cycles through the choices. The LED for each choice will turn ON. To change a setting, use Press ENTER until quick blinking stops to store your new choice.

ADJUSTMENT TIPS FOR CENTRIFUGAL PUMPS
From Pump Curves
Use the recommended minimum and maximum flows and horsepower for your initial set points.
–OR–

Actual Operation
Low Trip - Run the pump with the OUTLET valves closed. This is the minimum flow. Set the low trip about here.
High Trip - Run the pump with all valves wide open. This is the maximum flow. Set the high trip about here.
• Make adjustments if you get nuisance trips