

Colour Change (RGB) Lighting

Developments in colour change technology have made the application of colour within lighting schemes much more cost-effective and practical. Whatever the correct use of colour in design terms, there is no doubting the capacity to deliver more complex colour schemes than ever before.

LED & Fibre Optics Technology

LED and Fibre Optics are both technologies where colour is one of the key features. LEDs are normally used where digitally controlled moving images are required because the small light source can operate as a colour pixel. For simple colour change, fibre optics are difficult to better in cost and simplicity – a colour wheel within the light source box does all that’s needed. However, notwithstanding the recent advances in these technologies’ light output, they are still best for luminance rather than as sources of coloured illuminance. For the intensity required for a full colour experience cold cathode and fluorescent are still usually more practical.

RGB Fluorescent Fittings

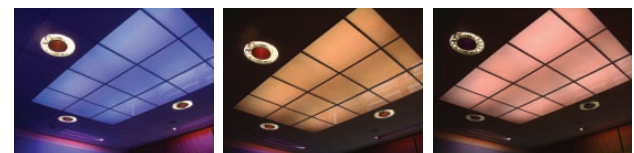


Colours changing fluorescent fittings require multiples of three lamps (Red, Green & Blue) that are well mixed within the luminaire to prevent a bias towards one lamp. The output is either indirect - and not too close to the reflecting surface – or highly diffused to create a uniform output. Dimmable high frequency ballasts - on either DALI or 1-10v protocols - usually control the lamps to cross fade dimming that provides a wide palette of colours. Occasionally mixing can be improved with the addition of a 4th lamp circuit in a white colour.

Controls

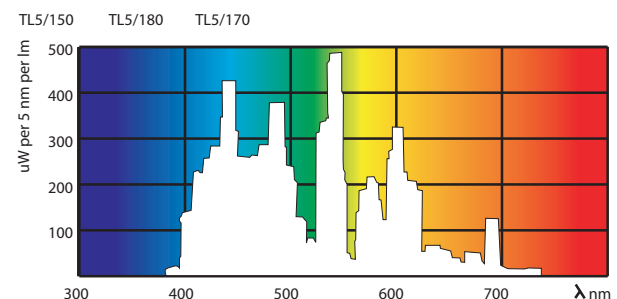
Control for RGB fluorescent circuits is either from a dimming rack (1-10v) or via DALI control system, both

using a twin wire control bus on a daisy chain to each fitting. The exact form of control is determined by the functions required, the number of scenes, circuits, automated events and reporting requirements.



White Light

RGB Combined Distribution
Spectral power distribution



Note: This is an approximation only.

White light from RGB sources should be achieved with each lamp of full output. The quality of this light in spectral terms can be very high. Unlike most fluorescent lamp spectra few gaps appear in the output across the visible spectrum.