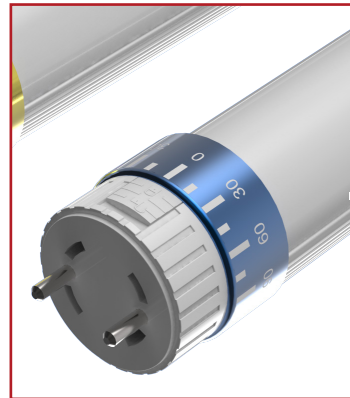
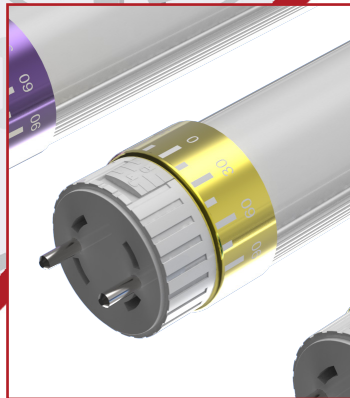
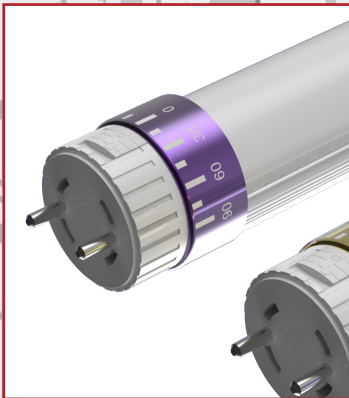


# LED LIGHTING FOR THE RAIL INDUSTRY

BROCHURE 2



Craig & Derricott's range of LED lighting products are designed to cover a wide variety of Railway applications that have been developed and approved to meet railway rolling stock standards.

Our LED products are easy and safe to fit into new and existing light fittings. They offer all the benefits of LED technology, long life and low power consumption, therefore reducing life cycle costs and your environmental impact.



- Three Year Warranty
- Lifetime Maintenance Free
- Compliant with the Low Voltage Directive
- High Reliability LED Technology
- Energy Saving - Low Power Consumption
- Quality Technical Support
- Buy with Confidence

#### INNOVATIVE DESIGN WITH PROVEN LED PERFORMANCE

Craig & Derricott LED Lights have all been designed & tested to meet Railway Rolling Stock stringent standards

- |               |   |
|---------------|---|
| • EN50155     | Rolling Stock Electronic Equipment        |
| • EN50121-3-2 | Railway Electro-Magnetic Compatibility    |
| • EN61373     | Railway application Shock & Vibration     |
| • EN45545     | Fire protection (VO & LSZH compliance)    |
| • EN60081     | Double capped tubes dimensional compliant |
| • EN60529     | IP40 ingress protection                   |





## LED TUBE LIGHTS

Craig & Derricott offer a new range of LED tube lighting that incorporates a unique adjustable and lockable endcap, allowing for fast and repeatable installation to optimise the direction of light distribution.

### INSTALLATION

Our LED tubes offer a safe and easy installation. They are designed to connect directly to common voltage supplies available in passenger rolling stock and eliminating the need for costly inverters.

Where required, we can supply inverter bypass harnesses for retro fit installations, making the change from fluorescent lighting to LED lighting trouble free.

If existing lamp holders have become brittle and worn over time, C&D can supply new fittings to ensure continued reliability.

### FEATURES AND BENEFITS

Our long life LED tubes have low energy power consumption resulting in reduced life cycle costs.

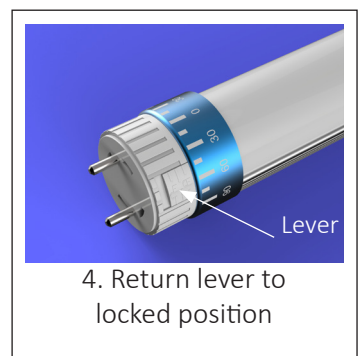
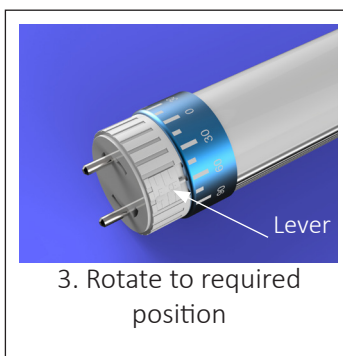
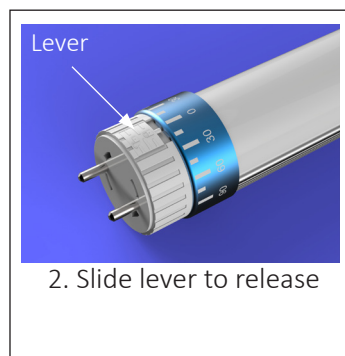
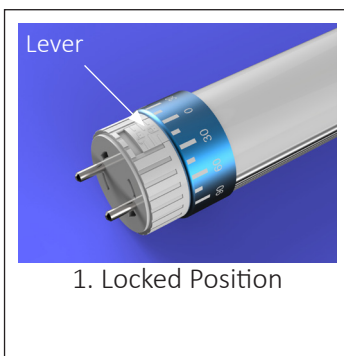
Manufactured from recyclable materials, minimising the environmental impact allowing for easy and safe disposal unlike fluorescent tubes that contain hazardous substances that require costly removal.

Each tube switches on instantly with excellent consistent light output and tightly controlled colour temperature.

Our LED tubes have a beam angle of 180°. To optimise the light distribution, our tubes are supplied with unique rotating lockable endcaps. These can be adjusted to a specific angle in order to meet the desired lighting requirement. Clear index marking is on each end of the tube to ensure an accurate and repeatable setting.

The LED tube range covers three standard supply voltages. Each tube has a clear colour coded indicator to represent the correct voltage.

### ROTATING ENDCAP OPERATION






# LED TUBE LIGHTS

	Cat. No.	Nom. Tube Length	Weight	Endcap Colour	Voltage
	LED450/24/T8/**/2	450mm	150g	Violet	24VDC (16.8V- 30V)
	LED600/24/T8/**/2	600mm	182g		
	LED900/24/T8/**/2	900mm	255g		
	LED1200/24/T8/**/2	1200mm	328g		
	LED1500/24/T8/**/2	1500mm	399g		
	LED1800/24/T8/**/2	1800mm	462g		
	LED450/110/T8/**/2	450mm	150g	Yellow	110VDC (67.2V- 137.5V)
	LED600/110/T8/**/2	600mm	196g		
	LED900/110/T8/**/2	900mm	269g		
	LED1200/110/T8/**/2	1200mm	342g		
	LED1500/110/T8/**/2	1500mm	413g		
	LED1800/110/T8/**/2	1800mm	476g		
	LED450/230/T8/**/2	450mm	150g	Blue	230VAC (161V-253V)
	LED600/230/T8/**/2	600mm	197g		
	LED900/230/T8/**/2	900mm	297g		
	LED1200/230/T8/**/2	1200mm	343g		
	LED1500/230/T8/**/2	1500mm	429g		
	LED1800/230/T8/**/2	1800mm	493g		



## Accessories

	Cat. No.	Description	Screw Terminals
	101791	G13 replacement surface mount lamp holder	0.5 - 2.5mm <sup>2</sup>
	101793	G13 replacement surface mount spring adjustable lamp holder	0.5 - 2.5mm <sup>2</sup>
	81100	Centre support clip for tubes 1200mm+	



## LED STICK LIGHTS

To compliment our LED tube range, Craig & Derricott offer a series of 2G7 & 2G11 LED stick lights for the rail market.

	Cat. No.	Nom. Tube Length	Tube Fitting	Weight	Voltage
	LED152/24/2G7/**	152mm	2G7	75g	24VDC (16.8V- 30V)
	LED152/110/2G7/**				110VDC (67.2V- 137.5V)
	LED152/24/2G11/**	152mm	2G11	86g	24VDC (16.8V- 30V)
	LED152/110/2G11/**				110VDC (67.2V- 137.5V)

### Colour Temperature Range

** WW	**NW	** PW	**CW
Warm White 3000K (±5%)	Natural White 4000K (±5%)	Pure White 5000K (±5%)	Cool White 6000K (±5%)

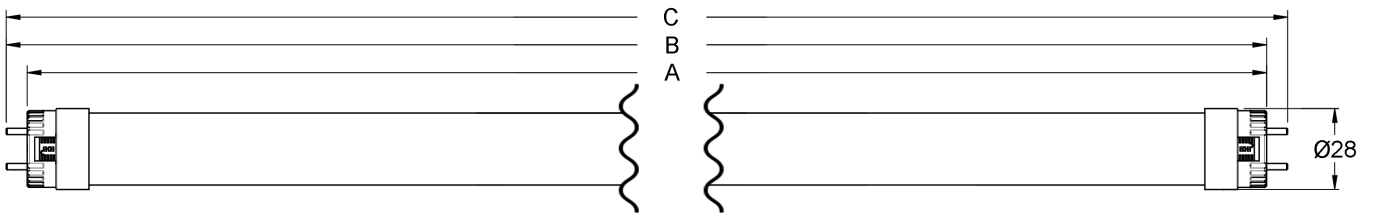
## LED TUBES & STICK LIGHTS PRODUCT MATERIAL

Insulation and Resistance to Flame and Ignition	All insulation parts are manufactured from quality engineering plastics, all materials that secure live parts in position are ball pressure tested, glow wire tested to 960°C and flame retardant.	
Component Materials	Metal Extrusion Tube Endcaps Frosted Lens Diffuser	Aluminium Polycarbonate (V-0) LOI 35% Polycarbonate (V-0) LOI 46%
Construction Support Structure	The use of an aluminium case and substrate for the PCB ensures excellent even heat dissipation within the tube and aids structural stiffness.	

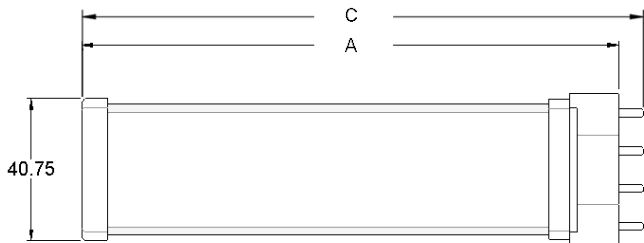
## STICK LIGHTS & LED TUBES TECHNICAL SPECIFICATION

Nom. Tube Length (mm)	STICK LIGHTS		LED TUBE LIGHTS					
	152		450	600	900	1200	1500	1800
Dimensions	A	147.75 154.0	437.4	589.8	894.6	1199.4	1500	1763.8
	B	-- --	444.5	596.9	901.7	1206.5	1507.1	1770.9
	C	154.85 161.1	451.6	604.0	908.8	1213.6	1514.2	1778.0
Power Consumption	6W	10W	8W	10W	14W	16W	25W	30W
Light intensity (Lumens)	400	430	760	950	1330	1425	2375	2850
Weight	75g	86g	150g	182g	255g	328g	399g	462g
Connector	2G7	2G11	2 x G13					
Connector Rotation	N / A		± 90°					
Colour Render Index	≥ 80							
Beam angle	180°							
LED Life	65,000 hrs (time to 70% of the initial light output)							
IP Rating	IP 40							
Operating temp	-20°C to +50°C							

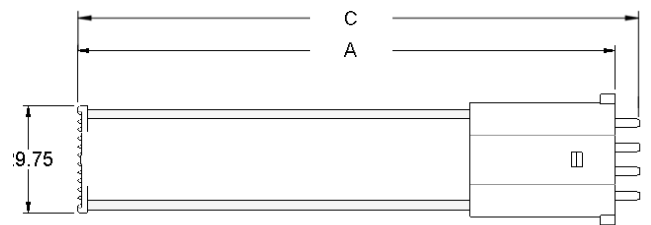
### LED TUBE LIGHTS



### 2G11 STICK LIGHT



### 2G7 STICK LIGHT









## LED DOWNLIGHTS

High intensity LED downlights designed as a direct replacements for halogen lamps.

Developed and tested to meet the stringent railway rolling stock standards, this range of downlights are compatible with existing fittings.

With a 65,000 hour life span, these environmentally friendly LED lights provide no toxic gasses, mercury or UV-output while having an energy saving of up to 80%.

	Cat. No.	Fitting	Colour Temperature Range	Voltage
	LEDMR11/12/WW	MR11	Warm White 3000K (±5%)	12VDC
	LEDMR11/12/CW	MR11	Cool White 6000K (±5%)	
	LEDMR11/BA15D/12/WW	BA15 Double	Warm White 3000K (±5%)	12VDC
	LEDMR11/BA15D/12/CW	BA15 Double	Cool White 6000K (±5%)	
	LEDMR16/12/WW	MR16	Warm White 3000K (±5%)	12VDC
	LEDMR16/12/CW	MR16	Cool White 6000K (±5%)	
	LEDBA9SC/24/**	BA9	**	24V AC/DC

### Colour Temperature Range

\*\* WW  
Warm White 3000K (±5%)

\*\*NW  
Natural White 4000K (±5%)

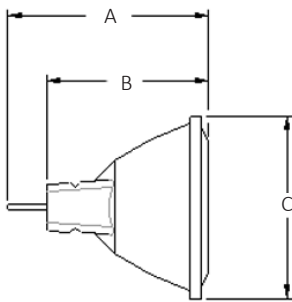
\*\* PW  
Pure White 5000K (±5%)

\*\*CW  
Cool White 6000K (±5%)

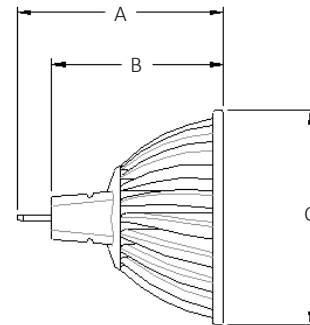
## LED DOWNLIGHTS TECHNICAL SPECIFICATION

		LED DOWNLIGHTS				
Cat. No.		LEDMR11/12**	LEDMR11/BA15D/12**	LEDMR16/12**	LEDBA9SC/24**	
Dimensions	A	38.5	36.5	48	28	
	B	31	18	40	12.5	
	C	∅35	∅35	∅50	∅18.6	
Nominal Voltage		12	12	12	24V	
Weight		24g	26g	37.5g	7g	
Power Consumption		1W	1W	3W	<1W	
No of LEDs		1	1	3	6	
Colour Temperature		WW 3000K (±5%)	CW 6000K (±5%)	WW 3000K (±5%)	CW 6000K (±5%)	**
Light intensity (Lumens)		100	100	300	300	
Colour Render Index		≥ 80				
Beam angle		45°				
LED Life		65,000 hrs (time to 70% of the initial light output)				
IP Rating		IP 40				
Operating temp		-20°C to +50°C				

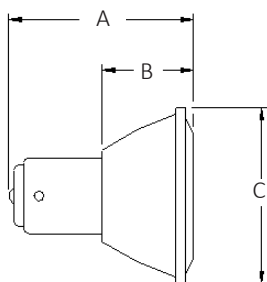
LEDMR11/12/\*\*



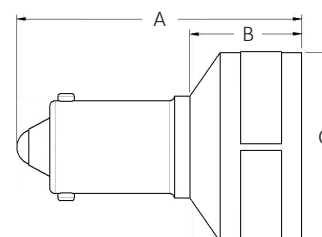
LEDMR16/12/\*\*



LEDMR11/BA15D/12/\*\*



LEDBA9SC/\*\*














## LED LAMPS

High efficient, low maintenance series of LED lamps designed in accordance with EN 50155.

A range of high intensity encapsulated LED lamps supplied in various voltages and colour temperatures. With their compact size and are designed to fit into all standard fittings. These instant start LED lamps offer a bright and consistence light.

With reliable LED technology and reduced heat dissipation, these energy efficient lamps are the perfect drop in replacement for existing luminaires for instrument panels and cab desks.

	Cat. No.	Fitting	Colour Temperature Range	Voltage
	LEDBA9S/24/**	BA9	**	24V AC/DC
	LEDBA9S/110/**			110V AC/DC
	LEDBA9D/24/**	BA9	**	24V AC/DC
	LEDBA9D/110/**			110V AC/DC
	LEDBA9T/24/**	BA9	**	24V AC/DC
	LEDBA9T/110/**			110V AC/DC
	LEDBA9T/24/**/9.5	BA9	**	24V AC/DC
	LEDBA9T/110/**/9.5			110V AC/DC

	Cat. No.	Fitting	Colour Temperature Range	Voltage
	LEDBA15D/24/**	BA15D	**	24V AC/DC
	LEDBA15D/110/**			110V AC/DC
	LEDE27/24/**	E27	**	24V AC/DC
	LEDE27/110/**			110V AC/DC
	LEDMN127F/24/**	Panel	**	24V AC/DC
	LEDMN127F/110/**			110V AC/DC

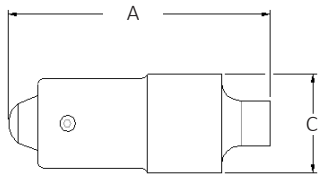
#### Colour Temperature Range

** WW Warm White 3000K (±5%)	**NW Natural White 4000K (±5%)	** PW Pure White 5000K (±5%)	**CW Cool White 6000K (±5%)
**B Blue 490nm- 150 Lux	**G Green 525nm- 120 Lux	**R Red 649nm- 100 Lux	**Y Yellow 589nm- 90 Lux

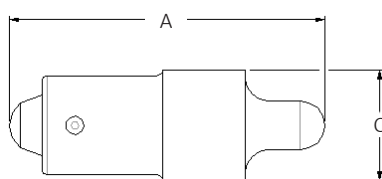
## LED LAMPS TECHNICAL SPECIFICATION

		LED LAMPS													
		LEDBA9S		LEDBA9D		LEDBA9T		LEDBA9T 9.5		LEDBA15D		LEDE27		LEDMN127	
Dimensions	A	26.5	28.7	31	32	42	57.75	31.25							
	B	-	-	16.8	14.5	22.75	-	3.3							
	C	Ø10	Ø10	Ø14.1	Ø9.6	Ø19.7	Ø27.5	Ø17.5							
Nominal Voltage (AC/DC)		24V	110V	24V	110V	24V	110V	24V	110V	24V	110V	24V	110V	24V	110V
Power Consumption		<1W		<1W		<1W		<1W		2W		<1W			
Weight		4g		4g		4g		3.5g		9g		28g		8.8g	
Connector		BA9		BA9		BA9		BA9		BA15D		E27		MN127	
Beam angle		120°		45°		360°		360°		360°		45°		120°	
LED Life		65,000 hrs (upon reaching 70% of initial light output values)													
IP Rating		IP 40													
Operating temp		-20°C to +50°C													

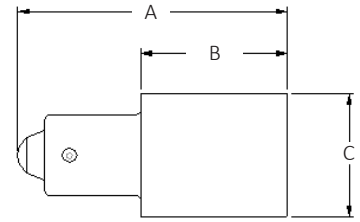
LEDBA9S/\*\*



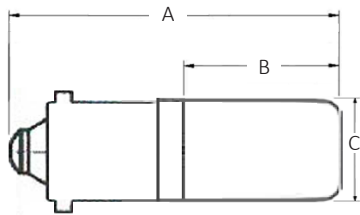
LEDBA9D/\*\*



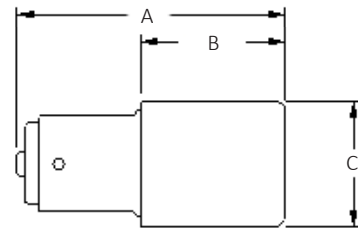
LEDBA9T/\*\*



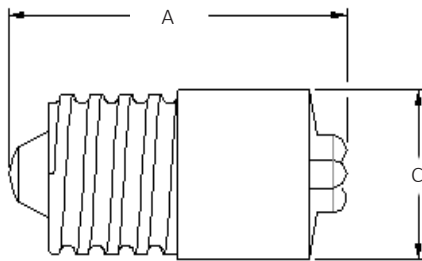
LEDBA9T/\*\*/9.5



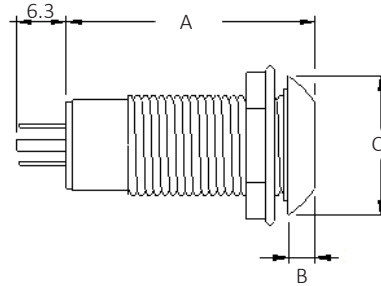
LEDBA15D/\*\*



LEDE27/\*\*

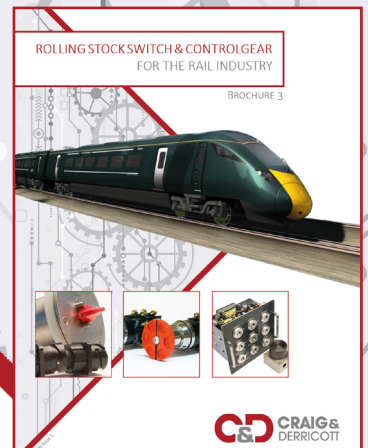
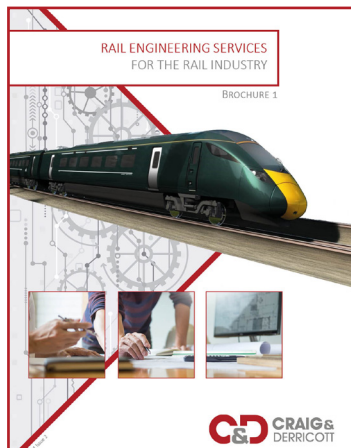


LEDMN127F/\*\*



# CRAIG & DERRICOTT

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