

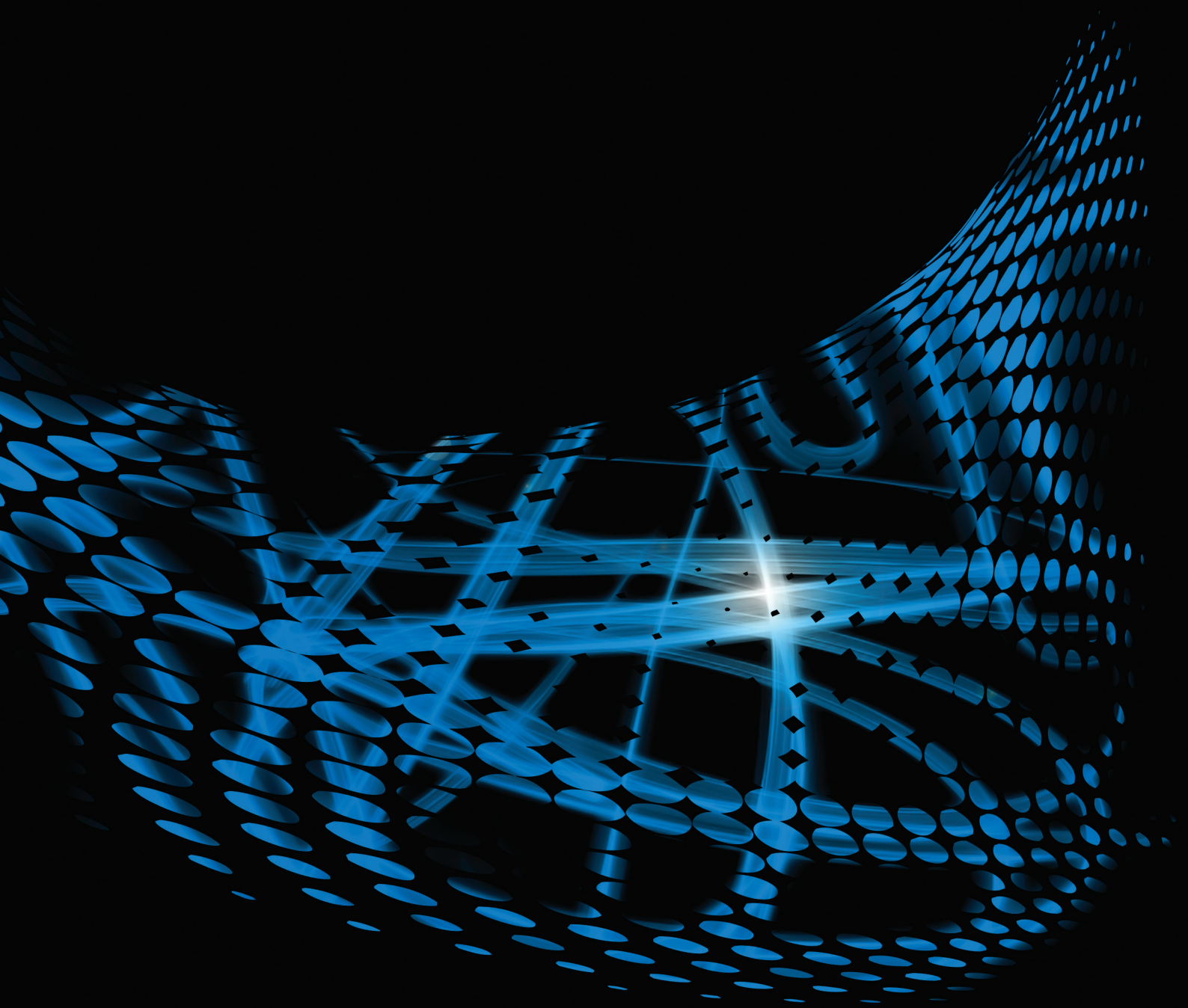
LED CATALOGUE 2012/13



Crompton
Lighting



FAQ's



FAQ'S

What is an LED?

An LED, or light-emitting diode, is a semiconductor device that emits visible light when an electric current passes through it. Normally the LED consists of several layers of semi conductor material, with the colour emitted from the LED dependant upon the material used.

How are different coloured LED's created?

For most LED's, the colour is determined by the semi conductor material, not by artificial means.

How is White Light produced in a LED?

To produce white light, a phosphor is introduced into the LED which becomes "excited" when combined with the light emission from a blue diode. This combination produces yellow light. The amount of phosphor can be varied so that when the blue light is mixed with the yellow light of the phosphor, various colour temperatures of white light can be produced.

What is SMD?

Generally, this means a Surface Mounted Device, such as an LED chip placed directly on a surface of a tape or strip.

What is COB?

Generally, this means Chip On Board which can be specifically related to an LED chip placed directly onto an electronic circuit board.

How important is heat sink?

Many inferior LED products have entered the market, where various claims are made relating the the life and performance of the LED luminaire, or lamp. Essentially, whilst LED fixtures can significantly produce less ambient heat than conventional light sources , LED's require suitable and sometimes substantial heat sinks to ensure the efficient transmission and dissolution of the heat produced by the chip, to protect the life and lumen maintenance of the LED chip.

What is a driver?

An LED driver is a self-contained power supply that has outputs matched to the electrical characteristics of the LED chip, or array of LEDs.

What is Power Factor(pf)?

Power Factor is a term used to describe the relationship between the current and voltage in an electrical circuit. Equipment such as ballasts possess inductance which causes the current waveform to be displaced and 'lag' behind the voltage waveform.

A measure of this angle of displacement calculates the Power Factor. The larger the angle, the lower the Power Factor.

An ideal power factor is when there is no phase angle difference between the current and the voltage of the circuit and therefore the voltage and current are said to be 'in phase' at 'unity', resulting in a power factor of 1.

LED products with a low Power Factor mean that the operating current has to be increased from the supply source to compensate for the reduced Power Factor and to maintain constant power at the load.

What is colour temperature?

Colour temperature refers to the warmth or coldness of the light produced by the lamp or LED, measured in Kelvin (K). Lamps producing a warm or yellow light have a low Kelvin (2700-3000K), while lamps producing a white or blue light have a higher Kelvin (3500-6500K). The ideal colour temperature is dependent on the application.

Generally with LED, the higher the Kelvin rating, the higher the lumen output. But most times the trade off is much poorer colour rendering (CRI) such as when items can appear very blue and therefore not their true colour appearance.

What is colour rendering or CRI?

Colour rendition describes the effect a light source or LED has on the appearance of coloured objects. The colour rendering capability of the LED is measured as the Colour Rendering Index, or CRI.

When comparing the CRI of different light sources such as LED's it is important to note that for the comparison to be meaningful, you should compare the LED's with the same colour temperature.

The higher the CRI, the better the ability of the light source to depict a true colour comparison.

How do you measure the brightness of a lamp?

There are a number of different measures to determine the brightness of a lamp, however the most common comparison will be the lumen output.

- Lumens refers to the light output of a lamp or LED in all directions (think of an imaginary sphere surrounding the light source and the light it is giving off in all directions)
- Candela refers to the light output of a lamp in a single direction (think of a spotlight)
- Lux is candelas, or light output in a given direction, measured at a specified distance (think of the amount of light you may want at your work desk, as opposed to the amount needed on the floor)

How do I measure the running costs of a 12W LED downlight compared to a 50W MR16 halogen lamp downlight?

The running costs can be determined by the following.

Annual running cost \$ = Wattage (expressed as a % of 1000 watts, or KW) x Hours (Number of hours use per day) x cents per KWH (Cost of electricity)

Example:

What is the annual savings when I compare a Crompton 12W XL-LED downlight used for 10 hours per day, 7 days per week, 52 weeks per year, with the cost of electricity at 20 cents per KW Hour ?

Annual Cost for Crompton XL-LED = $12/1000 \times (10 \times 7 \times 52) \times \$0.20 = \$8.74$

Annual Cost for MR16 50W halogen downlight = $55/1000 \times (10 \times 7 \times 52) \times \$0.20 = \$40.04$

*Full system losses have been used in the above example to more accurately reflect true savings

Based on a medium sized house with an average of 30 x low voltage 50w halogen downlights and a cost of electricity at 20 cents per Kilowatt hour, the annual savings would be more than \$900 per year.

Do I have to wait for my LED's to light up to full brightness, such as with compact fluorescent lamps?

No. LED's give instant and immediate maximum light output.

Will frequent switching effect the life of my LED, such as with compact fluorescent lamps?

No. LED's are unaffected by frequent on/off switching.

Can I use my LED's in colder environments?

Generally, unlike that of most fluorescent lamps, LED's have no problems operating at extremely low temperatures (up to -30°C)

What is IEC?

International Electro Technical Commission

Can I run my LED MR16 style lamps on older halogen electronic transformers?

There are two basic types of LED drivers, both designed to run LED at their optimum parameters to protect the life of the chip: constant current and constant voltage.

A constant voltage LED driver (ie. transformer) will output exactly 12V DC. 12V MR16 Style LED lamps and other 12V powered LED modules can be connected in parallel to such a driver. Thanks to the parallel connections, if one bulb dies, the remaining bulbs will stay on.

A constant current LED driver will output a fixed current, suitable for operation of the the LED chip or module. The output voltage will vary as required to maintain the specified output current with different forward voltage drops common with LED junctions.

Basically, the user needs to ensure that the LED supply you choose can handle the correct load.

Halogen transformers normally have a minimum load required and therefore (for example) placing a 12V 3W MR16 style LED bulb on a 20-60va halogen transformer that previously operated a 50W MR16 Halogen lamp is not an ideal solution, as the 'load' is not sufficient to start the lamp or run the lamp at its optimum output.

A number of possibilities would generally be experienced with the above such as strobing or flickering of the LED lamp or it may not work at all.

These characteristics can also be detrimental to the life span of the LED chip.

Due to the number of halogen transformers in the market with differing operating characteristics, the best solution is to always ensure that the power supply has been recommended by the manufacturer or supplier of the LED source, to ensure compatability.

What is DALI?

DALI is an acronym for Digital Addressable Lighting Interface and has become an open standard for Lighting control

Essentially, each light fitting is given a unique 'address' allowing digital control of the Lighting installation.

What is DSI?

DSI is an acronym for Digital Serial Interface. It is a protocol for lighting control, through the controller (mainly in commercial buildings). DSI was the first use of digital communication in lighting control, and its low voltage means it can run on relatively thin cables. One of its main advantages is that it dims to 'off' so does not require mains switching equipment to turn the lighting off.

What is the difference between DALI and DSI?

DSI is essentially the same technology as DALI in terms of digital communication, however DSI eliminates the individual 'address' aspect of each light fitting required in DALI. In DSI each unit has its own wire direct to the controller, rather than being part of a network such as with DALI.

Crompton LED Solution - Typical 4 Bedroom House - 26 Square (242m²)



14x

pg11

1 Crompton
XL LED 12W Downlight



19x

pg19

2 Crompton
XL LED 8W ECO II Downlight



6x

pg55

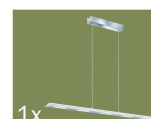
3 Crompton
XL LED 18W oyster



5x

pg144

4 Crompton
XL LED 7.5W Lamp



1x

pg117

5 Crompton LED Pendant

TOTAL = 552W

**Building Code of
Australia allowance
(BCA)**

Living Area: (5W/m²)

Garage Area: (3W/m²)

Total = 1170W

The above representation is an example of a total Crompton LED residential solution that meets the requirements of new regulations regarding interior residential lighting, as defined by the Building Code of Australia.

Whilst the above example is not exhaustive of the many choices of compliant LED products in the Crompton range, it depicts the enormous potential energy saving opportunities that are achievable, whilst providing equivalent (and in some cases superior) illumination levels compared to older technologies such as halogen and incandescent.

For example, from the above product guide, the totally energy rating of the fixtures (watts rating x no. of fittings) using a mix of halogen and incandescent would be 2650W assuming 50W halogen and 60W/100W incandescent lamps.

In contrast, the Crompton LED solution offers a total energy rating of 552W, which represents an average saving of 80% compared to halogen / incandescent (552W LED / 2650W).

For more possibilities on energy saving alternatives, or for further advice on any product within the Crompton range, please visit www.crompton.com.au or call your local Crompton Customer Service Team.

* For illustration purposes only.

FAQ'S for XL-LED MAX Downlight

If I change an existing 16W (XL-LED - 700lm depending on date of manufacture) for a new 18W (XL-LED MAX - 1000lm) fitting do I need to also use the Power Supply/Driver that comes with the XL-LED MAX or can I use the existing installed XL-LED Power Supply/Driver?

You must use the new driver supplied with the XL-LED MAX. Although the Power Supply/Drivers look similar, the one supplied with the MR16B provides the additional power required to drive the increased light output of the 1000lm lamp.

Will the XL-LED MAX still fit through a standard MR16 ceiling aperture?

Yes but it will not be able to be installed without first removing the lamp mounting fixture / gimbal unlike the XL-LED.

Dimensions: Height 93.7mm x Diameter 65mm. Weight 190 grams.

What is the safe clearance for loft insulation from the XL-LED MAX heatsink?

25mm clear space between the heatsink and loft insulation - if loose fill insulation is used some form of barrier should be used to keep the insulation at least 25mm from the heatsink.

What is the maximum recommended working ambient temperature for the Lamp & Power Supply/Driver?

50°C is the maximum recommended ambient temperature. Temperatures above this will cause the lamp to dim down by reducing power to a safe level. Running the lamp for long periods in ambients above 50°C may reduce the lamp and driver life.

Is the XL-LED MAX compatible with all the common Wall Plate and Lighting Control Dimmers?

Yes it has been tested with a wide range of Dimmers that are available in Australia. See the standard dimmer compatibility chart for the XL-LED.

How many XL-LED MAX lamps can be controlled by a 450W universal or trailing edge wallplate dimmer?

A safe maximum number would be 20 XL-LED MAX units for universal or trailing edge dimmers. Leading edge wall plate dimmers are not recommended but if they are used limit the number of XL-LED MAX units to 4.

Can the XL-LED MAX be controlled as part of a DALI system?

Yes the XL-LED MAX can be switched by DALI relay modules and dimmed by DALI universal and trailing edge dimmers.

Can the wire joining the LED lamp to the power supply be extended?

Yes, just like the XL-LED, the XL-LED MAX lead can be extended to 10m. In fact the same lead set that is available for the XL-LED can be used for the XL-LED MAX.

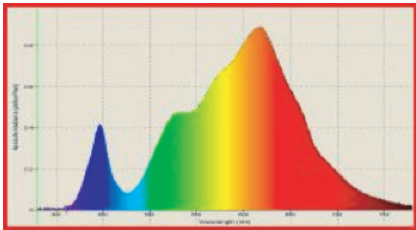
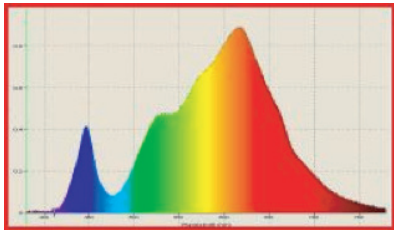
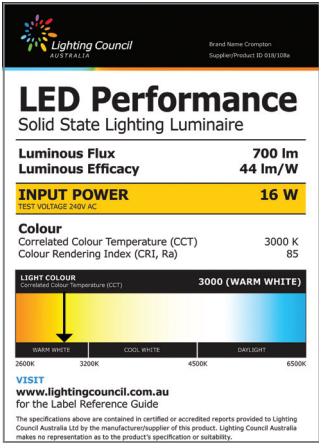
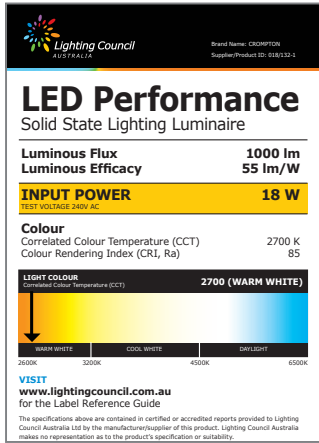
The XL-LED 700lm downlight has a Lighting Council of Australia (LCA) Solid State Lighting (SSL) performance label, does the new XL-LED MAX 1000lm downlight also have this label?

Yes the LCA reviewed independent tests on the XL-LED MAX and have issued a SSL label for it.

How does the new XL-LED MAX 1000lm downlight compare to the current XL-LED 700lm downlight?

The following charts and pictures will show the similarities and the differences.

Specification for XL-LED & XL-LED MAX

	XL-LED	XL-LED MAX
		
Total Input Power	16W	18W
Lamp Power	12W	14W
Total Lumens	700lm	1000lm
Lumens/Watt	44lm/W	55lm/W
Peak cd	720cd	910cd
CRI	85	85
Colour Temperature	3000K	2700K
Colour Temperature (available)	2700K, 4000K, 6500K	2700K
Beam Angle	55°	54°
Dimmable	0% - 100%	0% - 100%
Operating Temperature Range	0°C - 50°C	0°C - 50°C
Temperature Monitor	Yes	Yes
Power Factor	>0.95	>0.95
Spectral Chart		
Lighting Council Label	 LED Performance Solid State Lighting Luminaire Luminous Flux 700 lm Luminous Efficacy 44 lm/W INPUT POWER 16 W TEST VOLTAGE 240V AC Colour Correlated Colour Temperature (CCT) 3000 K Colour Rendering Index (CRI, Ra) 85 LIGHT COLOUR Correlated Colour Temperature (CCT) 3000 (WARM WHITE) 2600K 3200K 4500K 6500K VISIT www.lightingcouncil.com.au for the Label Reference Guide The specifications above are contained in certified or accredited reports provided to Lighting Council Australia Ltd by the manufacturer/supplier of this product. Lighting Council Australia makes no representation as to the product's specification or suitability.	 LED Performance Solid State Lighting Luminaire Luminous Flux 1000 lm Luminous Efficacy 55 lm/W INPUT POWER 18 W TEST VOLTAGE 240V AC Colour Correlated Colour Temperature (CCT) 2700 K Colour Rendering Index (CRI, Ra) 85 LIGHT COLOUR Correlated Colour Temperature (CCT) 2700 (WARM WHITE) 2600K 3200K 4500K 6500K VISIT www.lightingcouncil.com.au for the Label Reference Guide The specifications above are contained in certified or accredited reports provided to Lighting Council Australia Ltd by the manufacturer/supplier of this product. Lighting Council Australia makes no representation as to the product's specification or suitability.





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