604 SERIES
PANEL INDICATOR LED

FEATURES

- Ø5.0mm mounting
- Nickel plated brass housing
- Sealed to IP67 - weatherproof
- Wide viewing angle - flat smoked lens
- Internal potting
- 150mm flying leads as standard
- Range of LED colour options
- Range of voltage options

BENEFITS

- Our smallest mounting size in a metallic housing
- Suitable for industrial applications
- Suitable for external applications
- Smoked lens gives good on/off contrast ratio
- Suitable for high vibration applications
- Rapid installation
- 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	Typical LED Luminous Intensity	Typical LED Wavelength λp	Operating Temp Topr *	Storage Temp Tstg
604-301-04	Red	1.85 **	20	900	660	-40 to +85	-40 to +85
604-325-04	Yellow	2.0 **	20	2800	590	-40 to +85	-40 to +85
604-324-04	Green	3.2 **	20	36100	525	-30 to +85	-40 to +100
604-934-04	Blue	3.2 **	20	6550	464	-30 to +85	-40 to +100
604-998-04	Cool White	3.2 **	20	12900	See Below	-30 to +85	-40 to +100
604-301-20	Red	5-6	14-19	630-855	660	-40 to +85	-40 to +85
604-325-20	Yellow	5-6	14-18	1960-2520	590	-40 to +85	-40 to +85
604-324-20	Green	5-6	10-16	21660-30000	525	-30 to +85	-40 to +100
604-934-20	Blue	5-6	10-16	3300-5200	464	-30 to +85	-40 to +100
604-998-20	Cool White	5-6	10-16	6600-10300	See Below	-30 to +85	-40 to +100
604-301-21	Red	12	18	810	660	-40 to +85	-40 to +85
604-325-21	Yellow	12	18	2520	590	-40 to +85	-40 to +85
604-324-21	Green	12	19	34300	525	-30 to +85	-40 to +100
604-934-21	Blue	12	19	6200	464	-30 to +85	-40 to +100
604-998-21	Cool White	12	19	12300	See Below	-30 to +85	-40 to +100
604-301-23	Red	24-28	12-15	540-675	660	-40 to +85	-40 to +85
604-325-23	Yellow	24-28	15-17	2100-2380	590	-40 to +85	-40 to +85
604-324-23	Green	24-28	13-16	26200-30000	525	-30 to +85	-40 to +100
604-934-23	Blue	24-28	14-17	4750-5500	464	-30 to +85	-40 to +100
604-998-23	Cool White	24-28	14-17	9000-11000	See Below	-30 to +85	-40 to +100
		Vdc	mA	mcd	nm	°C	°C

Typical Emission Colours Cool White LED				
X	0.296	0.283	0.330	0.330
Y	0.276	0.305	0.360	0.318

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.

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

Q 05480

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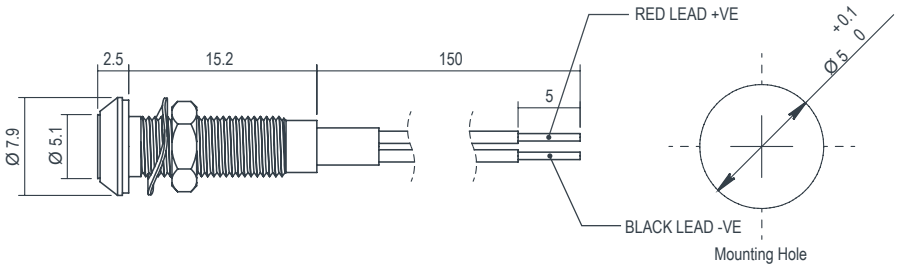
TECHNICAL CHARACTERISTICS

Series	Max. Power Dissipation	Max. Reverse Voltage	Panel Cutout	Nut Mounting Torque	Min. Mounting Centres	Min - Max. Panel Thickness
604	425	5	5.0	0.35	10.0	1.5 - 8.0
	mW	Vdc	mm	Nm	mm	mm

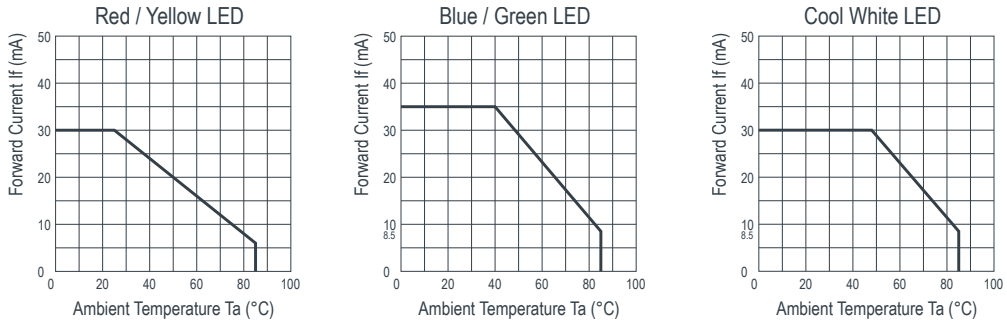
TECHNICAL DRAWING

Weight (g): 4.9

Dimensions in mm (typical). Not to scale. Mounting hole to be clean and burr free. Anode termination indicated by red flying lead.



DE-RATING GRAPHS



MATERIALS

Body	Bright Nickel Plated Brass
Nut	Bright Nickel Plated Brass
Panel Seal	Viton
Lens	Polycarbonate
Encapsulation	Black Polyurethane
Lock Washer	Beryllium Copper
Termination	Defence Standard 61/12, Part 18 chemical & flame retardant 150mm colour coded flying leads

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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