

# USER INSTRUCTIONS FOR ENCLOSURE HEATERS



## APPLICATION

Enclosure heaters are used to raise the internal temperature of a control panel. This is required in certain applications to prevent damage to electrical components by providing both freeze protection and humidity control. The heater is designed to heat closed enclosures that are only accessible by trained specialists. The manufacturer is not liable for any damages caused as a result of improper installation or use.

## INSTALLATION



**CAUTION:** Installation is to be performed by qualified personnel familiar with the National Electrical Code and all local codes and standards. It is the responsibility of the installer to verify the safety and suitability of the installation.



**WARNING:** Hazardous voltages are present. Lock-out & tag branch circuit disconnect switch before working on this heater. Ensure that the power supply is disconnected before working on this equipment.

### Incoming Wire:

Type and temperature of wire should be suitable for application.

### Branch Circuit Protection / Incoming Wire:

The electrical installation should include a service disconnect switch, branch circuit over-current protection and proper short circuit protection as defined by local and national electrical codes. Ensure both panel and heater are properly grounded.

### Wiring Terminals:

Protect the enclosure heater terminals from drippings, condensation, fumes, spray or any other substance that could result in heater contamination.



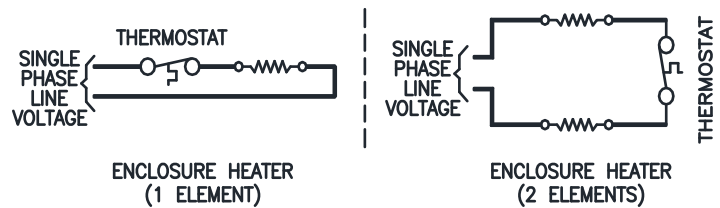
**WARNING:** Ensure all electrical connections are tight. Failure to do so may result in property damage or personal injury due to fire.

### Heater Control:

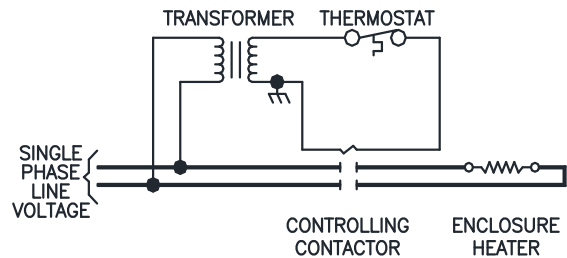
It is recommended that the heater be controlled by a thermostat or similar device in order to monitor the enclosure internal ambient temperature. A thermostat can either be factory supplied as a built-on option or sourced and remotely mounted in the field.

### Heater Wiring:

For direct wire applications, a thermostat would be wired in series with the enclosure heater:



For pilot duty applications, a thermostat would be wired in series with the coil of a controlling contactor. The contactor should break all conductors supplying power to the enclosure heater:



If provided with std 8-32 wiring terminals, torque to 16 in-lb

### Heater Mounting:

Securely mount heater using any of the pre-punched 3/8" diameter mounting holes. Heater may be mounted either horizontally or vertically. No standoffs, insulation or special mounting hardware is required.

### Heater Location:

For best performance, mount the heater and controlling thermostat near the bottom of the enclosure. Position the thermostat such that the reading will approximate an average internal enclosure temperature. Placing the thermostat too close to the heater will provide less accurate control if the thermostat measures direct heat from the enclosure heater. Do not mount heat sensitive components within 2 inches of enclosure heater to prevent overheating.

## OPERATION



**WARNING:** Risk of burn. Enclosure heaters can produce high surface temperatures during operation. Ensure the heater is cooled before servicing.



**WARNING:** Do not operate heater at voltages that exceed the marked ratings. Excess voltage can shorten heater life and result in unsafe operating conditions.

### Start-Up Inspection:

Before energizing the enclosure heater, the following items should be inspected with the heater and panel power disconnected:

1. Ensure heater is securely mounted to the panel enclosure.
2. All electrical terminations are tight.
3. Both panel and enclosure heater is properly grounded.
4. The applied voltage is the same as the voltage rating marked on the enclosure heater.
5. Proper disconnecting means, overcurrent protection and short circuit protection have been installed.
6. Megohm reading is greater than or equal to 1 megohm.

### Low Megohm Condition:

During shipment and/or storage, moisture absorption by the insulation material within the enclosure heater is possible. It is recommended to perform an insulation resistance test using a 500 VDC megohm meter between the heater terminals and heater sheath prior to energizing. If the measured resistance is less than 1 megohm, bake in oven at 250°F or energize the enclosure heater at a reduced voltage in air until the megohm reading is at an acceptable level. Note that all products are dielectric tested as defined in UL 1030 before shipment unless a different criterion is requested by the customer.

### Contaminants:



**WARNING:** Contaminant accumulation in the heater refractory material, over-temperature or sheath corrosion may cause a ground fault to the heater sheath. Install proper ground fault protection as required by local codes.

The following are examples of contaminants that can create shock hazards due to generated leakage currents:

- Water or water vapors
- Dirt, grease, oil or oil vapors
- Corrosive liquids and vapors

## MAINTENANCE



**WARNING:** Hazardous voltages are present. Disconnect all power before working on this equipment. Lock-out & tag branch circuit disconnect switch to ensure unintentional power application.

- Check all field and factory-made electrical connections for tightness.
- Check all wiring for deterioration at least once a year.
- Inspect heater sheath for signs of corrosion or overheating.

## TROUBLESHOOTING

Problem	Cause / Correction
No Power	<ul style="list-style-type: none"> <li>• Check that the disconnect switch is in the 'ON' position.</li> <li>• Ensure fuses are not blown. Replace fuses as necessary.</li> </ul>
Fuses blowing or circuit breaker trip	<ul style="list-style-type: none"> <li>• Check heater electrical rating. Verify correct voltage applied.</li> <li>• Check fuse rating. Fuses should be sized at least 25% more than the full load amperage of the heater.</li> <li>• Disconnect heater power source and measure resistance to ground. Measured resistance should be no less than 1 megohm. Refer to 'OPERATION' section.</li> </ul>
Application not heating to desired temperature	<ul style="list-style-type: none"> <li>• Check heater electrical rating. Verify voltage and amp draw.</li> <li>• Too much heat loss. Higher wattage heater may be required.</li> </ul>