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PFT 14V OR 28V TWO WIRE HEATING ELEMENT

WIRING INSTRUCTIONS (Black+Black)

The wiring instructions below cover Watlow single voltage 2-wire heater elements used on puraDYN Filter Technologies Inc., PFT8 through PFT240 Bypass Oil Filtration Units. Also, said heater elements contain two black wires.

1) Choose a power source that is ignition-controlled; ie, “off” when the engine is off, “on” when the engine is running. Ex) Fuse box/Available Accessory

2) Use in-line fuse holder with corresponding fuse/per voltage.

3) Do NOT connect directly to the ignition system, brake system, engine control module, or alternator (spikes). Direct connection to the battery requires pressure switch and electrical harness with relay.

14 Volt: Take one unmarked lead (BLACK) and connect to positive (+). Take remaining unmarked lead (BLACK) and connect to negative (-). Use 15-AMP fuse.

14V = ONE BLACK TO (+) AND ONE BLACK TO (-)

28 Volt: Take one unmarked lead (BLACK) and connect to positive (+). Take remaining unmarked lead (BLACK) and connect to negative (-). Use 7.5-AMP fuse.

28V = ONE BLACK TO (+) AND ONE BLACK TO (-)

Heating Element Current Draw

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 VDC</td>
<td>12.5 Amps</td>
</tr>
<tr>
<td>24 VDC</td>
<td>6.25 Amps</td>
</tr>
</tbody>
</table>
PFT 14V/28V THREE WIRE HEATING ELEMENT WIRING INSTRUCTIONS (Black+Black+Green)

The wiring instructions below cover Watlow dual voltage 3-wire heater elements used on puraDYN Filter Technologies Inc., PFT8 through PFT240 Bypass Oil Filtration Units. Also, said heater elements contain two black wires and one green wire.

1) Choose a power source that is ignition-controlled; ie, “off” when the engine is off, “on” when the engine is running. Ex) Fuse box/Available Accessory

2) Use in-line fuse holder with corresponding fuse/per voltage.

3) Do NOT connect directly to the ignition system, brake system, engine control module, or alternator (spikes). Direct connection to the battery requires pressure switch and electrical harness with relay.

14 Volt: Take two unmarked leads (BLACK), connect them together and connect to positive (+). Take the remaining common lead (GREEN) and connect to negative (-). Use 15-AMP fuse.

\[14V = TWO\ BLACKS\ TO\ (+)\ AND\ GREEN\ TO\ (-)\]

28 Volt: Tie off and insulate common lead (GREEN). Take one unmarked lead (BLACK) and connect to positive (+). Take remaining unmarked lead (BLACK) and connect to negative (-). Use 7.5-AMP fuse.

\[28V = ONE\ BLACK\ TO\ (+), ONE\ BLACK\ TO\ (-)\ AND\ INSULATE\ GREEN\]

Heating Element Current Draw

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puraDYN Filter Technologies Inc., 2017 High Ridge Road, Boynton, Beach Florida 33426

Manual# 19-00120
Electrical Harness Pressure Switch Connections with 2-wire Single Volt Heater

**Figure 1**

- Install Relay Using screw and mounting clip (supplied)
- Connect Harness to Relay
- Connect Harness to Pressure Switch leads
- Use Dielectric Grease (supplied)

**Figure 2**

- Connect one Black Heater wire (use supplied Male Spade) to Red wire with Female Spade
- Connect other Black Heater wire to Black/Brown wire from Harness
- Make sure fuse is installed
- Connect to Ground
- Connect to Constant Voltage Source (Battery, etc)

**12-Volt Applications:**
- 15-Amp Fuse
- 12-Volt Relay

**24-Volt Applications:**
- 7.5-Amp Fuse
- 24-Volt Relay

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MANUAL # 19-00160
Electrical Harness Pressure Switch Connections with 3-wire Dual Volt Heater

**12-Volt Application**

1. Install 12-Volt Relay Using screw and mounting clip (supplied)

2. Connect Harness to Relay
   - Connect Harness to Pressure Switch leads
   - Use Dielectric Grease (supplied)

3. Connect both Black Heater wires to Red wire from Harness (may need to remove Female Spade)
   - Connect Green Heater wire to Black/Brown wire from Harness
   - Connect to Ground

4. Make sure 15-Amp fuse is installed
   - Connect to Constant Voltage Source (Battery, etc)

**12-Volt Applications:**
- 15-Amp Fuse
- 12-Volt Relay

---

**Figure 1**

**Figure 2**
Electrical Harness Pressure Switch Connections with 3-wire Dual Volt Heater

**24-Volt Application**

- **Install 24-Volt Relay**
  - Using screw and mounting clip (supplied)

- **Connect Harness to Pressure Switch leads**
- **Use Dielectric Grease (supplied)**

- **Connect Harness to Relay**
- **Properly Insulate Green Wire**
- **Connect One Black Heater wire (use supplied male Spade) to Red wire with Female Spade**
- **Connect Other Black Heater wire to Black/Brown wire from Harness**
- **Connect to Ground**
- **Make sure 7.5-Amp fuse is installed**
- **Connect to Constant Voltage Source (Battery, etc)**

**24-Volt Applications:**
- 7.5-Amp Fuse
- 24-Volt Relay
**Important:** All electrical connections must be in accordance with local codes, ordinances, or National Electrical codes. If you are unfamiliar with methods of installing electrical wiring, secure the services of a qualified electrician. Special codes, compliance regulations or certifications may apply per specific product application.

**Wiring 2-WIRE PFT SERIES 110 (120) VAC Heater**

1. Connect (1) lead to negative side of a 120 VAC switch controlled circuit (using the appropriate wire connectors).
2. Connect (1) lead to the positive side of the 120 VAC switch controlled circuit (using the appropriate wire connectors).

**Wiring 2-WIRE PFT SERIES 220 (240) VAC Heater**

1. Connect (1) lead to 1 side of a 240 VAC switch controlled circuit (using the appropriate wire connectors).

**Installation Note 1:** Avoid high vibration areas. If unavoidable, after securing a dedicated ground strap to a reliable earth ground, apply Silicone Sealant (DAP Auto/Marine 00694 or equivalent) over the top of the heating cap screw to ensure it doesn’t loosen from vibration over time.

**Installation Note 2:** When you ordered your bypass filtration system (or your replacement heating element) you will have already determined your power supply (e.g. 120 Volt AC or 240 Volt AC). The proper voltage is printed on the side of the heating element.

- Before starting the wiring installation, disconnect the power by turning off the circuit breaker or removing the fuse at the fuse box.
- Important safeguards and instructions appearing on this sheet are not meant to cover every possible condition or situation.
- Care, preventive maintenance and the person(s) caring for and operating this system must supply routine inspection.

Below is a diagram showing the wiring connections for both the 110 VAC and 220 VAC heating elements.

**Digital Voltmeter Troubleshooting Aide for 2-Wire 110 Vac Heating Element:**

1. Disconnect Vac Power and set scale to measure resistance (Ω).
2. Heater Cap to Earth Ground = 0 Ω
3. Heating Element Resistance Open Circuit (NC) = 72-84 Ω Typical.
4. In circuit ~ 1.50 amperes current draw

**Digital Voltmeter Troubleshooting Aide for 4-Wire 110 Vac Heating Element:**

1. Disconnect Vac Power and set scale to measure resistance (Ω).
2. Heater Cap to Earth Ground = 0 Ω.
3. Heating Element Resistance Open Circuit (NC) across white/white and black/black paired leads = 72 to 84 Ω Typical.
4. In circuit ~ 1.50 amperes current draw

**Digital Voltmeter Troubleshooting Aide for 4-Wire 220 Vac Heating Element:**

1. Disconnect Vac Power and set scale to measure resistance (Ω).
2. Heater Cap to Earth Ground = 0 Ω.
3. Heating Element Resistance Open Circuit (NC) across black leads = 286 to 326 Ω Typical.
4. In circuit ~ 0.75 amperes current draw

For Assistance or Technical Support call:

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Manual #19-00150