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 DELAY cycles through the choices shown below and blinks slowly for each choice. Each press of ON TIP moves you to the next choice.

FRONT PANEL SET-UP TIPS
1) None of the settings will be changed until you hold down ENTER 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 digit, the digits will continue to change.
4) You only need to do at when you install the Control (or if you change the hook-up).

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 to change your choice, press until fast blink stops to store your new delay.
- Press ENTER until quick blinking stops to store your new choice.
- After 5 seconds if you haven’t pressed any buttons, control will return to normal operation.
- For High Trip - Relay will switch when load is ABOVE the Set Point.
- Press until display shows HHH
- Hold until high LED stops blinking
- For Low Trip - Relay will switch when load is BELOW the Set Point.
- Press until display shows LLL
- Hold until low LED stops blinking
- The High or Low LED will remain on during normal operation.

PFR-1550 LOAD CONTROL INSTALLATION, SET UP AND ADJUSTMENT

The Model PFR-1550 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. It has one adjustable trip point which can be either:
- High - Relay switches when load is above the trip point
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In 120/240V 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.

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

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- Work backwards
- Have reduced sensitivity

If you are using a variable frequency drive, use a different control. Call LOAD CONTROLS, INC. for help.

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53 Technology Park Road 888-600-3247
Sturbridge, MA 01566 508-347-2606
FAX 508-347-2064

3/2013
**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 460 volt full scale by:

<table>
<thead>
<tr>
<th>MOTOR SIZE</th>
<th>% FULL SCALE</th>
<th>CURRENT FROM REMAINING PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 HP</td>
<td>1.25</td>
<td>2 ON 8</td>
</tr>
<tr>
<td>1-1/2</td>
<td>1.65</td>
<td>2 ON 3</td>
</tr>
<tr>
<td>2</td>
<td>2.70</td>
<td>2 ON 2</td>
</tr>
<tr>
<td>3</td>
<td>3.80</td>
<td>3 ON 2</td>
</tr>
<tr>
<td>5</td>
<td>5.50</td>
<td>110 2 ON 1</td>
</tr>
<tr>
<td>7-1/2</td>
<td>8.25</td>
<td>110 3 ON 1</td>
</tr>
<tr>
<td>10</td>
<td>11.0</td>
<td>110 4 ON 1</td>
</tr>
<tr>
<td>15</td>
<td>17.5</td>
<td>137 5 ON 1</td>
</tr>
<tr>
<td>20</td>
<td>27.5</td>
<td>137 5 ON 1</td>
</tr>
<tr>
<td>25</td>
<td>27.5</td>
<td>110 5 ON 1</td>
</tr>
<tr>
<td>30</td>
<td>55.0</td>
<td>183 6 ON 1</td>
</tr>
<tr>
<td>40</td>
<td>55.0</td>
<td>138 6 ON 1</td>
</tr>
<tr>
<td>50</td>
<td>55.0</td>
<td>110 6 ON 1</td>
</tr>
<tr>
<td>60</td>
<td>84.0</td>
<td>140 1 ON 1</td>
</tr>
<tr>
<td>75</td>
<td>84.0</td>
<td>112 1 ON 1</td>
</tr>
<tr>
<td>100</td>
<td>130</td>
<td>130 1 ON 1</td>
</tr>
<tr>
<td>125</td>
<td>130</td>
<td>104 1 ON 1</td>
</tr>
<tr>
<td>150</td>
<td>173</td>
<td>115 1 ON 1</td>
</tr>
<tr>
<td>200</td>
<td>216</td>
<td>108 1 ON 1</td>
</tr>
<tr>
<td>250</td>
<td>260</td>
<td>104 1 ON 1</td>
</tr>
<tr>
<td>300</td>
<td>346</td>
<td>115 1 ON 1</td>
</tr>
</tbody>
</table>

For motor sizes or capacities not in table:

% Full Load = Full Scale Capacity x 100

Your Motor Size

**FOR MOTORS LESS THAN 5 HP**

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

**FOR MOTORS GREATER THAN 50 HP**

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

Use the Full Scale capacity from the chart to scale external meter, chart recorders or computers.

**THE PFR-1550 PLOWS THE 4-20MA SIGNAL**

**DON’T USE AN EXTERNAL DC POWER SUPPLY.**

**RANGE FINDER TOROID**

| 1 1/8” Hole |

**HOOING UP THE RESET**

Control can be reset three ways:

- Manually with the Reset button on the control.
- Remotely with a remotely located reset button or relay.
- Automatically with a jumper.

Remote Reset:

- Momentarily connect Terminal 5 to Terminal 6.

Automatic Reset:

- Jumper Terminal 5 to Terminal 6.

The terminals for Reset generate a small amount of current (8-12 milliams). 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 Analog Output is directly proportional to Full Scale capacity. It is always active. 500 ohm maximum connected impedance.

- Terminal 2: 4-20mA Positive
- Terminal 3: 4-20mA Negative

Use twisted pair or noisy environments, use shielded cable. Ground shield at other end.

**SPECIFICATIONS PFR-1550**

**ENCLOSURE**

Class-fitted Polycarbonate
NEMA 4 4X-STYLE
(1 3/4” x 1 3/4” x 2”)
(83 mm x 83 mm x 54 mm)

**ANALOG OUTPUT**

4-20mA powered by the
PFR-1550 500 OHM maximum connected impedance

**CAPACITY**

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

**RESPONSE TIME**

25 Milliseconds

**CAPITALIZATION**

0ºC - 55ºC

**DIGITAL LOAD DISPLAY**

- 4-LED Display

**RELAY OUTPUT**

Form C 3 AMP @ 300 VAC or
1/3 HP @ 240 VAC
Latch when tripped

**TIMERS**

- Startup and Trip Delays
  - 0-90 second
  - 0.2 second in 1 second increments
  - 2-90 second in 1 second increments
The Range Finder Toroid has six motor size choices. Select one that is equal or larger than your motor. This will leave some room overs:
- For motors less than 5 HP (460 volt), take extra turns.
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**MULTIPLIERS**

For nominal voltages other than 460 volts, multiply 460V full scale by:
- 208V = .45
- 230V = .5
- 300V = .83
- 415V = .9
- 575V = 1.25

For Kilowatts multiply Full Scale HP x .746

For motor sizes or capacities not in table:

\[
\text{\% Full Load} = \frac{\text{Full Scale Capacity}}{\text{Your Motor Size}} \times 100
\]

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

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**Pass secondary of CT through toroid.**

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**4-20 MILLIAMP ANALOG OUTPUT**

The Analog Output is directly proportional to Full Scale capacity. It is always active. 500 ohm maximum connected impedance.

- Terminal 2 4-20mA Positive
- Terminal 3 4-20mA Negative

Use twisted pair or in noisy environments, use shielded cable. Ground shield at other end.

Use the Full Scale capacity from the chart to scale external meter, chart recorders or computers.

**THE PFR-1550 POWERS THE 4-20MA SIGNAL, DON'T USE AN EXTERNAL DC POWER SUPPLY.**

**SPECIFICATIONS PFR-1550**

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<th>Class-Glazed Polycarbonate</th>
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<tbody>
<tr>
<td>NEMA 4X-5 STYLE</td>
<td>(1 1/4&quot; x 1 1/4&quot; x 2&quot;)</td>
</tr>
<tr>
<td>(83 mm x 83 mm x 54 mm)</td>
<td></td>
</tr>
<tr>
<td>CAPACITY</td>
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<td></td>
</tr>
<tr>
<td>RESPONSE TIME</td>
<td>25 Milliseconds</td>
</tr>
<tr>
<td>TEMPERATURE</td>
<td>0°C - 55°C</td>
</tr>
<tr>
<td>DIGITAL LOAD DISPLAY</td>
<td>4-LED Display</td>
</tr>
<tr>
<td>RELAY OUTPUT</td>
<td>Form C 3 AMP @ 300 VAC or 1/8 HP @ 240 VAC</td>
</tr>
<tr>
<td>ANTHESIS</td>
<td>Start-up and Trip Delay</td>
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DIGITS → DECIMAL → DECIMAL → DECIMAL → DECIMAL → HP → % → KW
▼
to change if this is your choice, press
▼
until fast blink stops until fast blink stops until fast blink stops until fast blink stops until fast blink stops

Start-up Timer
The Start-up Timer bypasses the Control during motor start-up 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.
To bypass Start-up Timer set time to zero seconds.

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.

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