

# 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 Vopr	Typical Current DC Iopr	Max. Reverse Voltage	Typical LED Luminous Intensity	Typical LED Wavelength λp	Operating Temp Topr *	Storage Temp Tstg
524-501-04	Red	2.1 **	20	5	458	620	-40 to +75	-40 to +100
524-521-04	Yellow	2.1 **	20	5	440	585	-40 to +75	-40 to +100
524-532-04	Green	3.2 **	20	5	2157	505	-40 to +75	-40 to +100
524-930-04	Blue	3.2 **	20	5	452	470	-40 to +75	-40 to +100
524-997-04	Cool White	3.2 **	20	5	1359	See Below	-40 to +75	-40 to +100
524-501-20	Red	5-6	10-16	1000	236-346	620	-40 to +75	-40 to +100
524-521-20	Yellow	5-6	10-16	1000	217-330	585	-40 to +75	-40 to +100
524-532-20	Green	5-6	6-15	1000	814-1815	505	-40 to +75	-40 to +100
524-930-20	Blue	5-6	6-14	1000	154-364	470	-40 to +75	-40 to +100
524-997-20	Cool White	5-6	5-15	1000	393-1063	See Below	-40 to +75	-40 to +100
524-501-21	Red	12	19	1000	458	620	-40 to +75	-40 to +100
524-521-21	Yellow	12	19	1000	440	585	-40 to +75	-40 to +100
524-532-21	Green	12	17	1000	1815	505	-40 to +75	-40 to +100
524-930-21	Blue	12	20	1000	452	470	-40 to +75	-40 to +100
524-997-21	Cool White	12	20	1000	1359	See Below	-40 to +75	-40 to +100
524-501-23	Red	24-28	16-19	1000	346-458	620	-40 to +75	-40 to +100
524-521-23	Yellow	24-28	16-19	1000	330-440	585	-40 to +75	-40 to +100
524-532-23	Green	24-28	16-20	1000	1815-2157	505	-40 to +75	-40 to +100
524-930-23	Blue	24-28	16-20	1000	364-452	470	-40 to +75	-40 to +100
524-997-23	Cool White	24-28	16-20	1000	1063-1359	See Below	-40 to +75	-40 to +100
524-501-24	Red	48	17	1000	346	620	-40 to +75	-40 to +100
524-521-24	Yellow	48	17	1000	330	585	-40 to +75	-40 to +100
524-532-24	Green	48	16	1000	1815	505	-40 to +75	-40 to +100
524-930-24	Blue	48	17	1000	364	470	-40 to +75	-40 to +100
524-997-24	Cool White	48	17	1000	1063	See Below	-40 to +75	-40 to +100
		Vdc	mA	V	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.

\* Characteristics at Ta = 25°C. 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.

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# 524 SERIES PANEL INDICATOR LED



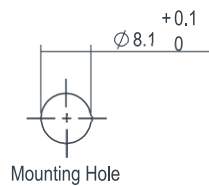
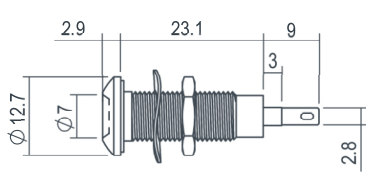
## TECHNICAL CHARACTERISTICS

Series	Max. Power Dissipation	Panel Cutout	Nut Mounting Torque	Min. Mounting Centres	Min - Max. Panel Thickness
524	825	8.1	0.65	14.5	1.5 - 13.0
	mW	mm	Nm	mm	mm

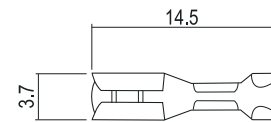
## TECHNICAL DRAWING

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.

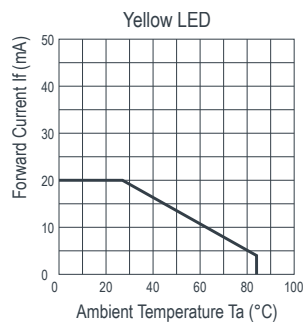
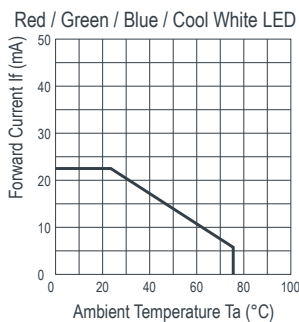


### PUSH ON CONNECTOR



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

## DE-RATING GRAPHS



## 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 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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