

Lens Characteristics

PLANO-CONVEX

Rear surface of lens flat - 'plano' - diffused and front of lens convex. Focal length of lens designed to increase the 'virtual image' of the light source, this in combination with the diffusion on the rear of lens increases the area of the light source and provides even illumination across the viewing aperture.

FRESNEL

Flat or convex lens with a series of concentric rings (grooves) cut into the rear surface of the lens. This provides the best of both worlds by attaining maximum on-axis brightness from the light source, viewed through clear portions of the lens, in between the concentric grooves and increasing the viewing angle of the indicator lamp by diffusing and refracting the light from the light source in the concentric rings. Due to the relatively small size and complexity of fresnel lenses used in Oxley indicator lamps these lenses are plastic injection moulded, in a variety of colours including clear to match the colour of the light source and the application.

DOMED

Domed lens. This lens provides 130° omni-directional viewing characteristics. Ideal for applications requiring wide angle visibility in all ambient light conditions where a high level of performance is required.

FLAT - CLEAR

Used in applications where the indicator lamp is to be viewed under low ambient light conditions.

DIFFUSED

Light projected on to the rear diffused surface of the lens is scattered, improving the viewing angle and increasing the area of the viewed light source. Increases readability of indicator lamps under higher ambient light conditions; however, readability under sunlight conditions is compromised and improves the aesthetic appearance of the lamp, since the diffused surface on the rear of the lens provides a screen preventing direct viewing of the light source.

EMI SHIELDING

A special electrostatic screen is connected both electrically and mechanically between the light source and the lens. Shielding efficiency – 20 dB reduction in electromagnetic radiation over the frequency range 5 MHz to 1GHz when compared against a nonshielded device.

SUNLIGHT READABLE

A filter with light attenuating properties that is used to increase the 'ON/OFF' contrast ratio of the indicator lamp, therefore achieving greater sunlight readability. Eliminating reflections and increasing the contrast ratio play the major part in achieving better sunlight readability. The specially designed filters used in Oxley indicator lamps attenuate the ambient light reflected off the lens. Any reflected light from the inner surfaces of the indicator lamp that may cause spurious ON/OFF indications is also attenuated, which produces the 'black hole' effect where reflected light is effectively quenched, thereby increasing the sunlight readability by increasing the contrast ratio. This explains how a lamp with a lower luminous intensity can have better sunlight readability than a lamp with a higher luminous intensity.

ANTI-REFLECTION COATING

An interference coating applied to a flat surface of a filter or lens which reduces the reflectance of that surface over the visible spectrum, further enhancing the sunlight readability of the indicator lamp.

LENS MATERIAL

Material from which the lens is manufactured.

GLASS - Used on the majority of Oxley indicator lamps due to precise control of optical properties and mechanical robustness. It also offers excellent resistance to temperature, thermal shock and solvents.

POLYCARBONATE - Used for mechanically complex lenses, e.g. fresnel, that require injection moulding due to the complexity of the opto-mechanical design.