



# ZYTRONIC DATA SHEET

## ZyShield

RFI Clearshield optical filters



### OPERATION

Clearshield filters are custom designed flat or curved RFI Shielded optical filters produced by depositing a thin electrically conductive transparent coating directly onto the substrate material. The transparent conductive coating provides high shielding performance coupled with good light transmission properties.

Laminated clearshield filters are available with a wide range of surface finishes including etches, anti-reflection and non-glare coatings, and can incorporate polarizers, for contrast enhancement and coloured filters to match optical requirements.

### ADVANTAGES OF CLEARSHIELD OPTICAL FILTERS

- High conductivity coatings resulting in attenuation of 18 to 35dB over the frequency range 1MHz to 1GHz
- Light transmission, typically 87% for 3mm coated glass
- Available as fully laminated, flat or curved
- Window materials consist of glass and polycarbonate substrates

### SPECTRAL PERFORMANCE

Optical transmission, averaged over the visible range of 400 to 700nm @ 0° angle of incidence are shown in the table below

### EMI SHIELDING PERFORMANCE

The shielding effectiveness of clearshield filters has been measured by independent test methods consistent with MIL-STD-285, Typical shielding effectiveness is shown in the table below.



# ZyShield SPECIFICATION

## EMI SHIELDING PERFORMANCE OF CLEARSHIELD FILTERS

Surface Resistivity	Average Transmission	1 MHz	10 MHz	100 MHz	400 MHz	1GHz
5.0Ω	87	51	18	20	30	35
10.0Ω	87	-	-	20	28	26
20.0Ω	88	-	34	19	26	23

## ENVIRONMENTAL DURABILITY

Exposed electrically conductive coatings are damaged by abrasion and degrade in humid/high temperature environments. For this reason the conductive coating is applied to the internal surface of fully laminated filters. Clearshield filters have been subjected to controlled environmental tests, including temperature and humidity cycling, thermal shock and vibration. No evidence of discolouration, de-lamination, shock abrasion or fungal growth have been observed.

The recommended operating and storage temperature of glass filters is -55°C to 70°C and for polycarbonate filters is -40°C to 70°C.

## FILTER AVAILABILITY

### Glass

Standard annealed glass is supplied as per BSEN 572 Parts 1 & 2 (1995). The surface finishes available include clear, acid etch and anti-reflection coatings (MIL SPEC 675 C)

### Polycarbonate

Sheet or film is supplied as per BS EN ISO 11963 (1996)

### Filter sizes

Glass filters are available in both flat, up to 1000mm x 1000mm, and curved up to 380mm diagonal. Thickness can range from 3mm to more than 20mm. For polycarbonate filters the maximum size is 375mm x 300mm, or 380mm diagonal for curved.

## TERMINATION

Clearshield optical filters are terminated with a border of highly conductive silver bus-bar material along the exposed step. An interface gasket or conductive adhesive ensures contact of the window to the enclosure.

## QUALITY

See cosmetic specification [www.zytronic.co.uk](http://www.zytronic.co.uk)

## APPROVALS

RoHS compliant

CE, FCC & UL approved [www.zytronic.co.uk](http://www.zytronic.co.uk)

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