

binay
Retrofit PowerLED Tube Light
 (For IN-PLACE, RETROFIT replacement of 4-foot fluorescent tube lights)

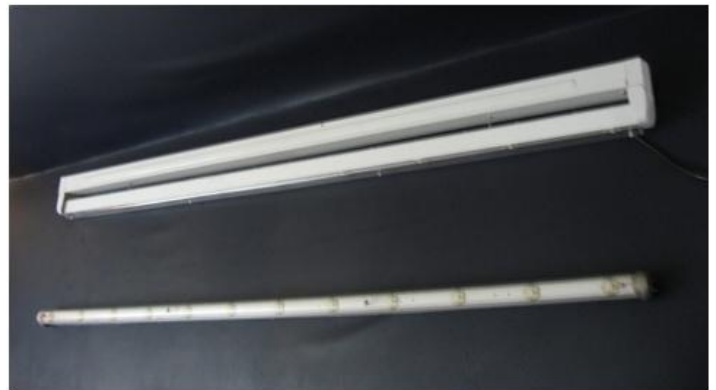
The BINAY Retrofit PowerLED Tube Light directly replaces an existing T-8 fluorescent tube

The BINAY Retrofit PowerLED Tube Light is a retrofit 'in-place' replacement solution for existing fluorescent tube lights. The product is covered under Patent Application no. 843/Kol/2010 dt. 2.08.2010.

This product is designed for direct fitting into an existing standard fluorescent tube light luminaire or strip. There is no need to remove the electromagnetic choke. The unit can run through the choke, or directly without the choke (the starter – if any – has to be removed).

The BINAY Retrofit PowerLED Tube Light **does not use small-chip (SMD/5mm/4-leg) LEDs**, but is designed with high-illumination Power LEDs having a life of 50,000 hours to 100,000 hours. A unique factor of the design is that it incorporates extensive heatsinking in the unit body itself to provide for improved thermal management.

The total wattage of the same (including that of its inbuilt LED driver) is 16 watts for the 4' model. The product is covered under warranty of 5 years, with an estimated life of 12-15 years.



Delivered light lux levels have been measured to be greater than that of existing 4' fluorescent tube lights. Furthermore, it is **able to withstand wide variation in input voltages without any flickering or change in light output.**

The table below gives sample lux readings of the BINAY Retrofit PowerLED Tube Light in comparison to a standard 4' tubelight. As can be seen, the lux levels of the BINAY PowerLED Tube Light are greater than the fluorescent, both below as well as to the sides.

All Readings taken from 2m height	2m below, 4' to left	2m below, 3' to left	2m below, 2' to left	Below and 1' to left	2m directly below tube	2m below, 1' to right	2m below, 2' to right	2m below, 3' to right	2m below, 4' to right
4' Fluorescent Tube (40W + ballast loss)	56.4 lux	66.5 lux	75.7 lux	83.7 lux	85.9 lux	83.1 lux	75.3 lux	66.1 lux	56.2 lux
BINAY 4' Power-LED Tube (16W)	66.3 lux	85.7 lux	98.1 lux	112.3 lux	121.0 lux	112.5 lux	98.3 lux	85.6 lux	66.2 lux

This product is also available in 2-foot sizes (replacement for 20W fluorescent), i.e., 25-30W total replaced with 8-10W

Normal fluorescent tubes have a luminaire efficiency of about 50%, as they emit light all around in a 360-degree pattern (which then has to be reflected back using reflectors). This results in reflector-related losses and a low effective luminaire-delivered lumen output. LEDs, however, are directional light emitters (emitting light mostly in the front), and thus have an optical efficiency of almost 100%. This ensures brighter, more consistent light output than a fluorescent tube, with lower power consumption.

It has been observed at various installations that occupants find that LED lighting gives better clarity and sharper vision, even when light levels are reduced. This is a unique advantage of this product, and follows from the particular combination of the following factors – the LED emission characteristic and the Scotopic vision attributes of the human eye. These two factors allow for enhanced activation of the 'Rod' cells inside the eye, enabling greater control of the eye's pupil size. Smaller pupil size provides an improved focus, leading to sharper vision and better visual clarity, and thus allowing greater visibility even at lower light levels.

Specifications (for 4' model):

- Total wattage (including that of its inbuilt LED driver) 16 watts approx. Input current: 120mA; Power factor: >0.9
- Operating voltage range: 100V-250VAC 50Hz (constant light output over this range, without any flickering)
- Fits in standard 4' tube light fitting
- Designed lumen output: 1200 Utilised Photopic source lumens (2500 Utilised Scotopic source lumens – Delivered light lux levels measured to be greater than that of 4' fluorescent tube lights)
- Colour Temperature – Cool White 6500°K; Colour Rendering Index: 75 (Also available in Warm White 2700-3500°K)
- Warranty: 5 years (estimated life 12-15 years)



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