

Laminated Touch Screens

Flat panel touch screens can be enhanced by Optical filters for ruggedisation, sunlight readability, privacy, EMI shielding and thermal control. Applications for customised touch screens include military, medical and industrial markets, ATMs, gaming, public kiosks etc.

Optical Lamination

Assembled individually in clean room conditions the touch screen is bonded to filter materials, glass and plastics in a sandwich construction of index matched dry film adhesive.



Customisation Options

- Ruggedisation
- Sunlight readability
- Louver Privacy
- Blur Privacy
- Transparent Heater
- NIR radiation control
- EmiClare EMI shielding

A combination of above options can be included in each touch screen lamination. Full optical lamination can be undertaken on all types of solid flat touch screens up to a 62" diagonal.

Ruggedisation

Full optical lamination improves the impact resistance of the touch screen and keeps the screen intact when broken thus protecting the equipment and the safety of the user.

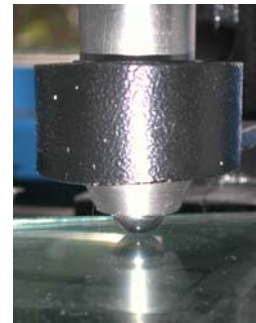
Standard ruggedisation is to BS 6206: 1981 Class B and has the ability to withstand heavy repeated blows from objects such as bricks, hammers and crowbars. Impact performance can be further enhanced to Class A and above by using extra lamination layers and chemically toughened glass.

Ultimate strength in the final application is limited by the type and thickness of the touch screen along with its integration.

The laminations are tested for impact resistance, surface damage and penetration in accordance with ISO 6272 using a Falling Block Impact Tester 806/40.

BS 6206: Class A

impact resistance is achieved on the other touch screen lamination due to the extra filter material layers.

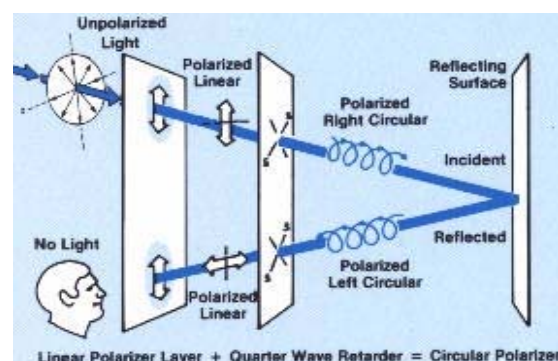


Sunlight Readability

Maximum contrast enhancement and "sunlight readability" is achieved by incorporating a neutral density circular polariser.

Circular polarisers are well established as the most efficient form of contrast enhancement available with a 40:1 C.E. ratio.

The washed out appearance of the display caused by ambient light reflected from the display is modified by the circular polariser as it passes through and the light reflected from the display is blocked by the filter. The signal from the display is allowed to pass through the filter and appears as a bright image against a dark background.



The best sunlight readability is achieved by combining both a circular polariser and a louver filter together.

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Privacy Filter—Light Control Film

A louver light control film (LCF) can be easily incorporated into a touch screen lamination. The filter contains closely spaced microlouvers which provide on-axis viewing whilst blocking visibility of the image to viewers not directly in front of the display. A simple analogy for the filter is a Venetian blind.



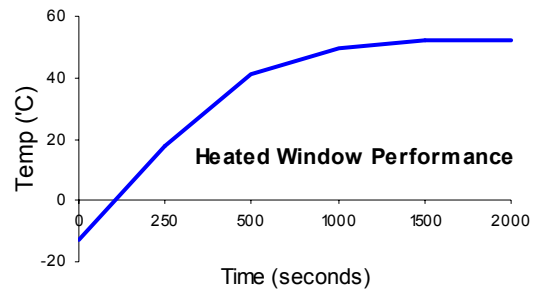
The restricted viewing angle provides customer security when entering or viewing sensitive information in applications like ATMs and public kiosks. A 17" diagonal screen is the maximum size available.

Privacy Filter—Blur Film

Privacy filters using Blur film functions by a microstructure that scatters the incident light from particular angles and transmits it at all other angles. The appearance of the display therefore changes from a blurred image to a clear readable one depending on the angle from which it is viewed. Blur privacy filter benefits include greater light transmission than the louver film, together with larger sheet size at a lower cost. However the effectiveness of the filter depends upon the distant set from the display and, unlike the louver film, the image is only distorted and does not fully black out.

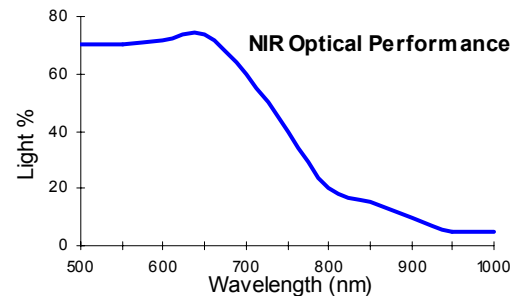
Transparent Heater

To defrost and /or maintaining an optimum screen temperature, a transparent heating element can be bonded to the rear surface of the touch screen. Maximum available size is a 17" diagonal screen.



NIR Radiation Control

Direct sunlight heating can be controlled by the addition of a Near Infra Red filter. Whilst providing a high level of visible light transmission (>70%) the NIR filter blocks 90% of Infra Red at 850nm increasing to 95% from 950nm.



EmiClare EMI Shielding

EmiClare is an EMI shielding mesh designed for optimum optical performance with a high level of shielding effectiveness at both high and low shielding frequencies. Military, test equipment and medical markets are typical applications requiring extra EMI shielding provided by incorporating EmiClare mesh into a touch screen lamination or as an EmiClare Solo filter on resistive touch screens.

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