

MANUFACTURERS OF OPTOLITE CONTRAST ENHANCEMENT FILTERS
SHIELDED WINDOWS – INSTRUMENT GLASSES
POLARISING FILTERS

Transparent ITO (Indium Tin Oxide) Heaters

Instrument Plastics designs and manufactures ITO (Indium Tin Oxide) transparent glass heated windows and laminations specifically designed for EMI and LCD/TFT display protection for use in extreme environments ensuring optimum use in changing conditions.

Providing a fast and uniform temperature control our ITO heaters may be constructed as single or multi layer laminations to protect against misting, frosting and fogging of windows, including advanced RFI designs and graphical artwork to provide custom solutions.

Product Specifications

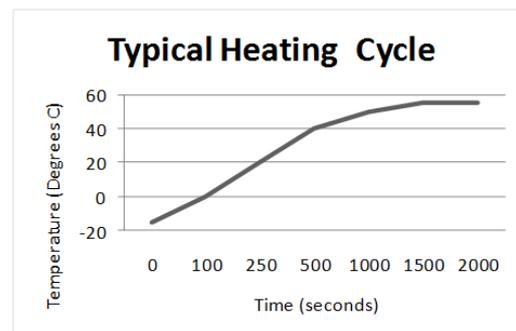
Size max	400 x 500 mm
Thickness single layer	1.1 mm
Multi layer	> 2.6mm
Transmittance (550nm)	> 85%
Wire gauge (PTFE)	26 AWG
Wire Length	200 mm
Temperature range	-40 to +70 degrees C
Typical Resistance	4-15 Ohms/sq inch

Product Features

- Customer designs
- Low power Consumption
- Mil spec
- High Light Transmittance
- Low power consumption
- RFI/EMC Shielding
- Fast heating effect
- Window graphics

Applications

- Military , Avionics, Navel displays & controls
- Ruggedised Displays
- Display de-misting/icing/fogging
- Industrial displays
- Kiosk and public access terminals
- Automotive & Agricultural vehicles
- Medical apparatus
- Electronic signage



Customer Designs

ITO heaters may form part of complex LCD assembly stacks with inclusion of Touch Screens, TFT LCDs and RFI shielding meshes, customer specific gaskets and environmental seals. Instrument plastics designs and manufactures' at its UK facility bespoke solutions from low volume evaluations samples to large scale production requirements without tooling or additional engineering charges. Consult Instrument Plastics to discuss your bespoke design requirements.

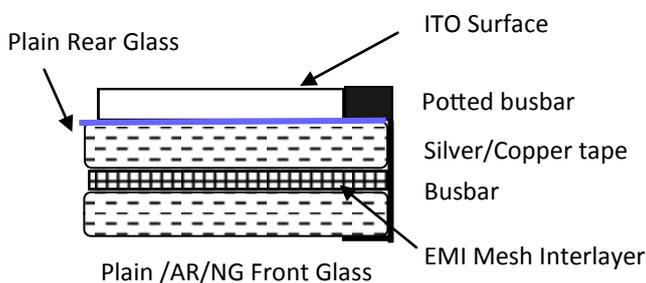
Instrument Plastics Limited has a policy of continual improvement of products and so reserves the right to change the product specification without notice.

For further information contact Tim Butterly or Rad Fismistr.
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Transparent ITO (Indium Tin Oxide) Heater Options



EMI /ITO Multi Layer Heater Lamination

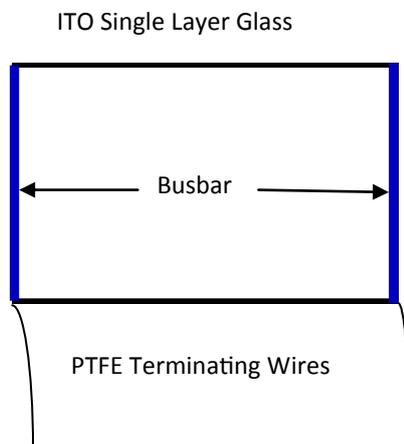
The Multi layer ITO heater provides the customer with the ability to design heaters into complex lamination assemblies suitable for RFI attenuation, heating effect and sunlight readability environments

Designs are bespoke to customer requirements including busbar styles, terminations, Silk screen printing and environmental and RFI /Environmental gaskets.

Single Layer ITO Heater with Terminating Wires

Single Layer ITO glass is the most simple and cost effective heater style providing maximum flexibility for termination styles, heating effect and ease of build, ITO resistance may be selected from 4 to 15 ohms and wire gauge / length to suit application of design.

The single layer heater may be build into many products with inclusion of optical filters, RFI mesh layers, Glass and Silk Screen Printed borders, logo's and customer designs.



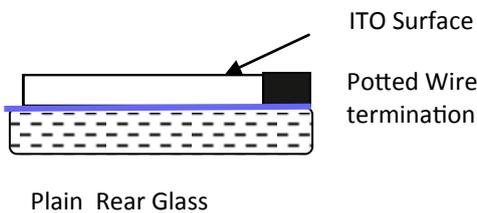
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ITO Double Layer Heater Lamination

ITO heaters may be laminated to other glass assemblies providing thicker and stronger double or multiple layers.

These layers may be silk screen printed and form part of other structures such as LCD;s, RFI Mesh and enhanced displays.

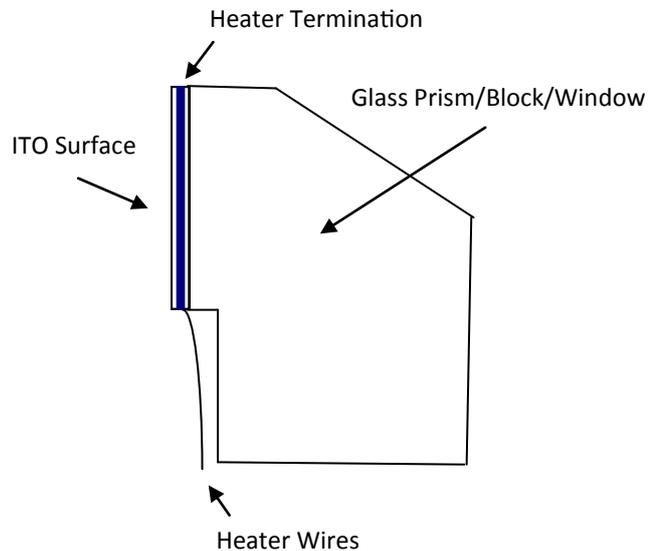
Glass types may be selected to provide additional sun light readability such as (AR) Anti Reflective and (NG) Non Glare surfaces.

ITO Heated Vision Block/Prism/ Windows

ITO heater 's laminated to military vehicle Vision Blocks, Periscope's or Laminated windows provided a ideal solution to misting, condensation and poor visibility in changing environmental conditions'.

Termination may be selected to suit mechanical and electrical designs.

ITO heater may be placed as interlayer between Prism surface and outer protection glass with plain, Anti Reflective or Non Glare surfaces.



Consult Instrument Plastics and discuss your specific Heater requirement and design goals.

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