Sealed IR Quartz Lamps

Design Features
- Fast Filament Response
- High Power Densities possible — up to 200 watts per inch per filament
- Different filament temperatures available to suit different materials
- Optional white or gold reflective layer on lamps redirects heat towards target material
- Single or twin-tube construction
- Contour bending available

Filament Temperature Ratings

<table>
<thead>
<tr>
<th>Filament Type</th>
<th>Near Infrared (NIR)</th>
<th>Short Wave (SW)</th>
<th>Fast Response Medium Wave (FRMW) High Temperature</th>
<th>Fast Response Medium Wave (FRMW) Low Temperature</th>
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<tr>
<td>Filament Response</td>
<td>1 second</td>
<td>1 second</td>
<td>1-2 seconds</td>
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<tr>
<td>Filament Temperature</td>
<td>2900K/4800°F</td>
<td>2500K/4000°F</td>
<td>1900K/2900°F</td>
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<tr>
<td>Approximate Peak Wavelength</td>
<td>1.0μm</td>
<td>1.2μm</td>
<td>1.6μm</td>
<td>2.0μm</td>
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<tr>
<td>Maximum watts/inch per Filament</td>
<td>200</td>
<td>200</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Average Lifetime (Hours)</td>
<td>2000</td>
<td>5000</td>
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</table>

SPECIFICATIONS

Max. Temperature: 350°C — End Seal
900°C — Quartz Tube and optional White Ceramic Reflective Layer
800°C — Optional Gold Reflective Layer
Max. Voltage: 600 Volts depending on design

LAMP GLASS TYPES

- Clear: Standard
- Ruby: Reduces Glare
- Translucent: Reduces Glare
- Frosted: Reduces Glare
- Gold Reflector: Redirects heat toward target for increased efficiency.
- White Reflector: Redirects heat toward target for increased efficiency similar to gold, but will not degrade over time at high temperatures.

Custom Designs

View Product Inventory @ www.tempco.com
Lamp Terminations
Select the termination style that meets your requirements.

**Type R7s** Recessed Single Contact

- Minimum Unheated Length: 1.12” Standard

**Type R7W** R7S + Lead Wire

- 1.12”

**Type F** Flat Ceramic + Lead Wire (No Cement)

- .59”
- .81”
- 1.25”
- .23” Thick

**Type FX** Flat Ceramic + Lead Wire (Fixed with Cement)

- .35” Thick
- .23” Thick

**Type U** Metal Clip + Lead Wire

- .61”
- 1.12”

**Type X** Metal Tabs with Mounting Holes & Slots

- .50”
- .39”
- .78”
- .98”
- 4.00”
- .23” Thick

**Type W** Lead Wire Only (Bare Wire Shown)

- .20” Holes
- .20” x .59” Slots

- 1.00”

**Type RC** Round Ceramic

- .394” Thick
- 1.12”

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## Sealed IR Quartz Lamps

### Common Industry Standard (Non–Stock) Lamps

Filament color temperature is 2500K and lead wire terminations have 145 mm (5-11/16") of uninsulated wire unless otherwise noted.

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Voltage</th>
<th>Overall Length (in)</th>
<th>Heated Length (in)</th>
<th>Base Type</th>
<th>Burning</th>
<th>Glass Type</th>
<th>Special Notes</th>
<th>Part Number</th>
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<td>300</td>
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<td>Clear</td>
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<td>LMP00050</td>
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</tbody>
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**Terminations Key**
- F — Flat ceramic (no cement)
- Fx — Flat ceramic (fixed with cement)
- R7W — R7s w/lead wire
- R7s — Recessed single contact
- W — Lead wire only - no base

**Burning Positions Key**
- U — Metal sleeve + wire
- X — Metal tab w/holes & slot
- RC — Round ceramic + lead wire
- H — Horizontal use only
- V — Horizontal or vertical use

*View Product Inventory @ www.tempco.com*
1.) **Heater Specifications:**

- **Filament Temperature:**
  - Standard FRMW = 1500K
  - High Temperature FRMW = 1900K
  - Standard Halogen = 2500K
  - NIR Halogen = 2900K
  - Other ______

- **Tube Cross Section:**
  - Single Round Tube
  - Twin Bore Tube

- **Tube Shape:**
  - Straight
  - Special Bend Configuration

- **Tube Color:**
  - Clear (Standard)
  - Ruby
  - Translucent
  - Frosted Ruby
  - Frosted (Sandblasted) Clear

- **Maximum Overall Length (Inches) ______**

- **Heated Length (Inches) ______**

- **Built-In Reflector:**
  - No Reflector
  - White Reflector
  - Gold Reflector

2.) **Electrical requirements:**

- **Voltage:**
  - 120
  - 240
  - 277
  - 480
  - Other ______

- **Wattage ______**

3.) **Termination Types:**

- **Single Tube Bases**
  - R7s
  - R7W
  - RC
  - X
  - F
  - FX
  - U
  - Other ______

- **Twin Tube Bases**
  - Ceramic with straight exit leads (Standard)
  - Other ______

- **Lead Wire Type**
  - Bare Wire (Standard)
  - Teflon®@200°C
  - Fiberglass@250°C
  - Mica@450°C

- **Lead Length 5.7” (Standard) ______** (Note: Type R7s and X do not have leads)

- **Terminal Options**
  - None (Standard)
  - #10 Ring Terminal
  - #10 Spade Terminal
  - Other ______

4.) **Panel wiring & control options:**

- Tempco to supply array panel
- Factory wired per customer specs & wiring diagram
- Tempco Engineering to design internal wiring & determine line input requirements
- Tempco to supply turnkey power control panel(s)

5.) **Any special features required? ______**

6.) **Application Data:**

Type of application and physical properties of processed materials

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**WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
QRH Quartz Lamp Radiant Heaters

QRH Single Quartz Lamp Radiant Heater Assemblies

Designed for use in applications that require instant on/off response with rapid heat-up and cooldown rates. These heater assemblies are designed to operate in the short wavelength range of 2.5-1.2 microns (1600 to 4000°F peak emitter temperatures). These Universal 2000 Modular Housing assemblies utilize T3 (10mm) LMP sealed lamps.

These rugged short wavelength units contain double ended lamps having quick connect RSC/R7s bases for easy lamp access without disassembly of housing or removing heater from installation. The Quartz IR heat lamps are mounted at the focal point of a polished aluminum reflector within the housing. These units are available in a variety of sizes and power combinations.

Design Features

✴ Direct Retrofit into existing NEMA 1 applications
✴ Rugged Universal 2000 anodized aluminum housing
✴ Wattage range of 375W to 3800W in standard designs
✴ 110-600V voltages available depending on heated length
✴ Power density range of 65-220 w/in available; contact Tempco
✴ RSC/R7s quick connect lamp terminations (8 amps maximum per lamp)
✴ Maximum lamp length 41 inches, minimum 8 inches
✴ Fast response, immediate on/off, 20-40 sec for full heat-up
✴ Full cooldown in less than 3-6 minutes
✴ Single end wiring option available
✴ Utilizes standard TRH removable guard designs
✴ Custom dual lamp units up to 48" OAL housing length are available

Installation Notes:

These units are for horizontal installation only.

Lamp sockets are prewired in terminal enclosures with 16ga 600V rated conductors. Wires or connectors used for line connections inside junction boxes should be rated 200°C or higher, and sized per NEC/NFPA for unit voltage and amperage ratings.

Wiring used inside the internal wireways as crossover wiring must be rated 450°C or higher. Termination temperature at the exposed lamp cold ends must not exceed 650°F (343°C). Lamps should be shielded from direct visual observation due to their intense brightness when operating.

Initial inrush current will be 10 to 15 times the steady state current. Choose appropriate fuses for this heater assembly. Lamps should be operated within +/- 10% of rated voltage with minimal cycling to ensure long life. Operating outside this voltage range may cause internal degasification and discoloration of the lamp sheath, promoting premature element failure. When using copper wiring for field wiring, use only nickel plated or nickel clad conductors. Unplated or silver plated copper must not be used.

Standard Design (Non–Stock) QRH1 Series Single T3 Lamp Double End RSC Termination

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<th>Volts</th>
<th>Housing Overall Length in mm</th>
<th>Lamp Heated Length in mm</th>
<th>Lampp watts/inch</th>
<th>Part Number without Guard</th>
<th>Part Number with Guard</th>
<th>Replacement Lamp Part Number</th>
<th>Replacement Protective Wire Guard</th>
<th>Replacement Reflectors Part Number</th>
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<td>GRD-104-127</td>
<td>SMPR-1113</td>
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<td>27</td>
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<td>914</td>
<td>25.06</td>
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<td>1219</td>
<td>37.00</td>
<td>QRH10009</td>
<td>QRH10018</td>
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<td>GRD-104-108</td>
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</table>

Installation Notes:

These units are for horizontal installation only.

Lamp sockets are prewired in terminal enclosures with 16ga 600V rated conductors. Wires or connectors used for line connections inside junction boxes should be rated 200°C or higher, and sized per NEC/NFPA for unit voltage and amperage ratings.

Wiring used inside the internal wireways as crossover wiring must be rated 450°C or higher. Termination temperature at the exposed lamp cold ends must not exceed 650°F (343°C). Lamps should be shielded from direct visual observation due to their intense brightness when operating.

Initial inrush current will be 10 to 15 times the steady state current. Choose appropriate fuses for this heater assembly. Lamps should be operated within +/- 10% of rated voltage with minimal cycling to ensure long life. Operating outside this voltage range may cause internal degasification and discoloration of the lamp sheath, promoting premature element failure. When using copper wiring for field wiring, use only nickel plated or nickel clad conductors. Unplated or silver plated copper must not be used.

Danger: Hazard of Fire

Do not mount heater closer than 6" to any combustible or structural material that does not have at least a 200°C continuous temperature rating.

These heaters are not for use in atmospheres where flammable or combustible vapors, dust, gases, or liquids are present as defined in the National Electrical Code. Where solvents, water vapor or other VOCs are being evaporated from the process, it is necessary to provide substantial quantities of ventilating air to remove all resulting vapors.
Standard Double-End Wiring

Single phase line voltage input with ground

CAUTION: Do not cut or connect to this wire inside QRH housing. For connection to field wiring within external junction box only.

Optional Single End-Wiring

Single return wire rated for 842°F (450°C), 600V is supplied in internal wireway for line input at ground lug end.

Series QRH Heaters can be prewired with plain leads, stainless steel armor cable, galvanized armor cable, stainless steel wire braid or SJO cable. For additional information See Wiring Options on page 7-17.

Lamp Accessories

Mounting Clamp
11 mm x 23 mm
Part Number: CRK00087

Mounting Clamp
10 mm
Part Number: CRK00059

Wiring Options

Series QRH Heaters can be prewired with plain leads, stainless steel armor cable, galvanized armor cable, stainless steel wire braid or SJO cable. For additional information See Wiring Options on page 7-17.