

CLEANROOM IP65 LED



eaglelightingaustralia

'Member of the Fagerhult Group'



*Designed, tested and manufactured in Australia, the Cleanroom IP65 LED is a new cleanroom LED product developed by ELA.*

*It is a durable watertight and dust-tight fixture with premium build quality and high efficacy.*

## Frame/Body

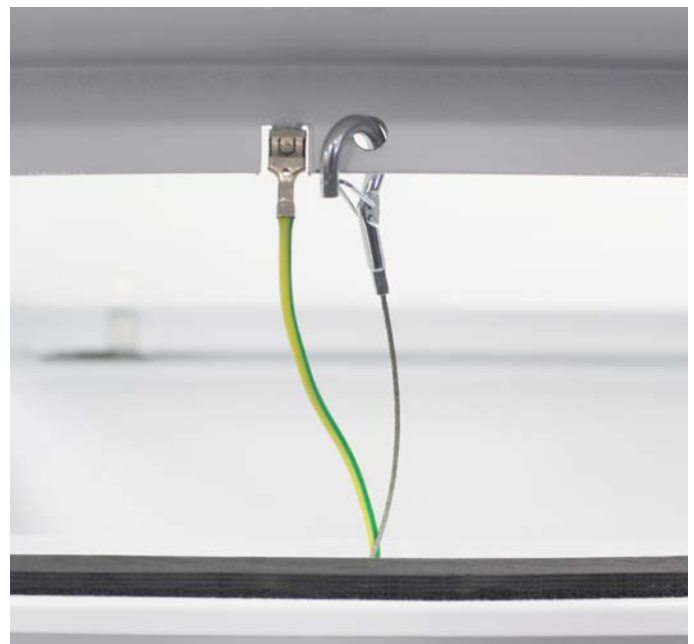
The two-part construction of the frame consists of a clear wipe-down acrylic on the outer side and a Delta diffuser with light-guiding micro-structure on the inner side.

This special micro-structure controls the light to ensure a wider distribution.

The internal frame has been constructed with no joins, which guarantees a seamless seal between the frame and the gasket thus ensuring water and dust tightness to IP65.

The stainless steel safety lanyards with snap-hooks have a 30kg safe working load. The snap-hook lanyards ensure the contractor can install the frame single handedly to the body without the use of tools or assistance.

The frame is attached to the main body by magnets. The main body is fixed to the ceiling via 6 toggle arms.



## Gasket

The closed cell and robust gasket are flame retardant, non-tearing, abrasion resistant and self-extinguishing.

The gasket compresses easily and recovers quickly to its uncompressed state to ensure it can be compressed again, maintaining its seal.

The luminaire is IP65 from all sides. Please refer to table 1.0 - IP Rating for what this classification represents

Table 1.0 IP Rating

Level	Effective against	
First Digit: Solids Protection		
6	Dust Tight	No ingress of dust; complete protection against contact.
Second Digit: Liquids Protection		
5	Water Jets	Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.

## Magnets and sealants

The use of magnets to attach the frame to the main body eliminates the need for screws on the front. This ensures that it is not only easier to clean and therefore less likely that bacteria will build-up, but also easier to install.

The six rare-earth neodymium magnets are permanent magnets that have high resistance to demagnetization over time. They are triple plated in nickel/copper/nickel to prevent corrosion.

The fixing of the internal magnets is such that they are designed to float. This feature ensures a flush contact with the frame assembly.



## Installation & Maintenance

A suction cup tool is supplied as standard in order to remove the frame from the ceiling. Place in one corner onto frame and pull directly down, whilst using the free hand to lower the frame. The stainless steel lanyards with snap-hooks, which are secured to the body of the luminaire, ensure that the frame will not fall. The stainless steel lanyards will hinge the frame to the body.

No chemicals should touch the magnets when cleaning the luminaire. Use a damp cloth and then dry to clean.

## LEDs and driver

The new LED boards provide higher efficacy and performance and the programmable driver allows for greater flexibility to adjust the output levels to meet specific illuminance levels.

CRI 90+ version is COI compliant (2.2).

Dali Driver has amplitude modulation dimming across the entire range 100-1% to ensure flicker-free and noise free operation.

## EXAMPLE SUCTION CUP PROCESS

*PLEASE NOTE: Cleanroom LED IP65 shown*



# Understanding Cyanosis and Light



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CLINICAL OBSERVATION HAS ALWAYS BEEN AN IMPORTANT PART OF MEDICAL DIAGNOSIS.

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One significant aspect of clinical observation is the reliable detection of cyanosis, that is, the bluish discolouration in the skin and mucous membranes indicating that oxygen level in the blood is dangerously low.

While pulse oximeters are used in operating rooms and recovery areas, there are areas within hospitals where these are not universally used. There are some medical conditions, for example where patients have poor peripheral circulation, that can make their use unreliable. In these instances, the ability of medical staff to reliably detect the onset of cyanosis by visual observation may be critical to a patient's wellbeing.

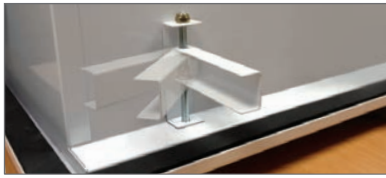
Using the data from the first trials and the known reflective properties of blood, a methodology for calculating a Cyanosis Observation Index (COI) was established and published in AS/NZS 1680.2.5:1997.3

The Australian standard for cyanosis is very demanding. The standard defines Cyanosis Observation Index with an open-

ended numerical scale which ranks an artificial light source for the purpose of visual observation, a key fundamental to medical practitioners.

The COI is a dimensionless number and is a function of the spectral power distribution of the lamp. The methodology involves calculating the colour difference between blood when viewed under the test lamp and under the reference lamp (a 4000K Planckian source) for 50% and 100% oxygen saturation and averaging the results. To comply with the AS 1680.2.5 requirements for the reliable diagnosis of cyanosis, the COI should be 3.3 or lower and the lamp correlated colour temperature should be between 3300K and 5500K.

Lamp efficacy has a varying impact on lighting design. Many recommended lighting levels in hospitals are generally in the 160–240 lux range and these are readily achieved by lower efficacy lamps at practical spacings. For larger areas and areas where higher illuminance levels are recommended, higher efficacy can be advantageous.



Nitrile Gasket & Installation brackets



## CLEANROOM IP65 LED

CRI 90+

W	Size (mm)	Sys. lm	Lum. lm	lm/W	CCT (K)	Code
CR65L   Plaster Recess, Bottom Access, Delta, CRI 90+						
16	660 x 350	2000	1431	87	4000	EL-CR65L-3102-
24	660 x 350	3000	2125	87	4000	EL-CR65L-3103-
33	660 x 350	4000	2831	84	4000	EL-CR65L-3108-
28	680 x 680	3900	2820	100	4000	EL-CR65L-5102-
43	680 x 680	5800	4200	97	4000	EL-CR65L-5103-
60	680 x 680	7500	5592	93	4000	EL-CR65L-5108-
28	1220 x 350	3900	2850	101	4000	EL-CR65L-1102-
43	1220 x 350	5800	4248	98	4000	EL-CR65L-1103-
60	1220 x 350	7500	5657	94	4000	EL-CR65L-1108-
Seismic Restraint Kit - 4 x gripple, 2 x 2m wire						EL-ACC-210-000



The CRI 90+ version ensures excellent colour rendition, particularly in environments where correct colour is critical. It also assists healthcare workers to detect cyanosis and other colour changes on the skin or in body tissues. The luminaire is COI compliant (2.2).

The wipe-down Delta diffuser is made up of a micro-prism louvre in acrylic (PMMA) with a thin opal diffuser on the inside. This provides excellent glare control whilst delivering optimal lumens out of the luminaire.

The Cleanroom range of luminaires has been developed to meet the requirements of specialist installations where the luminaire requires protection against contamination. This range is rated IP65 from all angles.

The screwless frame is fixed to the body by floating magnets. Using a magnet to attach the frame ensures that it is easy to install and clean.

Seismic restraint enabled.

**Options:**

- » T-Bar
- » Surface mount
- » Top access
- » Sandwich Panel
- » Non Monitored Emergency
- » DALI Monitored Emergency
- » Customisable size on request

Wiring options	Suffix
Standard	-000
DALI/STD terminal block	-200
Maintained Emergency	-800

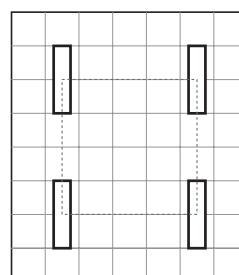
Add one suffix code to the end of the luminaire code to indicate required function.

Technical specifications
Total Luminaire Efficacy Maximum 101lm/W
MacAdam 3 SDCM (initial)
System guarantee 5 years
CRI 92+
COI: 2.2

Lumen Maintenance			
W	Size	Spacing	Lifetime
28W	1220 x 350	2.4m x 2.4m	L90 B10 54,000hrs
43W	1220 x 350	2.4m x 2.4m	L90 B10 31,000hrs
60W	1220 x 350	2.4m x 2.4m	L90 B10 23,000hrs



Nominal dimensions (mm)						
FITTING	FITTING DIMENSIONS				CUTOUT	WEIGHT KG.
	A	B	C			
Codes 3102, 3103, 3108	660	350	100		630 x 325	6.8
Codes 5102, 5103, 5108	680	680	100		655 x 655	11.7
Codes 1102, 1103, 1108	1220	350	100		1195 x 325	11.5



Performance Summary - CRI 90+	
Average (Centre) LUX LEVEL: 2.4m x 2.4m LAYOUT 1220mmx350mm	
CR65L - 28W	= 408 lux UGR Max 18.0
CR65L - 43W	= 608 lux UGR Max 19.4
CR65L - 60W	= 809 lux UGR Max 20.4
<b>Design parameters</b>	
Maintenance: 0.8	Reflectance: 70/50/20
Ceiling height: 2.7m	Working plane: 720mm



Nitrile Gasket & Installation brackets



## CLEANROOM IP65 LED

CRI 80+

W	Size (mm)	Sys. lm	Lum. lm	lm/W	CCT (K)	Code
CR65L   Plaster Recess, Bottom Access, Delta, CRI 80+						
14	660 x 350	2000	1430	101	4000	EL-CR65L-3100-
21	660 x 350	3000	2134	103	4000	EL-CR65L-3101-
28	660 x 350	4000	2817	102	4000	EL-CR65L-3109
25	680 x 680	3900	2887	118	4000	EL-CR65L-5100-
36	680 x 680	5800	4237	115	4000	EL-CR65L-5101-
50	680 x 680	7500	5619	112	4000	EL-CR65L-5109-
24	1220 x 350	3900	2889	120	4000	EL-CR65L-1100-
37	1220 x 350	5800	4302	118	4000	EL-CR65L-1101-
50	1220 x 350	7500	5665	114	4000	EL-CR65L-1109-
Seismic Restraint Kit - 4 x gripple, 2 x 2m wire						EL-ACC-210-000



The Cleanroom range of luminaires has been developed to meet the requirements of specialist installations where the luminaire requires protection against contamination.

This range is rated IP65 from all angles.

The wipe-down Delta diffuser is made up of a micro-prism louver in acrylic (PMMA) with a thin opal diffuser on the inside. This provides excellent glare control whilst delivering optimal lumens out of the luminaire.

The screwless frame is fixed to the body by floating magnets. Using a magnet to attach the frame ensures that it is easy to install and clean.

Seismic restraint enabled.

### Options:

- » T-Bar
- » Surface mount
- » Top access
- » Sandwich Panel
- » Non Monitored Emergency
- » DALI Monitored Emergency
- » Customisable size on request

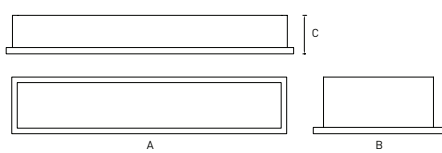
Wiring options	Suffix
Standard	-000
DALI/STD terminal block	-200
Maintained Emergency	-800

Add one suffix code to the end of the luminaire code to indicate required function.

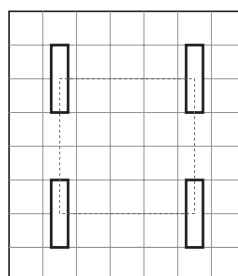
Technical specifications
Total Luminaire Efficacy Maximum 120lm/W
MacAdam 3 SDCM (initial)
System guarantee 5 years
CRI 80+

Lumen Maintenance			
W	Size	Spacing	lifetime
24W	1220 x 350	2.4m x 2.4m	L90 B10 70,000hrs
37W	1220 x 350	2.4m x 2.4m	L90 B10 44,000hrs
50W	1220 x 350	2.4m x 2.4m	L90 B10 30,000hrs

### Nominal dimensions (mm)



FITTING	FITTING DIMENSIONS			CUTOUT	WEIGHT KG.
	A	B	C		
Codes 3100, 3101, 3109	660	350	100	630 x 325	6.8
Codes 5100, 5101, 5109	680	680	100	655 x 655	11.7
Codes 1100, 1101, 1109	1220	350	100	1195 x 325	11.5



### Performance Summary - CRI 80+

Average (Centre) LUX LEVEL:	
2.4m x 2.4m LAYOUT 1220mmx350mm	
CR65L - 24W =	413lux UGR Max 18.0
CR65L - 37W =	615lux UGR Max 19.4
CR65L - 50W =	810lux UGR Max 20.4

Design parameters	
Maintenance: 0.8	Reflectance: 70/50/20
Ceiling height: 2.7m	Working plane: 720mm



# Other Lighting Resources



## Light for Caring Heroes

Having control over our own lives is important for all of us. However, when we end up in hospital, planned or unplanned, this control can be passed over to the hands of others. This stressful situation is magnified by being in an environment which we do not recognise.



## Aureled Vista

The Aureled Vista has been developed with healthcare environments in mind. The Aureled Vista is available with a range of different imagery designed to promote a relaxing and reassuring environment for patients.



## The Healing Power of Light

A guide to Healthcare Lighting Solutions. From operating theatres to wards and communication spaces, Eagle Lighting has a full portfolio of lighting solutions for any healthcare application.

# eagle lighting australia



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