

# 084 SERIES - RAIL EDITION

## LED BULKHEAD UNIT



### FEATURES

- Network Rail certified product \*\*
- Metal Base
- Polycarbonate Lens
- Vibration Resistant
- Sealed to IP65
- High Intensity LEDs

### BENEFITS

- Suitable for Network Rail infrastructure
- Robust construction
- Vandal resistant
- Suitable for harsh environments
- Suitable for outdoor use
- Readable in sunlight
- Outstanding reliability and optical performance
- Suitable for use as a Buffer Stop Light or Barrow Crossing Indicator

MARL Part Number	Network Rail PADs No.	LED Colour	Lens	Typical Voltage Vopr	Typical Current Iopr	Typical LED Luminous Intensity @ If=20mA	Typical LED Wavelength λp	Operating Temp Topr *	Storage Temp Tstg
084-501-99-64	0055/050262	Red	Red Diffused	110Vac/dc	37	2700	660	-40 to +85	-40 to +85
084-501-76-65	0055/050263	Red	Red Diffused	230Vac 50Hz	30	2700	660	-40 to +85	-40 to +85
084-997-99-64	0055/050270	Cool White	Water Clear	110Vac/dc	40	27000	See Below	-30 to +85	-40 to +100
084-997-76-65	0055/560895	Cool White	Water Clear	230Vac 50Hz	48	27000	See Below	-30 to +85	-40 to +100
				V	mA	mcd	nm	°C	°C

### Typical Emission Colours Cool White LED

	X	Y
0.296	0.287	0.330
0.276	0.295	0.339

## Network Rail Approval Certificate No: PA05/898

### NOTES

Product features a cluster of 44 LEDs. Intensities (Iv) are per-LED. Intensities and colour shades of white (X-Y co-ordinates) may vary between LEDs within a batch. Additional LED Colours, Voltage Options and Reverse Polarity options available for semi-custom projects. Please contact our Sales Team. All LED components are supplied in anti-static packaging. **IP rating is void if unit is not fitted with suitable connector that at least maintains IP rating.**

Two parallel branches of LEDs and independent drive circuitry provides the unit with a 50% redundancy factor. Typical current is total for the product (divide by 2 for the per-circuit figure).

\* Characteristics at Ta = 25°C. For operating temperature derating graphs, please refer to sheet 2.

To order please contact us on +44 (0) 1229 582 430  
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 in company/marl-international-limited



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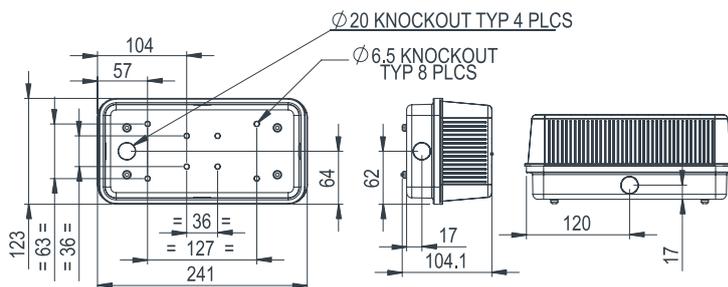
## TECHNICAL CHARACTERISTICS

Series	Max. Power Dissipation
084	5
	W

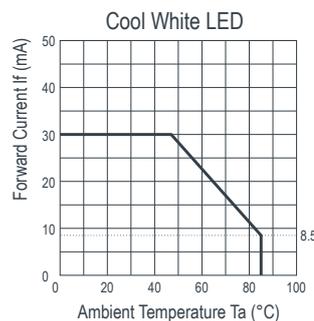
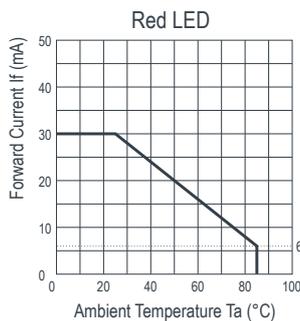
## TECHNICAL DRAWING

Weight (g): 529

Dimensions in mm (typical). Not to scale.



## DE-RATING GRAPHS



## DESIGN CONSIDERATIONS

### Product Evaluation

Due to subjectivity, evaluation of the LED type is recommended. Care should be taken to correctly simulate operating ambient light conditions to ensure that the correct device has been selected to maximise viewing characteristics such as viewing angle, colour compatibility and on/ off contrast ratio.

### Electro-Static Discharge (ESD)

Build up of electro-static discharge occurs in many situations involving people moving and handling products. The range of possible situations is very diverse but voltage levels as high as several thousand volts can and do arise in many individual situations. When an operator

charged up to these levels handles a static sensitive device, there is a very probable likelihood that the device will be irreversibly damaged. It is essential that precautions are taken at all stages during manufacture and assembly of these products. Although LEDs were never considered to be static sensitive devices, changes in manufacturing technology and materials used to produce higher intensity products over a large range of the wavelength spectrum have changed this. MARL has an approved system of ESD control from goods in, through production and into final packing and dispatch. MARL recommend all users of LED based products follow the current BSI guidelines for protection of electronic devices from electrostatic phenomena.

### Voltage, Current and Temperature

The forward voltage / current value of an LED is dependent upon the ambient temperature of the environment in which it is operated. Therefore, care must be taken to operate the LED at the correct voltage / current values, depending upon the ambient temperature.

MARL should be contacted if the device is to be operated outside the temperature range specified. MARL accept no liability for any product that is operated outside the stated voltage or temperature range.

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