



LED For General Lighting

ELCOMA

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Why LED?



- Efficient light source
- Luminous efficacy is comparable as well as better compare to fluo family.
- Choice of much wider range of color temperatures compare to conventional sources
- Easy to control light source (Dimming and color temperature variations)
- Greater Flexibility in optics designs to achieve precision illumination
- Obvious choice for mood lighting
- Futuristic & Efficient besides long life
- Robust and green light source

LED as Light source- Few Benefits

- Zero Maintenance – Life class 30K to 50K Hrs
- Cool Beam – No IR content in beam
- Application free from Fading, Skin Rashes, Limit for min distance – NO UV
- Instant Start – No Flicker or re-strike & Vibration Proof
- Life Independent of switching
- Energy efficient compare to traditional lamps
- Safe in operation – Low Voltage operation
- Compact & Capable at low temp, Pollution Free & Dimmable

LED Functional Lighting Application areas



Indoor Applications

- Modern Work Space
- Retail Lighting
- Hospitality
- Museum and Art Galleries
- Emergency Lighting

Out Door Applications

Indoor General Lighting- MWS



Brightness Management

- Very Human up bringing is always in natural light.
- Nature provides balance between horizontal and vertical lighting
- Brightness Management talks about the same
- It also addresses lighting of space – Not just work plane
- Low Contrast in Near as well as Far Field
- Lighting of space not only the work plane

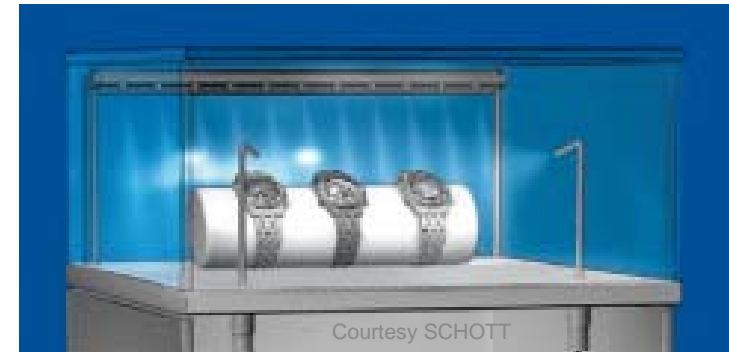


- LED Luminaires used for controlled spatial distribution of light flux.
- Offers potential reduction in the height of luminaires to provide creating extra space for utilities.
- New Very High wattage White LEDs are getting popular for less cluttered ceilings
- Offers easy integration with other control systems for optimizing energy consumption.
- Able to provide volumetric lighting @ high system efficiency.
- LED application also help for securing additional credits in green certifications

LED For Retail



- LED have good potential to be used for ambient lighting at reduced cost of operation in Retail environment.
- LED also offers much less offering for architectural elements and to create dramatic effects in retail displays.
- LED is one of the best sources in luminance based applications like signage, branding and light boxes etc.
- Dynamic windows can be done easily with LED applications.



LED For Hospitality



- Hospitality applications are combination of functional and architectural applications
- Calibrating the luminaires with LED for specific color temperature is relatively easy.
- Saturated color applications with low voltage and low current has been welcomed by industry
- Illuminance applications with glitter is also possible – often used in hospitality.
- User friendly Mood Lighting have become less complicated with LEDs

- UV for pigmentation distortions and IR for crack and peeling deformations have been concerns of curators in museum and art galleries.
- Combination of UV and IR affects different materials depending on their sensitivity.
- Considering above and directional point source nature – LED is preferred choice of many curators and artists in museum.
- LED also help to control anoxic photo reductions and photochemical damages to displays.
- LED helps to control energy exposure in much better way compare to conventional light sources



Out door Applications

LED has Enormous opportunities in out door application

- Earlier generation of professional LED applications started with out door only for colored lighting applications.
- Out door application demands more complex thermal management in LED luminaires to be applied in Indian environmental conditions.
- Street lighting is biggest potential application area.
- New Concepts being researched around globe for LED standardizations – ASSIST (Alliance For Solid State Systems and Technologies) Recommendations.

LED Related ASSIST Recommendations



- ASSIST Recommendations are for evaluating products based upon conditions found in practical conditions (rather than ideal conditions) which may affect product performance drastically different from ideal conditions.
- These testing methods are developed from technology neutral point for apple to apple comparisons of products.
- ASSIST Evaluation Method considers
 - LSAE (Lighting system application efficacy) concept
 - Visual Efficacy Concept

LED Related ASSIST Recommendations



- LSAE Concept details – Only the lumens that reach a target area and meets the application lighting requirements (as per standards) divided by input power to luminaire.
- Visual Effectiveness of a light source, with it's method based on proposed unified system of photometry.
- Visual Sensitivity changes with light level and spectrum but conventional photometry, which is based entirely upon the photopic luminous efficiency function, does not account for increased visual sensitivity to short wavelengths under low light levels.
- Visual effectiveness of some light sources used in mesopic vision conditions are estimated wrongly by conventional photometry in terms of energy efficiency and visual safety.
- A higher S/P ratio allows for lowering photopic light levels – Not yet approved by IESNA.

LED for Street Lighting



- Many new luminaires are being tried out with LED as light source.
- Specific optics available now for LED Street luminaires.
- Putting LED engine in optics designed for conventional light sources may not be a good idea and suitable for street distribution.
- Very high power Leds are taking place for achieving compact size and simple luminaire.

WIPRO Product Offerings



- WIPRO Offers Selective Product Offerings for Indoor and Out Door Application Segments
- Few Solutions for Industrial and Weather Proof Requirements



Functional Lighting LED Solutions
from Wipro Lighting



Developed and manufactured Indigenously in India including electronics

Complete Family

LD30-006-XXX-
WH-XX

1 X 6W SQUARE LED D/L

LD32-018-XXX-
WH-XX

3 X 6W SQ LED



LD31-012-XXX-
WH-XX

2 X 6W SQ LED

LD33-024-XXX-
WH-XX

4 X 6W SQ LED

Complete Family

Circular downlighter with diffuser



LD38-006-XXX-WH-
XX



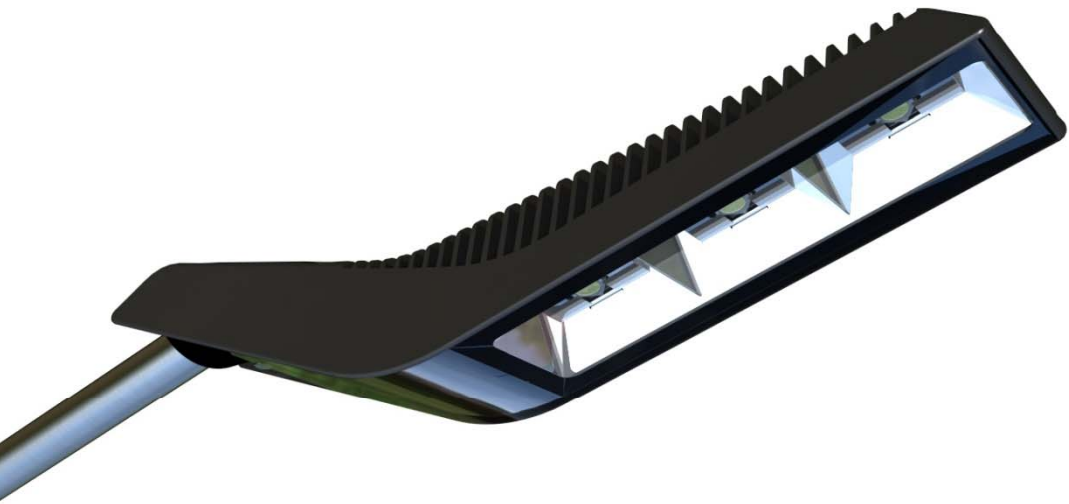
LD41-018-XXX-WH-
XX

Circular downlighter with collimator lens



LD36-018-XXX-WH-
XX

LED Streetlights



O R I



High Power 4 x 6W LEDs

Special mirror reflectors

PMMA clear protector


O R

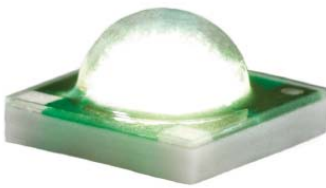


Streetlight

42 W / 84 W / 126 W




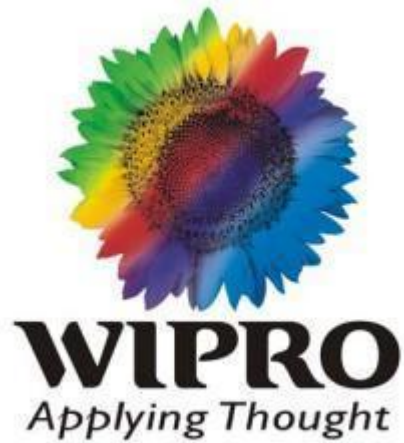
CREE 



1W : 93 lumens/W

Street optics lensc





Thank You

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