

**BINAY
MODEL 'UNIVERSA-TL' ECO-FRIENDLY POWERLED STRIP LIGHT LUMINAIRE**

The BINAY model 'Universa-TL' PowerLED Strip Light Luminaire is a long-life, power-saving luminaire designed to replace T-5 and T-8 fluorescent tube lights, and is ideal for locations requiring continuous 24x7 operation

The BINAY model Universa-TL PowerLED Strip Light luminaire is available in 2-, 3- and 4-foot lengths, each with options of one, two or three LED light bars (strips) of heat-sinking aluminium. Each bar is axially adjustable, allowing the user to direct the light output as desired.

Each 2' light bar has 12 Power LEDs running at 350mA. Similarly, each 3' bar has 21 LEDs, and the 4' bar has 30 LEDs. The luminaire fitting can be supplied with configurations of one, two or all three light bars.

All the high power LEDs are silicone-encapsulated to ensure long life with minimal light degradation over time. They can be of two intensities, 50 lumens per watt, or high intensity 120 lumens per watt. At the maximum configuration (4 feet luminaire with 3 bars), **the design can radiate up to 12,000 lumens** at a power consumption of only 125 watts.

Designed for universal 90V-260VAC operation through an in-built SMPS driver, it can also be manufactured in 12VDC, 24VDC, and 48VDC ratings for battery operation. **The SMPS driver ensures steady light output even with input voltage variation, unlike fluorescent tubes.**

All-aluminium construction in the luminaire ensures a corrosion-resistant body, thus matching the LED life of 10 to 30 years (50,000 hours to 30% lumen depreciation and 100,000 hours to 50% lumen depreciation). Standard finish is powder-coated white, but it can be supplied in anodised natural silver or black finish against special order. Fixing method can be by chain or rod for pendant hanging (for ceiling installation), or surface-mount with a fixing plate (for fixing to ceilings or walls).

This product is an ideal replacement for T-5 and T-8 fluorescent tubes, which consume high power, contain environmentally hazardous mercury, and have light output which is highly dependent on ambient temperature (while the optimal light output of fluorescent tubes occurs at 30°C, it depreciates greatly – by up to 60% – at 10°C). The system efficiency is also higher, being more than 95% due to the 180° directivity property of LEDs (in contrast to 50-70% with that of conventional light sources, which radiate light 360° all around and require a wasteful reflector to direct the light in the direction required).

FEATURES

- High system efficiency and low power consumption (50% saving in power over equivalent fluorescent tube lighting)
- Long useful life (50,000 - 100,000 hours)
- Vibration-resistant and shock-proof
- **Light dispersion completely adjustable, from direct task lighting to too wide dispersion for general lighting**
- An ecologically friendly product, and contributes to the reduction of global warming; is a factor to "Green" building certification
- Can be easily dimmed (or some light bars turned off when desired at select times, by means of a timer)
- Can be operated on 12VDC battery supply on mains power failure with external battery-inverter/UPS system



**BINAY UNIVERSA-TL
(IN 2ft. 12-LED BAR x 3 CONFIGURATION)**



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- Available in cool white (2500°K - 5500°K), natural white (3500°K - 4500°K) or warm white (2500°K - 3500°K)
(NOTE: Maximum light output occurs with cool white.)
- Colour Rendering Index of 75-80 (higher with warm white)
- More light at low temperature (diametrically opposite to fluorescent tube characteristics)
- No ultra violet radiation – avoids colour fading;
- No infrared radiation – does not create any load on air conditioning systems.

SOME APPLICATIONS

- Low bay industrial lighting (for ceiling heights less than 25 feet/7.5 meters)
- Covered parking garages – ceiling or wall mounting luminaires which require to be lighted on a 24x7 basis
- Service areas and basements in hotels and hospitals, which require continuous 24x7 lighting
- Cold storage lighting: Provides more light at low temperatures (even at 0°C)
- Warehouse lighting – better colour discrimination and visual perception than with HPSV (sodium) lamps
- General corridor lighting in commercial buildings.

With LED lighting, while initial capital cost is at present high, **total lifetime cost of ownership is much lower** due to the light being maintenance-free. It is not plagued with the problems of frequent replacement, thus eliminating inventory cost and labour costs of replacement maintenance. The lower power consumption also makes LED luminaires ideal for operation on alternative power supply sources such as diesel generators or battery-inverter/UPS supplies.

LED LUMEN OUTPUT FOR VARIOUS CONFIGURATIONS OF UNIVERSA-TL

Scotopic/Photopic lumen adjustment multipliers: MH/PS x 1.49; HPSV x 0.62; 6500°K LED x 2.14*

BINAY UNIVERSA-TL Luminaire configuration <small>Length x no. of LEDs x no. of bars (More bars – greater light dispersion)</small>	Total number of LEDs	Total LED Watt- age	Total Lumen Output with High Intensity 120 Lm/W LEDs (CW only)		Approximately Comparable to Effective Lumen Output of Conventional Fluorescent Luminaire of:
			Photopic	Scotopic	
2ft. 12-LED Bar x 1	12	14.4W	1728	3663	1 x 40W FTL
2ft. 12-LED Bar x 2	24	28.8W	3456	7326	2 x 40W FTL
2ft. 12-LED Bar x 3	36	43.2W	5184	10990	3 x 40W FTL
3ft. 21-LED Bar x 1	21	25.2W	3024	6410	2 x 40W FTL
3ft. 21-LED Bar x 2	42	50.4W	6048	12821	4 x 40W FTL
3ft. 21-LED Bar x 3	63	75.6W	9072	19232	6 x 40W FTL
4ft. 30-LED Bar x 1	30	36.0W	4320	9158	3 x 40W FTL
4ft. 30-LED Bar x 2	60	72.0W	8640	18316	6 x 40W FTL
4ft. 30-LED Bar x 3	90	108.0W	12960	27475	9 x 40W FTL

NOTE:

1. Calculation for fluorescent tube equivalent is based on average lumen output of 2500 lumens and conventional luminaire efficiency of 60% (LED luminaire efficiency is 95%).
2. To calculate available system lumens: Multiply the above lumens readings by 0.95
3. To calculate total system wattage: Add Driver loss of 10-15% to Total Wattage value above
4. The above measured lumens are **photopic** vision lumens, as measured by a photopically calibrated lux meter. However, indoor ambient light conditions correspond to the mesopic region of human vision. In the mesopic eye condition, both the 'Cones' and the 'Rods' in the eye are active, and the total pupil lumens (for visual effectiveness) will be higher. This value of scotopic enhanced lumens can be estimated by multiplying the photopic readings by factor 2.12.

ORDERING CODE

'BINAY UNIVERSA-TL		-	X	-	X	-	X	-	X	-	X	-	X'
Length	No. of Light Bars	White Colour Temperature			Body Finish			Mounting		Voltage			
2 – 2 feet	1 – 1 Bar	CW – Cool White (6500°K)			PW – Powder-Coated White			C – Chain Provision		90V-250VAC 50Hz			
3 – 3 feet	2 – 2 Bars	NW – Natural White (3500°-4000°K)			AB – Anodised Black			R – Rod Provision		12VDC			
4 – 4 feet	3 – 3 Bars	WW – Natural White (2500° - 3500°K)			AN – Anodised Silver			P – Plate fixing		24VDC			

*"Energy Efficiency Consequences of Scotopic Sensitivity" S.M. Berman
Journal of the IES, Vol. 21, No. 1, Dec. 1992



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