524 SERIES
PANEL INDICATOR LED



FEATURES

- Ø8.1mm mounting
- Stainless steel housing
- Sealed to IP67 - weatherproof
- Coloured diffused lens
- Internal potting
- Reverse protection diode fitted in all voltage models
- Range of LED colour options
- Range of voltage options

BENEFITS

- Standard industrial mounting size
- Suitable for harsh environments
- Suitable for external applications
- Diffused lens gives wide viewing angle
- Suitable for high vibration applications
- Protects against wrong polarity installation (voltage models)
- Suitable for status panel indication
- Manufactured with internal resistor
- Outstanding reliability
- Vandal resistant

Marl Part Number	LED Colour	Typical Voltage DC Vopr	Typical Current DC Iopr	Typical LED Luminous Intensity	Typical LED Wavelength λp	Operating Temp Topr *	Storage Temp Tstg
524-501-04	Red	2.0 **	20	458	625	-40 to +75	-40 to +100
524-521-04	Yellow	2.0 **	20	440	590	-40 to +75	-40 to +100
524-532-04	Green	3.4 **	20	2157	520	-40 to +75	-40 to +100
524-930-04	Blue	3.4 **	20	452	470	-40 to +75	-40 to +100
524-997-04	Cool White	3.4 **	20	1359	See Below	-40 to +75	-40 to +100
524-501-20	Red	5-6	20	458	625	-40 to +75	-40 to +100
524-521-20	Yellow	5-6	20	440	590	-40 to +75	-40 to +100
524-532-20	Green	5-6	20	2157	520	-40 to +75	-40 to +100
524-930-20	Blue	5-6	20	452	470	-40 to +75	-40 to +100
524-997-20	Cool White	5-6	20	1359	See Below	-40 to +75	-40 to +100
524-501-21	Red	12	20	458	625	-40 to +75	-40 to +100
524-521-21	Yellow	12	20	440	590	-40 to +75	-40 to +100
524-532-21	Green	12	20	2157	520	-40 to +75	-40 to +100
524-930-21	Blue	12	20	452	470	-40 to +75	-40 to +100
524-997-21	Cool White	12	20	1359	See Below	-40 to +75	-40 to +100
524-501-23	Red	24-28	15	346	625	-40 to +75	-40 to +100
524-521-23	Yellow	24-28	15	330	590	-40 to +75	-40 to +100
524-532-23	Green	24-28	15	1815	520	-40 to +75	-40 to +100
524-930-23	Blue	24-28	15	364	470	-40 to +75	-40 to +100
524-997-23	Cool White	24-28	15	1063	See Below	-40 to +75	-40 to +100
524-501-24	Red	48	12	236	625	-40 to +75	-40 to +100
524-521-24	Yellow	48	12	217	590	-40 to +75	-40 to +100
524-532-24	Green	48	12	1360	520	-40 to +75	-40 to +100
524-930-24	Blue	48	12	270	470	-40 to +75	-40 to +100
524-997-24	Cool White	48	12	743	See Below	-40 to +75	-40 to +100
		Vdc	mA	mcd	nm	°C	°C

Typical Emission Colours Cool White LED			
X	0.275	0.28	0.29
Y	0.27	0.28	0.30

OPTIONAL FLYING LEAD TERMINATORS

Marl Part No Suffix	Wire Length	Wire Colour	No/Diameter of Conductors	Diameter of Insulation	Wire Specification
524-501-04-**15**	150mm	Red - Anode Black - Cathode	19/0.16mm	1.2mm	Type 44, 22 Gauge High Performance Wire
524-501-04-**19**	1000mm				

NOTES

Intensities (Iv) and colour shades of white (X-Y co-ordinates) may vary between LEDs within a batch. Additional LED Colours, Voltage Options and Flying Lead lengths available for semi-custom projects. Please contact our Sales Team. All LED components are supplied in anti-static packaging.
* For operating temperature derating graphs, please refer to sheet 2.
** These are Current models and the voltage shown is Vf at 20mA, not Vopr. Additionally, there is no reverse protection diode in Current models.

To order please contact us on +44 (0) 1229 582 430
F +44 (0) 1229 585 155 | E sales@marl.co.uk | www.leds.co.uk
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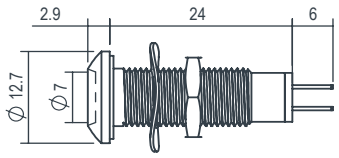
TECHNICAL CHARACTERISTICS

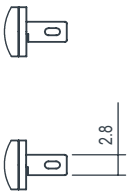
Series	Max. Power Dissipation	Max. Reverse Voltage	Panel Cutout	Nut Mounting Torque	Min. Mounting Centres	Min. - Max. Panel Thickness
524	825	3*/1000^	8.1	0.65	14.5	1.5 - 13.0
	mW	Vdc	mm	Nm	mm	mm

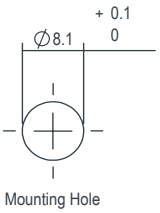
* = Current version ^ = Voltage version

TECHNICAL DRAWING

Weight (g): 8.5
Dimensions in mm (typical). Not to scale. Mounting hole to be clean and burr free. Anode termination denoted by red sleeve.

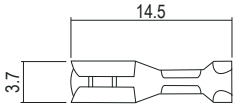






Mounting Hole

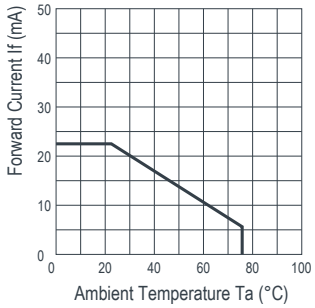
PUSH ON CONNECTOR



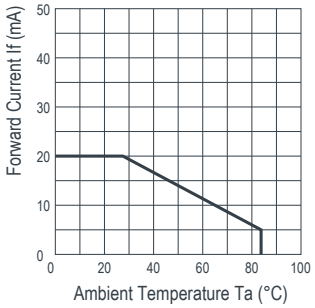
925-000-00 is brass tin plated - for use with 524 series lamps. Dimensions in mm (typical). Not to scale.

DE-RATING GRAPHS

Red / Green / Blue / Cool White LED



Yellow LED



MATERIALS

Body	Stainless Steel Grade 303
Nut	Stainless Steel Grade 303
Panel Seal	Viton
Lens	Polycarbonate
Encapsulation	Black Polyurethane
Lock Washer	Stainless Steel
Termination	Silver Flash Coated Brass

DESIGN CONSIDERATIONS

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. Marl recommend all users of LED based products follow the guidelines of BS 100015.

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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