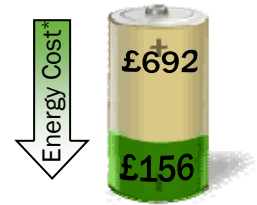


Application

The technology Strategy Board required an illumination solution for the product display cases, library displays, reception area and library work stations. The primary requirement was to illuminate display pieces and books effectively without risking heat or UV damage. The low colour rendering index of compact fluorescent lighting does not provide suitable illumination to accurately render the displayed products in the cabinets. Problems with flickering as well as the low CRI make CFLs unsuitable for use in the work stations. CFLs emit UV, risking damage and fading of the displayed articles and library materials.

Halogen solutions emit substantial amounts of heat. Halogen lamp wall temperatures are in excess of 200°C. The enclosed design of the work pods would with halogen lamps be at least be uncomfortable to work under, at worst be a serious burns risk. The range of displayed products and technologies in the cabinets would be at risk from heat damage.



Solution

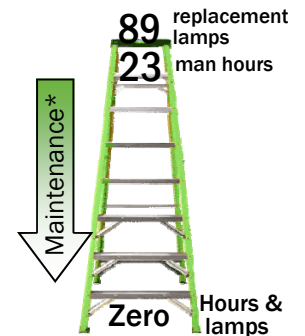
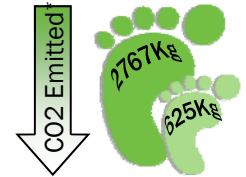
The installed solution utilised 24 CeilingStar5 7W LED luminaires and 12 CS5 10W LED luminaires placed inside the cabinets. 11 adjustable CeilingStar14s were installed in the in the work stations and adjacent to the cabinets. Two 7w CS10s were used to efficiently illuminate the reception area.

The CeilingStar luminaires emit flicker free light with excellent colour quality, rendering the displayed products & books accurately. The LED luminaires do not reach temperatures higher than 50°C, eliminating risk of heat damage or burns in the work stations.

As a showcase for emerging British technologies, 100% reliable illumination for the displays was deemed essential. The 5 year guarantee offered on all PhotonStar products and projected life (L70) in this project of 80,000 hrs eliminates the "less than perfect" image that may be portrayed when lamps fail in the cabinets. There is also a considerable saving in maintenance costs with the projected life of the luminaires 40 times that of the projected life of an equivalent halogen lamp.

The luminaires require 80% less electricity than a halogen system illuminating to the same lux levels. Similarly the resultant carbon emissions are also 80% lower.

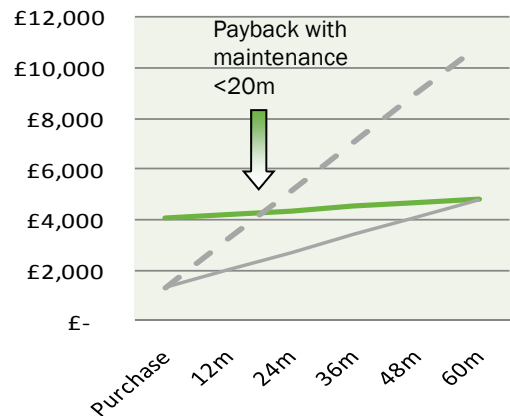
The TSB's display showcases the latest in British Innovation, and so the lights are not only illuminating the display, but are part of it too. Recently announced by DEFRA as expected to have the lowest environmental impact for domestic lighting by 2014†, these LED integrated luminaires (as opposed to LED replacement lamps to fit in older style fittings) are a patented British development manufactured in Southampton.



Key Features

- Cool operating temperature under 50°C
- Does not emit UV.
- 5 year guarantee with 80,000hr projected LED lifetime
- Bright 3000K light with excellent colour rendering
- Payback period less than 20 months with maintenance factor
- Application saves £2680 in electricity costs & 10.7tons in CO₂ over 5 years compared to halogen.
- 80% more efficient than equivalent illumination with halogen.
- Free of toxins and made in the UK from 85% recycled materials.

Total Cost of Ownership



- CeilingStar LED luminaires (all costs as at August 2009)
- Halogen MR16s (energy costs only)
- Halogen MR16s (all costs including maintenance)

*Based on energy cost of 0.10 per kWh, 0.4Kg CO₂/kWh, savings over 1 year based on 10 hrs per day.

† The DEFRA roadmap to domestic lighting can be found on the DEFRA website. An extract is published on the Photonstarled.com site.



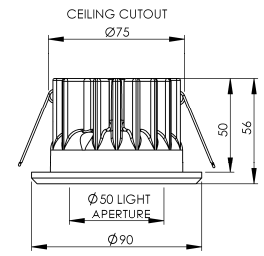
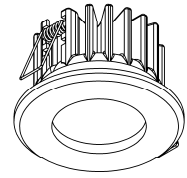
CS5 NIC

Fixed LED Downlighter

The innovative CeilingStar5 (CS5) range can be used in residential and commercial new builds, refurbishments or retrofits. The CeilingStar5-NIC is an energy efficient and zero maintenance light fitting which is a superior replacement for MR16 and GU10 ceiling downlighters or incandescent downlighters. It is IP65 rated, making it suitable for zones 1, 2 and 3. These light fittings make changing light bulbs a thing of the past.

The CeilingStar5 is constructed of materials that are designed for long life. It contains the most efficient, ultra bright, long life LEDs available today. Keeping LEDs cool is essential to efficiency and long life. The CS5 has a high performance die cast heatsink with integral spring fixings employing proprietary surface treatment technology, providing improved lifetime, efficiency and an increased ambient temperature operation in a durable Matt Black finish.

The CS5 offers equivalent illumination to 35W and 50W GU10 halogens consuming 7W and 10W a durable powder coated aluminum bezel. To create a calm relaxing environment we have WarmWhite (CT 3000K) with a colour rendering index (CRI) of 83 offering excellent quality illumination. For a pure, invigorating feel we have pure NeutralWhite (CCT 4000K, CRI 86)

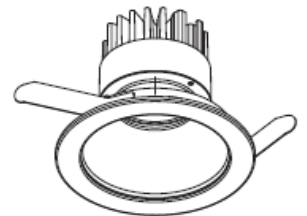
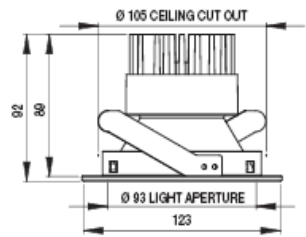


CS10

Fixed LED Downlighter

The innovative CeilingStar10 range can be used in residential and commercial new builds, refurbishments or retrofit. The CeilingStar10-7W (8 circuit Watts) is an energy efficient and zero maintenance light fitting which is a superior replacement for 1 x 13W compact fluorescent (CFL) ceiling downlighters or 60W Incandescent downlighters. The CeilingStar10-10W (12 circuit Watts) is a an energy efficient and zero maintenance light fitting which is a superior replacement for 1 x 18W compact fluorescent ceiling downlighters or 80W Incandescent downlighters.

It conforms to EU 'A' energy rating and is a dedicated UK building regulations Part L fitting when used with the supplied power supply unit (PSU). Dimmable versions of the PSU are also available. The CeilingStar10-7W (8 Circuit Watts) offers 55 Luminaire Lumens per circuit Watt and >46 Luminaire Lumens per circuit Watt for the 10W unit. (12 Circuit Watts) making it up to 40% more energy efficient than the CFL downlighter and 80% more efficient than the incandescent solution.



ACS14

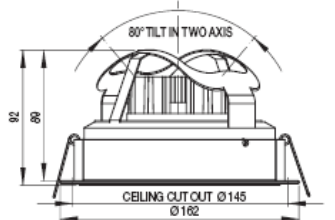
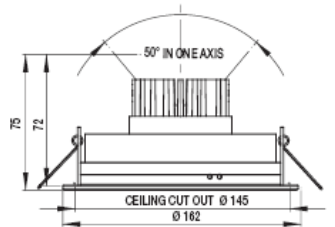
Adjustable LED Downlighter

The Adjustable CeilingStar14 (ACS14) range is a superior replacement for adjustable halogen spot fittings often used in retail, residential and commercial applications.

The ACS14 range conforms to EU 'A' energy rating and UK building regulations Part L when used with the supplied power supply units (PSU). Dimmable versions of the PSU are also available. This 52 Luminaire Lumens per circuit Watt for the 7W (8 Circuit Watt) spot unit (comparable to a 35W MR16 halogen bulb) and >46 Luminaire Lumens per circuit Watt for the 10W (12 Circuit Watt) unit comparable in illumination to a 50W QR111 halogen spot.

The ACS14 range is available in WarmWhite (CCT 3000K) as a direct replacement for the QR111 with a colour rendering index (CRI) of 83 offering excellent quality illumination for a more contemporary look.

There is also NeutralWhite (CCT 4000K, CRI 86). The ACS14-1 is adjustable in 1 dimension for wall wash and accent lighting. The ACS14-2 is a full gimbal spot accent light with more adjustability.



CS10



CS5



ACS14



PhotonStar LED Ltd.

+44 (0)2 381 230 381

www.PhotonStarLED.com

info@PhotonStarLED.com