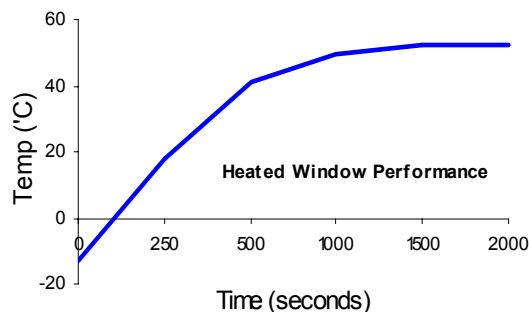


# ThermoClare - Transparent Heaters

**Transparent Heaters** for the defrosting and maintaining LCD displays at optimum operating temperatures for screen response or the defrosting and maintaining windows from moisture. Optical filters have developed a clear transparent heater circuit with a proprietary rugged busbar termination that can be incorporated with our range of contrast enhancement and EMI shielded filters.

## Specification

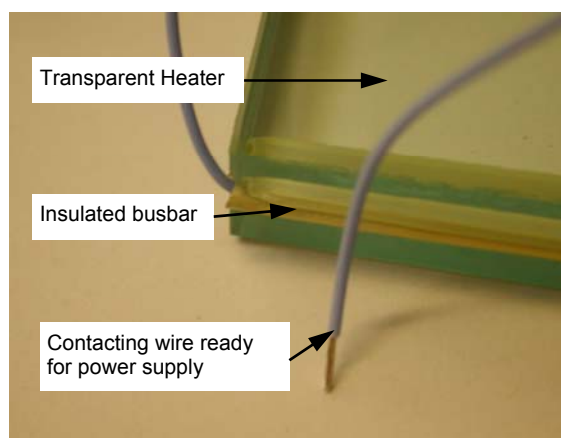
The Optical filters Transparent Heater are either un-laminated or fully laminated glass filters with an Indium Tin Oxide (ITO) coating of 12 ohms/sq. This is an optimum coating density to provide excellent heating performance with good optical clarity compared to the highly reflective thin resistive wires typically used to provide heat.



Extensive testing and military qualification has proved the Optical Filter transparent heater to maintain a LCD at 20°C with an outside temperature of -50°C and 3°C/minute temperature gradient.

## Termination Method

Highly rugged proprietary insulated busbar and wire termination along two opposing edges.



## Applications



Transparent heaters are used in a board range of applications including: public information displays, material handling equipment, military ground based vehicles, naval flight deck equipment, control panels on heavy agricultural and earth moving equipment, periscopes and off-shore oil platforms.

## Product Range

### Un-laminated glass transparent heater:

- Transmittance @ 550nm 89%
- Thickness 1.1mm only
- Plain float finish only
- Max size 400 x 500mm

### Laminated glass transparent heater:

- The ITO surface is located within the lamination for ruggedization and additional layers incorporated for mechanical & impact resistance
- Thickness 2.5mm upwards
- Finish plain, etch non-glare and anti-reflective coating

### Additional elements for Multi-function windows with transparent heater:

- EmiClare EMI shielding
- Contrast enhancement
- Etch non-glare and anti-reflective coated front surface finish
- Silk screen printing