

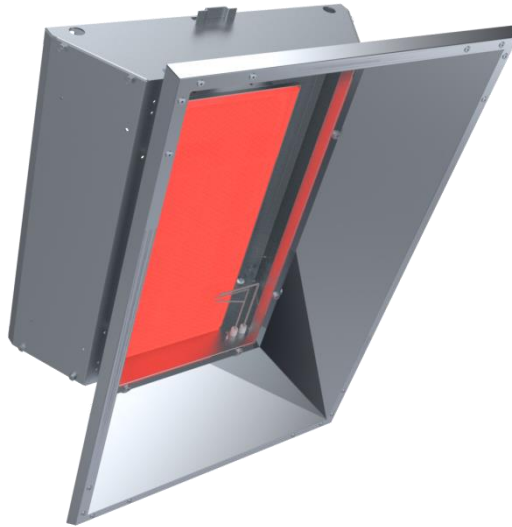
# Installation, Operation and Service Instructions

## INFRARED HEATER



**SUPERIOR**  
RADIANT PRODUCTS

# SERIES S



### WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury, or death. Read the installation, operation, and service instructions thoroughly before installing or servicing this heater.

### FOR YOUR SAFETY

Do not store or use flammable vapors and liquids in the vicinity of this or any other heater.

If you smell gas:

1. Open windows
2. Don't touch electrical switches
3. Extinguish any open flame
4. Immediately call your gas supplier

### OWNER

Retain this Manual & ensure available for service. Improper installation, adjustment, alteration, service, or maintenance can cause injury, death, or property damage.

Read the installation, operation, and service instructions thoroughly before installing or servicing this heater.

### INSTALLER

Provide Manual to Owner upon completion of installation!

Read and thoroughly understand these Instructions before attempting any installation

563 Barton Street, Stoney Creek, Ontario L8E 5S1, CANADA  
[www.superiorradiant.com](http://www.superiorradiant.com)

**CAUTION: FIRE OR EXPLOSION HAZARD**

Maintain clearance to combustible constructions as further specified in this manual. Failure to do so could result in a serious fire hazard. Heaters should not be located in hazardous atmospheres containing flammable vapors or combustible dusts. Signs should be provided in storage areas specifying maximum safe stacking height.

**CAUTION: MECHANICAL HAZARD**

This heater is designed and approved for indoor use only.

**CAUTION: FIRE OR EXPLOSION HAZARD**

This heater is equipped with an automatic ignition device. Do not attempt to light the burner by hand. Failure to comply could result in a serious fire and personal injury hazard.

**CAUTION: MECHANICAL HAZARD**

Do not use high pressure (above 60 mbar) to test the gas supply system with the burners connected. Failure to do so could result in damage to the burner and its control components requiring replacement.

**CAUTION: SERVICE LIFE RISK**

Do not install heater in atmospheres containing halogenated hydrocarbons or other corrosive chemicals. High intensity heaters are not recommended for installation in enclosed swimming pool areas. Failure to do so may lead to premature heater failure and will invalidate the warranty.

# CONTENTS

|  |           |
|--|-----------|
| <b>CONTENTS</b> .....  | <b>3</b>  |
| <b>INTRODUCTION</b> .....                                      | <b>4</b>  |
| CODES AND REGULATIONS .....                                    | 4         |
| <b>GENERAL SPECIFICATIONS</b> .....                            | <b>5</b>  |
| GAS SUPPLY .....   | 5         |
| ELECTRIC SUPPLY.....   | 5         |
| <b>CONFIGURATION</b> .....                                     | <b>5</b>  |
| SEA LEVEL RATINGS .....  | 5         |
| HIGH ALTITUDE RATINGS .....                                    | 5         |
| <b>DIMENSIONAL CHARTS</b> .....                                | <b>6</b>  |
| <b>CLEARANCE TO COMBUSTIBLES</b> .....                         | <b>7</b>  |
| <i>WARNING</i> .....   | 7         |
| <b>LAYOUT RECOMMENDATIONS</b> .....                            | <b>8</b>  |
| LAYOUT CONSIDERATIONS.....                                     | 8         |
| SPOT HEATING.....  | 8         |
| FULL BUILDING HEAT .....                                       | 9         |
| <b>INSTALLATION</b> .....                                      | <b>10</b> |
| HEATER MOUNTING .....  | 10        |
| GAS SUPPLY.....  | 11        |
| ELECTRIC .....   | 11        |
| <i>Typical Wiring Layouts</i> .....                            | 11        |
| <b>VENTILATION / CONDENSATION</b> .....                        | <b>13</b> |
| VENTILATION .....  | 13        |
| CONDENSATION .....   | 13        |
| <b>OPERATION / MAINTENANCE</b> .....                           | <b>14</b> |
| OPERATION .....  | 14        |
| <i>Control Operating Sequence—Direct Spark Ignition</i> .....  | 14        |
| <i>Control Operating Sequence—Millivolt Pilot System</i> ..... | 14        |
| ANNUAL MAINTENANCE .....                                       | 14        |
| <b>SERVICING - TROUBLESHOOTING</b> .....                       | <b>15</b> |
| <b>REPLACEMENT PARTS</b> .....                                 | <b>16</b> |
| <b>WARRANTY</b> .....  | <b>17</b> |

## INTRODUCTION

Superior Radiant Products is a company in the infrared heating industry founded on the principles of product quality and customer commitment.

Quality commitments are evidenced by superior design, a regard for design detail, and an upgrade of materials wherever justifiable.

Customer commitment is apparent through our ready responses to market demands and a never ending training and service support program for and through our distributor network.

Superior Radiant offers more than 20 years of infrared expertise in a cost effective radiant heater design as culmination of that commitment.

Series S model is a high intensity infrared heater.

### Important

The manufacturer's instructions, the layout drawing, national and local codes and ordinances, and all applicable standards which apply to gas piping and electrical wiring comprise the basic information needed to complete the installation. These criteria must be thoroughly understood before proceeding.

Only personnel who have been trained and understand all applicable codes should undertake the installation. SRP Representatives are Factory Certified in the service and application of this heater and can be called on for helpful suggestions about installation.

## Codes and Regulations

Installations must comply with all local building codes or in their absence; the latest edition of the national regulations and procedures applicable to gas fired and suspended heaters.

### **General Installation and Gas Codes/Electrical Codes**

Heaters must be installed only for use with the type of gas appearing on the rating plate, and the installation must conform to the National Fuel Gas Code, ANSI Z.223.1 (NFPA 54) in the US and CSA B149.1 and B149.2 Installation Codes in Canada. For electrical requirements refer to the latest editions of the National Electrical Code ANSI/NFPA 70 or Canadian Electrical Code C22.1

**This heater is approved for indoor installation only.**

**Not for use in residential dwellings, refer to Rating plate.**

**Note:** A residential dwelling is a domicile intended for use by one or more persons and that includes one or more areas, such as those used for cooking, eating, living, sleeping, or a sanitary facility. A residential dwelling does not include an attached and detached garage, workshop, or outdoors.

### **Aircraft Hangar Installation**

Installation in aircraft hangars must conform to the Standard for Aircraft Hangars, ANSI/NFPA 409 in the US and CSA B149.1 and B149.2 Installation Codes in Canada

### **Public Garages**

Installation in public garages must conform to the Standard for Parking Structures, NFPA 88A or the Standard for Repair Garages, NFPA 88B, in the US and CSA B149.1 and B149.2 Installation Codes in Canada.

### **Parking Structures**

Technical requirements are outlined in ANSI/NFPA 88A (USA)

# GENERAL SPECIFICATIONS

## Gas Supply

### Supply Pressure

|              | Minimum    | Maximum    |
|--------------|------------|------------|
| Natural Gas: | 6.5" W.C.  | 14.0" W.C. |
| Propane:     | 11.0" W.C. | 14.0" W.C. |

### Manifold Pressure

|              |            |
|--------------|------------|
| Natural Gas: | 6.0" W.C.  |
| Propane:     | 10.0" W.C. |

Inlet Connection                      ½" female NPT

## Electric Supply

(Two options)                              24Vac, 20 VA  
Millivolt pilot system (750mVdc)

# CONFIGURATION

## Sea Level Ratings

| Model #                   |             | S3     | S6     | S9     | S12     | S16     |
|---------------------------|-------------|--------|--------|--------|---------|---------|
| Nominal Input<br>(BTU/hr) | Natural Gas | 33,000 | 66,000 | 99,000 | 132,000 | 160,000 |
|                           | Propane     | 30,000 | 60,000 | 90,000 | 120,000 | N/A     |

## High Altitude Ratings

For Canada, 0-4500 feet above sea level. In the U.S. 0-2000 feet above sea level, anything over 2000 feet is de-rated by 4% per thousand feet above sea level as per National Fuel Gas Code.

# DIMENSIONAL CHARTS

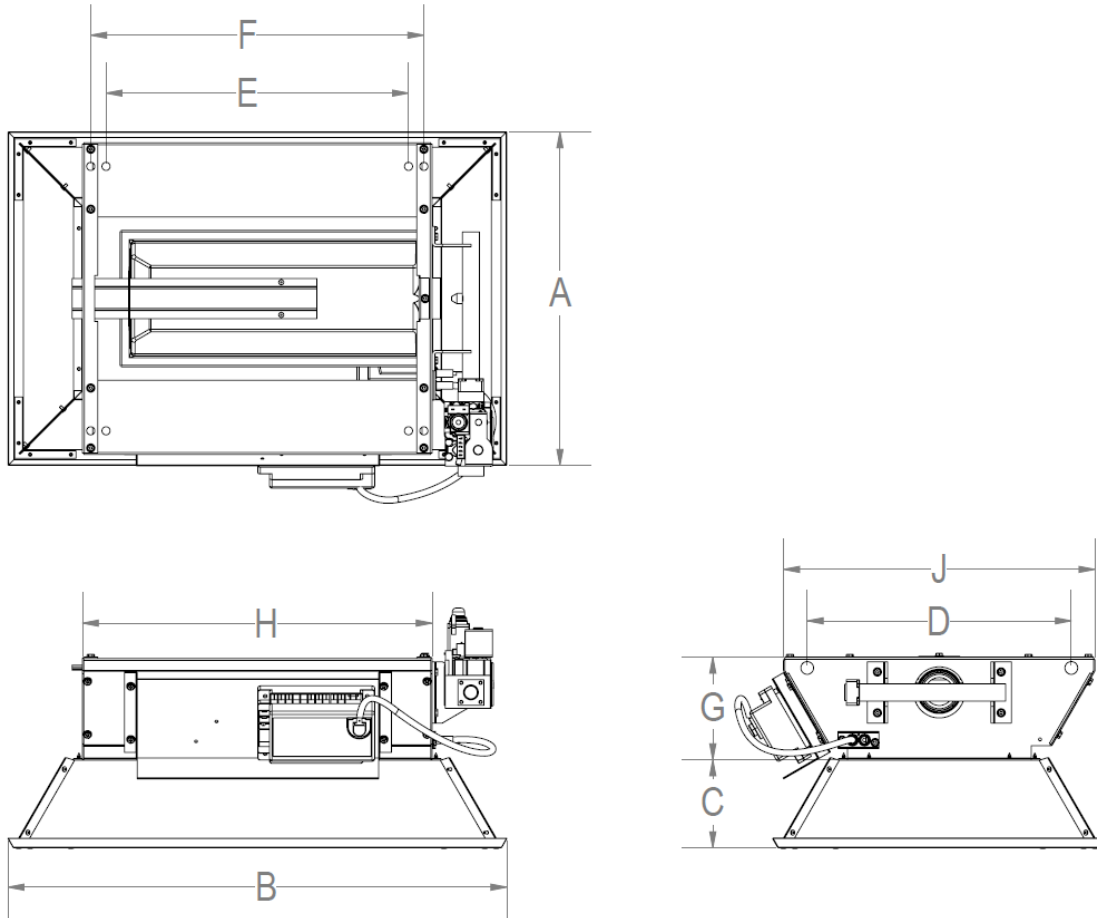


Figure 1: Overall Dimensional Information

| Model #                       |          | S3                    |                       | S6                    |                       | S9                    |                       | S12                   |                       | S16                   |                       |
|-------------------------------|----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                               |          | in                    | cm                    | in                    | cm                    | in                    | cm                    | in                    | cm                    | in                    | cm                    |
| <b>DIMENSION</b>              | <b>A</b> | 16.3                  | 41.4                  | 23.1                  | 58.7                  | 30                    | 76.2                  | 36.9                  | 93.7                  | 36.9                  | 93.7                  |
|                               | <b>B</b> | 24.4                  | 62                    | 24.4                  | 62                    | 24.4                  | 62                    | 24.4                  | 62                    | 24.4                  | 62                    |
|                               | <b>C</b> | 4.2                   | 10.7                  | 4.2                   | 10.7                  | 4.2                   | 10.7                  | 4.2                   | 10.7                  | 4.2                   | 10.7                  |
|                               | <b>D</b> | 12.9                  | 32.8                  | 19.8                  | 50.3                  | 26.7                  | 67.8                  | 33.6                  | 85.4                  | 33.6                  | 85.4                  |
|                               | <b>E</b> | 14.8                  | 37.6                  | 14.8                  | 37.6                  | 14.8                  | 37.6                  | 14.8                  | 37.6                  | 14.8                  | 37.6                  |
|                               | <b>F</b> | 16.3                  | 41.4                  | 16.3                  | 41.4                  | 16.3                  | 41.4                  | 16.3                  | 41.4                  | 16.3                  | 41.4                  |
|                               | <b>G</b> | 5                     | 12.7                  | 5                     | 12.7                  | 5                     | 12.7                  | 5                     | 12.7                  | 5                     | 12.7                  |
|                               | <b>H</b> | 17.1                  | 43.4                  | 17.1                  | 43.4                  | 17.1                  | 43.4                  | 17.1                  | 43.4                  | 17.1                  | 43.4                  |
|                               | <b>J</b> | 15.2                  | 38.6                  | 22.1                  | 56.1                  | 29                    | 73.7                  | 35.9                  | 91.2                  | 35.9                  | 91.2                  |
| <b>Radiating Surface Area</b> |          | <b>in<sup>2</sup></b> | <b>cm<sup>2</sup></b> | <b>in<sup>2</sup></b> | <b>cm<sup>2</sup></b> | <b>in<sup>2</sup></b> | <b>cm<sup>2</sup></b> | <b>in<sup>2</sup></b> | <b>cm<sup>2</sup></b> | <b>in<sup>2</sup></b> | <b>cm<sup>2</sup></b> |
|                               |          | 90                    | 581                   | 180                   | 1161                  | 270                   | 1742                  | 360                   | 2323                  | 360                   | 2323                  |
| <b>Shipping Weight</b>        |          | <b>lbs</b>            | <b>Kg</b>             | <b>lbs</b>            | <b>Kg</b>             | <b>lbs</b>            | <b>Kg</b>             | <b>lbs</b>            | <b>Kg</b>             | <b>lbs</b>            | <b>Kg</b>             |
|                               |          | 36                    | 16.4                  | 44                    | 20                    | 56                    | 25.4                  | 64                    | 29.1                  | 64                    | 29.1                  |

Table 1: Configuration Information

# CLEARANCE TO COMBUSTIBLES

The stated clearance to combustibles represents a surface temperature of 90°F (50°C) above room temperature. Building materials with low heat tolerance (**such as plastics, vinyl siding, canvas, tri-ply, etc...**) maybe subject to degradation at lower temperatures. **It is the installer's responsibility to assure that adjacent materials are protected from degradation.** A general clearance of 500 mm (20") in every direction is recommended for servicing. In addition to this, it is very important to observe the minimum clearances to combustibles at all times to avoid any possibility of property damage or personal injury.

## WARNING

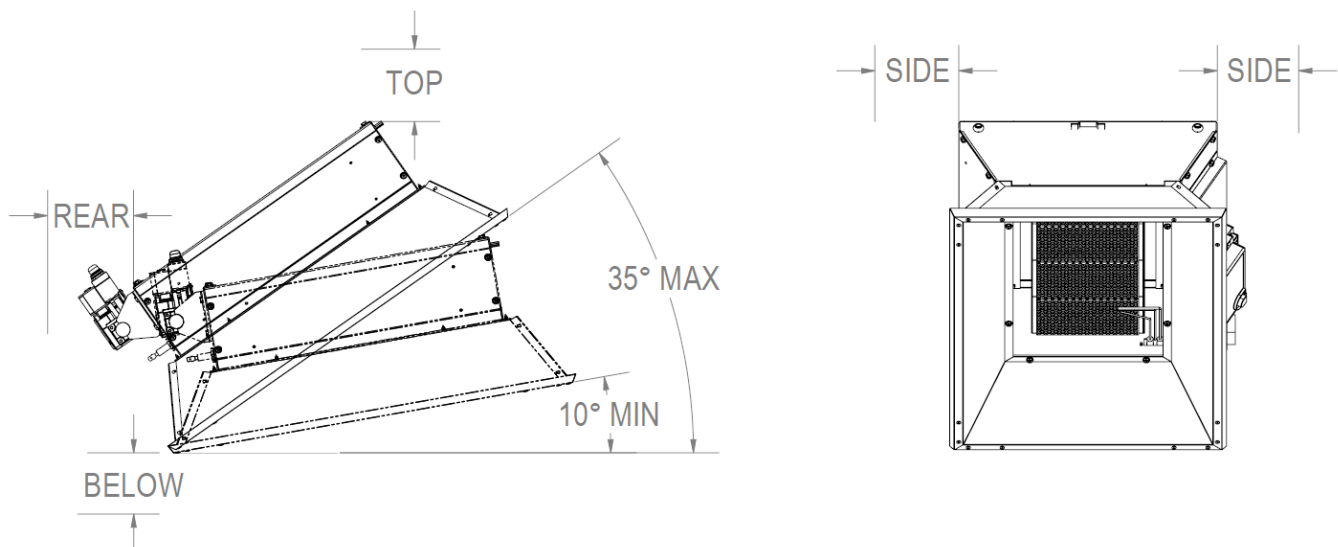
- Clearances as marked on the heater body must be maintained from vehicles parked beneath. Signs should be posted identifying any possible violation of the clearance distances from the heater in all vehicle areas.
- Maximum allowable stacking height in storage areas should be identified with signs or appropriate markings adjacent to the thermostat or in a conspicuous location.
- Clearances to combustibles DO NOT indicate acceptable distances from PVC paneling. Refer to panel manufacturers recommendations.

*Combustible materials are considered to be wood, compressed paper, plant fibers, plastics, Plexiglas, or other materials capable of being ignited and burned. Such materials shall be considered combustible even though flame-proofed, fire-retardant treated, or plastered.*

Adequate clearance to sprinkler heads must be maintained.

| Model Number | Top          | Sides        | Rear        | Below         |
|--------------|--------------|--------------|-------------|---------------|
| <b>S3</b>    | 35" (89 cm)  | 28" (71 cm)  | 20" (51cm)  | 70" (178 cm)  |
| <b>S6</b>    | 40" (102 cm) | 35" (89 cm)  | 20" (51 cm) | 80" (203 cm)  |
| <b>S9</b>    | 50" (127 cm) | 42" (107 cm) | 28" (71 cm) | 100" (254 cm) |
| <b>S12</b>   | 54" (137 cm) | 46" (117 cm) | 28" (71 cm) | 110" (280 cm) |
| <b>S16</b>   | 60" (153 cm) | 48" (122 cm) | 34" (87 cm) | 134" (341 cm) |

**Table 2: Minimum clearance to combustible materials**



**Figure 2: Clearance to Combustibles**

# LAYOUT RECOMMENDATIONS

## Layout Considerations

1. Because high intensity heaters are un-vented, verify local codes for guidance on air supply and dilution air. Also see section on Ventilation.
2. Check local codes for mounting requirements and the requirement for flexible gas connectors or rigid mounting.
3. Do not locate heaters near windy locations such as door openings.
4. Do not locate heaters in very dusty environments.
5. Avoid placing heaters below sprinkler heads or provide more than adequate clearance.

## Spot Heating

High intensity heaters are ideal for spot heating applications. The following are key considerations to the success of the application:

1. Minimize any wind in order to maximize the effect of the radiant heat.
2. Placing two smaller heaters opposing each other will be more comfortable than placing one large heater.
3. Hang the heaters back and at an oblique angle (rather than directly overhead) in order to maximize the exposure of the peoples' bodies to radiant heat.

The following charts are intended for guidance only. Specific applications may require other parameters.

| Suggested Minimum Mounting Heights |                |           |             |           |
|------------------------------------|----------------|-----------|-------------|-----------|
| Heater Input Rate                  | Mounting Angle |           |             |           |
| BTU/hr                             | 10°            |           | 35°         |           |
|                                    | ft             | m         | ft          | m         |
| 30,000-33,000                      | 11 – 13        | 3.4 – 4.0 | 10 - 12     | 3.1 – 3.6 |
| 60,000-66,000                      | 14.5 – 16.5    | 4.5 – 5.0 | 13 – 15     | 4.0 – 4.5 |
| 90,000-99,000                      | 16 – 18.5      | 4.9 – 5.6 | 14.5 – 17   | 4.5 – 5.2 |
| 120,000-132,000                    | 17.5 – 21      | 5.4 – 6.4 | 15.5 – 18.5 | 4.7 – 5.6 |
| 160,000                            | 19 – 23        | 5.8 – 7.0 | 17 - 21     | 5.2 – 6.4 |

**Table 3: Suggested Minimum Mounting Heights**

Suggested heat loading for indoor spot heating under stated conditions:

| Ambient Air Temperature | BTU/hr per sq. ft of Floor Area to be Heated |                                    |
|-------------------------|--|------------------------------------|
|                         | At 50 ft/min of wind (15.2 m/min)            | At 100 ft/min of wind (30.5 m/min) |
| 40°F / 4°C              | 150—165                                      | 165—180                            |
| 55°F / 13°C             | 75—88  | 85—100                             |

### Example:

Work counter for light assembly, space is 4.5 m x 7.6 m, ambient air temperature 4°C, located near shipping doors.

Approximately  $540 \text{ W/m}^2 \times (4.5 \times 7.6) \text{ m}^2 = 18.5 \text{ kW}$

Two heaters at opposing locations would be preferred.



## Full Building Heat

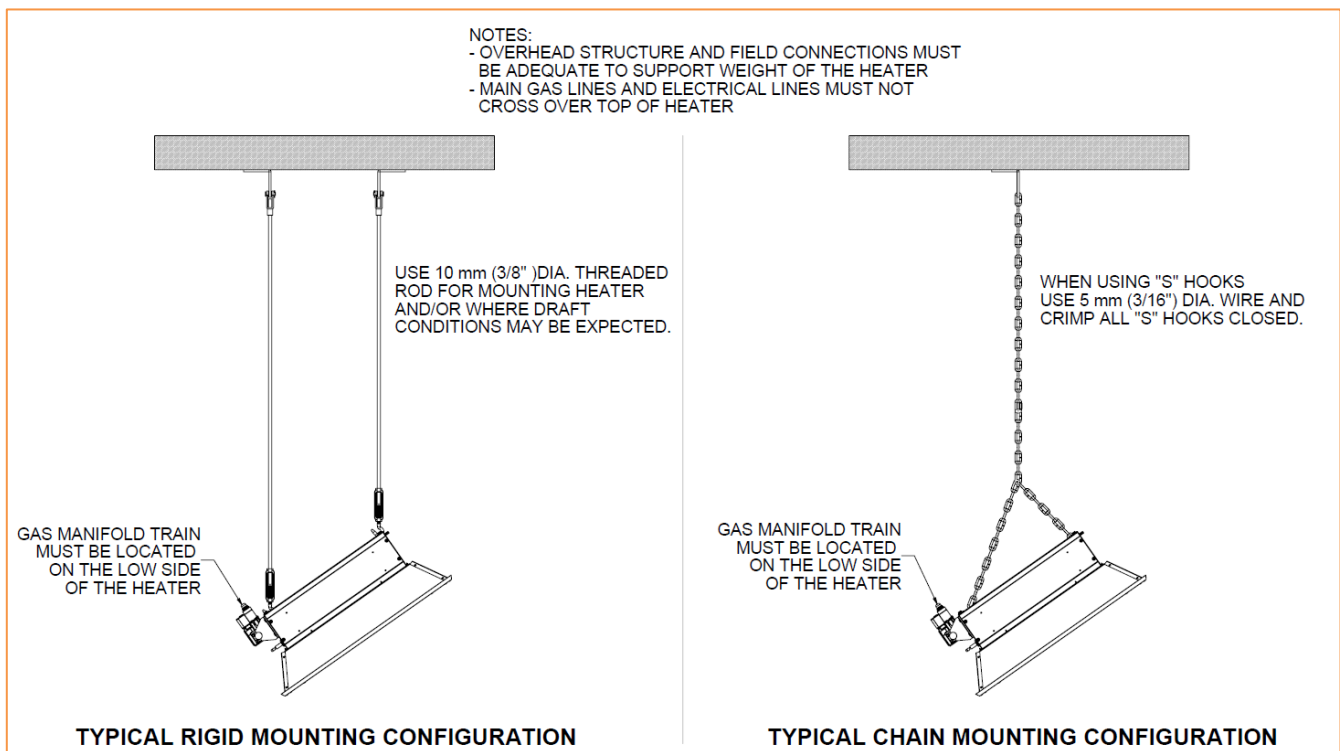
Calculate the total heat input required, ensuring the inclusion of any unheated make-up air due to exhaust fans. Use the following chart as guidance to heater placement.

| Model/BTUH  |                           | <b>S3</b><br>30-33,000  | <b>S6</b><br>60-66,000   | <b>S9</b><br>90-99,000    | <b>S12</b><br>120-132,000 | <b>S16</b><br>160,000      |
|---|---------------------------|-------------------------|--------------------------|---------------------------|---------------------------|----------------------------|
| <b>Heater Mounting</b>  | <b>Mounting Angle 10°</b> | 11 - 15<br>(3.4 - 4.6)  | 15 - 20<br>(4.6 - 6.1)   | 20 - 25<br>(6.1 - 7.6)    | 25 - 30<br>(7.6 - 9.2)    | 30 - 38<br>(9.2 - 11.6)    |
| <b>Height, ft (m)</b>   | <b>Mounting Angle 35°</b> | 10 - 12<br>(3.1 - 3.6)  | 13 - 16<br>(4.0 - 4.9)   | 16 - 22<br>(4.9 - 6.7)    | 18 - 26<br>(5.5 - 7.9)    | 24 - 31<br>(7.3 - 9.4)     |
| <b>Distance of first heater row from outside wall, ft (m)</b>                             |                           | 6<br>(1.9)              | 10<br>(3.1)              | 12<br>(3.7)               | 14<br>(4.3)               | 16<br>(4.9)                |
| <b>Distance between heaters along outside wall*, ft (m)</b>                               |                           | 8 - 20<br>(2.5 - 6.1)   | 15 - 30<br>(4.6 - 9.2)   | 20 - 40<br>(6.1 - 12.2)   | 30 - 50<br>(9.2 - 15.2)   | 40 - 60<br>(12.2 - 18.3)   |
| <b>Distance between rows – out-side wall row to next interior row, ft (m)</b>             |                           | 30 - 60<br>(9.2 - 18.3) | 50 - 80<br>(15.2 - 24.4) | 75 - 110<br>(22.9 - 33.5) | 90 - 115<br>(27.5 - 35.0) | 100 - 125<br>(30.5 - 38.1) |
| * Distance between heaters along interior rows should be up to twice the indicated number |                           |                         |                          |                           |                           |                            |

# INSTALLATION

## Heater Mounting

- Figure 3 illustrates typical rigid and chain mounting configurations for the Series S heaters; verify which is permissible by local codes.
- Heaters must be hung at an angle between 10° and 35°. Typically, at the walls they are at 35° facing into the building. The gas manifold must always be at the lower side of the heater.
- Minimum 3/16" (5mm) diameter S hooks and No. 1/0 chain (200 lb./ 91 kg working load) is recommended. Close S hooks after installation.
- Never use a gas line as a hanging support and never locate gas or electric lines over the heaters.
- Maintain clearance to combustibles.
- Ensure that there is a plugged tap upstream of the heater or a fitting on the valve itself to verify incoming pipeline pressure.
- Do not leave the heater connected when pressure testing the pipeline. The high pressure will damage the heater.



**Figure 3: Mounting Configurations**

## **Gas supply**

- Only personnel who have been trained and understand all applicable codes should undertake the installation.
- An isolation valve, or valves, has to be fitted immediately adjacent to the heater which, when closed, allow(s) the complete burner and control assembly to be disconnected for maintenance or repair.
- The gas meter and service must be sufficiently large to supply gas to the connected building's gas load, including the heater and any other gas fired equipment. Additionally, the gas distribution piping must be designed according to local and national ordinances.
- Before connecting burners to the gas supply system, verify that high pressure testing of the system has been completed. Failure to do so may expose the burner components to damaging high pressure, requiring replacement of key components.
- Ensure that there is a plugged tap ( $\frac{1}{8}$ " NPT) upstream of the heater or a fitting on the valve itself to verify incoming pipeline pressure.
- Do not leave the heater connected when pressure testing the pipeline. The high pressure will damage the heater.
- Test and confirm that inlet pressures are correct. Refer to the heater data plate and packaging to verify fuel type.

## **Electric**

- Figure 4 illustrates typical wiring arrangements for the Series S heater.
- Two options are available: 24Vac supply (Figure 5) and Millivolt pilot system (Figure 5A).
- Up to six heaters may be operated from one thermostat. (Verify thermostat electrical capacity if non SRP product is used.)
- Ensure the heaters are properly grounded.
- If mechanical exhaust is used in the building, it is typical to interconnect these in the heater circuit as shown in Figure 6.
- Perform all work in accordance with local codes or the National Electric Code ANSI/NFPA 70 or Canadian Electrical Code CSA C22.1.

### ***Typical Wiring Layouts***

- In some cases the 120/24 Vac transformer can be positioned prior to the thermostat. In this case, evaluate the contact load across the thermostat contacts, as the load created by the operating heaters may be too great. In that case a relay should be used.
- When using a transformer to power more than one heater, be sure that the control transformer being used has a sufficient VA (volt amp) rating. Example: Operating five 24Vac model "S" heaters using one transformer requires 20 VA per heater. 5 units x 20VA = 100VA transformer capacity minimum.

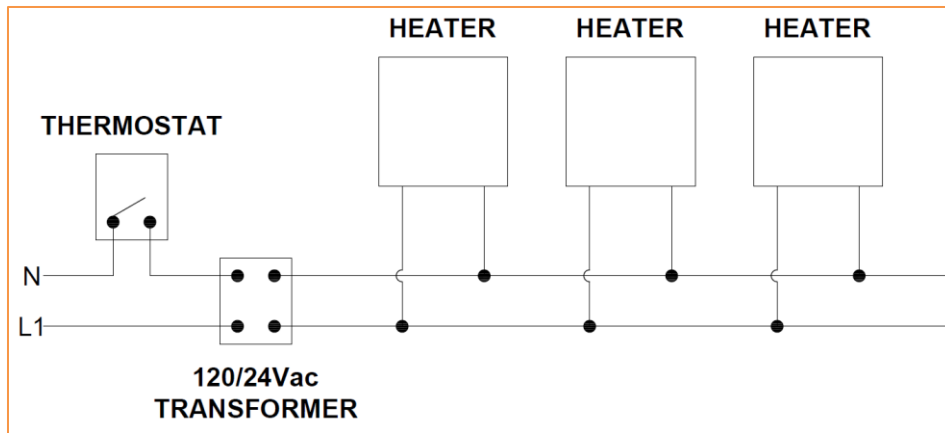


Figure 4: Typical Multi Heater Wiring Diagram

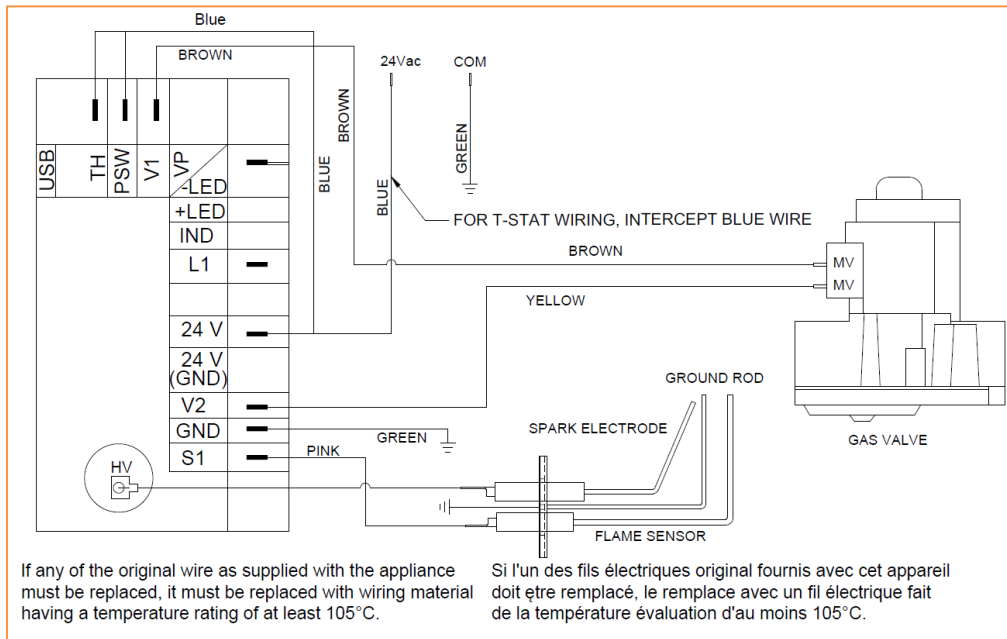


Figure 5: Wiring diagram (24 Vac - Direct Spark Ignition)

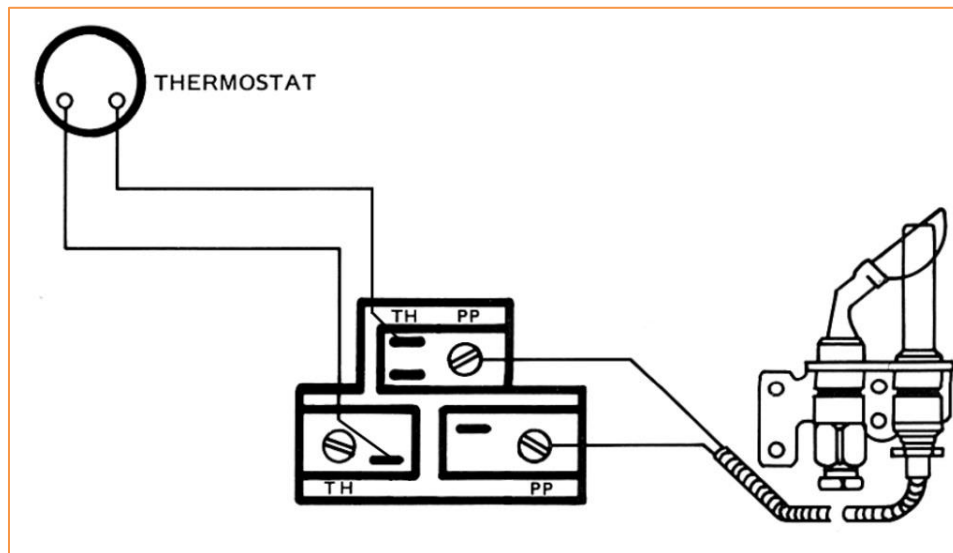


Figure 5A: Wiring diagram (Millivolt Pilot System)

# VENTILATION / CONDENSATION

## Ventilation

Buildings using high intensity radiant heaters require ventilation. High Intensity type heaters are considered un-vented gas fired appliances, requiring ventilation to supply combustion air and dilute/remove the products of combustion.

Requirements for combustion air supply and dilution air vary by jurisdiction, building type and specific installation details. **See local codes for guidance.** In general, where heaters are installed without direct outside combustion air, fresh air ventilation must be provided to building space (3 cfm per 1000 BTU/Hr in Canada, 4 cfm per 1000 BTU/Hr in the USA). **Verify applicable local codes in the USA as requirements change by jurisdiction.**

- Mechanical exhaust should be electrically interconnected with the heaters and should always be installed in conjunction with inlet air openings. See “Block Diagram for Interconnecting Fan/Humidistat” above for details.
- Inlet air opening should be relatively small and distributed over the operating area of the heaters. They must always be located below the level of the heaters. One square inch of net free inlet area per 1000 BTUH is recommended.

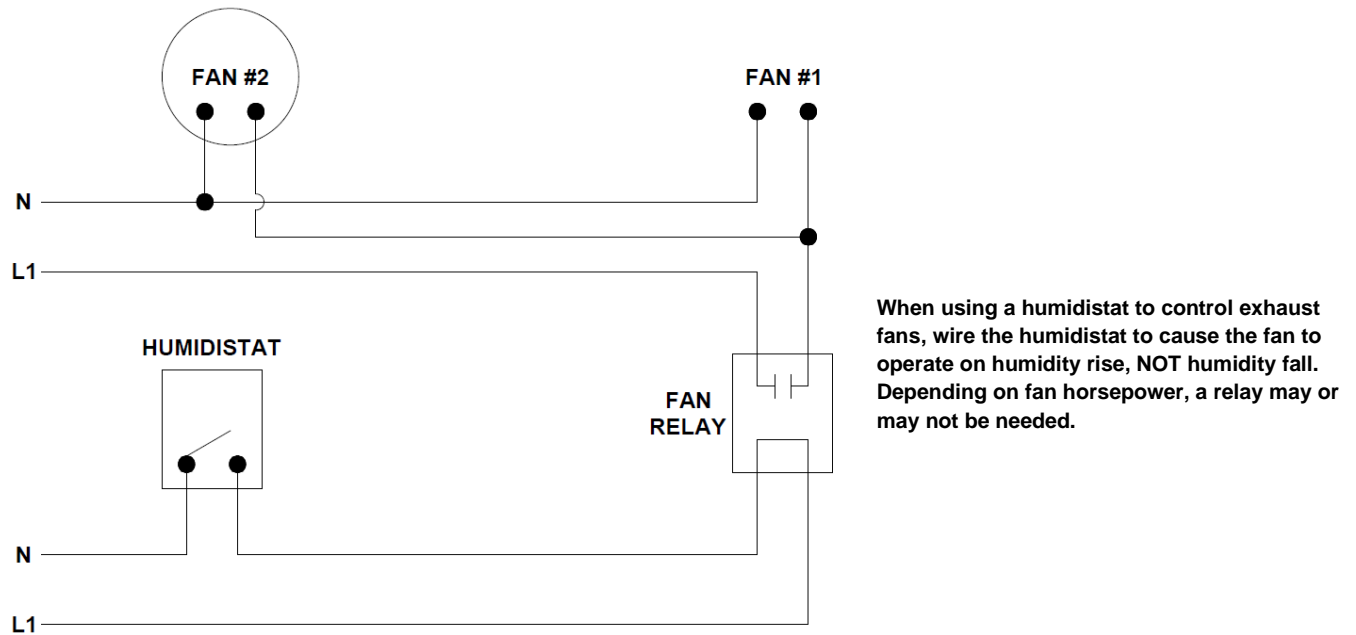


Figure 6: Block Diagram

## Condensation

The products of combustion for natural gas contain up to 1 liter of water per 100,000 BTU consumed. This may add substantial amounts of moisture to the building air environment and may become a problem of condensation on cold surfaces within the building. This is particularly true for poorly insulated metal roof decks or structural steel framing.

- To decrease condensation, increase mechanical ventilation.
- Ensure that continuous waterproof barriers are used on the inside of all insulated surfaces.
- Ensure that exhausters pull air from the entire space and across the condensing surface.
- Humidistat controls may be integrated into the electrical control circuit of the heaters.

# OPERATION / MAINTENANCE

## Operation

- Ensure the gas supply line has been purged.
- Open all gas cocks to the heaters and electrically energize the system.
- Follow the instructions on the heaters Lighting Instructions Label. Check to ensure that the thermostat starts and shuts down the system.

### **Control Operating Sequence—Direct Spark Ignition**

1. The thermostat calls for heat.
2. The ignition module, after a pre-purge period of approximately 30 seconds, energizes the igniter. Additionally, the gas valve is energized for this ignition trial period of 15 seconds.
  - If a flame is detected, the ignition sensing rod "reads" a rectification signal and the gas valve remains open. The sparking stops when the flame signal is established.
  - If no flame is detected, the gas valve closes and a 30 sec inter-purge period begins. After the inter-purge, the module repeats the trial for ignition period. If flame is still not established, a second and final inter-purge followed by a final ignition trial cycle begins. After three trials, the module will lockout for a period of approximately 1 hour or until reset (reset is accomplished by removing power from the module for at least 5 seconds). After this 1-hour period, the module re-attempts the full ignition sequence.
3. Once operating, the heater will continue to do so until the thermostat is satisfied; shutting off the gas valve.

### **Control Operating Sequence—Millivolt Pilot System**

#### **Lighting Instructions**

1. Set the thermostat to the lowest setting.
2. Turn off all electric power to the appliance.
3. Push in gas control knob slightly and turn clockwise to "off".
4. Wait (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, stop! And follow safety information. If you don't smell gas, go to the next step.
5. Turn knob on gas control counter clockwise to "pilot". Push in control knob all the way and hold in. Immediately light the pilot with a match.
6. Continue to hold the control knob in for about one (1) minute after the pilot is lit. Release knob and it will pop back up. Pilot should remain lit. If it goes out, repeat steps 4 through 7.
  - If knob does not pop up when released, stop and immediately call your service technician or gas supplier.
  - If the pilot will not stay lit after several tries, turn the gas control knob to "off" and call your service technician or gas supplier.
7. Turn gas control knob counter clockwise to "on".
8. Turn on all electric power to the appliance.
9. Set thermostat to desired temperature.

#### **Shut Down Instructions**

1. Turn down thermostat.
2. Turn off electric power to the appliance.
3. Push in gas control knob slightly and turn clockwise to "off". Do not force.
4. Wait 5 minutes before attempting to re-light.

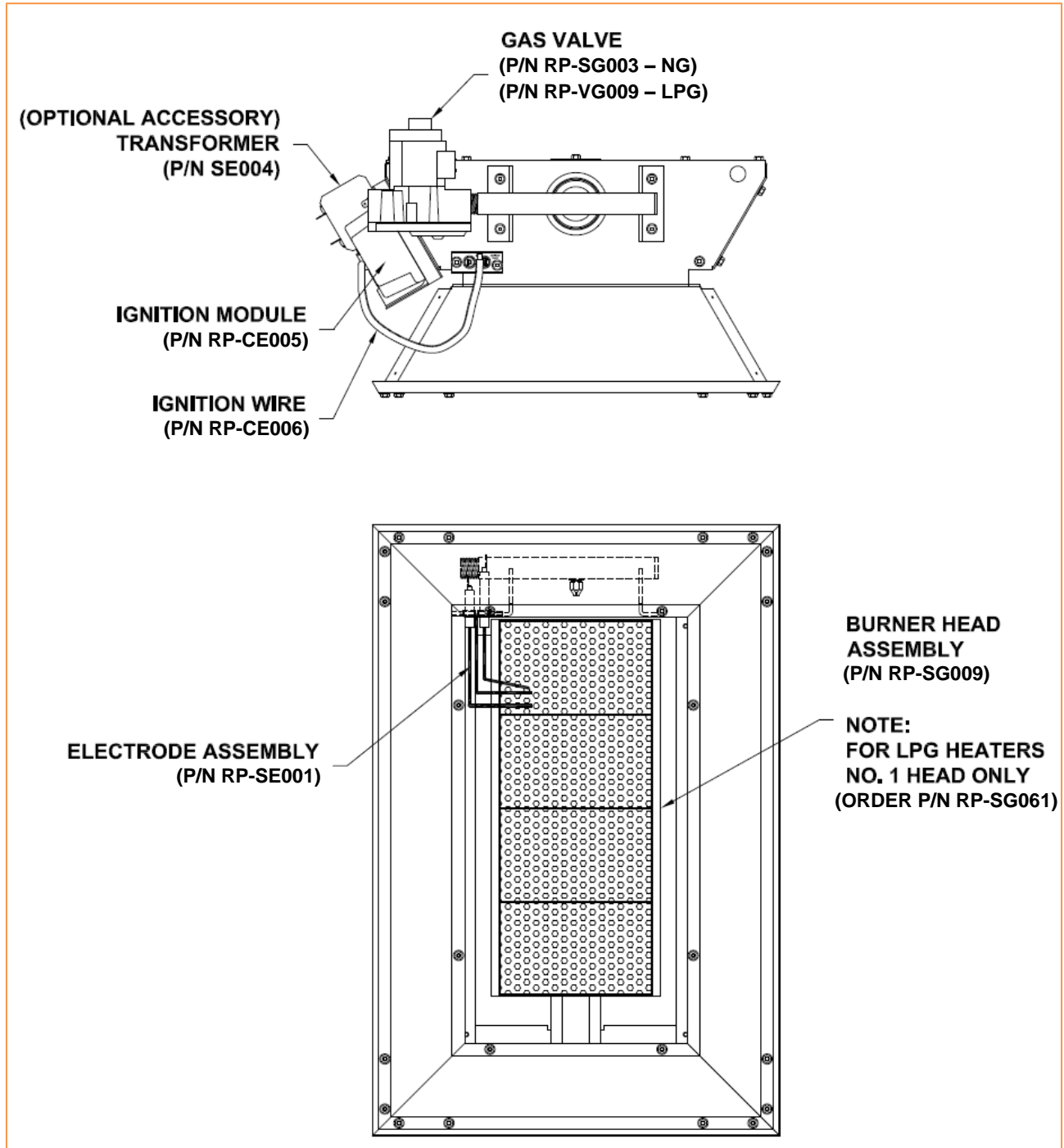
## Annual Maintenance

1. Close the fuel gas valve and de-energize electrical power to the heater.
2. With an air hose regulated to no more than 15 psig blow away accumulated dust. Blow across the face of the ceramic tiles, not directly at them. Blow into each venturi for about one minute.
3. Verify that there are no cracked tiles.
4. Review the wiring for any loose connections.

## SERVICING - TROUBLESHOOTING

| Symptom   | Possible Cause   | Corrective Action  |
|---|--|--|
| Heater will not turn off                              | Defective thermostat<br>Stuck solenoid valve   | Repair or replace<br>Repair or replace   |
| Gas Odor  | Loose pipe connection  | Verify all connections are sealed by using an appropriate leak test  |
| Burning of gas/air mixture inside venturi (flashback) | Cracks between or across ceramic grids<br>Excessive drafts   | Replace burner head assembly<br>Shield or relocate heater  |
| Heater Cycles on/off                                  | Excessive drafts<br>Flame sense not grounded<br>Low gas pressure   | Shield or relocate heater<br>Verify wiring and correct<br>Verify and correct                               |
| Low surface temperature on ceramic surface            | Dirty or plugged ceramics<br>Low inlet gas pressure<br>Misaligned manifold/orifice<br>Insufficient gas supply                | See cleaning maintenance<br>Verify and correct<br>Replace manifold<br>Verify capacity of fuel supply lines |
| No spark, no ignition                                 | No power to control module<br><br>Control module defective<br>No power to spark electrode<br>No heater ground                | } Verify and correct/replace   |
| Heater sparks, but will not light                     | No gas supply<br><br>Defective gas valve solenoid<br>Defective electronic control  | Check shut off valve and combination gas valve<br><br>} Verify and correct/replace                         |
| Heater lights, but 'locks out' after about 15 seconds | Poor ground<br>Reversed polarity on electric supply<br><br>Sense electrode not sensing flame<br>Defective electronic control | } Verify and correct/replace<br><br>Check continuity of sense electrode<br>Verify and/or replace           |

# REPLACEMENT PARTS



**Figure 7:** Replacement Parts

## Millivolt Pilot System Replacement Parts Only

| P/N      | DESCRIPTION                  |
|----------|------------------------------|
| RP-SG012 | NAT GAS VALVE                |
| RP-SG037 | LP GAS VALVE                 |
| RP-SG016 | POWERPILE Q313A1022          |
| RP-SG017 | PILOT ASS'Y (NAT) Q314A3679  |
| RP-SG018 | PILOT ORIFICE (LP) #390686-1 |



## **SERIES S INFRARED HEATERS WARRANTY**

The Manufacturer warrants to the original owner that the product will be free of defects in material and workmanship. For the Series S, the warranty for all components except for the ceramic burner head assembly is limited to 24 months from the date of installation. The ceramic burner head assembly shall be warranted for an additional eight years for units which are proven to the satisfaction of the manufacturer to be inoperative due to defects in material or workmanship.

The Manufacturer's obligation under this warranty is limited to repair or replacement, F.O.B. its facility, of the defective part. In no event shall the manufacturer be liable for incidental expense or consequential damages of any kind.

This warranty does not cover any shipping, installation or other labor costs incurred in the repair or re-placement of the product. No materials will be accepted for return without authorization.

This warranty will not apply if in the judgment of the Manufacturer the heater has been improperly in-stalled, unreasonably used, damaged, or modified.

This warranty will not apply to damage to the product when used in corrosive atmospheres and in particular atmospheres containing halogenated hydrocarbons. No person is authorized to assume for the Manufacturer any other warranty, obligation or liability.

THE REMEDIES PROVIDED FOR IN THE ABOVE EXPRESS WARRANTIES ARE THE SOLE AND EXCLUSIVE REMEDIES. NO OTHER EXPRESS OR IMPLIED WARRANTIES ARE MADE INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE.

**ADDRESS QUESTIONS TO YOUR LOCAL DISTRIBUTOR**

**Heater Series** : \_\_\_\_\_  
**Installed Rate** : \_\_\_\_\_ Btu/hr  
**Serial Number** : \_\_\_\_\_  
**Installed Date** : \_\_\_\_\_