

FILAMENT REPLACEMENT LEDs - T2 Bayonet Cap

FEATURES



**253 SERIES**

PACK QUANTITY = 300 PIECES

- Direct replacement for T2 BA7s
- Network Rail Certificate of Acceptance ref: PA05/01022
- Reduces stock and maintenance costs
- Resistant to shock and vibration
- 50° Viewing Angle

SPECIFICATIONS

Ordering Information & Typical Technical Characteristics (Ta = 25°C)

Mean Time Between Failure = 100,000 Hours.

HENRY WILLIAMS PART NO.	MARL PART NUMBER	COLOUR	LENS	VOLTAGE DC Vopr	CURRENT DC Iopr	LUMINOUS INTENSITY**	WAVE LENGTH λp	OPERATING TEMP Topr	STORAGE TEMP Tstg		
<b>HIGH INTENSITY</b>											
HW05	253-997-98-50	White	Water Clear	24	5	100	*	-40 ~ +95	-40 ~ +100		Yes
HW10	253-997-98-51	White	Water Clear	24	10	180	*	-40 ~ +95	-40 ~ +100		Yes
HW10Blue	253-930-98-51	Blue	Water Clear	24	10	140	470	-40 ~ +95	-40 ~ +100		Yes
<b>UNITS</b>				<b>Vac/dc</b>	<b>mA</b>	<b>mcd</b>	<b>nm</b>	<b>°C</b>	<b>°C</b>		

Product Configuration

PART NUMBER	DESCRIPTION	PADS NUMBER
HW05	5mA lamp replacement LED with BLACK body	086/023012
HW10	10mA lamp replacement LED with GREY body	086/023013
HW10Blue	10mA lamp replacement LED with GREY body	None applied yet.

\* = Typical emission colour: x=0.45 y=0.41. Colour temperature 2500K-3175K.

Intensities (lv) and colour shades of white (x,y co-ordinates) may vary between LEDs within a batch.

\*\* = Luminous intensity measured @ 24Vdc.

Please note - This product will not illuminate below 9Vac/dc. The current will stabilise above 17Vac/dc and remain constant up to 28Vac/dc.

Absolute maximum input voltage is 28Vac/dc

- Internal Full Wave rectification giving;
- Unperceivable flicker on AC supplies with operating frequencies of 30Hz and above.
- Minimal Harmonic Disturbance.
- Designed to withstand Spikes and Transients with energy levels below 300mj.
- Product marking indicates current rating on sleeve.
- Optional Burn In available.
- HW05 is identified by a black sleeve with HW05 print, operating at 5mA nominal and 100mcd.
- HW10 is identified by a grey sleeve with Hw10 print, operating at 10mA nominal and 180mcd.
- HW10 is identified by a grey sleeve with HW10Blue print, operating at 10mA nominal and 140mcd.

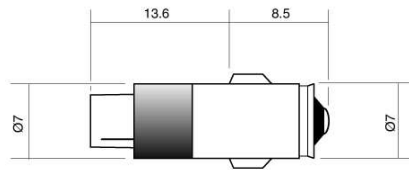
How to Order:

website: [www.marl.co.uk](http://www.marl.co.uk) • email: [sales@marl.co.uk](mailto:sales@marl.co.uk) • webstore: [www.leds.co.uk](http://www.leds.co.uk)

• Telephone +44 (0)1229 582430 • Fax: +44 (0)1229 585155

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## 253 Series



Dimensions in mm (Typical)  
Not to scale

Colour dot on product denotes LED colour

### TECHNICAL INFORMATION

Lamp Base Style	Series	Metric Equivalent (mm)	Maximum Power Dissipation (mW)
Bayonet Cap T2 BA7s	253	7	625

### DESIGN CONSIDERATIONS

#### Single-Chip LEDs

All devices feature water clear high intensity LEDs as standard. The single chip LED devices have been modified by the removal of the domed portion of the encapsulation (flat-topped) to provide even illumination of switches and annunciators. Non flat topped versions are also available, please contact the sales department for details.

#### Product Evaluation

Filament Replacement LEDs have been specifically designed to meet the primary objective of providing improved reliability. As this product range is suitable for both new-build and retro-fit, (sometimes in very old systems), a wide range of illuminated push button switches and lamp holders can be encountered. Due to subjectivity, evaluation of the LED type is recommended, (samples of all standard models are available). 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 despatch. We recommend all users of LED based products follow the guidelines of BS 100015.

Marl accept no liability for any product that is operated higher than the stated voltage.

Note: All luminous intensity figures refer to the unmodified discrete LED.

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