

# SERIES 40 ELECTRIC INFRARED HEATERS

## GENERAL INSTRUCTIONS AND WARNINGS

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### General

The inherent nature of electric heating products presents safety hazards such as FIRE or ELECTRICAL SHOCK, that can result in personal injury, property, or heater damage if used improperly. The purchaser is responsible for proper installation, use, and suitability of the heaters to their application in accordance with NEC, NFPA, OSHA, and any other state or local standards which may apply.

It is strongly recommended that anyone working with or around this equipment should read and understand all product literature and instructions and become familiar with the heater operation and safety concerns prior to use.

Users should install high temperature control protection in systems where an over-temperature fault condition could present a fire hazard or other hazard. Failure to install temperature control protection where a potential hazard exists could result in damage to equipment and property, and injury to personnel.

### Shipping & Handling

The glass/ceramic heater face is fragile and will crack if subjected to severe shock or vibration. Also internal elements could move out of position if heater is hit on the side. To reduce these risks, the heaters must be adequately packaged and **ALWAYS SHIPPED ON THEIR BACK**. If shipped on sides, *damage can occur*.

Upon receiving, immediately inspect glass/ceramic face for damage, and verify the internal elements are centered in the case and parallel with 1/4" **space between** them. If not, please consult factory

If heaters are to be re-shipped, they should be re-packaged and shipped as received from the factory. Heaters should always be shipped facing up with at least 3" of protection on all sides, and securely packaged or crated. We take a great deal of care in packaging to assure safe delivery. Upon arrival, please inspect and immediately report any damage to the carrier. The customer will be responsible for any damage or defect occurring after the contents have been removed, reshipped, repackaged, or replaced.

### Installation

Long heater life and high heating efficiency will result when heaters are properly installed with the following guidelines.

- Series 40 heaters should only be installed by qualified personnel.
- Series 40 heaters can be mounted vertically, horizontally, or any position.
- The end of the heater with the electrical connection must be mounted at the lowest or coolest position.
- The supplied mounting brackets allow for heater expansion. The brackets must be positioned from the ends as specified below. The other brackets must be evenly spaced between. The nameplate end bracket must be rigidly fastened and the other brackets must be loosely fastened to allow the heater to expand or grow.

Heated length	Loc from ends	Brackets Req.
14"	5"	2
26"	8"	2
38"	10"	2
48"	12"	2
54"	13"	2
62"	12"	3
74"	14"	3
86"	16"	3

- Recommended distance of at least 2" between the heater and the product.
- Heaters mounted face to face and closer than 6 inches are not recommended without having a constant full target, or being controlled by an automatic temperature controller.

**DANGER: HAZARD OF FIRE.** Heaters are capable of developing high temperatures; extreme care should be taken to:

1. Do not mount heaters in an atmosphere containing combustible gasses and vapors.
2. Keep combustible materials far enough away to be free from the effects of high temperatures.
3. Guard against contact between heaters and combustible materials.

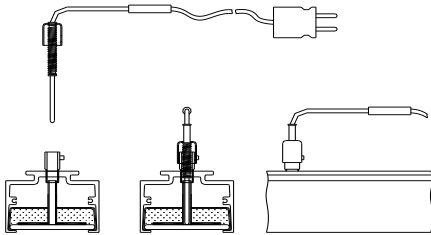
## Wiring

**CAUTION: HAZARD OF ELECTRIC SHOCK.** Turn off and lock out all power to heaters before servicing. To avoid electric shock and damage to property and equipment, electrical sensors, or peripheral devices, heaters must be installed by a qualified electrician in accordance with National Electric Code and any other national or local codes required. Failure to do so could result in injury or death.

Properly rated hook-up wire must be used to connect electrical power to the heater. The physical and environmental conditions are determining factors for the correct wire size, material, and insulation type to be used. High temperature wire such as MG (mica/glass) or TG (*Teflon*/glass) with nickel clad copper conductors may be required.

Use the ground lead wire to make a good electrical ground. Do not depend on the aluminum case to serve as a ground path.

**CAUTION:** When installing a thermocouple, properly insert it straight into the ceramic sleeve inside the heater until it touches the backside of the glass face. When correctly installed, it should drop in without any force. If it stops part way in or if there is any resistance, it is not in the ceramic sleeve and should be removed and inspected. Incorrect installation will result in an inaccurate reading and may damage or short out the heater or any connected devices. Any damage from an improperly installed thermocouple will not be covered by the warranty.



## Warranty

The heaters are warranted to be free from defects of workmanship and materials for 1 year or 4,000 hours, whichever is first, from date received by customer. Evidence of misuse, field modification or repair voids warranty. Liability is limited to repair, replacement or refund of faulty material or workmanship.

## Operation

**CAUTION: HAZARD OF ELECTRIC SHOCK.** Internal elements and hardware are *live* electrical conductors. Do not operate with a broken or cracked glass face plate. If any object contacts and breaks the glass, disconnect and lock out all sources of power before attempting to remove the items. Electrocutation and permanent heater damage may result.

Long heater life and high heating efficiency will result when heaters are properly operated with the following guidelines.

- Operate heaters at the rated voltage only.
- It is recommended to control the heater output with SCR or SSR controllers. Controlling heater temperature at below 100% output will proportionally increase heater life.
- Do not operate heaters in chamber temperatures exceeding 400 degrees F. Aluminum cases can soften and distort.
- Product should not come into contact with or rest on any part of the heater or it's face.
- Do not operate heaters at high outputs for extended periods of time without product present to absorb the energy.
- Do not leave operating heaters unattended.
- Heaters should not be operated in environments with factors that can oxidize or destroy the elements or insulation inside the heater. Water or water vapor, grease, oils or oil vapors, corrosive liquids and vapors, noxious or reactive gases, and contaminants can create leakage (shock) hazards, permanent heater damage, or cause heater failure.

## Maintenance

The heater must be allowed to cool completely, and all power must be turned off and locked out prior to any maintenance.

When replacing a heater, only install a heater of the same style and voltage, and the same or less wattage. Replacement glass and elements are available for field repair. Call the manufacturer for details.

To clean a heater, the output may periodically be set to a high setting for a short time to burn off any build up on the glass/ceramic face. Use only a dry cloth or only damp with water or mild cleaner to wipe all external surfaces. Never wash down with any sprayed liquid or solvent. Do not get liquid in glass/ceramic face seams.