The MP Series Infrared Tube Heater is a positive pressure, modulating radiant heater system. This insert manual is a supplement to the Tube Heater General Manual and provides specific information related to the MP series model. All persons involved with the installation, operation, and maintenance of the heater system must read and understand the information in this insert manual and the accompanying Tube Heater General Manual.

For Your Safety

If you smell gas:

- Do not try to light any appliance.
- Do not touch any electrical switch.
- Do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone.
- Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Not for residential use! Do not use this heater in the home, sleeping quarters, attached garages, etc. **Installation of a commercial tube heater system in residential indoor spaces may result in property damage, serious injury, asphyxiation, or death.**
# Contents

1.0 Safety ........................................................................................................ 3
   Safety Labels and Their Locations ............................................................ 3
   Clearances to Combustibles ...................................................................... 4

2.0 Installation .................................................................................................. 6
   Gas Requirements .................................................................................... 6
   Electrical Requirements ......................................................................... 6
   Thermostat and Other Controls ............................................................... 7
   Zoning Heaters and Configuring ‘Master/Slave’ Heaters ......................... 8
   Building Management Systems and Other Remote Analog Signals ......... 8
   Field Wiring ............................................................................................ 9
   Internal Wiring ....................................................................................... 13
   Configuring the Heater .......................................................................... 14
   ‘Options’ DIP Switches ......................................................................... 14
   ‘Address’ DIP Switches ......................................................................... 15
   Product Specifications ........................................................................... 16
   Tube Installation Sequence ..................................................................... 17

3.0 Operation .................................................................................................. 18
   Sequence of Operation ........................................................................... 18
   Performance Curves ............................................................................... 19
   Diagnostics ............................................................................................ 20

4.0 Troubleshooting Guide ........................................................................... 22

5.0 Parts ......................................................................................................... 26
   Heater Components and Parts List .......................................................... 26
   MP Series Kit Contents Check List ......................................................... 28
   Approvals ............................................................................................. 28
   Limited Warranty .................................................................................. 28

**NOTE:** See Page 16 for a list of available models and specifications.
1.0 Safety

**WARNING**

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, serious injury, or death. Read and understand the installation, operating, and maintenance instruction thoroughly before installing or servicing this equipment. Only trained, qualified gas installation and service personnel may install or service this equipment.

Safety Labels and Their Locations

Product safety signs or labels should be replaced by the product user when they no longer are legible. Contact either your local distributor or the product manufacturer for obtaining replacement signs or labels.
1.0 Safety • Safety Labels and Their Locations • Clearances to Combustibles

**Clearances to Combustibles**

**WARNING**

Placement of explosive objects, flammable objects, liquids, and vapors close to the heater may result in explosion, fire, property damage, serious injury, or death. Do not store or use explosive objects, liquids, or vapors in the vicinity of the heater.

 Clearance to combustibles is defined as the minimum distance that must exist between the tube surface, or reflector, and any combustible items (see Figure 1.1). It also pertains to the distance that must be maintained from moving objects around the tube heater.
When installing the tube heater system, clearances to combustibles for the model tube heater and configuration must be maintained. Refer to Chart 1.1 below to determine the required distances for your model.

### Chart 1.1 • Clearances to Combustibles in Inches (See Figure 1.1 for Mounting Angles)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Mounting Angle</th>
<th>Front</th>
<th>Behind</th>
<th>Top</th>
<th>Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP-(25,30,40)-80[N,P]</td>
<td>0°</td>
<td>14</td>
<td>14</td>
<td>6</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>45°</td>
<td>39</td>
<td>8</td>
<td>10</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>with 1 side shield</td>
<td>0°</td>
<td>29</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>with 2 side shields</td>
<td>0°</td>
<td>16</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>20 ft. from burner</td>
<td>0°</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>MP-(30,40,50)-115[N,P]</td>
<td>0°</td>
<td>20</td>
<td>20</td>
<td>6</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>45°</td>
<td>58</td>
<td>8</td>
<td>10</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>with 1 side shield</td>
<td>0°</td>
<td>42</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>with 2 side shields</td>
<td>0°</td>
<td>20</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>20 ft. from burner</td>
<td>0°</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>MP-(40,50,60)-150[N,P]</td>
<td>0°</td>
<td>24</td>
<td>24</td>
<td>6</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>45°</td>
<td>58</td>
<td>8</td>
<td>10</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>with 1 side shield</td>
<td>0°</td>
<td>42</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>with 2 side shields</td>
<td>0°</td>
<td>23</td>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>20 ft. from burner</td>
<td>0°</td>
<td>11</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>MP-(50,60,70)-200[N,P]</td>
<td>0°</td>
<td>41</td>
<td>41</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>45°</td>
<td>63</td>
<td>8</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>with 1 side shield</td>
<td>0°</td>
<td>54</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>with 2 side shields</td>
<td>0°</td>
<td>30</td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>20 ft. from burner</td>
<td>0°</td>
<td>11</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

The minimum end clearance for all models is 12 inches.

* Maximum mounting angle is 45°. Heaters mounted on an angle between 0° and 45° must maintain clearances posted for 0° or 45°, whichever is greater.

The stated clearance to combustibles represents a surface temperature of 90°F (50°C) above room temperature. Building materials with a low heat tolerance (such as plastics, vinyl siding, canvas, tri-ply, etc.) may be subject to degradation at lower temperatures. It is the installer’s responsibility to assure that adjacent materials are protected from degradation.

### Figure 1.1 • Mounting Angles
2.0 Installation

**WARNING**
Improper installation, adjustment, alteration, service, or maintenance can cause property damage, serious injury, or death. Read and understand the installation, operating, and maintenance instructions thoroughly before installing or servicing this equipment. Only trained, qualified gas installation and service personnel may install or service this equipment.

*Not for residential use!* Do not use this heater in the home, sleeping quarters, attached garages, etc. Installation of a commercial tube heater system in residential indoor spaces may result in property damage, serious injury, or death.

Instructions for the following are detailed in the Tube Heater General Manual:
- Design considerations
- Hanger suspension and placement
- Tube layout and assembly
- Burner control box suspension
- Reflectors (and accessories)
- Venting and combustion air intake
- Gas requirements
- Baffle assembly

**Note:** Electronic versions of all manuals are available at www.detroitradiant.com, or upon request.

**Gas Requirements**
Manifold pressure of the heater is pre-set at the factory. No adjustment should be necessary. During the verification process, a tolerance of ±10% of the full scale is acceptable due to varying atmospheric conditions.

<table>
<thead>
<tr>
<th>Type of Gas</th>
<th>@ Maximum Rate</th>
<th>@ Minimum Rate</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>4.10 Inches W.C.</td>
<td>1.65 Inches W.C.</td>
<td>6.00 Inches W.C.</td>
<td>14.00 Inches W.C.</td>
</tr>
<tr>
<td>Propane</td>
<td>11.0 Inches W.C.</td>
<td>4.80 Inches W.C.</td>
<td>12.00 Inches W.C.</td>
<td>14.00 Inches W.C.</td>
</tr>
</tbody>
</table>

**IMPORTANT:** Consult the Tube Heater General Manual for gas connection requirements.

**Electrical Requirements**
- 120 Volt - 60 Hz GRD, 3-wire.
- Low voltage thermostat connection.
- Starting current 4.8 amps.
- Running current 1.1 amps.

**NOTICE**
Shielded thermostat wire of 18 AWG is recommended for connection to the heater from the thermostatic controller. The MP series heater is pre-set by the factory for use with the Premium User Interface (TP-PUI).
Thermostat and Other Controls

The MP series heater is designed to operate on various control configurations. The available control options are:

A. Premium User Interface.
B. Potentiometer with On/Off switch.
C. Single-Stage Thermostat with optional room temperature sensor.

“A” Premium User Interface

The Premium User Interface (TH-PUI) is a smart logic controller that offers the optimal performance out of your MP series heater. It modulates the heater(s) with a full PID Controller considering various inputs and outputs. It utilizes the current set temperature, the room temperature (based on an on-board thermistor or an externally connected zone sensor), mode selected, and other items to set the speed of modulation. Therefore, the heater output immediately responds to a change in air temperature. For installation of this device, see Figure 2.2 on Page 10.

“B” Potentiometer

A linear 10k Ohm potentiometer can be used as a control device for the MP series. This allows the user to manually control the heaters firing rate based on the dial position. The heater will modulate in increments of 1%, and vary from minimum firing rate to the full firing rate. An On/Off switch or timer is necessary to allow for the heater to shut off. For installation with this device, see Figure 2.3 on Page 11.

“C” Single-Stage Thermostat

A single stage heating thermostat can be used as a control device for the MP series. This allows the user to utilize a desired field supplied thermostat that best suits their individual needs. The heat control is designed for use with a 2-wire heating system (R & W), and is low voltage. The heater cannot power the thermostat. The thermostat selected must not have a heat anticipator. For installation with this device, see Figure 2.4 on Page 12.

NOTICE

When using a single stage thermostat, the use of a zone sensor is highly recommended. The unit will operate without this accessory, but will then only modulate based on a predetermined algorithm that considers cycle timing and history. Therefore the heater will not respond to rapid changes in air temperatures.
Zoning Heaters and Configuring ‘Master/Slave’ Heaters

The MP Series is designed to allow for several heaters within the same zone to simultaneously modulate in synchronization when connected to a single control device. This configuration requires one ‘Master’ heater that is connected directly to the heat control device, and the remaining ‘Slave’ heaters are to be wired to the ‘Master’ heater. The ‘Slave’ heaters will modulate based on the control signal from the ‘Master’ heater. During the operation of the system, all the ‘Slave’ heaters will modulate at the same percentage rate of the full input as the ‘Master’ heater.

When wiring multiple heaters together for zoning, the heaters must be wired in series with a ‘Master’ heater utilizing a shielded thermostat wire. Connect the heaters via the appropriate wiring diagram. See Pages 9-12 for more information.

Building Management Systems and Other Remote Analog Signals

A Building Management System or a Remote Analog Signal may be used as a controlled device for the MP Series. This allows the heater(s) to be controlled directly by the output of the Building Management System directly dictates the heaters firing rate. The analog signal can be either 0-10VDC or 4-20mA.

A Premium User Interface (P/N: PUI) MUST be used in order to connect the Building Management System to the heater.
Field Wiring

Field Supplied Control Wire: 18 AWG plenum rated thermostat wire that is shielded with drain wire is recommended for optimal performance.

Installing the Control Wire: Each heater includes a thermostat wire grommet to allow for thermostat wire to be brought into the burner box. Insert the grommet into the low voltage wiring access hole. Feed the thermostat wire through the grommet, piercing the rubber with the wire to ensure a tight seal. Ensure enough wire length is available to make the proper connections. Tie the thermostat wire into a loose knot, as shown in Figure 2.1. Ensure knot is loose enough to not cause any damage to the wire. This will allow for a strain relief for the connections to the heater.

Figure 2.1 • Installing the Control Wire

Connections to the Heater: The control devices are connected to the Modulating Circuit Board (P/N: TP-3250) via the thermostat terminal strips provided. The installer must select the appropriate thermostat terminal strip to connect to the board depending on the control configuration desired. The unit will provide the suitable voltage for each control device. DO NOT provide an external power supply to the thermostat terminal strips. Damage to the circuit board may result and is not covered by warranty.

Three (3) thermostat terminal strips are included with each heater to allow for connections to the heater. Note that only one terminal strip will be used for each application, as selected by the installer. The remaining thermostat terminal strips can be discarded or kept with the manual for future reference.

- TP-3228 – 8 circuit terminal strip to be used with Diagram “A”.
- TP-3225 – 5 circuit terminal strip to be used with Diagram “B”.
- TP-3224 – 4 circuit terminal strip to be used with Diagram “C”.

Figure 2.2 - Field Wiring Diagram “A”
A. Premium User Interface

NOTE: SHIELD GROUND MUST BE TIED TO GROUND, AS SHOWN
Figure 2.3 • Field Wiring Diagram “B”

B. 10k OHM Potentiometer

---

[Diagram of the wiring diagram and dip settings for the master and slave heaters, including the legend for the required and optional wiring and accessories.]
Figure 2.4 - Field Wiring Diagram “C”

C. Single-stage thermostat

FOR USE WITH TP-3224

SINGLE-STAGE THERMOSTAT

ROOM THERMISTOR

MASTER DIP SETTINGS

SLAVE DIP SETTINGS

LEGEND

REQUIRED WIRING

OPTIONAL WIRING

OPTIONAL ACCESSORIES
Internal Wiring Diagram

Before field wiring this appliance - Check existing wiring; replace if necessary.
Note: If any of the original wire supplied with the appliance must be replaced, it must be replaced with wiring material having a rating of at least 600 V, 105°C.

Figure 2.5 - Internal Wiring Diagram
Configuring the Heater

The MP series heater utilizes DIP switches on the modulating controller to configure various options available. The DIP switches are located under the modulating circuit board cover (See Figure 2.6), and are labeled “Options” and “Address”. These switches have to be configured correctly in order for the unit to properly function.

Figure 2.6 - Projected View of DIP Switches

‘Options’ DIP Switches

1. **‘Master/Slave’**: This switch determines if the heater is a ‘Master’ or ‘Slave’.
   - **‘Master’ Option**: Selected if heater is stand-alone or ‘Master’ of a zoned system.
   - **‘Slave’ Option**: Selected if heater is a ‘Slave’ in a zoned system and is connected to a ‘Master’.

2. **Outdoor Air Probe**: This switch determines if an outdoor air sensing probe is installed (sold separately, must be used in conjunction with a Premium User Interface).

3. **Premium User Interface**: This switch determines if a Premium User Interface (TH-PUI) is used as a heat demand control device. (Use Field Wiring Diagram A - Figure 2.2).

4. **Potentiometer**: This switch determines if a linear taper 10K Ohm potentiometer is used as a heat demand control device. (Use Field Wiring Diagram B - Figure 2.3).

5. **Thermostat**: This switch determines if a single stage thermostat is used as a heat demand control device (Use Field Wiring Diagram C - Figure 2.4).

6. **Economy Mode***: This switch determines if ‘Economy Mode’ is the desired mode of operation.

7. **Standard Mode***: This switch determines if ‘Standard Mode’ is the desired mode of operation.

8. **Comfort Mode***: This switch determines if ‘Comfort Mode’ is the desired mode of operation.

*If Premium User Interface is connected, the mode selection switches are inoperative. Modes are selected from the controller. For more information on the modes, see Page 19.
**Standard Configuration:** From the factory, the heater is configured as follows:

1. 'Master' or 'Slave' Selector: **MASTER**
2. Outdoor Air Probe: **OFF**
3. Premium User Interface: **ON**
4. Potentiometer: **OFF**
5. Thermostat: **OFF**
6. Economy Mode: **OFF**
7. Standard Mode: **ON**
8. Comfort Mode: **OFF**

**Figure 2.7 • Standard Configuration of DIP Switches**

---

**‘Address’ DIP Switches**

The Address DIP Switches are only utilized in a ‘Master/Slave’ installation or for BMS configurations. All other configurations ignore the settings of these switches. When addressing a heater for a ‘Master/Slave’ configuration, the ‘Slave’ heaters must be addressed for proper operation. Each ‘Slave’ must have its own unique configuration, determined by the installer. Up to 256 unique combinations can be configured.

**Setting the ‘Slave’ Heater(s):** The ‘Slave’ heater configuration is set by selecting the ‘Slave’ position on switch #1 in the “Options” DIP Switches. The address switches become active when the ‘Slave’ configuration is selected. On the Address DIP Switches, configure each heater so that each heater has its own unique configuration. An example is provided below for a three heater zone system.

---

*If outdoor air sensor is equipped, switch DIP#2 to the ON position. Use Diagram “A” on Page 8 for connecting the Premium User Interface to the heater.

---

**NOTICE**

When choosing a configuration, the ‘Slave’ heater **must** be a non-zero number.

---

**Figure 2.8 • Example of three DIP Switches**

---
## Product Specifications

### Chart 2.1 • Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Gas Type (Select One)</th>
<th>Blast Mode Rate (BTU/h, Input)</th>
<th>Standard Modulating Range (BTU/h, Input)</th>
<th>Straight Length</th>
<th>U-Tube Length</th>
<th>Min. Dist. From Burner to Elbow or U-bend</th>
<th>Standard Weight (lbs.)</th>
<th>Stainless Steel Weight (lbs.)</th>
<th>Recommended Mounting Height</th>
<th>Combustion Chamber (Black Coated)</th>
<th>Radiant Emitter Tube(s) (Black Coated)</th>
<th>36” Baffle Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP-25-80</td>
<td>N or P</td>
<td>85,000</td>
<td>52,000 - 80,000</td>
<td>26'-5&quot;</td>
<td>**15'-3&quot;</td>
<td>10 ft.</td>
<td>120</td>
<td>N/A</td>
<td>12’ to 20’</td>
<td>Alum</td>
<td>Alum</td>
<td>5</td>
</tr>
<tr>
<td>MP-30-80</td>
<td>N or P</td>
<td>85,000</td>
<td>52,000 - 80,000</td>
<td>31’-5&quot;</td>
<td>**17’-9&quot;</td>
<td>10 ft.</td>
<td>160</td>
<td>195</td>
<td>12’ to 20’</td>
<td>Alum</td>
<td>Alum</td>
<td>4</td>
</tr>
<tr>
<td>MP-30-115</td>
<td>N or P</td>
<td>120,000</td>
<td>75,000 - 115,000</td>
<td>31’-5&quot;</td>
<td>**17’-9&quot;</td>
<td>15 ft.</td>
<td>160</td>
<td>N/A</td>
<td>14’ to 22’</td>
<td>Alum</td>
<td>Alum</td>
<td>5</td>
</tr>
<tr>
<td>MP-40-80</td>
<td>N or P</td>
<td>85,000</td>
<td>52,000 - 80,000</td>
<td>41’-1”</td>
<td>22’-9”</td>
<td>10 ft.</td>
<td>190</td>
<td>235</td>
<td>12’ to 20’</td>
<td>Alum</td>
<td>Alum</td>
<td>3</td>
</tr>
<tr>
<td>MP-40-115</td>
<td>N or P</td>
<td>120,000</td>
<td>75,000 - 115,000</td>
<td>41’-1”</td>
<td>22’-9”</td>
<td>15 ft.</td>
<td>190</td>
<td>235</td>
<td>15’ to 25’</td>
<td>Alum</td>
<td>Alum</td>
<td>4</td>
</tr>
<tr>
<td>MP-40-150</td>
<td>N or P</td>
<td>155,000</td>
<td>97,500 - 150,000</td>
<td>41’-1”</td>
<td>22’-9”</td>
<td>20 ft.</td>
<td>190</td>
<td>235</td>
<td>15’ to 28’</td>
<td>Titan</td>
<td>Alum</td>
<td>5</td>
</tr>
<tr>
<td>MP-50-115</td>
<td>N or P</td>
<td>120,000</td>
<td>75,000 - 115,000</td>
<td>50’-9”</td>
<td>**27’-5”</td>
<td>15 ft.</td>
<td>235</td>
<td>290</td>
<td>15’ to 28’</td>
<td>Alum</td>
<td>Alum</td>
<td>3</td>
</tr>
<tr>
<td>MP-50-150</td>
<td>N or P</td>
<td>155,000</td>
<td>97,500 - 150,000</td>
<td>50’-9”</td>
<td>**27’-5”</td>
<td>20 ft.</td>
<td>235</td>
<td>290</td>
<td>17’ to 30’</td>
<td>Titan</td>
<td>Alum</td>
<td>4</td>
</tr>
<tr>
<td>MP-50-200</td>
<td>N or P</td>
<td>200,000</td>
<td>130,000 - 194,000</td>
<td>50’-9”</td>
<td>**27’-5”</td>
<td>25 ft.</td>
<td>235</td>
<td>N/A</td>
<td>19’ to 37’</td>
<td>Titan</td>
<td>Alum</td>
<td>2</td>
</tr>
<tr>
<td>MP-60-150</td>
<td>N or P</td>
<td>155,000</td>
<td>97,500 - 150,000</td>
<td>60’-5”</td>
<td>32’-5”</td>
<td>20 ft.</td>
<td>265</td>
<td>330</td>
<td>17’ to 32’</td>
<td>Titan</td>
<td>Alum</td>
<td>3</td>
</tr>
<tr>
<td>MP-60-200</td>
<td>N or P</td>
<td>200,000</td>
<td>130,000 - 194,000</td>
<td>60’-5”</td>
<td>32’-5”</td>
<td>25 ft.</td>
<td>265</td>
<td>N/A</td>
<td>19’ to 37’</td>
<td>Titan</td>
<td>Alum</td>
<td>1</td>
</tr>
<tr>
<td>MP-70-200</td>
<td>N or P</td>
<td>200,000</td>
<td>130,000 - 194,000</td>
<td>70’-4’</td>
<td>**37’-3”</td>
<td>25 ft.</td>
<td>300</td>
<td>N/A</td>
<td>19’ to 42’</td>
<td>Titan</td>
<td>Alum</td>
<td>1</td>
</tr>
</tbody>
</table>

* Model requires stainless steel tube clamp (P/N: TP-220) to be located at the seam between the primary combustion chamber and the secondary combustion tube downstream of the burner control box.

** Model requires 5EA-SUB accessory package when installing in a ‘U’ configuration (P/N: TF1B).

**IMPORTANT:** Reference box label to determine the number of required baffle sections for each model heater.

Titan = Black coated titanium stabilized aluminized steel.
Alum = Black coated aluminized treated steel.
Tube Installation Sequence

Figure 2.9 • Tube Installation Sequence

Important! The combustion chamber and radiant tube sections must be installed in the following order.

- **25 Foot**
- **30 Foot**
  - Stainless steel clamp location on 150,000 BTU/h models (P/N: TP-220).
- **40 Foot**
  - Stainless steel clamp location on 150,000-200,000 BTU/h models (P/N: TP-220).
- **50 Foot**
  - Stainless steel clamp location on 150,000-200,000 BTU/h models (P/N: TP-220).
- **60 Foot**
  - Stainless steel clamp location on 200,000 BTU/h models (P/N: TP-220).
- **70 Foot**

### Key

- **Burner Control Box with 16-inch Burner Tube**
- **Black Coated Combustion Chamber Tube** P/N: TP-26A, TP-26B
- **Black Coated Aluminized Combustion Chamber/Radiant Emitter Tube** P/N: TP-26A
- **Standard Tube Clamp** P/N: TP-21B
- **Stainless Steel Tube Clamp** (P/N: TP-220)
  - 150,000-200,000 BTU/h models only. Located between 1st and 2nd 10 ft. tube sections.
- **Baffle Location**

* Aluminized tubes (80,000 to 115,000 BTU/h models) P/N: TP-26A.
* Titan tubes (150,000 to 200,000 BTU/h models) P/N: TP-26B.

**NOTE:** Refer to the Tube Heater General Manual, Chart 3.6 (Page 23) for secured reflector joints.
3.0 Operation

WARNING

This heater must be installed and serviced by trained gas installation and service personnel only.

Do not bypass any safety features or the heater's built in safety mechanisms will be compromised.

Note: Reference the Tube Heater General Manual for installation requirements.

Sequence of Operation

There are two (2) main controllers for the MP series heater. The TP-351A is the ignition controller, and is responsible for the ignition sequence, flame monitoring, and safety lock-out features. The TP-3250 is the modulating controller, and is responsible for the call for heat, modulating the gas valve and blower speed, selecting the performance curve or mode, and handles various passive inputs and outputs for controlling devices. These two devices will be referred to as their TP-#’s during the sequence of operation.

Standby:

TP-351A - 120 VAC is held at the circuit of the circuit board.
TP-3250 - 24 VAC and 120 VAC is held at the circuit board.

Starting Circuit:

The TP-3250 checks various inputs to select the performance curve, model, and appropriate mode of operation. After successful determination of all internal checks, the TP-3250 will output the conditioned 120 VAC to the blower motor and 120 VAC to the common side of the pressure switch.

Once operational static pressure is achieved, the differential switch will close, sending the 120 VAC to the TP-351A and the PS indicator light, initiating the ignition sequence. The glo-bar is energized with 120 VAC for 45 seconds from the TP-351A. Once the time is achieved, the TP-351A switches on the 120 VAC for the valve circuit and switches off the power to the glo-bar. The 120 VAC from the TP-351A valve circuit is used to power the coil side of the isolation relay and sends power to the TP-3250 to indicate the start of the ignition sequence. The isolation relay switches 24 VAC from the transformer to the primary coil of the gas valve and valve indicator light.

Once the gas valve circuit is energized from the TP-351A, flame should be present on the burner and visible through the sight glass. The flame rod monitors the burner flame through flame rectification, and can be measured in micro-amps (this can be verified at the flame current test pins on the TP-351A). Minimum required micro-amps are 1.0 mA, and should be present during burner operation.

If the burner fails to light or flame is not detected within 8 seconds, the gas valve circuit is de-energized and the control performs an “inter-purge” delay before attempting another ignition sequence. The control will attempt 2 additional trials of ignition before entering the soft lock out sequence. In the soft lockout sequence, the gas valve will be turned off immediately. After 1 hour, if the thermostat is still calling for heat, the TP-351A will automatically reset and attempt a new trial for ignition. After multiple attempts to ignite the burner have failed, the TP-351A enters a hard lockout mode. The control will not open the gas valve unless there is an intervention by the user. The reset can be done by either resetting the thermostat or removing the 120 VAC for a period of 5 seconds.
Running Circuit:
After ignition, the flame rod continuously monitors the flame presence. If sense of flame is lost for a time of 1.0 seconds or greater, the TP-351A closes the gas valve circuit and a new trial for ignition sequence is initiated.

Modulating Circuit:
*Pre-heat:* During the ignition sequence, the TP-3250 operates the blower and gas valve at 100% operation to optimize ignition. Once ignition is established, the heater will enter a pre-heat cycle for 90 seconds, operating the blower motor and gas valve at 100%. However, if the heater has cycled in the previous 5 minutes, the controller will skip the pre-heat cycle, and go straight to modulating operation.

The blower motor and modulating coil on the gas valve are energized directly from the TP-3250 modulating controller. The controller utilizes PID logic to match the selected performance curve to the heater's operation. Based on the determined system configuration, the control will operate as needed to match the desired system performance.

Performance Curves
The MP series is programmed to operate on several different performance curves. These curves are to allow the user to select the desired operation that best accommodates their specific needs. The performance curves can be selected either by the Premium User Interface (TP-PUI) or by setting the DIP switches located under the control cover (Pages 14-15). The three modes are as follows:

- **Economy Mode:** Unit operates to maximize thermal efficiency.
- **Comfort Mode:** Unit operates to maximize perceived human comfort.
- **Standard Mode:** Unit operates as a balance between comfort and economy mode.

**Economy Mode:** Economy Mode is intended to maximize thermal efficiency. It is designed to provide a system that is more thermally efficient than the other modes due to quicker dissipation of heat. This mode is recommended for applications such as:

- Aircraft hangars
- Car washes
- Unpopulated warehouses
- Pole barns
- Foundries

**Comfort Mode:** Comfort Mode is designed to minimize temperature differentials across the length of the heater. It is intended to provide a system that has a greater perceived comfort than the other modes because of the reduction of extreme temperature zones. This mode is recommended for applications such as:

- Patios
- Loading docks
- Break areas and lunch rooms
- Kennels
- Parts counters and service desks
- Golf driving ranges
- Woodworking shops

**Standard Mode:** Standard Mode is a balance between Comfort Mode and Economy Mode. It is intended to provide a system that has moderate thermal efficiency while still minimizing the greater temperature differentials associated with economy mode. This mode is recommended for applications such as:

- Populated warehouse heating
- Service garages
- Fire Stations
- Manufacturing
- Auto showrooms
Shut-down:
When the thermostat is satisfied, the TP-3250 will de-energize the 120 VAC power to the common side of the pressure switch, de-energizing the thermostat circuit on the TP-351A. The blower motor will continue to cycle for a period of 2 minutes for a post-purge cycle.

NOTE: Due to the PID Controller optimizing the output of the heater, the unit may run for a short period after the call for heat has been satisfied.

For extended shut down periods:
1. Set external controller devices to off or lowest setting.
2. Turn OFF the 120 VAC to the heater.
3. Turn OFF the manual shut-off valve in the heater's gas supply line.
4. Prior to start up after seasonal extended shut-down, an inspection of the heater must be performed by trained gas installation and service personnel. This will help to ensure optimal operation and years of trouble-free service.

Diagnostics

Lockout:
The controls will automatically lockout the heater system when an external or system fault occurs. There are two types of lockout:

Soft Lockout: The heater will attempt to light three times. In the event of a failed ignition, (gas pressure, valve, no flame sense, etc.), the heater will enter Soft Lockout mode for 15 minutes and then attempt to light three more times before entering Hard Lockout mode.

Hard Lockout: If proof of flame is not established, a component failure occurs or blockages are evident, the heater will enter Hard Lockout mode. If lockout occurs, the control can be reset by briefly interrupting the power source. The control will not open the gas valve unless there is an interruption by the user.

Figure 3.1 • Operational Indicator Lights (see Charts 3.1 through 3.3 for Operation & Diagnostic LEDs)
Figure 3.2 • Circuit Board LEDs

Chart 3.1 • Operation LED

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Description</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green</td>
<td>Relay ON</td>
<td>On if relay ON to ignition module.</td>
</tr>
</tbody>
</table>

Chart 3.2 • Diagnostic LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>Description</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Green</td>
<td>Power</td>
<td>On if power to unit.</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>Heat</td>
<td>On if call for heat.</td>
</tr>
<tr>
<td>4</td>
<td>Green</td>
<td>Fan</td>
<td>On if fan energized.</td>
</tr>
<tr>
<td>5</td>
<td>Green</td>
<td>Valve</td>
<td>On if valve energized.</td>
</tr>
<tr>
<td>6</td>
<td>Red</td>
<td>Service</td>
<td>Errors (see Chart 3.3).</td>
</tr>
</tbody>
</table>

Chart 3.3 • Flash Code Status LED (located on Circuit Board)

Each of the following status codes is a two digit number with the first digit determined by the number of short flashes and the second digit by the number of long flashes.

**LED Short Flash:** 0.5 Seconds ON, 0.5 Seconds OFF.
**LED Long Flash:** 1.5 Seconds ON, 1.5 Seconds OFF.

<table>
<thead>
<tr>
<th>LED CODE (Number of Flashes)</th>
<th>STATUS / ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td><strong>Long Run Time</strong> - Actual temperature fails to rise after 4 hours of consecutive running.</td>
</tr>
<tr>
<td>1-2</td>
<td><strong>Blower</strong> - Fan is on but static pressure is not reading properly.</td>
</tr>
<tr>
<td>1-3</td>
<td><strong>Ignition Module Failure</strong> - Ignition module failed to initiate sequence of ignition.</td>
</tr>
<tr>
<td>1-4</td>
<td><strong>Ignition Soft Lockout</strong> - Control will auto reset after 15 minutes. See lockout in diagnostics section.</td>
</tr>
<tr>
<td>2-1</td>
<td><strong>Ignition Hard Lockout</strong> - Ignition module will NOT auto reset; unit will not operate unless there is an interruption by the user.</td>
</tr>
<tr>
<td>2-2</td>
<td><strong>Sensor Error</strong> - External temperature sensor is shorted or reading open.</td>
</tr>
<tr>
<td>2-3</td>
<td><strong>Internal Software Error</strong> - Failure with software on modulating controller.</td>
</tr>
<tr>
<td>2-4</td>
<td><strong>Model Selection or Setup Error</strong> - Invalid model selection DIP Switch configuration</td>
</tr>
<tr>
<td>3-2</td>
<td><strong>Error with User Interface</strong> - Short was detected in user interface.</td>
</tr>
</tbody>
</table>
**4.0 Troubleshooting Guide**

1. **Turn on control device for heat.**
   - **Yes**
   - **No**

2. Does the fan blower turn on?
   - **Yes**
   - **No**

3. Does the pressure switch light turn on?
   - **Yes**
   - **No**

4. Does the igniter warm up and turn red?
   - **Yes**
   - **No**

5. Does the igniter appear to be physically damaged?
   - **Yes**
   - **No**

6. Temporarily disconnect igniter from harness and check the resistance. Is it within the range of 50-400 \(\Omega\)?
   - **Yes**
   - **No**

7. Replace igniter.

8. Does the valve light turn on?
   - **Yes**
   - **No**

   - **Yes**
   - **No**

10. Check inlet pressure to the heater. Is it within the minimum and maximum allowable range as per the rating plate?
   - **Yes**
   - **No**

11. Are the wires to and from the gas valve properly connected?
   - **Yes**
   - **No**

12. Adjust inlet pressure.

Continued on Page 24
NOTICE

Bypassing any switch is intended for testing purposes only. Do not leave switch bypassed during normal operation or the heater’s built-in safety mechanisms will be compromised.

**Key**

- Start Question
- Process Question
- Corrective Action

---

1. **Is there 90-120 VAC across the fan wire leads?**
   - No: Check modulating controller flash codes.
   - Yes: Is the fan obstructed or locked in place by a foreign object?
     - No: Replace fan.
     - Yes: Remove obstruction.

2. **Is the wiring of the pressure switch loose, damaged or disconnected?**
   - No: Correct faulty wiring or replace damaged wires.
   - Yes: Replace ignition module.

3. **Is the inlet or outlet of the heater obstructed, or is the vent exceeding the recommended vent lengths?**
   - No: Is the pneumatic tubing to the pressure switch connected and free of kinks, damage or obstruction?
     - Yes: Reconnect tubing, free kinks, and remove obstructions.
     - No: The heater is equipped with a safety pressure switch. This is a normally open, pneumatically operated switch and is located in the service compartment. TEMPORARILY place jumper wires across the terminals of the switch. Does the igniter warm up and glow red?

---

Reconnect igniter to harness and check voltage at igniter during ignition sequence. Is it approx. 120 VAC?

- Yes: Re-connect igniter to harness and check voltage at igniter during ignition sequence. Is it approx. 120 VAC?
  - No: Check connector pins and wires. Repair or replace.

- Correct improper wiring.
Continued from Page 22

**Yes**

Does the burner ignite?

---

**No**

Is the gas supply valve to the heater in the “on” position?

---

**Yes**

Pressure switch may be faulty or there is a restriction in the exhaust.

---

**Yes**

Confirm inlet is within minimum and maximum inputs as indicated on the rating label. Is the gas pressure okay?

---

**No**

Does the burner stay lit?

---

**Yes**

Is the heater output consistent with prior operation?

---

**No**

Does the heater stay on until the call for heat ends?

---

**Yes**

Check inlet pressure to the heater. Is it within the minimum and maximum allowable range as per the rating plate?

---

**No**

Adjust inlet pressure.

---

**Troubleshooting ends.**

For additional information, contact your local representative or the factory for assistance.

---

**Yes**

Turn on the gas supply line.

---

**Yes**

Check the voltage at the relay coil during the ignition sequence. Is it 120 VAC?

---

**No**

Does the burner ignite?

---

**Yes**

Does the burner stay lit?

---

**Yes**

Does the burner stay on for approximately 8 seconds and then shut off?

---

**No**

Check modulating controller for flash codes. Consult factory.

---

Consider the following:
- Change mode selection.
- Addition of a room thermistor.
- Addition of wind barriers.
- Check heat loss calculation.
- Consult factory.

---

Partial blockage in the venting may be present. Check for obstructions and check flash codes.

---

The heater can shut down or stay on due to:
- Improper grounding.
- Faulty control device.
- High winds.
- Taking combustion air from the attic.
- Dirty environment.
- Improperly positioned baffles.
- Fluctuating gas pressure.
Check for flash codes on the modulating controller. Replace the ignition module.

Is there 24 VAC on the secondary side of the transformer across the BLUE and YELLOW wires? Yes

Is the relay switching closed when energized by the 120 V coil? Yes

Is there continuity through each coil? Yes

Disconnect the main wire to the valve and check for resistance across both coil pins. Is there continuity through each coil? Yes

Replace transformer.

Is there 120 VAC on the primary side of the transformer across the BLACK and WHITE wires? Yes

Check wiring and repair. Replace valve wire.

No

Is there 120 VAC on the primary side of the transformer across the BLACK and WHITE wires? No

Check wiring and repair.

Is the heater properly grounded? Is the heater’s polarity correct (L1 and L2 reversed)? No

Correct grounding or fix polarity.

Yes

With a micro ammeter, check the micro Amps on the FS terminals on the ignition module. Is it greater than 0.7 μA? Yes

Check modulating controller for flash codes. Replace ignition module.

No

Is the insulation of the flame rod damaged or is the rod dirty or oxidized? Yes

Replace flame rod or clean if able.

No

Replace wire to flame rod.

No

Were the gas lines purged of air? Yes

Purge gas lines.

No

Replace isolation relay.

Is the relay switching closed when energized by the 120 V coil? No

Replace transformer.

Connect modulating controller for flash codes. Consult factory.

Yes

Contact local representative or factory.

Does the heater’s gas type match the gas supplied? Yes

Check manifold pressure. Are you reading within the specified pressures?

No

Check modulating controller for flash codes. Replace ignition module.

Yes

Contact local representative or factory.

Were the gas lines purged of air? No

Replace isolation relay.

Does the heater’s gas type match the gas supplied? Yes

Check manifold pressure. Are you reading within the specified pressures?

No

Check modulating controller for flash codes. Consult factory.

Yes

Contact local representative or factory.

Is the heater properly grounded? Is the heater’s polarity correct (L1 and L2 reversed)? No

Correct grounding or fix polarity.

Yes

Adjust inlet pressure.

Purge gas lines.

Replace gas valve.

Check modulating controller for flash codes. Replace ignition module.

Replace isolation relay.

Replace gas valve.

Is there continuity through each coil? No

Replace gas valve.

Replace isolation relay.

Check modulating controller for flash codes. Replace ignition module.

Replace wire to flame rod.

Replace isolation relay.
5.0 Parts

Chart 5.1 • Parts List

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-5</td>
<td>Flange Gasket</td>
<td>TP-76</td>
<td>3/8&quot; Rubber Grommet</td>
</tr>
<tr>
<td>TP-9</td>
<td>3/4&quot; EMT Conduit Coupling</td>
<td>TP-82</td>
<td>Reflector Center Support (RCS)</td>
</tr>
<tr>
<td>TP-10A</td>
<td>3/4&quot; x 4&quot; EMT Conduit</td>
<td>TP-105</td>
<td>Aluminum Reflector End Cap</td>
</tr>
<tr>
<td>TP-14</td>
<td>Sight Glass Gasket</td>
<td>TP-106</td>
<td>Reflector End Cap Clips (8 pieces)</td>
</tr>
<tr>
<td>TP-15</td>
<td>Sight Glass</td>
<td>TP-111</td>
<td>5 ft. x 4&quot; Black Coated Aluminized Steel Tube</td>
</tr>
<tr>
<td>TP-16</td>
<td>Sight Glass Washer</td>
<td>TP-112</td>
<td>5 ft. Polished Aluminum Reflector</td>
</tr>
<tr>
<td>TP-17</td>
<td>Sight Glass Kit</td>
<td>TP-113</td>
<td>Reflector Tension Spring</td>
</tr>
<tr>
<td>TP-19B</td>
<td>4&quot; Wire Hanger w/ Tension Spring</td>
<td>TP-201B</td>
<td>High BTU Burner (Color Code - TAN)</td>
</tr>
<tr>
<td>TP-20C</td>
<td>10 ft. Polished Aluminum Reflector</td>
<td>TP-204</td>
<td>Gas Orifice (Consult Factory)</td>
</tr>
<tr>
<td>TP-20D</td>
<td>10 ft. Stainless Steel Reflector</td>
<td>TP-205</td>
<td>Glo-Bar Holder</td>
</tr>
<tr>
<td>TP-21B</td>
<td>4&quot; Standard Tube Clamp</td>
<td>TP-206</td>
<td>Glo-Bar Holder Spring Clip</td>
</tr>
<tr>
<td>TP-26A</td>
<td>10 ft. Aluminized Radiant / Combustion Tube</td>
<td>TP-212</td>
<td>1/2&quot; N.P.T. x 3&quot; Pipe Nipple</td>
</tr>
<tr>
<td>TP-26B</td>
<td>10 ft. Titanium Stabilized Combustion Tube</td>
<td>TP-217</td>
<td>Brass 1/8&quot; N.P.T. Barb Fitting</td>
</tr>
<tr>
<td>TP-26D</td>
<td>10 ft. 304 Stainless Steel Radiant Tube</td>
<td>TP-219</td>
<td>12&quot; Pneumatic Tube for Pressure Switch</td>
</tr>
<tr>
<td>TP-26E</td>
<td>10 ft. 409 Stainless Steel Combustion Tube</td>
<td>TP-220*</td>
<td>Stainless Steel Tube Clamp</td>
</tr>
<tr>
<td>TP-31D</td>
<td>Interlocking Mounting Bracket (Qty. 2)</td>
<td>TP-221</td>
<td>Glo-Bar Holder Gasket</td>
</tr>
<tr>
<td>TP-50A</td>
<td>Glo-Bar Igniter</td>
<td>TP-222</td>
<td>Flame Rod</td>
</tr>
<tr>
<td>TP-65I</td>
<td>3 ft. Interlocking Turbulator Baffle</td>
<td>TP-245</td>
<td>Plastic 1/8&quot; N.P.T. 90° Barb Fitting</td>
</tr>
<tr>
<td>TP-68B</td>
<td>1/2&quot; Strain Relief Bushing</td>
<td>TP-249</td>
<td>3/16&quot; Pneumatic Tee (Qty. 2)</td>
</tr>
<tr>
<td>TP-70</td>
<td>1/2&quot; x 10&quot; Control Box Gasket (Qty. 2)</td>
<td>TP-264B</td>
<td>Differential Pressure Switch</td>
</tr>
<tr>
<td>TP-70A</td>
<td>1&quot; x 6&quot; Manifold Gasket</td>
<td>TP-264E</td>
<td>Differential Pressure Switch</td>
</tr>
</tbody>
</table>
### 5.0 Parts • Heater Components and Parts List

#### Figure 5.2 • Tube and Reflector Components

![Diagram of Tube and Reflector Components]

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-328</td>
<td>120 V Amber Indicator Light</td>
<td>TP-3044</td>
<td>Gas Manifold</td>
</tr>
<tr>
<td>TP-331</td>
<td>Green Self-tap Ground Screw (Qty. 2)</td>
<td>TP-3060</td>
<td>Pressure Switch Mounting Bracket</td>
</tr>
<tr>
<td>TP-332</td>
<td>1/4&quot; Divider Grommet</td>
<td>TP-3072</td>
<td>Low BTU Burner (Color Code - GREEN)</td>
</tr>
<tr>
<td>TP-333</td>
<td>6 ft. Black Power Cord w/ Ground</td>
<td>TP-3074</td>
<td>High BTU Burner (Color Code - ORANGE)</td>
</tr>
<tr>
<td>TP-351A</td>
<td>Potted Circuit Board - Ignition Controller</td>
<td>TP-3093</td>
<td>#8-32 Cage Nut (Qty. 4)</td>
</tr>
<tr>
<td>TP-352A</td>
<td>Wire Harness for Ignition Controller</td>
<td>TP-3094A</td>
<td>#8-32 X ½” Metal Thumb Screw</td>
</tr>
<tr>
<td>TP-383</td>
<td>Glo-Bar Igniter Plate</td>
<td>TP-3096A</td>
<td>Valve Compartment Bottom Panel</td>
</tr>
<tr>
<td>TP-579</td>
<td>4” Wire Hanger</td>
<td>TP-3097A</td>
<td>Valve Compartment Top Panel</td>
</tr>
<tr>
<td>TP-826</td>
<td>40 VA Transformer (120Primary / 24Secondary)</td>
<td>TP-3098</td>
<td>Valve Compartment Side Panel</td>
</tr>
<tr>
<td>TP-828</td>
<td>24 VAC Yellow Operational Indicator Light</td>
<td>TP-3099A</td>
<td>Controls Mounting Panel</td>
</tr>
<tr>
<td>TP-1018</td>
<td>20” Pneumatic Tube for Pressure Switch</td>
<td>TP-3220</td>
<td>Thermostat Wire Grommet</td>
</tr>
<tr>
<td>TP-1264A</td>
<td>Differential Pressure Switch</td>
<td>TP-3223</td>
<td>Anti-Kink Coil (Qty. 2)</td>
</tr>
<tr>
<td>TP-3001</td>
<td>Divider Panel</td>
<td>TP-3224</td>
<td>Thermostat Terminal Strip, 4 Circuit (C)</td>
</tr>
<tr>
<td>TP-3002A</td>
<td>Plastic End Panel, Control Compartment</td>
<td>TP-3225</td>
<td>Thermostat Terminal Strip, 5 Circuit (B)</td>
</tr>
<tr>
<td>TP-3003A</td>
<td>Plastic End Panel, Fan Compartment</td>
<td>TP-3228</td>
<td>Thermostat Terminal Strip, 8 Circuit (A)</td>
</tr>
<tr>
<td>TP-3004</td>
<td>Control Box</td>
<td>TP-3234</td>
<td>Mini Fuse for TP-3250 (3A)</td>
</tr>
<tr>
<td>TP-3005A</td>
<td>Plastic Valve Chamber Lid</td>
<td>TP-3235</td>
<td>Valve Coil Main Cord (24VRAC)</td>
</tr>
<tr>
<td>TP-3008</td>
<td>Gas Valve Mounting Bracket</td>
<td>TP-3240</td>
<td>Natural Gas Valve Assembly</td>
</tr>
<tr>
<td>TP-3010</td>
<td>Service Panel Hinge</td>
<td>TP-3241</td>
<td>Propane Gas Valve Assembly</td>
</tr>
<tr>
<td>TP-3011</td>
<td>Igniter Box</td>
<td>TP-3250</td>
<td>Circuit Board - Modulating Controller</td>
</tr>
<tr>
<td>TP-3012</td>
<td>Igniter Box Cover</td>
<td>TP-3254</td>
<td>Wire Harness for Modulating Controller</td>
</tr>
<tr>
<td>TP-3014</td>
<td>Plastic Air Orifice with Screen</td>
<td>TP-3260</td>
<td>4 1/2” Pneumatic Tube (Qty 3)</td>
</tr>
<tr>
<td>TP-3015</td>
<td>Fan Blower Assembly (PSC Motor)</td>
<td>TP-3261</td>
<td>10” Pneumatic Tube (Qty 2)</td>
</tr>
<tr>
<td>TP-3025</td>
<td>120 VAC Coil Relay</td>
<td>TP-3380</td>
<td>16” HSI Burner Tube w/ Flange and Fittings</td>
</tr>
<tr>
<td>TP-3033D</td>
<td>Power Entry Plate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 150,000-200,000 BTU/h models only.
## Kit Contents

**MP Series Kit Contents - Reference the length column for your model.**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>25 ft.</th>
<th>30 ft.</th>
<th>40 ft.</th>
<th>50 ft.</th>
<th>60 ft.</th>
<th>70 ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-36</td>
<td>36&quot; x 3/4&quot; S.S. Flexible Gas Connector</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TP-19B</td>
<td>4&quot; Hanger w/ Tension Spring</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>TP-21B</td>
<td>4&quot; Tube Clamp</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5*</td>
<td>6*</td>
<td>7*</td>
</tr>
<tr>
<td>TP-82</td>
<td>4&quot; Reflector Center Support</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>TP-105</td>
<td>Reflector End Cap</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TP-106</td>
<td>Reflector End Cap Clips</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>TP-3220</td>
<td>Thermostat Wire Grommet</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TP-3224</td>
<td>Terminal Strip Connector ‘C’</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TP-3225</td>
<td>Terminal Strip Connector ‘B’</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TP-3228</td>
<td>Terminal Strip Connector ‘A’</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LIOGT3</td>
<td>V3 General Tube Heater Manual</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LIOMP</td>
<td>MP Series Insert Manual</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*NOTE:* One 4" stainless steel tube clamp (P/N: TP-220) is provided for each 150,000 - 200,000 BTU/h model. Place as shown on Page 17.

**Part number for models upgraded with stainless steel options.**

### Approvals
- CSA
- Indoor approval
- Outdoor approval with OD-Kit
- Commercial approval

### Limited Warranty
- 3 years - Burner box components
- 5 years - Combustion and radiant tubes
- 10 years - Stainless steel burner

© 2017 Detroit Radiant Products Co.
21400 Hoover Road • Warren, MI 48089
Phone: (586) 756-0950 Fax: (586) 756-2626
www.detroitradiant.com • sales@drp-co.com

Printed in U. S. A. 28