
KKDC

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Introduction

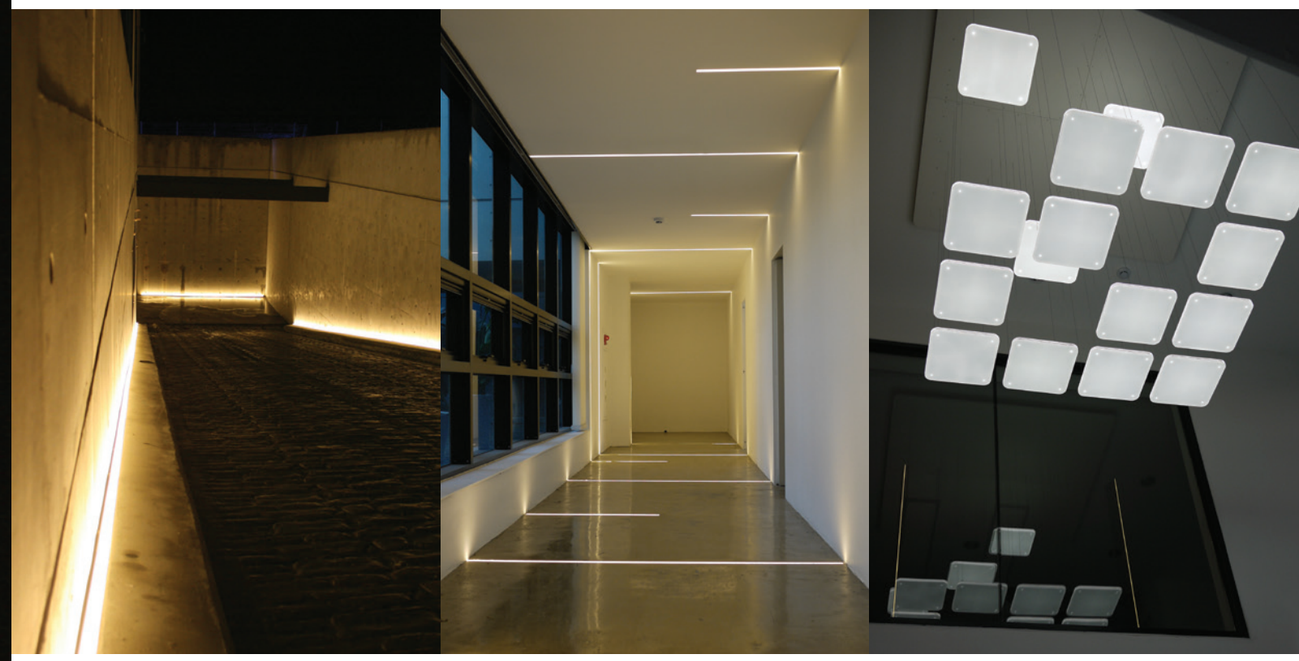
About KKDC

KKDC is a design and manufacturing company operating at the forefront of LED technology. We produce a wide range of specialist LED lighting solutions for high end architectural markets worldwide. Research and product manufacture take place in our new Korean facility outside Seoul, with product design, sales and marketing from our European offices.

KKDC was launched in Korea over ten years ago with an engineering knowledge base in optoelectronics, electronic production, and software engineering. The company rapidly emerged as a successful, specialist OEM (original equipment manufacturer) in the design and production of compact LED backlighting and display units for global brands such as Samsung, LG, Hyundai and Sony.

Trading relationships developed with some of the world's best patented LED source manufacturers – such as Nichia, Toyoda Gosei and Cree – were also intrinsic to this early success. When the potential application of high output, high quality LED sources for architectural and general lighting became apparent, KKDC were very well placed to capitalise on the technical expertise and manufacturing business experience gained during this time.

KKDC LED is not an adopted business and technology – It is our business and technology.



New KKDC factory, Seoul

From the start, the success of KKDC has always been grounded in our research and implementation of complete electronic and engineering solutions in the application of the best patented LED's. From raw LED source to finished luminaire, we have the multidisciplinary engineering capability, the research base and production infrastructure to control every aspect of product design and manufacture – phosphors and packaging, thermal and electronic design, luminaire design and all points in between.

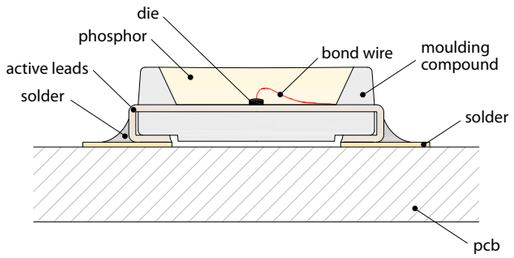
Much of our product range has been developed in collaboration with lighting designers providing new and improved solutions for existing lighting applications – particularly in the technically challenging field of warm white, linear LED product design. In contrast, our engineering innovation has led to development of original, specialist products inspiring designers to devise new and creative architectural applications.

Excellence in linear lighting has been a KKDC speciality for many years, with a proven range of very compact, scalable and colour consistent linear sources designed and tested for reliable performance in diverse operating environments.

Designed from the inside out to be compact, accurate, efficient and durable it is attention to the unseen which gives our products visible success.

KKDC believe that it is through understanding of the unseen technology and the design process in LED product creation – that customers can better evaluate, specify and make effective choices.

LED manufacture, 'binning', and colour control



At the heart of every LED package (the component as mounted on a circuit board) are one or more dice or dies – very small light emitting semiconductor chips. In most white LED production, the packaging process introduces phosphors suspended in a layer of a transparent medium – which convert or 'shift' the narrow spectrum blue light of the die to a wider range of wavelengths. These combine to produce the white light of the finished package. Choice of die, phosphors and medium affect the characteristics of a finished white LED, including the overall colour temperature and the apparent hue. During both die production and packaging there are unavoidable manufacturing inconsistencies which give rise to variations in operating characteristics, including colour.

As a result, LED dies and packages are sorted or 'binned' into ranges by their makers, each with a measured range of colour variation. The best performing materials and technologies – in both die and phosphor creation – are protected through patent and cross licensing agreements, and their makers and primary licensees retain a high degree of commercial control over their use.

For KKDC to make the highest quality white LED products with the desired hue and visible colour consistency, we require the use of very closely matched packages containing the best dies and phosphors.

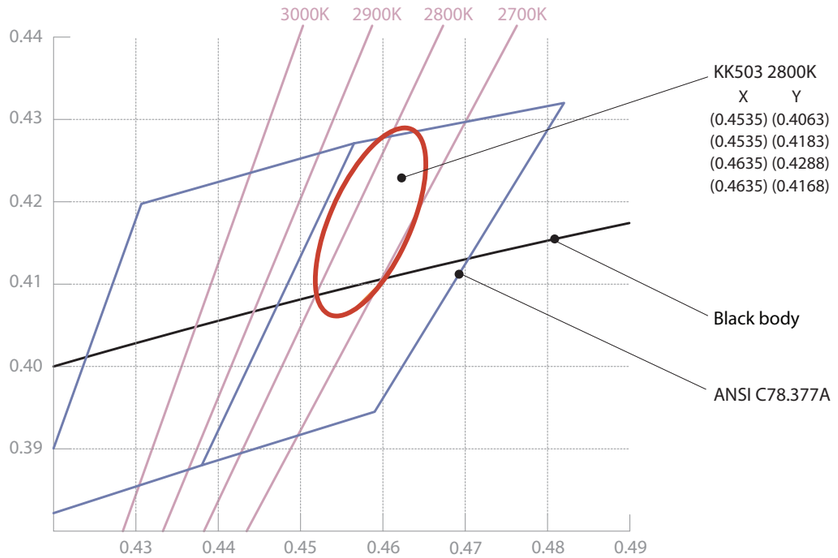
Through a comprehensive understanding of package design, and excellent trading relationships with suppliers of the best patented materials – such as Toyoda Gosei, Nichia and Cree – KKDC is able to specify and source LED packages binned to a very fine tolerance which perform exceptionally well in both brightness and efficiency. This is an expensive but necessary choice and is the basis for the quality we guarantee. We do not require wasteful and costly secondary sorting processes to further refine our 'bins'.

KKDC True Colour

For our family of white and warm white linear LED sources we call our solution to the challenge of producing durable and colour consistent sources '**True Colour**'. KKDC's **True Colour** products give customers a guarantee of consistent colour temperature and hue not only within a single linear fixture, but across an installation of many fixtures and importantly, between different production runs. It is only by control and integration of all the technologies in production of a complete LED luminaire the that we can make this claim.

As consumers within the architectural lighting sector are coming to appreciate, there are many ways of arriving at a white LED source of a given colour temperature and nominal CCT provides only a limited indication of overall hue and colour rendering. Different manufacturers' 2800K sources could appear more pinkish, reddish, bluish or greenish on a white wall or when compared to other light sources.

The graphical plot below shows the 'bin' used by KKDC for white linear products using our 2800K KK503 LED package. The ellipse shown represents the range of measured hues and colour variation in the 3-chip 2800k package used by KKDC. This ellipse is drawn on a colour space chromaticity diagram which provides a means to document the colour produced by any light source. This diagram visually describes the standard deviation between four X & Y coordinates, as you can see the deviance between the two points of the ellipse furthest apart is approximately a factor of 2sd or '2-step'. ANSI recommends that lamp manufacturers stay within a '4-step' ellipse, this is represented as the BLUE quadrangle.



CIE Chromaticity Chart (x,y) showing '2-step' ellipse

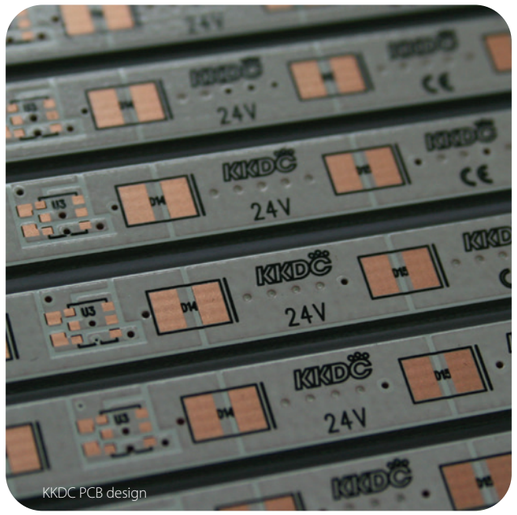
The values of the x/y co-ordinates plotted are calculated from the measured spectra of a white LED source tested by standardised methods. The position, size, and orientation of the bin ellipses in these chromaticity diagrams have a direct correlation with the observed hue, colour consistency and nominal CCT (correlated colour temperature) of the LED packages or products under test.

The smaller size, position and distinctive orientation of the KKDC bin is the result of very exacting package specification and defines our commitment to the closest possible control of colour characteristics and colour consistency. Our initial choices of target point CCT and colour balance are evaluated by both in house testing and in consultation with lighting designers.

Although this diagram shows the bin for one type of LED package – KKDC 503 @ 2800K – similarly tight, closely specified single bins are used for all **True Colour** sources. This is as true for our single colour LED and RGB colour mixing packages as it is for the whites where KKDC require bin tolerances of 5-8nm. Even with the best LED packages, there are still many technological challenges to be met to produce a finished product of the highest quality.

KKDC – engineering design for the whole luminaire. The sum of all the parts – not some of the parts.

Thermal management and electronic design



KKDC PCB design

This is another largely hidden aspect of successful LED product design – thermal integration of many interdependent elements is crucial if the product is to perform as intended and last as long as a maker may claim. High power LED lighting has only become possible due to advances in package design and electronic production technologies which allow heat generated within an LED die to be conducted away, through a circuit board and housing, to the surroundings. The performance and longevity of the product will depend on this. Failure to satisfactorily address and balance all aspects of the thermal relationship between electrical power, light output and the installation environment will result in the semiconductor junction within a packaged die exceeding its design temperature. An overheated LED becomes progressively more inefficient and subject to colour degradation resulting in reduced lifetime and eventually LED failure. There are no quick or 'off the shelf' solutions to thermal design problems and a successful, integrated approach requires a breadth of expertise beginning with the LED source.

By using only the best and most efficient packages our products achieve a high lumen output with minimum power input. These power savings at source, permit use of lower drive currents, minimising heat production, and allowing greater flexibility in other thermal aspects of circuit design and layout. Optimal thermal design is a key factor in our choices of circuit board and component mounting technologies.

Package spacing, component layout and power distribution all affect heat management within an LED array, factors which are carefully balanced against optical and other design parameters. Overall thermal economies allow us to design very compact products and also to make effective use of on-board constant current conversion for LED drive. This ensures close control of LED drive characteristics and thus consistency of performance. It also means KKDC's products benefit from the widest range of power supply and control options. Drive IC's are sourced from the world's best producers to maximise electrical and thermal performance. The best drive components tolerate the stress from power supply variations with extremely low failure rates.

Whilst most of our linear products also feature heat sinking housings, KKDC's flexible linear sources are notable for excellent performance without a need for additional heat sinking. We have also tested the best performing thermal transfer tapes and adhesives for use in linear products where LED arrays are mounted in direct contact with housings. This attention to detail results in products which we can confidently claim will operate consistently, and to their design lifetime even in situations where high ambient temperatures prevail.

KKDC engineers have evaluated many of the leading lighting control systems in use today to ensure our products will integrate well in new, retrofit or mixed technology installations. We produce a series of versatile digital interface modules for effective DMX control and 1-10V dimming across our product range.

Housings and diffusion

The best light sources require the best protection, and with a proven family of linear LED sources comes a full range of adaptable housings. In combination we have a linear product range to suit a great variety of applications and installation environments from stable, dry interiors to hot, high humidity exteriors or underwater locations. Much research and environmental testing is done to ensure that housings, seals, covers and diffusion materials are reliable and will perform in excess of a given IP rating.

Vacuum plating of linear LED arrays and circuit boards applies a military grade conformal coating by vacuum deposition polymerisation – a far superior technique to coating methods found elsewhere. It gives waterproofing and prevents both dust and moisture ingress. This process fully protects circuit boards within our IP rated products and provides an important second line of defence against condensates and the effects of temperature variation. This is in addition to the external protection from sealed housings.

Housings from aluminium extrusions feature stainless steel end caps and fixings. Caps and covers are sealed with silicone gaskets – inserted with our own patented seal application technology. Optional hardened anodising of up to 40 microns for the aluminium housings of our exterior linear ranges prevents corrosion in the harshest of exterior applications including chlorinated and marine environments.

KKDC's in house chemical engineering research has yielded many useful developments in resins, silicone formulation and application techniques now in use across our product range. One example of this applied research is in the encapsulation of AquaLuna waterproof products where silicone sealing is augmented by ultrasonic welding of a tough resin casing to achieve an IP68 rating. Tested and proven in use, all our diffused and covered housings will safely maintain the integrity of the LED source within and order options allow customers to balance cost with the degree of protection required.

Plastics for diffusion can vary considerably in performance and this is another area where thorough research has brought rewards. UV stable PMMA with internal 'prism diffusion' strikes the best balance between transmission and diffusion characteristics for even diffusion in distinctively compact housings. In our MoMo linear housing, spotting from individual LED's on the diffuser surface is completely eliminated, though the strip source is mounted only 20mm below the cover.

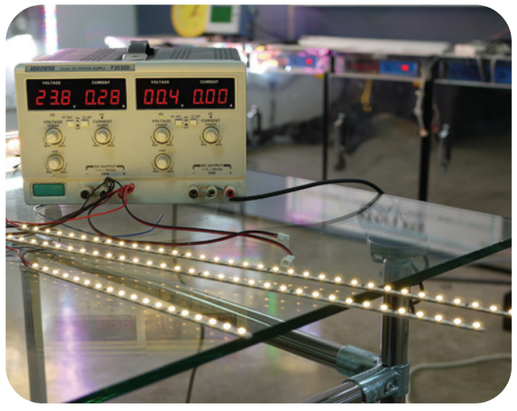
All our linear products feature a modular and extensible PCB architecture with many ordering options for length. Geometric package distribution and very compact end caps eliminate end gap shadows and variations in intensity between adjoining lengths.


Patented, automated silicon sealing


KKDC vacuum plating


KKDC ultrasonic welding

Testing



At KKDC we design and manufacture for the whole luminaire. Testing of all aspects of mechanical, electrical and optical performance is an important part our research and product development – and a routine part of monitoring in the production sequence. In house test procedures include, thermal shock testing of LED arrays, and high temperature environmental testing of housings and finished products.

Many of the key advantages of LED's as a light source are contingent on accurate colour performance and continued luminous efficacy for the life of a product. Our engineers conduct thorough optical testing of finished luminaires and accelerated ageing tests across a full range of operating temperatures to extrapolate lifetime performance data. As a result we specify the operating parameters of our products with accuracy and confidence.

KKDC products also undergo Independent testing by accredited laboratories for certification of product performance, IP ratings and electrical safety. Of course we also encourage subjective visual testing and evaluation by designers and specifiers and invite practical comparisons with the products of our competitors.

KKDC understand that long term success depends on consistency, honesty and integrity and have historically taken a cautious approach in the claims we make for our products. With the bright promise of LED lighting and the rush to market by a host of new companies, many over ambitious claims have been made in product specifications. Data has been presented in ways which are sometimes confusing or even deliberately misleading.

Photometric testing methods routinely used to evaluate incandescent and fluorescent light sources and luminaires have also produced partial, distorted and misleading results when applied to LED products. Lighting industry trade bodies have been working with manufacturers, government departments and national or international standards organisations to address this and produce standards, testing criteria and product description conventions that acknowledge the important distinctions between LED's and pre-existing lighting technologies. The U.S. has led in this area and it is there that KKDC find the testing standards we currently endorse. KKDC recognises the needs of designers and engineers and architects for accurate specification from testing by thorough and LED appropriate methods, performed by independent and accredited laboratories.

LED products require **absolute** photometric testing of **complete luminaires** under stated conditions to provide meaningful data on luminous flux, chromaticity and colour rendering for specification and comparison. The LM 79-08 testing criteria developed by the IESNA (Illuminating Engineering Society – North America) go a long way to address these needs and in our opinion provide the best basis for specification of LED products that is currently available. KKDC's products are tested by independent accredited laboratories in the UK to the IESNA LM 79-08 criteria.

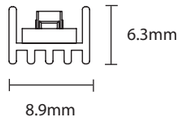
Linear

TiMi

TiMi is a very compact, low profile, aluminium heatsink housing, designed as a versatile, discrete and durable mounting for the full range of KKDC **True Colour** LED linear light sources.

TiMi is available in custom lengths suitable for a wide range of applications where concealed high performance, continuous illumination is required.

TiMi 351



120° | 24V DC | 67.82 lm/W | 5.52 W/m | IP20 | Intertek

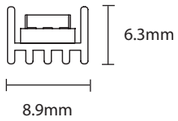
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- Vacuum plating available for additional protection against moisture
- Aluminium ‘TiMi’ heat sink housing
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 75°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

TiMi 351 is a single chip LED, linear light source in a very compact, aluminium heatsink housing.

Available in lengths to suit your application, TiMi 351 provides concealed, continuous, linear illumination for discrete architectural details, accent lines, coves, shelving and areas of low level ambient lighting.

Telstra HQ, Point of View

TiMi 503



120° | 24V DC | 62.5 lm/W | 14.4 W/m | IP20 | Intertek

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- Vacuum plating available for additional protection against moisture
- Aluminium 'TiMi' heat sink housing
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 75°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

TiMi 503 is a three chip LED linear light source for increased light output in a very compact aluminium heatsink housing.

Available in lengths to suit your application, TiMi 503 provides versatile, concealed and continuous, linear illumination for discrete architectural details, accent lines, coves and shelving.

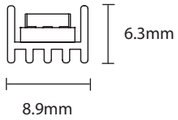
St Pancras Grand Restaurant, Martin Brudnizky Design

TiMi 501-RGB

TiMi 501-RGB is a three chip LED, colour mixing linear light source in a very compact, aluminium heatsink housing

Available in lengths to suit your application, TiMi 501-RGB provides dynamic mixing of highly saturated coloured light for continuous linear illumination and discrete architectural details.

Castle Hill RSL, Haron Robson/Light Matters



- KKDC 3 chip colour mixing RGB LED (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available
- Vacuum plating available for additional protection against moisture
- Aluminium 'TiMi' heat sink housing
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 80°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

TiMi XEN

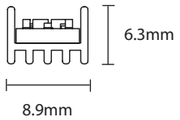
DBH XEN made by Ozone

TiMi XEN is a unique and innovative LED product from KKDC, featuring the XEN linear light source in a very compact, aluminium heatsink housing.

Variable from a bright warm white through to the subtle amber associated with a Xenon light strip, TiMi XEN creates a changeable mood, increasing in warmth with dimming. Available in lengths to suit your application, TiMi Xen provides concealed, continuous linear illumination for discrete architectural details, accent lines and areas of low level ambient lighting.

100% brightness (2800K)

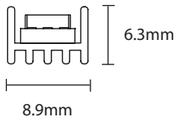
Fully dimmed (Amber)



120° | Variable | 24V DC | 12.24 W/m | IP20 | ETL Intertek

- Variable white, 2800K through to Amber when dimmed
- Custom lengths available
- Vacuum plating available for additional protection against moisture
- Aluminium 'TiMi' heat sink housing
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 75°C)
- Variable dimming via 1-10V XEN dimmer (KKDM-02)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

TiMi 504 HCRI



120° | CRI 90 | 24V DC | 66.47 lm/W | 12.24 W/m | IP20

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Custom lengths available
- Vacuum plating available for additional protection against moisture
- Aluminium 'TiMi' heat sink housing
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 75°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

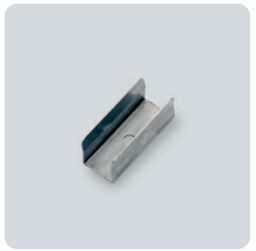
Developed with KKDC specified phosphors and packaging, TiMi 504 HCRI provides a specialist solution where the requirement is for a balanced warm or neutral white source with high index colour rendering.

TiMi 504 HCRI is a CRI 90, three chip LED, linear light source in a very compact aluminium heatsink housing.

Available in lengths to suit your application, TiMi 504 HCRI gives concealed and continuous, linear illumination for discrete architectural details, accent lines, coves and shelving.

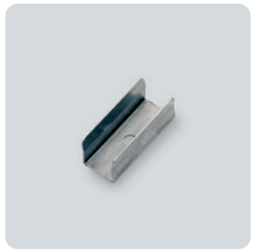
When Objects Work, John Pawson

TiMi Accessories



KKCP-01

TiMi clip
For use with TiMi series
Surface mounting clip
S/steel finish
L25mm W11.5mm H10.5mm



KKCP-51

Bag of TiMi clips (500pcs)
For use with TiMi series
Surface mounting clip
S/steel finish
L25mm W11.5mm H10.5mm

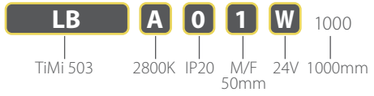
TiMi Order Code Table

			TiMi 351 LG	TiMi 503 LB	TiMi 501-RGB LS	TiMi XEN LY	TiMi 504 HCRI* CB
LED Colour	2800K (2700K*)	A	•	•	n/a	n/a	•
	3200K	B	•	•	n/a	n/a	•
	3800K	C	•	•	n/a	n/a	•
	5000K	D	•	•	n/a	n/a	•
	6500K	E	•	•	n/a	n/a	n/a
	9300K	Z	n/a	•	n/a	n/a	n/a
	Red	F	•	•	n/a	n/a	n/a
	Green	G	•	•	n/a	n/a	n/a
	Blue	H	•	•	n/a	n/a	n/a
	Orange	I	•	•	n/a	n/a	n/a
	Amber	J	•	•	n/a	n/a	n/a
	RGB	L	n/a	n/a	•	n/a	n/a
	Variable	M	n/a	n/a	n/a	•	n/a
IP	IP20	0	•	•	•	•	•
	VP protection**	V	•	•	•	•	•
Connectors	Male/Female 50mm	1	•	•	•	•	•
	Male/Female 300mm	2	•	•	•	•	•
	Single end tail 300mm	3	•	•	•	•	•
	Double end tail 300mm	4	•	•	•	•	•
Volt	24V	W	•	•	•	•	•
Length Availability			83.3-2000mm 83.3mm increments	100-2000mm 100mm increments	83.3-2000mm 83.3mm increments	100-2000mm 100mm increments	100-2000mm 100mm increments

* 2700K applies to TiMi 504 HCRI only. Do not use TiMi 504 HCRI in combination with other LED strips as visual appearance of lighting effect will differ.

** See Vacuum Plating for more information

Example of code:

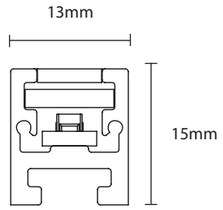


MiMi-B

MiMi-B is a compact, covered, anodised aluminium housing for the full range of KKDC **True Colour** LED linear light sources.

Available with a full range of mounting accessories and IP rated for interior and exterior use, MiMi-B provides high performance, concealed and continuous illumination in lengths to suit your application.

MiMi-B 351



MiMi-B 351 is a single chip LED, linear light source in a compact, covered, anodised aluminium housing.

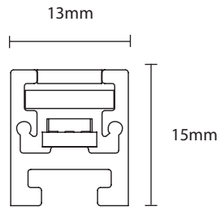
Available in lengths to suit your application and IP rated for interior and exterior use, MiMi-B 351 provides a concealed, continuous, linear illumination for discrete architectural details, accent lines, coving and areas of low level ambient lighting.

24V DC | 5.52 W/m | IP 54/67

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MiMi-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

KKDC France

MiMi-B 503



24V DC | 14.4 W/m | IP 54/67

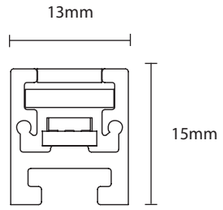
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MiMi-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 55°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MiMi-B 503 is a high output, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MiMi-B 503 provides a concealed, continuous, linear illumination for discrete architectural details, accent lines and coving.

Auckland Museum, Light Emotion

MiMi-B 501-RGB



RGB | 24V DC | 15.55 W/m | IP 54/67

- KKDC 3 chip colour mixing RGB LED (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MiMi-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 55°C T_c max = 70°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

MiMi-B 501-RGB is a three chip LED, colour mixing linear light source in a compact, covered, anodised aluminium housing.

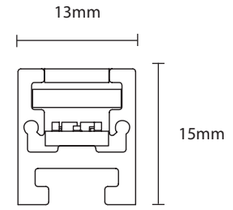
Available in lengths to suit your application and IP rated for interior and exterior use, MiMi-B 501-RGB provides dynamic mixing of highly saturated coloured light for continuous linear illumination and discrete architectural details.

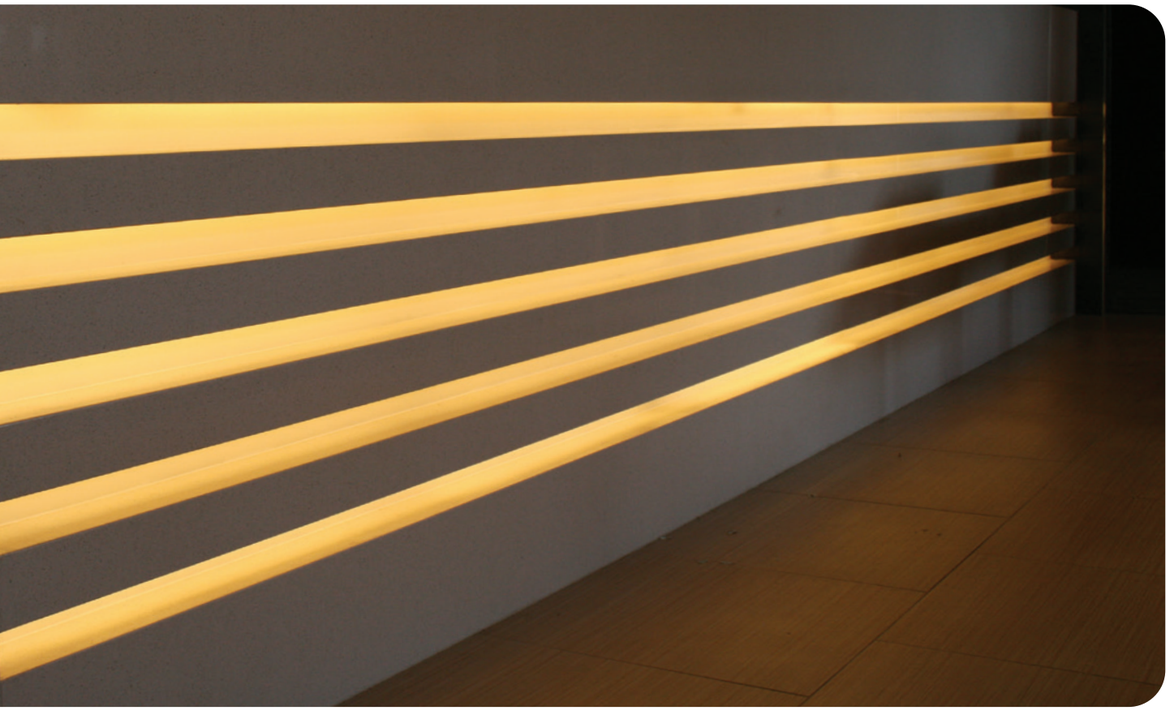
Auckland War Memorial Museum, Vincent Associates

MiMi-B XEN

MiMi-B XEN is a unique and innovative new LED product from KKDC, featuring the XEN linear light source in a compact, covered, anodised aluminium housing.

Variable from a bright warm white through to the subtle amber associated with a Xenon light strip, MiMi-B XEN creates a changeable mood, increasing in warmth with dimming. Available in lengths to suit your application and IP rated for interior and exterior use, MiMi-B Xen provides concealed, continuous linear illumination for discrete architectural details and accent lines and areas of low level ambient lighting.



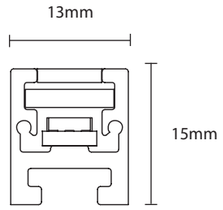


Mounties, Haron Robson/Light Matters

Variable | 24V DC | 12.24 W/m | IP 54/67

- KKDC **True Colour**
  Variable white, 2800K through to Amber when dimmed
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MiMi-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 55°C T_c max = 70°C)
- Variable dimming via 1-10V XEN dimmer (KKDM-02)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MiMi-B 504 HCRI



CRI 90 | 24V DC | 12.24 W/m | IP 54/67

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MiMi-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 55°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

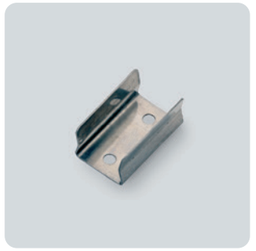
Developed with KKDC specified phosphors and packaging, MiMi-B 504 HCRI provides a specialist solution where the requirement is for a balanced warm or neutral white source with high index colour rendering.

MiMi-B 504 HCRI is a CRI 90, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MiMi-B 504 HCRI gives concealed, continuous, linear illumination for discrete architectural details, accent lines and coving.

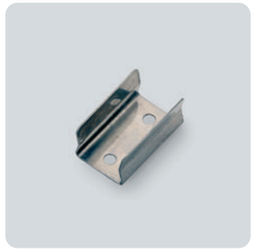
Qantas Lounge, Point of View

MiMi-B Accessories



KKCP-02

MiMi-B clip
For use with MiMi-B series
Surface mounting clip
S/steel finish
L25mm W16mm H12mm



KKCP-52

Bag of MiMi-B clips (500pcs)
For use with MiMi-B series
Surface mounting clips
S/steel finish
L25mm W16mm H12mm

KKBK-05

MiMi-B adjustable angle bracket
For use with MiMi-B series
Surface mounting adjustable bracket
S/steel finish
L36mm W13mm H22mm

KKBK-06

MiMi-B fixed bracket
For use with MiMi-B series
Surface mounting fixed bracket
S/steel finish
L20mm W30mm H15mm

MiMi-B diffuser options

Standard diffuser
(IP54/IP67)

Flush diffuser
(IP54 only)

MiMi-B Order Code Table

			MiMi-B 351 IB	MiMi-B 503 IA	MiMi-B 501-RGB ID	MiMi-B XEN IX	MiMi-B 504 HCRI* CF
LED Colour	2800K (2700K*)	A	•	•	n/a	n/a	•
	3200K	B	•	•	n/a	n/a	•
	3800K	C	•	•	n/a	n/a	•
	5000K	D	•	•	n/a	n/a	•
	6500K	E	•	•	n/a	n/a	n/a
	9300K	Z	n/a	•	n/a	n/a	n/a
	Red	F	•	•	n/a	n/a	n/a
	Green	G	•	•	n/a	n/a	n/a
	Blue	H	•	•	n/a	n/a	n/a
	Orange	I	•	•	n/a	n/a	n/a
	Amber	J	•	•	n/a	n/a	n/a
	RGB	L	n/a	n/a	•	n/a	n/a
	Variable	M	n/a	n/a	n/a	•	n/a
IP	IP54	4	•	•	•	•	•
	IP67	7	•	•	•	•	•
Connectors	Male/Female 300mm	2	•	•	•	•	•
	IP67 Male/Female 300mm	5	•	•	•	•	•
	Single hardwire tail 300mm	7	•	•	•	•	•
	Double hardwire tail 300mm	9	•	•	•	•	•
Volt	24V	W	•	•	•	•	•
Length Availability			103-2020mm 83.3mm increments	120-2020mm 100mm increments	103-2020mm 83.3mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments
Finishes	Silver anodised opal diffuser	A	•	•	•	•	•
	Silver anodised clear diffuser	B	•	•	•	•	•
	Black anodised opal diffuser	E	•	•	•	•	•
	Black anodised clear diffuser	F	•	•	•	•	•
	Silver anodised IP54 flush diffuser	G	•	•	•	•	•
	Black anodised IP54 flush diffuser	H	•	•	•	•	•

* 2700K applies to MiMi-B 504 HCRI only. Do not use MiMi-B 504 HCRI in combination with other LED strips as visual appearance of lighting effect will differ.

Example of code:

LC	A	4	7	W	1020	A
MiMi-B 503	2800K	IP54	Single hardwire tail 300mm	24V	1020mm	Silver anodised opal diffuser

MoMo

MoMo is a compact, covered, anodised aluminium housing for the full range of KKDC **True Colour** LED linear light sources.

High efficiency cover diffusion eliminates LED 'spotting' to provide even illumination in the compact dimensions of the profile. MoMo2 variants have a doubled light source for higher output.

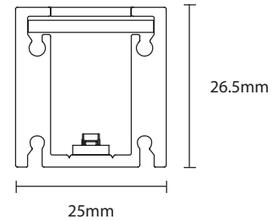
IP rated for interior and exterior use MoMo provides high performance, concealed and continuous illumination in lengths to suit your application.

MoMo 351

MoMo 351 is a single chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo 351 provides concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving and areas of low level ambient lighting.

Sackville Hotel, Point of View

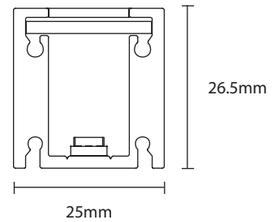


diffused | 24V DC | 5.52 W/m | IP 54/67 | Intertek

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo 503

Intercontinental Hotel Sydney, Point of View



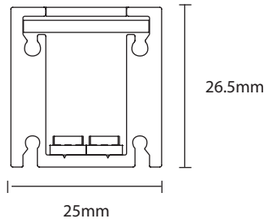
diffused | 24V DC | 14.4 W/m | IP 54/67 | ETL c us Intertek

MoMo 503 is a high output, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo 503 provides concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo2 503



diffused | 24V DC | 28.8 W/m | IP 54/67 | Intertek

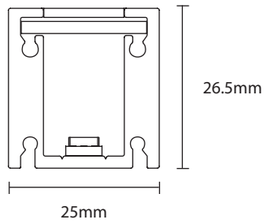
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Twin LED strips for increased lumen output
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium ‘MoMo’ heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo2 503 is an extra high output, three chip LED, double linear light source in a covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2 503 provides concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.

House of Stone Milan, John Pawson/Salvatori

MoMo 501-RGB



diffused | RGB | 24V DC | 15.55 lm/W | IP 54/67 | Intertek

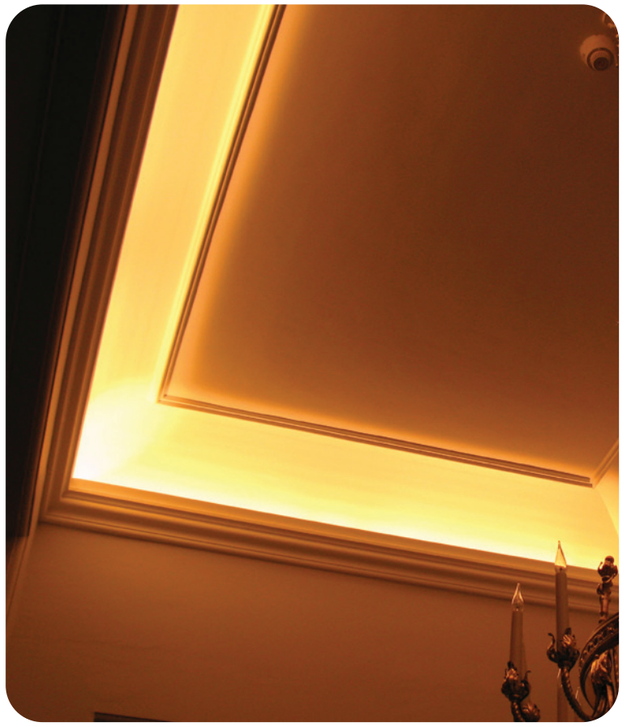
- KKDC 3 chip colour mixing RGB LED
  (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

Castle Hill RSL, Haron Robson/Light Matters

MoMo 501-RGB is a three chip LED, colour mixing linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo 501-RGB provides dynamic mixing of highly saturated coloured light for continuous linear illumination and discrete architectural details.

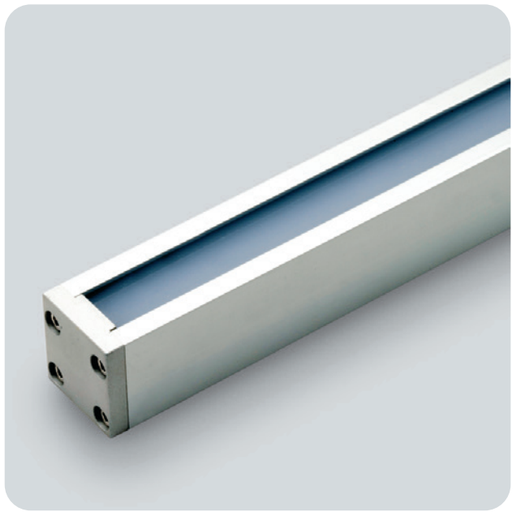
MoMo XEN

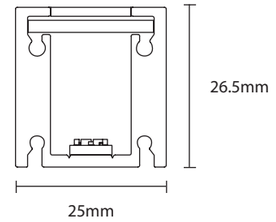


The Wallace Collection, Dha Design

MoMo XEN is a unique and innovative new LED product from KKDC, featuring the XEN linear light source in a compact, covered, anodised aluminium housing.

Variable from a bright warm white through to the subtle amber associated with a Xenon light strip, MoMo XEN creates a changeable mood, increasing in warmth with dimming. Available in lengths to suit your application and IP rated for interior and exterior use, MoMo Xen provides concealed, continuous and diffused linear illumination for discrete architectural details and accent lines and areas of low level ambient lighting.

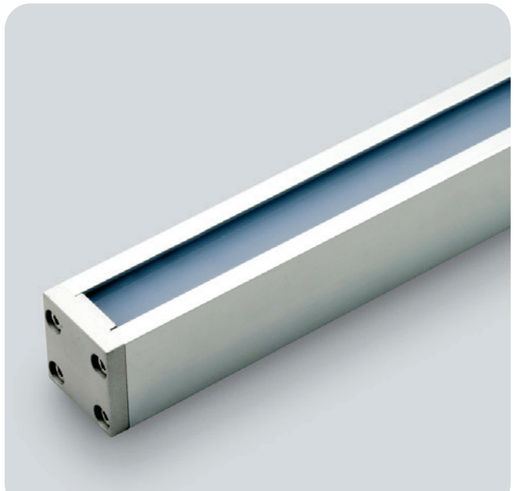


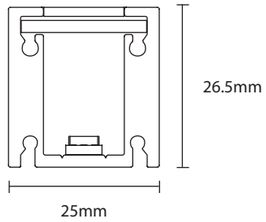


diffused | Variable | 24V DC | 12.24 W/m | IP 54/67 | Intertek

- KKDC **True Colour**
  Variable white, 2800K through to Amber when dimmed
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Variable dimming via 1-10V XEN dimmer (KKDM-02)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo 504 HCRI





diffused | CRI 90 | 24V DC | 12.24 W/m | IP 54/67

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium ‘MoMo’ heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

Developed with KKDC specified phosphors and packaging, MoMo 504 HCRI provides a specialist solution where the requirement is for a balanced warm or neutral white source with high index colour rendering.

MoMo 504 HCRI is a CRI 90, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo 504 HCRI gives concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.

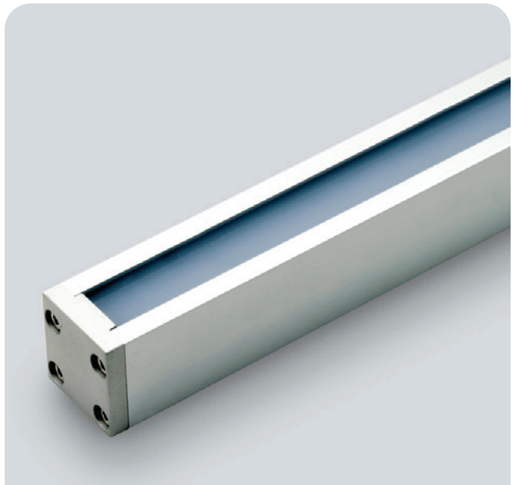
Qantas Lounge, Point of View

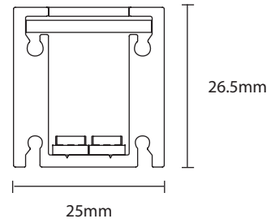
MoMo2 504 HCRI

Developed with KKDC specified phosphors and packaging, MoMo2 504 HCRI provides a specialist solution where the requirement is for a high power, balanced warm or neutral white source with high index colour rendering.

MoMo2 504 HCRI is an extra high output, three chip LED, double linear light source in a covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2 504 HCRI gives concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.



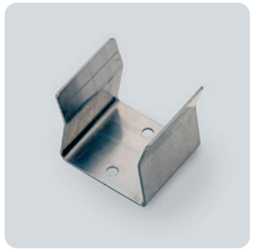


Saxony Sydney World Square, Arup Lighting

diffused | CRI 90 | 24V DC | 24.48 W/m | IP 54/67

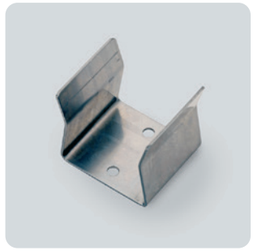
- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Twin LED strips for increased lumen output
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium ‘MoMo’ heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo Accessories



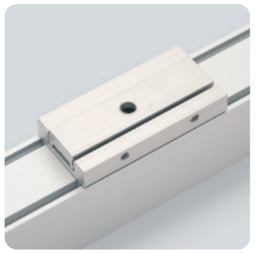
KKCP-03

MoMo clip
For use with MoMo series
Surface mounting clip
S/steel finish
L25mm W33mm H27mm



KKCP-53

Bag of MoMo clips (500pcs)
For use with MoMo series
Surface mounting clips
S/steel finish
L25mm W33mm H27mm



KKBK-07

MoMo fixing plate
For use with MoMo series
Surface mounting plate
Anodised aluminium
L50mm W25mm H7mm

MoMo diffuser options

MoMo Order Code Table

			MoMo 351 LI	MoMo 503 LD	MoMo2 503 LE	MoMo 501-RGB LU	MoMo XEN LW	MoMo 504 HCRI* CD	MoMo2 504 HCRI* CE
LED Colour	2800K (2700K*)	A	•	•	•	n/a	n/a	•	•
	3200K	B	•	•	•	n/a	n/a	•	•
	3800K	C	•	•	•	n/a	n/a	•	•
	5000K	D	•	•	•	n/a	n/a	•	•
	6500K	E	•	•	•	n/a	n/a	n/a	n/a
	9300K	Z	n/a	•	•	n/a	n/a	n/a	n/a
	Red	F	•	•	•	n/a	n/a	n/a	n/a
	Green	G	•	•	•	n/a	n/a	n/a	n/a
	Blue	H	•	•	•	n/a	n/a	n/a	n/a
	Orange	I	•	•	•	n/a	n/a	n/a	n/a
	Amber	J	•	•	•	n/a	n/a	n/a	n/a
	RGB	L	n/a	n/a	n/a	•	n/a	n/a	n/a
	Variable	M	n/a	n/a	n/a	n/a	•	n/a	n/a
IP	IP54	4	•	•	•	•	•	•	•
	IP67	7	•	•	•	•	•	•	•
Connectors	Male/Female 300mm	2	•	•	•	•	•	•	•
	IP67 Male/Female 300mm	5	•	•	•	•	•	•	•
	Single hardwire tail 300mm	7	•	•	•	•	•	•	•
	Double hardwire tail 300mm	9	•	•	•	•	•	•	•
Volt	24V	W	•	•	•	•	•	•	•
Length Availability			103-2020mm 83.3mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments	103-2020mm 83.3mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments
Finishes	Silver anodised opal diffuser	A	•	•	•	•	•	•	•
	Silver anodised clear diffuser	B	•	•	n/a	•	•	•	n/a
	Black anodised opal diffuser	E	•	•	•	•	•	•	•
	Black anodised clear diffuser	F	•	•	n/a	•	•	•	n/a
	Silver anodised IP54 flush diffuser	G	•	•	•	•	•	•	•
	Black anodised IP54 flush diffuser	H	•	•	•	•	•	•	•

* 2700K applies to MoMo/MoMo2 504 HCRI only. Do not use MoMo/MoMo2 504 HCRI in combination with other LED strips as visual appearance of lighting effect will differ.

Example of code:

LD	A	4	7	W	1020	A
MoMo 503	2800K	IP54	Single hardwire tail 300mm	24V	1020mm	Silver anodised opal diffuser

MoMo-B

MoMo-B is a compact, covered, anodised aluminium housing for the full range of KKDC **True Colour** LED linear light sources.

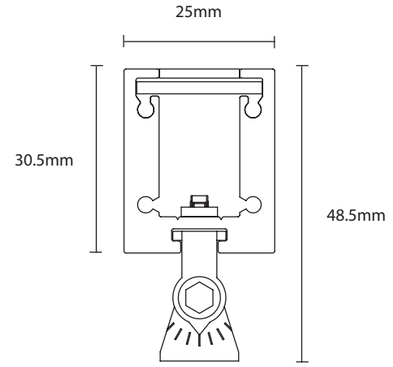
High efficiency cover diffusion eliminates LED 'spotting' to provide even illumination in the compact dimensions of the profile. MoMo2-B variants have a doubled light source for higher output.

Developed from the standard MoMo with fully adjustable mounting brackets and IP rated for interior and exterior use, MoMo-B provides high performance, concealed and continuous illumination in lengths to suit your application.

MoMo-B 351

MoMo-B 351 is a single chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-B 351 provides a concealed, continuous, linear illumination for discrete architectural details, accent lines, coving and areas of low level ambient lighting.

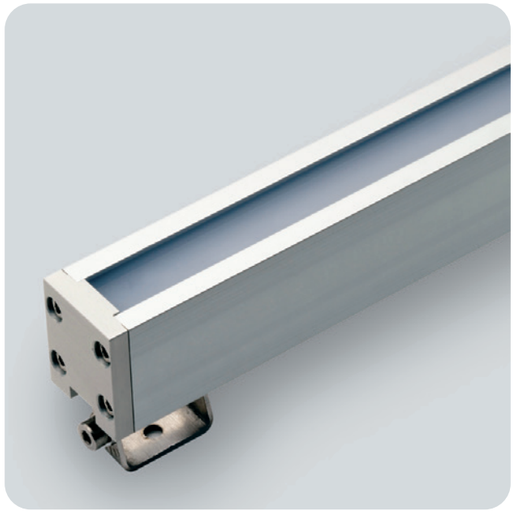


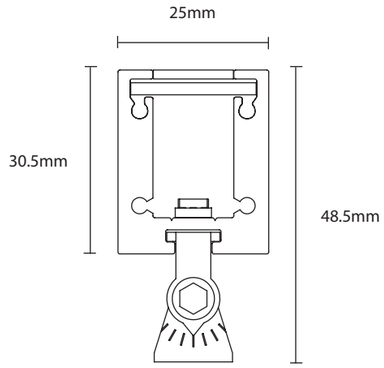
The Golden Sheaf, Point of View

diffused | 24V DC | 5.52 W/m | IP 54/67

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo-B 503





diffused | 24V DC | 14.4 W/m | IP 54/67

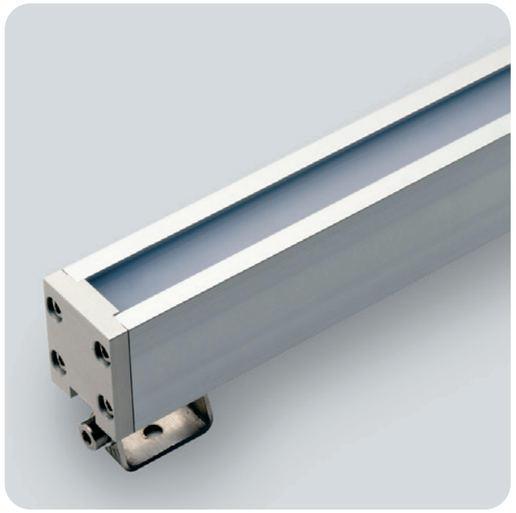
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

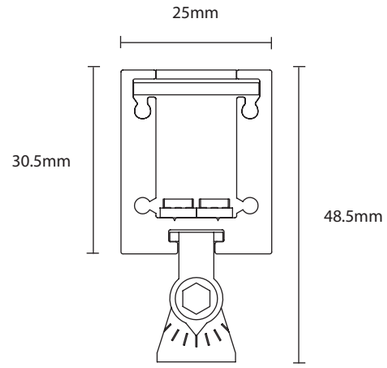
MoMo-B 503 is a high output, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-B 503 provides a concealed, continuous, linear illumination for discrete architectural details, accent lines and coving.

Intercontinental Hotel Sydney, Point of View

MoMo2-B 503





diffused | 24V DC | 28.8 W/m | IP 54/67

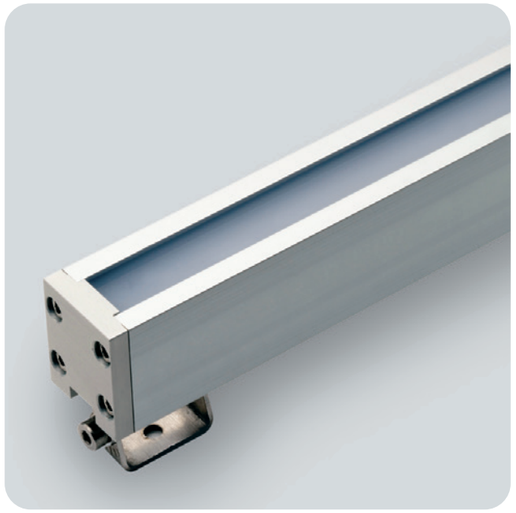
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Twin LED strips for increased lumen output
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

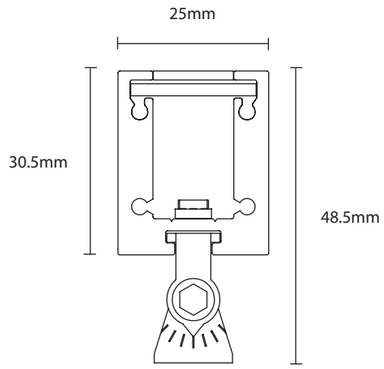
MoMo2-B 503 is an extra high output, three chip LED, double linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2-B 503 provides concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.

House of Stone Milan, John Pawson/Salvatori

MoMo-B 501-RGB





diffused | RGB | 24V DC | 15.55 W/m | IP 54/67

- KKDC 3 chip colour mixing RGB LED
  (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

MoMo-B 501-RGB is a three chip LED, colour mixing linear light source in a compact, covered, anodised aluminium housing.

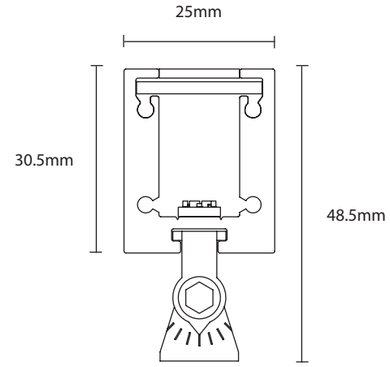
Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-B 501-RGB provides dynamic mixing of highly saturated coloured light for continuous linear illumination and discrete architectural details.

Star City Casino, Point of View

MoMo-B XEN

MoMo-B XEN is a unique and innovative new LED product from KKDC, featuring the XEN linear light source in a compact, covered, anodised aluminium housing.

Variable from a bright warm white through to the subtle amber associated with a Xenon light strip, MoMo-B XEN creates a changeable mood, increasing in warmth with dimming. Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-B Xen provides a concealed continuous linear illumination for discrete architectural details and accent lines and areas of low level ambient lighting.



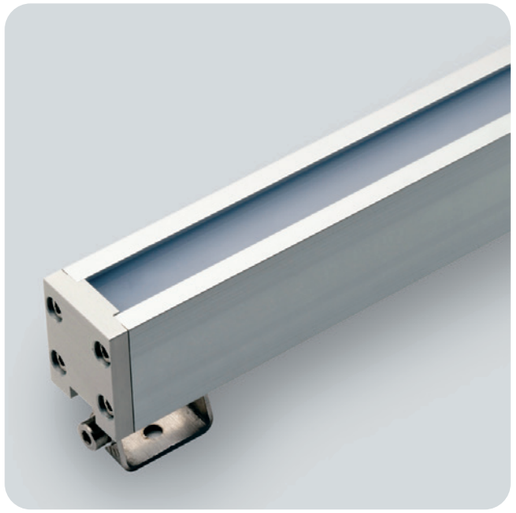
100% brightness (2800K)

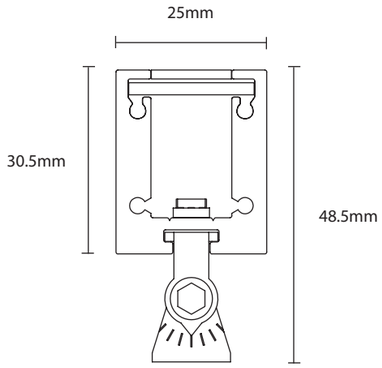
Fully dimmed (Amber)

diffused | Variable | 24V DC | 12.24 W/m | IP 54/67

- KKDC **True Colour**
  Variable white, 2800K through to Amber when dimmed
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Variable dimming via 1-10V XEN dimmer (KKDM-02)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo-B 504 HCRI





diffused | CRI 90 | 24V DC | 12.24 W/m | IP 54/67

- High CRI of 90 for accurate colour rendering
- KKDC **True Colour**
  White: 2700K, 3200K, 3800K, 5000K
- Single LED strip
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

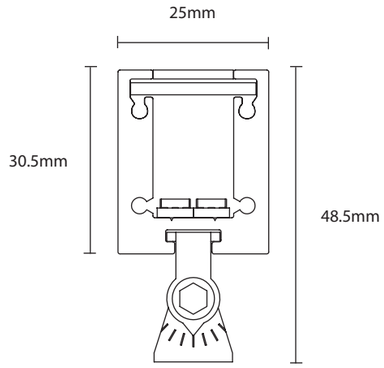
Developed with KKDC specified phosphors and packaging, MoMo-B 504 HCRI provides a specialist solution where the requirement is for a balanced warm or neutral white source with high index colour rendering.

MoMo-B 504 HCRI is a CRI 90, three chip LED, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-B 504 HCRI gives concealed, continuous, linear illumination for discrete architectural details, accent lines and coving.

Qantas Lounge, Point of View

MoMo2-B 504 HCRI



diffused | CRI 90 | 24V DC | 24.48 W/m | IP 54/67

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Twin LED strips for increased lumen output
- Custom lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'MoMo-B' heat sink housing
- Opal, clear or flush diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

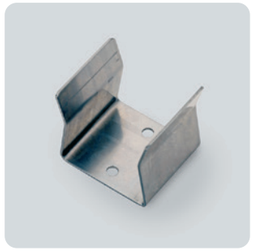
Developed with KKDC specified phosphors and packaging, MoMo2-B 504 HCRI provides a specialist solution where the requirement is for a high power, balanced warm or neutral white source with high index colour rendering.

MoMo2-B 504 HCRI is an extra high output, three chip LED, double linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2-B 504 HCRI gives concealed and continuous, diffused linear illumination for discrete architectural details, accent lines and coving.

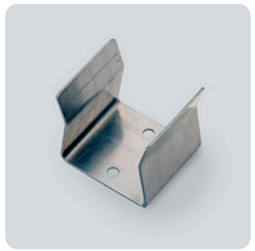
Gold Class Event Cinemas, Point of View

MoMo-B Accessories



KKCP-03

MoMo-B clip
For use with MoMo-B series
Surface mounting clip
S/steel finish
L25mm W33mm H27mm



KKCP-53

Bag of MoMo-B clips (500pcs)
For use with MoMo-B series
Surface mounting clips
S/steel finish
L25mm W33mm H27mm

KKBK-05

MoMo-B adjustable angle bracket
For use with MoMo-B series
Surface mounting adjustable bracket
S/steel finish
L36mm W13mm H22mm

KKBK-06

MoMo-B fixed bracket
For use with MoMo-B series
Surface mounting fixed bracket
S/steel finish
L20mm W30mm H15mm

MoMo-B diffuser options

MoMo-B Order Code Table

			MoMo-B 351 OB	MoMo-B 503 OA	MoMo2-B 503 OF	MoMo-B 501-RGB OE	MoMo-B XEN OX	MoMo-B 504 HCRI* CG	MoMo2-B 504 HCRI* CH
LED Colour	2800K (2700K*)	A	•	•	•	n/a	n/a	•	•
	3200K	B	•	•	•	n/a	n/a	•	•
	3800K	C	•	•	•	n/a	n/a	•	•
	5000K	D	•	•	•	n/a	n/a	•	•
	6500K	E	•	•	•	n/a	n/a	n/a	n/a
	9300K	Z	n/a	•	•	n/a	n/a	n/a	n/a
	Red	F	•	•	•	n/a	n/a	n/a	n/a
	Green	G	•	•	•	n/a	n/a	n/a	n/a
	Blue	H	•	•	•	n/a	n/a	n/a	n/a
	Orange	I	•	•	•	n/a	n/a	n/a	n/a
	Amber	J	•	•	•	n/a	n/a	n/a	n/a
	RGB	L	n/a	n/a	n/a	•	n/a	n/a	n/a
	Variable	M	n/a	n/a	n/a	n/a	•	n/a	n/a
IP	IP54	4	•	•	•	•	•	•	•
	IP67	7	•	•	•	•	•	•	•
Connectors	Male/Female 300mm	2	•	•	•	•	•	•	•
	IP67 Male/Female 300mm	5	•	•	•	•	•	•	•
	Single hardwire tail 300mm	7	•	•	•	•	•	•	•
	Double hardwire tail 300mm	9	•	•	•	•	•	•	•
Volt	24V	W	•	•	•	•	•	•	•
Length Availability			103-2020mm 83mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments	103-2020mm 83mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments	120-2020mm 100mm increments
Finishes	Silver anodised opal diffuser	A	•	•	•	•	•	•	•
	Silver anodised clear diffuser	B	•	•	n/a	•	•	•	n/a
	Black anodised opal diffuser	E	•	•	•	•	•	•	•
	Black anodised clear diffuser	F	•	•	n/a	•	•	•	n/a
	Silver anodised IP64 flush diffuser	G	•	•	•	•	•	•	•
	Black anodised IP64 flush diffuser	H	•	•	•	•	•	•	•

* 2700K applies to MoMo-B/MoMo2-B 504 HCRI only. Do not use MoMo-B/MoMo2-B 504 HCRI in combination with other LED strips as visual appearance of lighting effect will differ.

Example of code:

OA A 4 7 W 1020 A

- OA — MoMo-B 503
- A — 2800K
- 4 — IP54
- 7 — Single hardwire tail 300mm
- W — 24V
- 1020 — 1020mm
- A — Silver anodised opal diffuser

MoMo-F

MoMo-F is a recessed, floor mounting, anodised aluminium housing for the full range of KKDC **True Colour** LED linear light sources.

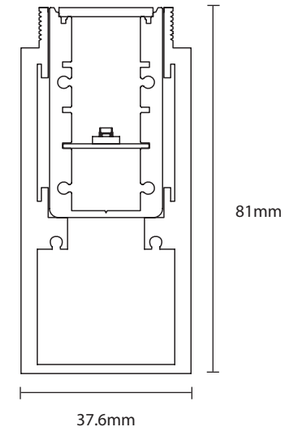
High efficiency cover diffusion eliminates LED 'spotting' to provide even illumination in the compact dimensions of the profile, MoMo2-F variants have a doubled light source for higher output.

IP rated for interior and exterior use MoMo-F is available in lengths to suit your application.

MoMo-F 351

MoMo-F 351 is a single chip LED, floor mounting, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-F 351 provides diffused linear illumination for discrete architectural details, accent lines and areas of low level ambient lighting.

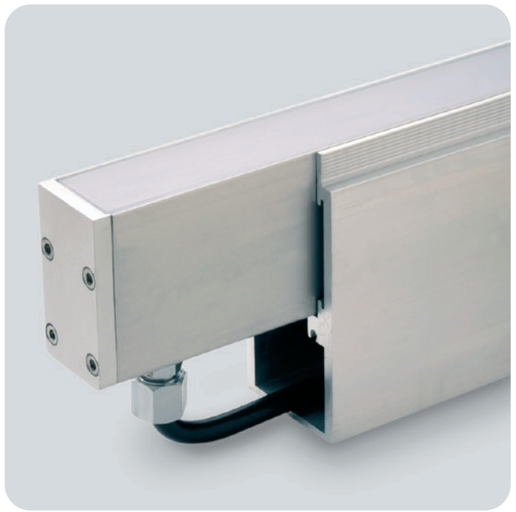


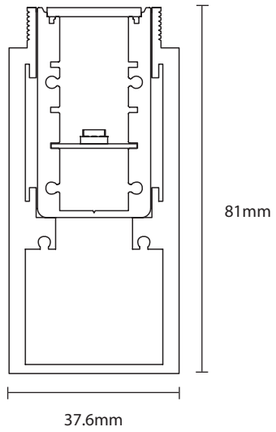
Aotea Square, LDP Auckland

diffused | 1kN | 24V DC | 5.52 W/m | IP 67/68

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo-F 503





diffused | 1kN | 24V DC | 14.4 W/m | IP 67/68 | Intertek

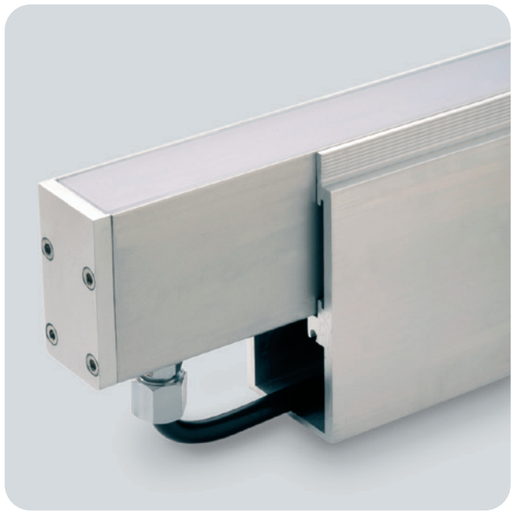
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Single LED strip
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

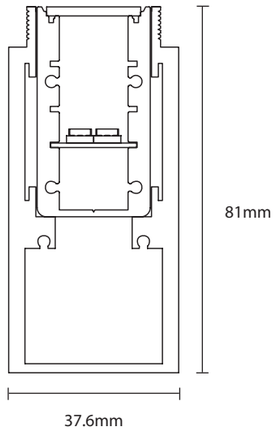
MoMo-F 503 is a high output, three chip LED, floor mounting, linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-F 503 provides diffused linear illumination for discrete architectural details and accent lines.

Aotea Square, LDP Auckland

MoMo2-F 503





diffused | 1kN | 24V DC | 28.8 W/m | IP 67/68 | Intertek

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Twin LED strips for increased lumen output
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

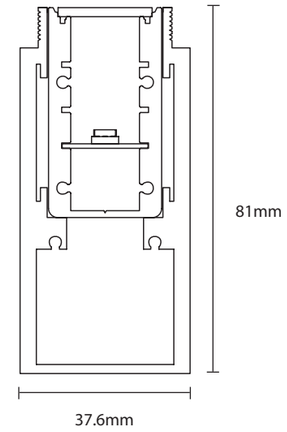
MoMo2-F 503 is an extra high output, three chip LED, floor mounting, double linear light source in a compact covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2-F 503 provides diffused linear illumination for discrete architectural details and accent lines.

MoMo-F 501-RGB

MoMo-F 501-RGB is a three chip LED, floor mounted, colour mixing linear light source in a compact, covered, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-F 501-RGB provides dynamic mixing of highly saturated coloured light for continuous linear illumination and discrete architectural details.



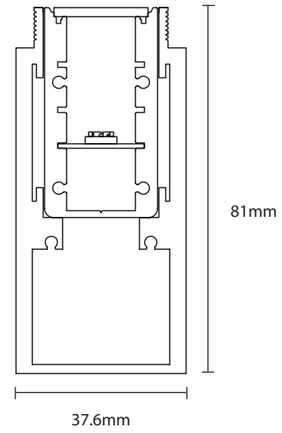
diffused | RGB | 1kN | 24V DC | 15.55 W/m | IP 67/68 | ETL Intertek

- KKDC 3 chip colour mixing RGB LED (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Single LED strip
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

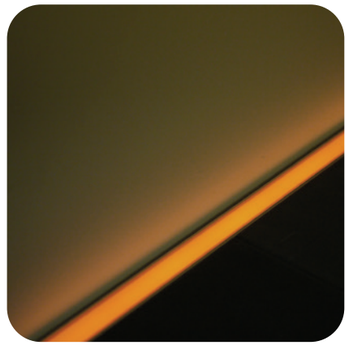
MoMo-F XEN

MoMo-F XEN is a unique and innovative new floor mounting LED product from KKDC, featuring the XEN linear light source ina compact, covered, anodised aluminium housing.

Variable from a bright warm white through to the subtle amber associated with a Xenon light strip, MoMo-F XEN creates a changeable mood increasing in warmth with dimming. Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-F Xen provides diffused linear illumination for discrete architectural details, accent lines and areas of low level ambient lighting.



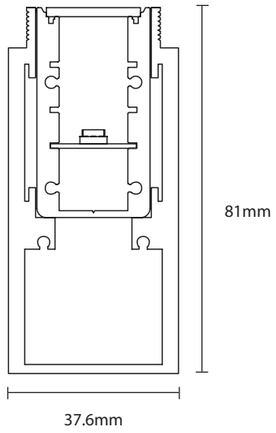
100% brightness (2800K)



Fully dimmed (Amber)

- KKDC **True Colour**
  Variable white, 2800K through to Amber when dimmed
- Single LED strip
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Variable dimming via 1-10V XEN dimmer (KKDM-02)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo-F 504 HCRI



Developed with KKDC specified phosphors and packaging, MoMo-F 504 HCRI provides a specialist solution where the requirement is for a floor mounted, balanced warm or neutral white source with high index colour rendering.

MoMo-F 504 HCRI is a CRI 90, three chip LED, linear light source in a compact, covered and recessed, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo-F 504 HCRI gives diffused linear illumination for discrete architectural details and accent lines.

diffused | 1kN | CRI 90 | 24V DC | 12.24 W/m | IP 67/68 | Intertek

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Single LED strip
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

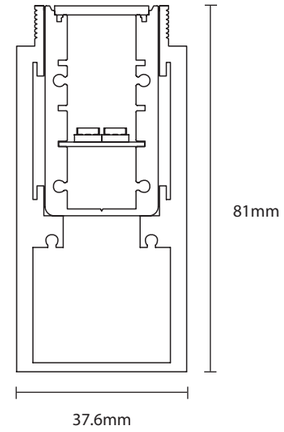
Tommy Hilfiger Store, Champs-Elysees, Paris

MoMo2-F 504 HCRI

Developed with KKDC specified phosphors and packaging, MoMo2-F 504 HCRI provides a specialist solution where the requirement is for a floor mounted, high power, balanced warm or neutral white source with high index colour rendering.

MoMo2-F 504 HCRI is an extra high output, three chip LED, linear light source in a compact, covered and recessed, anodised aluminium housing.

Available in lengths to suit your application and IP rated for interior and exterior use, MoMo2-F 504 HCRI gives diffused linear illumination for discrete architectural details and accent lines.



diffused | 1kN | CRI 90 | 24V DC | 24.48 W/m | IP 67/68 | Intertek

- High CRI of 90 for accurate colour rendering
- White: 2700K, 3200K, 3800K, 5000K
- Twin LED strips for increased lumen output
- Custom lengths available
- IP68 variant with additional integral vacuum plating, vacuum sealed housing and increased anodisation
- Silver or black anodised aluminium 'MoMo-F' heat sink housing with choice of linear ground boxes
- Opal or clear diffuser options
- 50,000hrs lifetime (T_a = -25°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

MoMo-F Accessories

KKFR-02

MoMo-F tile ground box
For use with MoMo-F series
Housing for tiled floor installations
Silver anodised aluminium
L* W31mm H77mm
**Specify length to match MoMo-F*

KKFR-03

MoMo-F concrete ground box
For use with MoMo-F series
Housing for concrete floor installations
Silver anodised aluminium
L* W37.5mm H80.5mm
**Specify length to match MoMo-F*

MoMo-F Order Code Table

			MoMo-F 351 EI	MoMo-F 503 EG	MoMo2-F 503 EH	MoMo-F 501-RGB EN	MoMo-F XEN EX	MoMo-F 504 HCRI* CK	MoMo2-F 504 HCRI* CL
LED Colour	2800K (2700K*)	A	•	•	•	n/a	n/a	•	•
	3200K	B	•	•	•	n/a	n/a	•	•
	3800K	C	•	•	•	n/a	n/a	•	•
	5000K	D	•	•	•	n/a	n/a	•	•
	6500K	E	•	•	•	n/a	n/a	n/a	n/a
	9300K	Z	n/a	•	•	n/a	n/a	n/a	n/a
	Red	F	•	•	•	n/a	n/a	n/a	n/a
	Green	G	•	•	•	n/a	n/a	n/a	n/a
	Blue	H	•	•	•	n/a	n/a	n/a	n/a
	Orange	I	•	•	•	n/a	n/a	n/a	n/a
	Amber	J	•	•	•	n/a	n/a	n/a	n/a
	RGB	L	n/a	n/a	n/a	•	n/a	n/a	n/a
	Variable	M	n/a	n/a	n/a	n/a	•	n/a	n/a
IP	IP67	7	•	•	•	•	•	•	•
	IP68	8	•	•	•	•	•	•	•
Cable	Single hardwire tail 1000mm	8	•	•	•	•	•	•	•
Volt	24V	W	•	•	•	•	•	•	•
Length Availability			93-2010mm 83.3mm increments	110-2010mm 100mm increments	110-2010mm 100mm increments	93-2010mm 83.3mm increments	110-2010mm 100mm increments	110-2010mm 100mm increments	110-2010mm 100mm increments
Finishes	Silver anodised opal diffuser	A	•	•	•	•	•	•	•
	Silver anodised clear diffuser	B	•	•	n/a	•	•	•	n/a
	Black anodised opal diffuser	E	•	•	•	•	•	•	•
	Black anodised clear diffuser	F	•	•	n/a	•	•	•	n/a

* 2700K applies to MoMo-F/MoMo2-F 504 HCRI only. Do not use MoMo-F/MoMo2-F 504 HCRI in combination with other LED strips as visual appearance of lighting effect will differ.

Example of code:

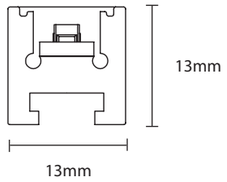
EG	A	7	8	W	1010	A
MoMo-F 503	2800K	IP67	Single hardwire tail 1000mm	24V	1010mm	Silver anodised opal diffuser

KKSL

KKSL is a silicone sealed, anodised aluminium profile providing a compact, interior/exterior housing for the full range of KKDC **True Colour** LED linear light sources.

KKSL for high performance, concealed and continuous illumination in lengths to suit your application.

KKSL 351



KKSL 351 is a single chip LED, linear light source in a compact, IP rated, silicone sealed anodised aluminium profile.

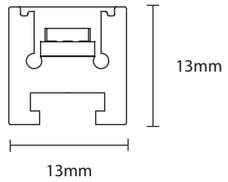
KKSL 351 provides a concealed, continuous, illumination for discrete architectural details, accent lines, coving and areas of low level ambient lighting.

120° | 24V DC | 5.52 W/m | IP67 | ETL Intertek

- KKDC **True Colour**
  White: 2900K, 3900K, 4100K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- Silicon filled housing for IP67 waterproof protection
- Anodised aluminium 'KKSL' heat sink housing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

Mountain Fountain by Terry Stringer, Lightworks Auckland

KKSL 503



120° | 24V DC | 14.4 W/m | IP67 | ETL c us Intertek

- KKDC **True Colour**
  White: 2900K, 3900K, 4100K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- Silicon filled housing for IP67 waterproof protection
- Anodised aluminium 'KKSL' heat sink housing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

KKSL 503 is a high output, three chip LED, linear light source in a compact, IP rated, silicone sealed aluminium profile.

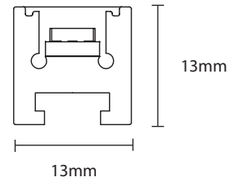
Available in lengths to suit your application, KKSL 503 provides a concealed, continuous, linear illumination for discrete architectural details, accent lines and coving.

KKSL 501-RGB

KKSL 501-RGB is a three chip LED, colour mixing linear light source in a compact, IP rated, silicone sealed aluminium profile.

Available in lengths to suit your application, KKSL 501-RGB provides a concealed, continuous linear illumination for discrete architectural details, accent lines and coving.

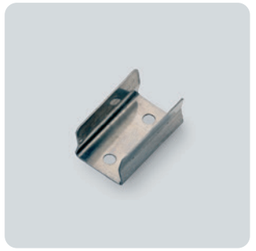
KKDC exhibition stand, ARC London 2011



120° | RGB | 24V DC | 15.55 W/m | IP67 | ETL Intertek

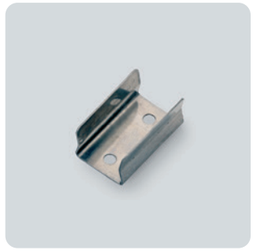
- KKDC 3 chip colour mixing RGB LED (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available
- Silicon filled housing for IP67 waterproof protection
- Anodised aluminium 'KKSL' heat sink housing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

KKSL Accessories



KKCP-02

KKSL clip
For use with KKSL series
Surface mounting clip
S/steel finish
L25mm W16mm H12mm



KKCP-52

Bag of KKSL clips (500pcs)
For use with KKSL series
Surface mounting clips
S/steel finish
L25mm W16mm H12mm

KKBK-05

KKSL adjustable angle bracket
For use with KKSL series
Surface mounting adjustable bracket
S/steel finish
L36mm W13mm H22mm

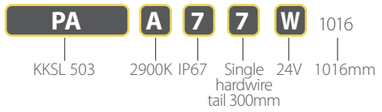
KKBK-06

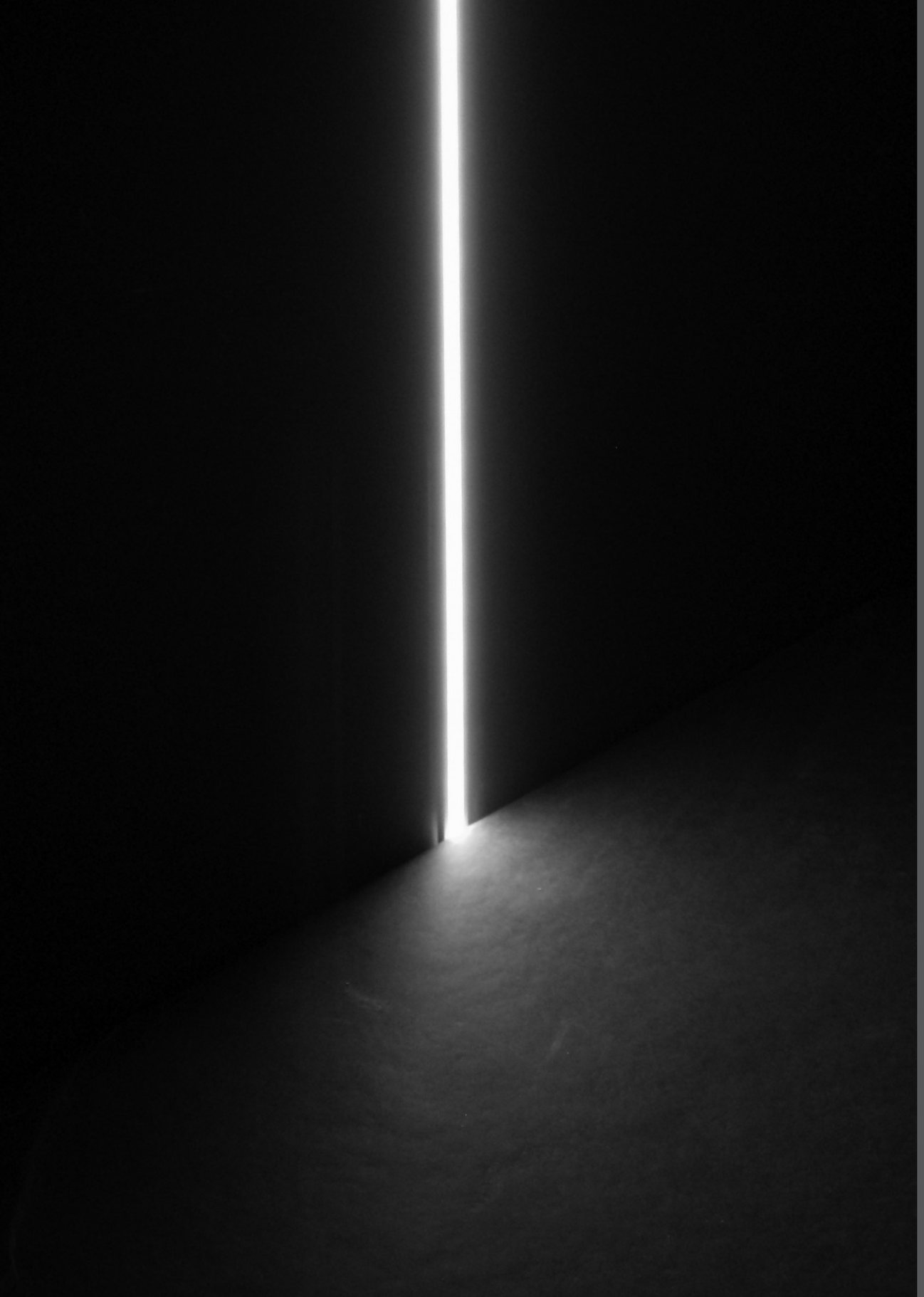
KKSL fixed bracket
For use with KKSL series
Surface mounting fixed bracket
S/steel finish
L20mm W30mm H15mm

KKSL Order Code Table

			KKSL 351 PB	KKSL 503 PA	KKSL 501-RGB PD
LED Colour	2900K	A	•	•	n/a
	3900K	B	•	•	n/a
	4100K	C	•	•	n/a
	6500K	D	•	•	n/a
	Red	F	•	•	n/a
	Green	G	•	•	n/a
	Blue	H	•	•	n/a
	Orange	I	•	•	n/a
	Amber	J	•	•	n/a
	RGB	L	n/a	n/a	•
IP	IP67	7	•	•	•
Cable	Single hardwire tail 300mm	7	•	•	•
	Double hardwire tail 300mm	9	•	•	•
Volt	24V	W	•	•	•
Length Availability			99-2016mm 83.3mm increments	116-2016mm 100mm increments	99-2016mm 83.3mm increments

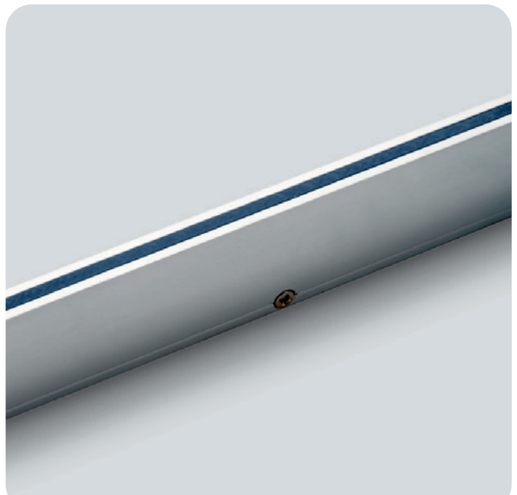
Example of code:

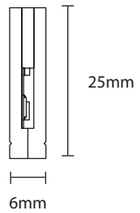




Groove Light

Groove Light





diffused | 24V DC | 7.68 W/m | IP 20/67

- KKDC **True Colour** White: 2800K, 3800K, 6500K
- Custom lengths available
- Silver or Black anodised aluminium housing with opal diffuser
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

Groovelight is a unique and innovative, recessed **True Colour** linear LED source producing a completely diffused continuous accent line from an aluminium housing only 6mm wide.

Designed for inset into shopfittings, shelves, joinery and architectural features, Groovelight is available in a range of lengths and colour temperatures to suit your application.

Groove Light Order Code Table

			Groove Light GA
LED Colour	2800K	A	•
	3800K	C	•
	6500K	E	•
IP	IP20	0	•
	IP67	7	•
Cable	Single end tail 300mm	3	•
	Double end tail 300mm	4	•
Volt	24V	W	•
Length Availability			100-1000mm 100mm increments
Finishes	Silver anodised opal diffuse	A	•
	Black anodised opal diffuser	E	•

Example of code:

GA A 0 3 W 1000 A

Groove Light | 2800K | IP20 | Single end tail 300mm | 24V | 1000mm | Silver anodised opal diffuser

Linear Accessories

KKCN-01

M/F 50*

For use with TiMi 351/503/504 HCRI

50mm male/female connector set

White with red & black wires

L50mm each

**supplied pre-soldered as standard*

KKCN-03

M/F 300*

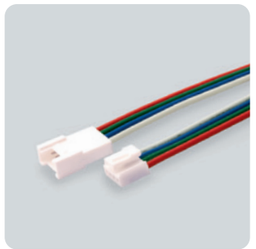
For use with TiMi/MiMi-B/ MoMo/MoMo2/MoMo-B/ MoMo2-B 351/503/504 HCRI

300mm male/female connector set

White with red & black wires

L300mm each

**supplied pre-soldered as standard*



KKCN-07

RGB M/F 50*

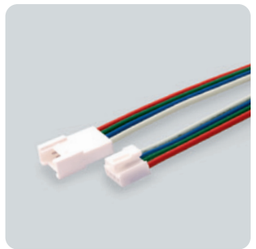
For use with TiMi 501-RGB

50mm male/female connector set

White with R/G/B/W wires

L50mm each

**supplied pre-soldered as standard*



KKCN-09

RGB M/F 300*

For use with TiMi/MiMi-B/ MoMo/MoMo2/MoMo-B/ MoMo2-B 501-RGB

300mm male/female connector set

White with R/G/B/W wires

L300mm each

**supplied pre-soldered as standard*

KKCN-08

IP67 M/F 300*

For use with MiMi-B/MoMo/ MoMo2/MoMo-B/MoMo2-B 351/503/504 HCRI

300mm male/female IP67 connector set

Black 2-core cable

L300mm each

**supplied pre-soldered as standard*

KKCN-12

IP67 RGB M/F 300*

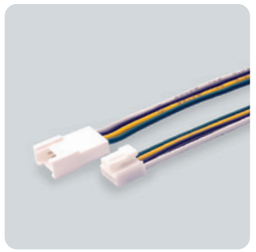
For use with MiMi-B/MoMo/ MoMo2/MoMo-B/MoMo2-B 501-RGB

300mm male/female IP67 connector set

Black 4-core cable

L300mm each

**supplied pre-soldered as standard*



KKCN-18

XEN M/F 50*

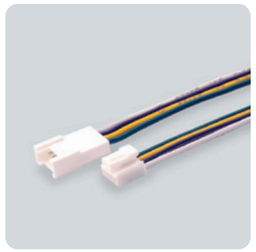
For use with TiMi XEN

50mm male/female connector set

White with G/Y/Black/W wires

L50mm each

**supplied pre-soldered as standard*



KKCN-19

XEN M/F 300*

For use with TiMi/MiMi-B/ MoMo/MoMo-B XEN

300mm male/female connector set

White with G/Y/Black/W wires

L300mm each

**supplied pre-soldered as standard*

KKCN-06

Starter lead

For use with KKCN-01/KKCN-03

300mm extension lead

White with red & black wires

L300mm

KKCN-11

RGB Starter lead

For use with KKCN-07/KKCN-09

300mm extension lead

White with red & black wires

L300mm

Flexible

KKFX

KKFX is a versatile, continuous and slim, flexible strip to carry a full range of KKDC **True Colour** LED light sources.

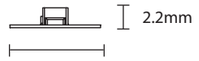
With interior or exterior options and requiring no additional heatsink, the KKFX range provides very discrete concealed and continuous illumination on or within flat or curved linear surfaces and can be cut to length to suit your application.

KKFX

KKFX is a single chip LED, linear light source as a slim, flexible circuit strip.

KKFX provides concealed, continuous, illumination for flat and curved linear mounting and can be cut to length as needed. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.

Gold Class Event Cinemas, Point of View



120° | 24V DC | 56.61 lm/W | 6.96 W/m | IP20 | Intertek

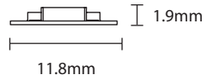
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available and easily cut to fit on site
- Integral heat sink, no additional thermal managment required
- Flexible LED strip
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 75°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

KKFX-RGB

Style Craft, Point of View

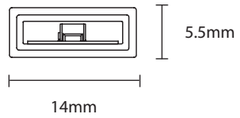
KKFX-RGB is a three chip LED, colour mixing linear light source as a slim, flexible circuit strip.

KKFX-RGB provides concealed, continuous, illumination for flat and curved linear mounting and can be cut to lengths as needed. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.



- KKDC 3 chip colour mixing RGB LED
  (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available and easily cut to fit on site
- Integral heat sink, no additional thermal managment required
- Flexible LED strip
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 75°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

KKFX 65



120° | 24V DC | 56.61 lm/W | 6.96 W/m | IP65

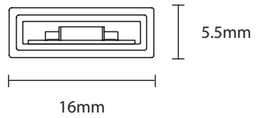
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available
- Integral heat sink, no additional thermal managment required
- Flexible LED strip encapsulated within Silicon sleeve
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

KKFX 65 is a single chip LED, linear light source as a slim, flexible circuit strip within a silicone rubber sleeve.

Available in lengths to suit your application and IP rated for interior or exterior use, KKFX 65 provides concealed, continuous, illumination for flat and curved linear mounting. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.

Bluebottle Restaurant

KKFX 65-RGB



- KKDC 3 chip colour mixing RGB LED
  (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available
- Integral heat sink, no additional thermal managment required
- Flexible LED strip encapsulated within Silicon sleeve
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

KKFX 65-RGB is a three chip LED, colour mixing linear light source as a slim, flexible circuit strip within a silicone rubber sleeve.

Available in lengths to suit your application and IP rated for interior or exterior use, KKFX 65-RGB provides concealed, continuous, illumination for flat and curved linear mounting and can be cut to length to suit your application. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.

City of Dreams Spa & Beauty Macau, Point of View

KKFX Accessories

KKCP-07

KKFX side clip
For use with KKFX
Surface fixing for side mounting
White semi-rigid plastic
L25mm W10mm H12mm

KKCP-08

KKFX 65 side clip
For use with KKFX 65/KKFX 65-RGB
Surface fixing for side mounting
Transparent rigid plastic
L20mm W15mm H14mm

KKBK-14

KKFX 65 Silicon bracket
For use with KKFX 65
Soft silicon surface fixing
Translucent silicon
L32mm W6mm H6mm

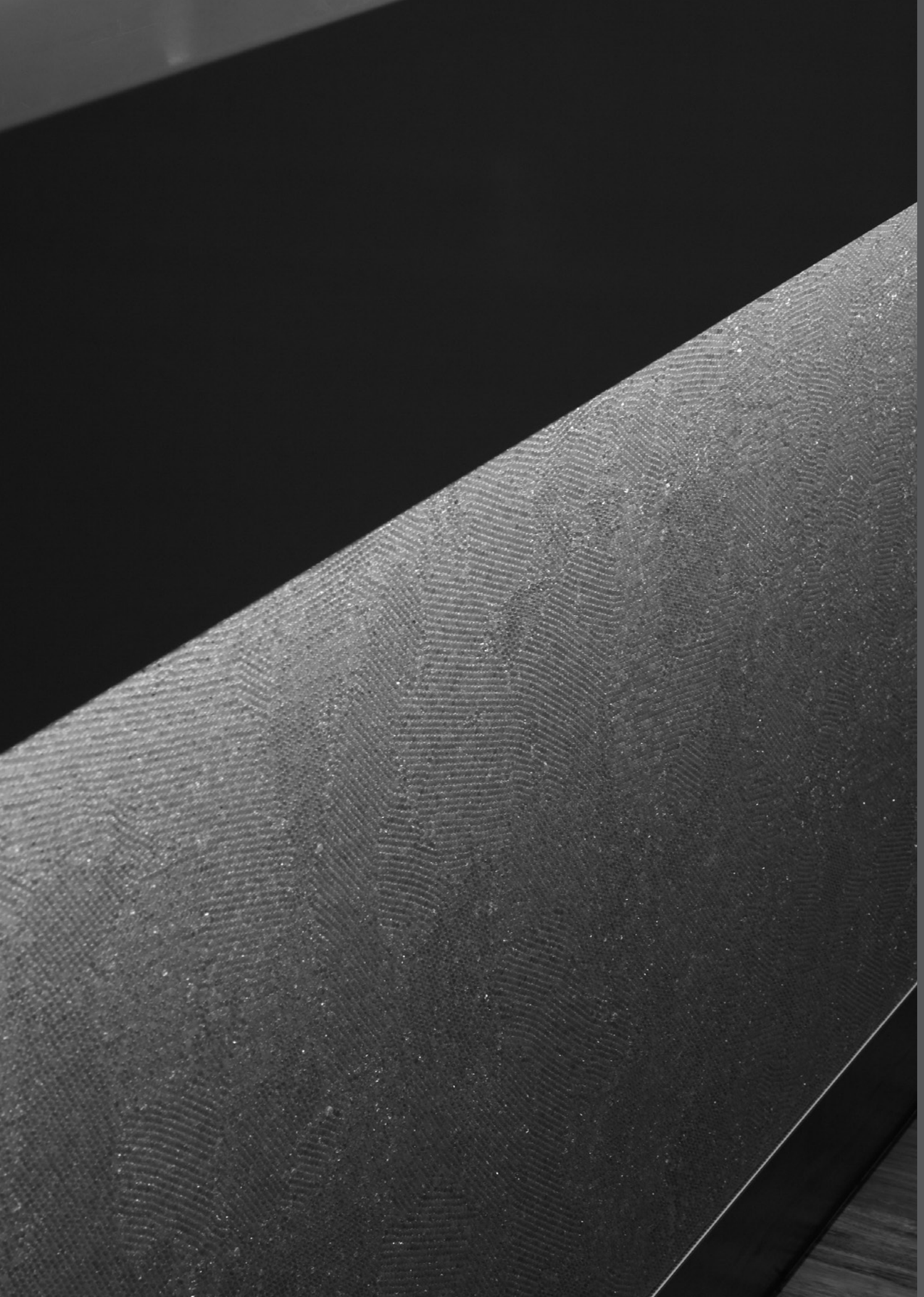
KKBK-18

KKFX 65-RGB Silicon bracket
For use with KKFX 65-RGB
Soft silicon surface fixing
Translucent silicon
L36mm W6mm H6mm

KKFX Order Code Table

			KKFX BD	KKFX-RGB BE	KKFX 65 BG	KKFX 65-RGB BR
LED Colour	2800K	A	•	n/a	•	n/a
	3200K	B	•	n/a	•	n/a
	3800K	C	•	n/a	•	n/a
	5000K	D	•	n/a	•	n/a
	6500K	E	•	n/a	•	n/a
	Red	F	•	n/a	•	n/a
	Green	G	•	n/a	•	n/a
	Blue	H	•	n/a	•	n/a
	Orange	I	•	n/a	•	n/a
	Amber	J	•	n/a	•	n/a
	RGB	L	n/a	•	n/a	•
IP	IP20	0	•	•	n/a	n/a
	IP65	5	n/a	n/a	•	•
Cable	Male/Female 50mm	1	•	•	n/a	n/a
	Male/Female 300mm	2	•	•	n/a	n/a
	Single end tail 300mm	3	•	•	•	•
	Double end tail 300mm	4	•	•	•	•
Volt	24V	W	•	•	•	•
Length Availability			125-7000mm 125mm increments	125-7000mm 125mm increments	127-7002mm 125mm increments	127-7002mm 125mm increments

Example of code:

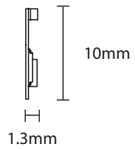


KKFS

KKFS is a versatile, side emitting, continuous and slim, flexible strip carrying white KKDC **True Colour** LED sources.

With interior or exterior options and requiring no additional heatsink, KKFS provides discrete concealed and continuous illumination on or within flat or curved linear surfaces in lengths to suit your application.

KKFS



120° | 24V DC | 68.11 lm/W | 6.15 W/m | IP20 | Intertek

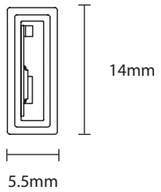
- KKDC **True Colour** White: 2800K, 3800K, 6500K
- Side emitting light distribution
- Custom lengths available and easily cut to fit on site
- Integral heat sink, no additional thermal management required
- Flexible LED strip
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

KKFS is a side emitting, single chip LED, linear light source as a flexible circuit strip.

KKFS provides concealed, continuous, illumination for flat and curved linear mounting and can be cut to length as needed. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.

Qantas Lounge, Point of View

KKFS 65



KKFS 65 is a side emitting, single chip LED, linear light source as a flexible circuit strip within a silicone rubber sleeve.

Available in lengths to suit your application and IP rated for interior or exterior use, KKFS 65 provides concealed, continuous, illumination for flat and curved, linear mounting. Accent lines for coves, cabinets, shelves and joinery are some of the many possible applications.

120° | 24V DC | 46.83 lm/W | 6.15 W/m | IP65

- KKDC **True Colour** White 2800K, 3800K, 6500K
- Side emitting light distribution
- Custom lengths available
- Integral heat sink, no additional thermal management required
- Flexible LED strip
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

1885 Bar, KKDC New Zealand

KKFS Accessories

KKCP-07

KKFS clip
For use with KKFS
Surface mounted fixing clip
White semi-rigid plastic
L25mm W10mm H12mm

KKCP-08

KKFS 65 clip
For use with KKFS 65
Surface mounted fixing clip
Transparent rigid plastic
L20mm W15mm H14mm

KKBK-14

KKFS 65 Silicon bracket
For use with KKFS 65
Soft silicon surface fixing
Translucent silicon
L32mm W6mm H6mm

KKFS Order Code Table

			KKFS **BF**	KKFS 65 **BH**
LED Colour	2800K	A	•	•
	3800K	C	•	•
	6500K	E	•	•
IP	IP20	0	•	n/a
	IP65	5	n/a	•
Cable	Male/Female 50mm	1	•	n/a
	Male/Female 300mm	2	•	n/a
	Single end tail 300mm	3	•	•
	Double end tail 300mm	4	•	•
Volt	24V	W	•	•
Length Availability			125-7000mm 125mm increments	127-7002mm 125mm increments

Example of code:

Luna

A range of adhesive bonded and ultrasonically welded resin encapsulated modules for Superior IP68 protection. Housing KKDC **True Colour** and RGB colour mixing LED sources.

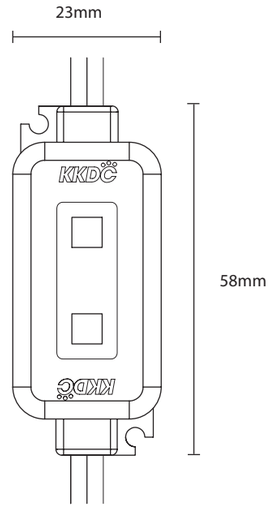
The Luna IP65 and Aqua Luna IP68 range provides flexible, concealed illumination for interior and exterior applications.

For use within concealed architectural details and backlighting situations, Luna provides a cost effective LED lighting solution and can be easily cut to length on site.

Duo Luna

Duo Luna is an IP65 rated 3 chip LED, flexible light source produced as linked, hardwired modules.

Duo Luna provides easily mounted, concealed illumination for uses including coves, backlighting or signage. Lengths can be cut to suit the application



Lighting Design: Light Cibles, Artist: Gerard Garouste, Designer: Elizabeth Garouste, Architect: DTACC

120° | 12V DC | 50 lm/W | 4.86 W/m | IP65

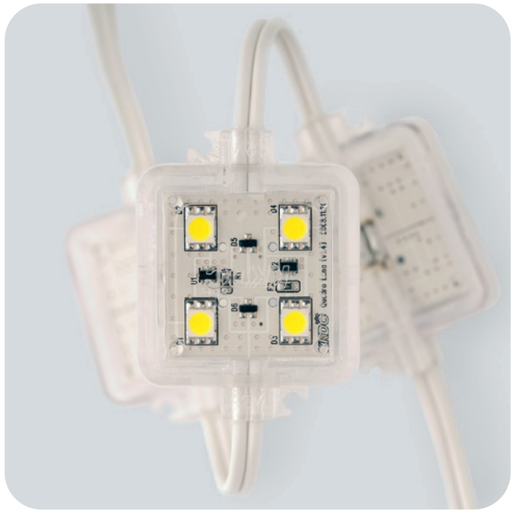
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colour: Red, Blue, Green, Orange, Amber
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- Transparent housing with self-adhesive backing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

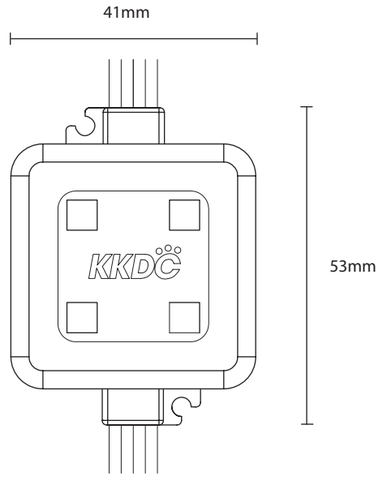
Quadro Luna

Telstra HQ, Point of View

Quadro Luna is an IP65 rated 3 chip LED, flexible light source produced as linked, hardwired modules.

Quadro Luna provides easily mounted, concealed illumination for uses including coves, backlighting or signage. Lengths can be cut to suit the application.

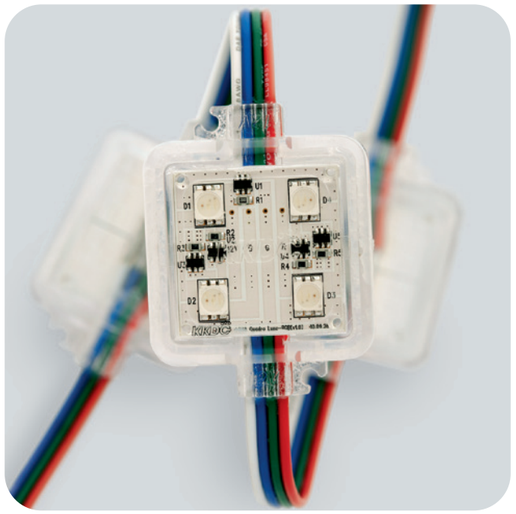


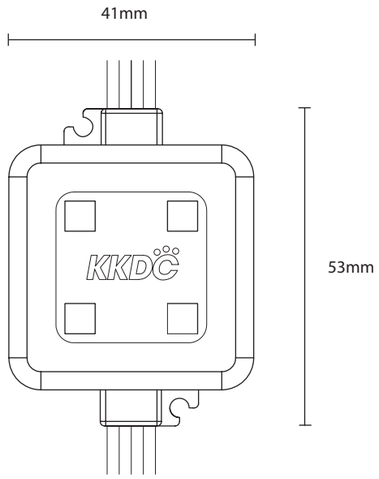


120° | 12V DC | 50 lm/W | 9.72 W/m | IP65

- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colour: Red, Blue, Green, Orange, Amber
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- Transparent housing with self-adhesive backing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

Quadro Luna-RGB





120° | RGB | 12V DC | 8.64 W/m | IP65

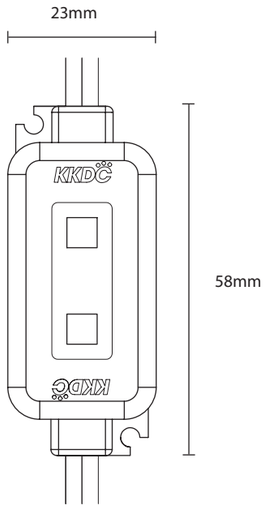
- KKDC 3 chip colour mixing RGB LED
  (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- Transparent housing with self-adhesive backing
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

Style Craft, Point of View

Quadro Luna-RGB is an IP65 rated 3 chip LED, colour mixing, flexible light source produced as linked, hardwired modules.

Quadro Luna-RGB provides easily mounted, concealed illumination for uses including coves, backlighting or signage. Lengths can be cut to suit the application.

Aqua Duo Luna



120° | 12V DC | 50 lm/W | 4.86 W/m | IP68

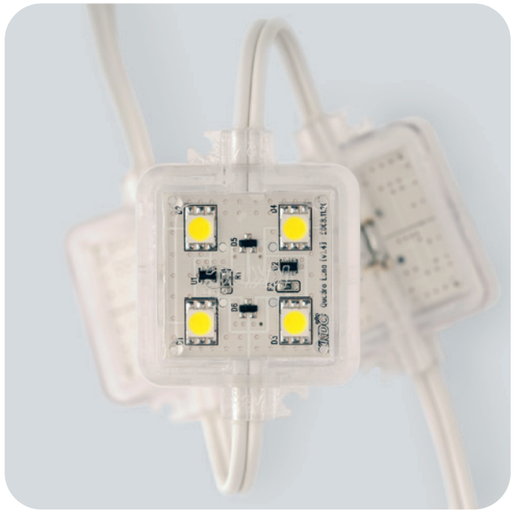
- Bonded and ultrasonically welded transparent housing for IP68 waterproof protection
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

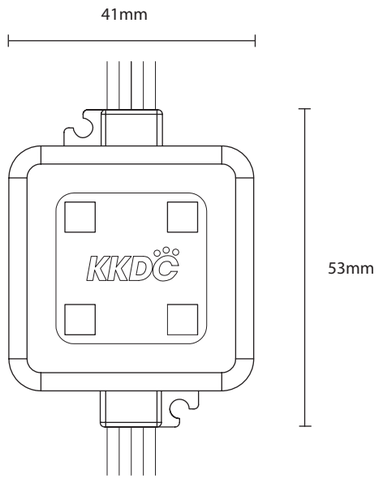
Aqua Duo Luna is an IP68 rated 3 chip LED, flexible light source produced as linked, hardwired modules.

Aqua Duo Luna provides easily mounted, concealed illumination for uses in water features, swimming pools and underwater locations. Lengths can be cut to suit the application

City of Dreams Spa & Beauty Macau, Point of View

Aqua Quadro Luna





120° | 12V DC | 50 lm/W | 9.72 W/m | IP68

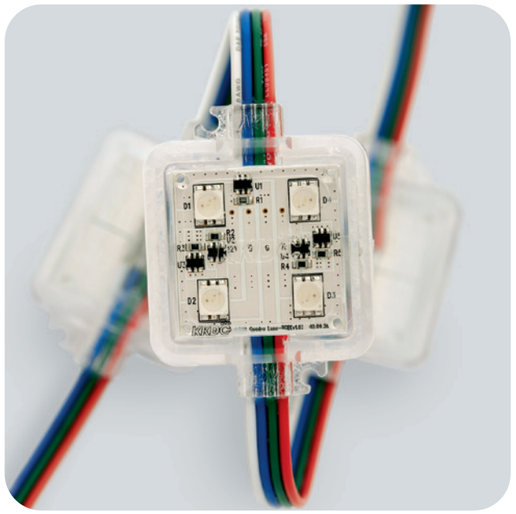
- Bonded and ultrasonically welded transparent housing for IP68 waterproof protection
- KKDC **True Colour**
  White: 2800K, 3200K, 3800K, 5000K, 6500K, 9300K
- Single colours: Red, Blue, Green, Orange, Amber
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

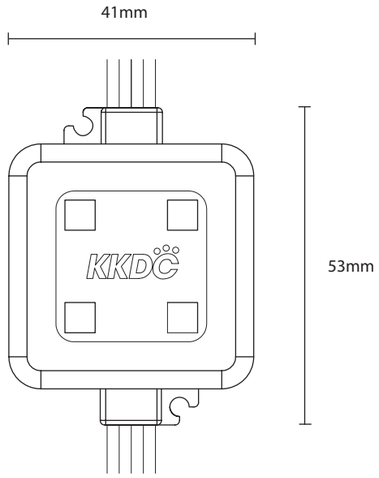
Aqua Quadro Luna is an IP68 rated 3 chip LED, flexible light source produced as linked, hardwired modules.

Aqua Quadro Luna provides easily mounted, concealed illumination for uses in water features, swimming pools and underwater locations. Lengths can be cut to suit the application

City of Dreams Spa & Beauty Macau, Point of View

Aqua Quadro Luna-RGB



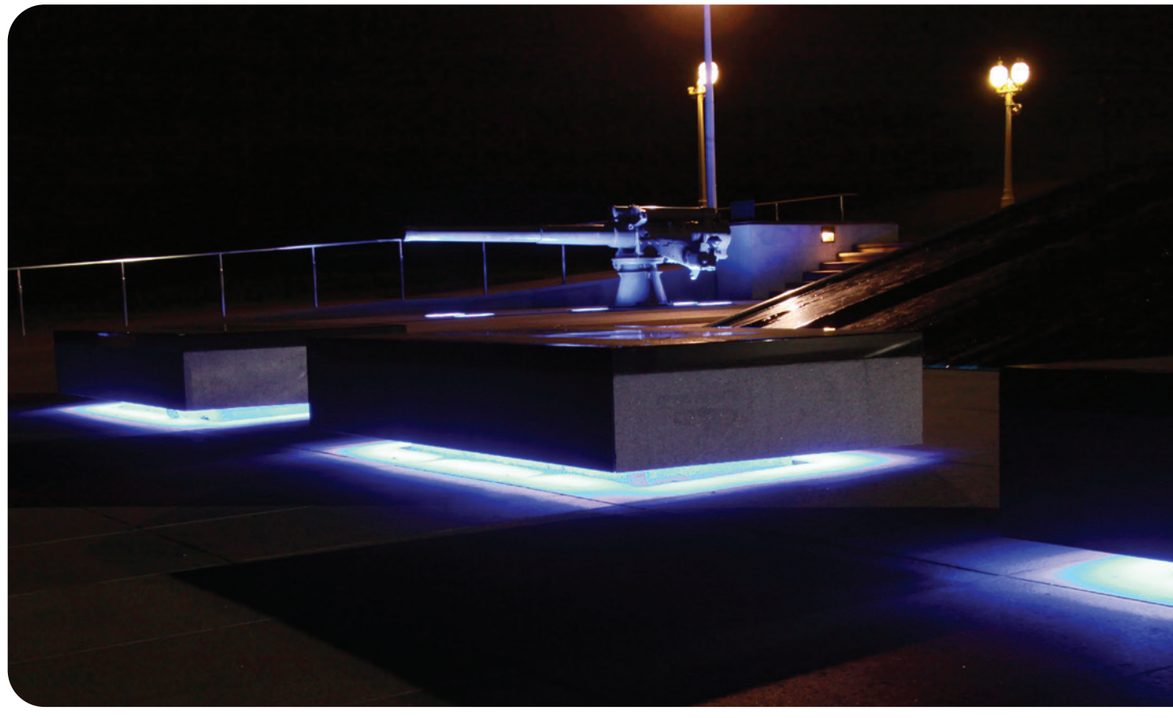


Aqua Quadro Luna-RGB is an IP68 rated 3 chip LED, colour mixing, flexible light source produced as linked, hardwired modules.

Aqua Quadro Luna-RGB provides easily mounted, concealed, colour changing illumination for uses in water features, swimming pools and underwater locations. Lengths can be cut to suit the application.

120° | RGB | 12V DC | 8.64 W/m | IP68

- Bonded and ultrasonically welded transparent housing for IP68 waterproof protection
- KKDC 3 chip colour mixing RGB LED (Red 620-628nm, Green 521-527nm, Blue 459-464nm)
- Custom lengths available and easily cut to fit on site
- Flexible LED modules
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 60°C)
- Control via DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request



Auckland War Memorial Museum, Vincent Associates

Luna Order Code Table

			Duo Luna BB	Quadro Luna BC	Quadro Luna-RGB BA	Aqua Duo Luna BM	Aqua Quadro Luna BN	Aqua Quadro Luna-RGB BL
LED Colour	2800K	A	•	•	n/a	•	•	n/a
	3200K	B	•	•	n/a	•	•	n/a
	3800K	C	•	•	n/a	•	•	n/a
	5000K	D	•	•	n/a	•	•	n/a
	6500K	E	•	•	n/a	•	•	n/a
	9300K	Z	•	•	n/a	•	•	n/a
	Red	F	•	•	n/a	•	•	n/a
	Green	G	•	•	n/a	•	•	n/a
	Blue	H	•	•	n/a	•	•	n/a
	Orange	I	•	•	n/a	•	•	n/a
	Amber	J	•	•	n/a	•	•	n/a
	RGB	L	n/a	n/a	•	n/a	n/a	•
IP	IP65	5	•	•	•	n/a	n/a	n/a
	IP68	8	n/a	n/a	n/a	•	•	•
Cable	Hardwire tail 100mm	6	•	•	•	•	•	•
Volt	12V	Y	•	•	•	•	•	•
Length Availability			1000-15000mm Supplied to nearest metre, easily cut to fit on site	1000-8000mm Supplied to nearest metre, easily cut to fit on site	1000-10000mm Supplied to nearest metre, easily cut to fit on site	1000-15000mm Supplied to nearest metre, easily cut to fit on site	1000-8000mm Supplied to nearest metre, easily cut to fit on site	1000-10000mm Supplied to nearest metre, easily cut to fit on site

Example of code:

BC A 5 6 Y 1000

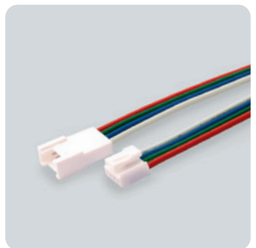
Quadro Luna | 2800K | IP65 | Hardwire tail 100mm | 12V | 1000mm

Flexible Accessories

KKCN-01

M/F 50*
For use with KKFX/KKFS
50mm male/female connector set
White with red & black wires
L50mm each

**supplied pre-soldered as standard*



KKCN-07

RGB M/F 50*
For use with KKFX-RGB
50mm male/female connector set
White with R/G/B/W wires
L50mm each

**supplied pre-soldered as standard*

KKCN-06

Starter lead
For use with with KKCN-01
300mm extension lead
White with red & black wires
L300mm

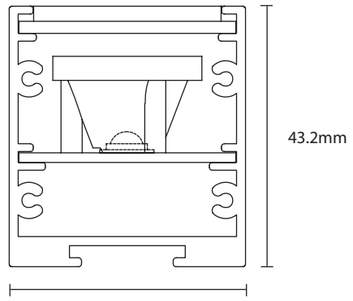
KKCN-11

RGB Starter lead
For use with with KKCN-07
300mm extension lead
White with red & black wires
L300mm

High Power

SEN

SEN



24V DC

IP 54/67

Intertek

SEN 032

LED's spaced at 32mm centres

35.4W/m - 2368lm/m (66.9lm/W)

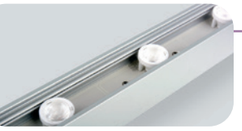
DMX/1-10V control

SEN 052

LED's spaced at 52mm centres

25.3W/m - 1421lm/m (56.2lm/W)

DMX/1-10V control



SEN 094

LED's spaced at 94mm centres

11.9W/m - 790lm/m (66.4lm/W)

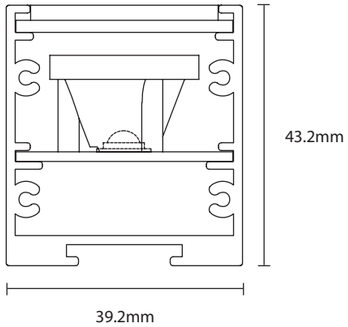
Switched only

- High Power Cree LED with a choice of spacing depending on output requirement, SEN 032, SEN 052 or SEN 094
- White: 2800K, 3200K, 3800K, 6500K
- Single colour: Red, Blue, Green
- Range of lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'SEN' housing
- Opal or clear diffuser with choice of lenses
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c max = 60°C)
- Dimming control via integral 1-10V or DMX receiver
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

A range of high output linear products with Cree LED sources in anodised aluminium profiles with in-built DMX or 1-10V control receiver, IP rated for interior and exterior use with options for output power, optics, lengths, housings and mounting, SEN provides continuous, linear illumination for wall washing/grazing and other architectural applications.

Paddington Reserve, Haron Robson/Light Matters

SEN RGB



A range of high output linear products with single package, 3 chip RGB sources for superior colour mixing. A compact, covered aluminium housing also contains an in-built DMX control receiver. IP rated for interior and exterior use with options for output power, optics, lengths, housings and mounting, SEN-RGB provides continuous, linear illumination for wall washing/grazing and other architectural applications.

RGB | 24V DC | IP 54/67

SEN 047-RGB

LED's spaced at 47mm centres

32.34W/m

Red: 500lm/m, Green: 956lm/m, Blue: 74lm/m, White: 1530lm/m

SEN 094-RGB

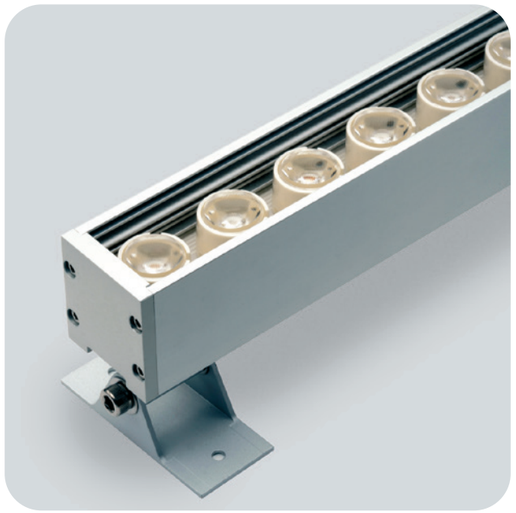
LED's spaced at 94mm centres

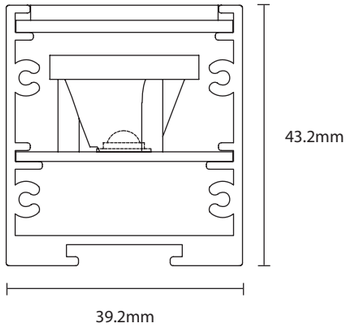
16.2W/m

Red: 250lm/m, Green: 478lm/m, Blue: 351lm/m, White: 765lm/m

- High Power 3chip colour mixing RGB LED with a choice of spacing depending on output requirement, SEN047 RGB or SEN 094-RGB
- RGB colours: Red 618-630nm, Green 520-535nm, Blue 455-465nm
- Range of lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'SEN' housing
- Opal or clear diffuser with choice of 35degree or linear spread lens options
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c max = 60°C)
- Control via integral DMX receiver
- Specification sheet & installation guide available on request

SEN 032-RGB





RGB | 24V DC | 38.3 W/m | IP 54/67

- High Power colour changing RGB array with LED's spaced at 32mm centres
- RGB colours: Red 620-635nm, Green 520-535nm, Blue 465-475nm
- Red: 352lm/m, Green: 850lm/m, Blue: 114.2lm/m, White: 1316.2lm/m
- Range of lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'SEN' housing
- Opal or clear diffuser with choice of 10, 20, 30, 90degree or linear spread lens options
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c max = 55°C)
- Control via integral DMX receiver
- Specification sheet & installation guide available on request

A high output linear product with colour changing RGB array. A compact, covered aluminium housing also contains an in-built DMX control receiver. IP rated for interior and exterior use with options for output power, optics, lengths, housings and mounting, SEN 032-RGB provides continuous, linear illumination for wall washing/grazing and other architectural applications.

SEN Accessories

KKBK-16 (Silver anodised)
KKBK-19 (Black anodised)

SEN adjustable angle bracket (small)

For use with SEN

Surface mounting adjustable bracket

Anodised aluminium

L70mm W46mm H38.5mm

KKBK-17 (Silver anodised)
KKBK-20 (Black anodised)

SEN adjustable angle bracket (large)

For use with SEN

Wall mounting adjustable bracket

Anodised aluminium

L70mm W46mm H89mm

KKBK-09 (Silver anodised)
KKBK-10 (Black anodised)

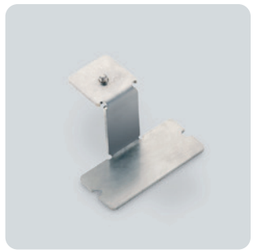
SEN fixing plate

For use with SEN

Surface mounting plate

Anodised aluminium

L50mm W39mm H8mm



KKBK-02

SEN fixed bracket

For use with SEN

Surface mounting fixed bracket

S/steel

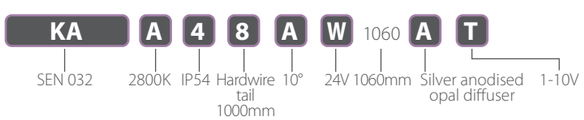
L41mm W45mm H30mm

SEN Order Code Table

			SEN 032 KA	SEN 052 XA	SEN 094 ZA	SEN 032-RGB RA	SEN 047-RGB XR	SEN 094-RGB ZR
LED Colour	2800K	A	•	•	•	n/a	n/a	n/a
	3200K	B	•	•	•	n/a	n/a	n/a
	3800K	C	•	•	•	n/a	n/a	n/a
	6500K	E	•	•	•	n/a	n/a	n/a
	Red	F	•	•	•	n/a	n/a	n/a
	Green	G	•	•	•	n/a	n/a	n/a
	Blue	H	•	•	•	n/a	n/a	n/a
	RGB	L	n/a	n/a	n/a	•	•	•
IP	IP54	4	•	•	•	•	•	•
	IP67	7	•	•	•	•	•	•
Cable	Hardwire tail 1000mm	8	•	•	•	•	•	•
Lens Type	10degree	A	•	n/a	n/a	•	n/a	n/a
	20degree	B	•	n/a	n/a	•	n/a	n/a
	30degree	F	•	•	•	•	n/a	n/a
	35degree	G	n/a	n/a	n/a	n/a	•	•
	90degree (No lens)	Y	•	•	•	•	n/a	n/a
	Linear Spread Lens	H	•	•	•	•	•	•
Volt	24V	W	•	•	•	•	•	•
Length Availability			185, 360, 480, 535, 710, 885, 950, 1060, 1420 & 1890mm	245, 480, 715, 950, 1185, 1420, 1655 & 1890mm	480, 950, 1420 & 1890mm	480, 950, 1420 & 1890mm	480, 715, 950, 1185, 1420, 1655 & 1890mm	480, 950, 1420 & 1890mm
Finishes	Silver anodised opal diffuser*	A	•	•	•	•	•	•
	Silver anodised clear diffuser	B	•	•	•	•	•	•
	Black anodised opal diffuser*	E	•	•	•	•	•	•
	Black anodised clear diffuser	F	•	•	•	•	•	•
Dimming	DMX	Z	•	•	n/a	•	•	•
	1-10V	T	•	•	n/a	n/a	n/a	n/a
	Switched	N	n/a	n/a	•	n/a	n/a	n/a

* Only lighting effect is diffused, spotting on the diffuser remains visible

Example of code:

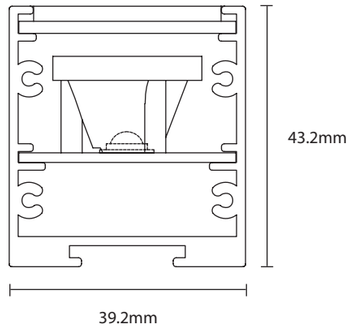


eSEN

eSEN

Castle Hill RSL, Haron Robson/Light Matters

A range of high output linear products with Cree LED sources in anodised aluminium profiles. IP rated for interior and exterior use with options for output power, optics, lengths, housings and mounting, eSEN provides continuous, linear illumination for wall washing/grazing and other architectural applications.



Constant Current

IP 54/67

Intertek

- High Power LED with choice of internal LED spacing depending on lumen output requirements eSEN 052 or eSEN 094
- White: 2800K, 3200K, 3800K, 6500K
- Single colour: Red, Blue, Green
- 350mA or 700mA Constant Current power supply options available depending on application and lumen output requirement. Under running the LED with 350mA is recommended for hot climates where luminaire is exposed to prolonged extreme heat
- Range of lengths available
- IP67 variant with integral vacuum plating
- Silver or black anodised aluminium 'SEN' housing
- Opal or clear diffuser with choice of 30, 90 degree or linear spread lens options
- 50,000hrs lifetime
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

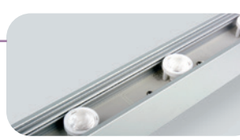
eSEN 052

LED spacing at 52mm centres

350mA 21.6W/m
1400 lumens per metre (64.8lm/W)

700mA 45.9W/m
2385 lumens per metre (51.9lm/W)

eSEN 094



LED spacing at 94mm centres

350mA 12W/m
778 lumens per metre (64.8lm/W)

700mA 25.5W/m
1323 lumens per metre (51.9lm/W)

eSEN Accessories

KKBK-16 (Silver anodised)
KKBK-19 (Black anodised)

eSEN adjustable angle bracket (small)

For use with eSEN

Surface mounting adjustable bracket

Anodised aluminium

L70mm W46mm H38.5mm

KKBK-17 (Silver anodised)
KKBK-20 (Black anodised)

eSEN adjustable angle bracket (large)

For use with eSEN

Wall mounting adjustable bracket

Anodised aluminium

L70mm W46mm H89mm

KKBK-09 (Silver anodised)
KKBK-10 (Black anodised)

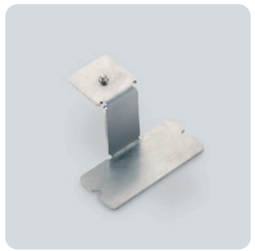
eSEN fixing plate

For use with eSEN

Surface mounting plate

Anodised aluminium

L50mm W39mm H8mm



KKBK-02

eSEN fixed bracket

For use with eSEN

Surface mounting fixed bracket

S/steel

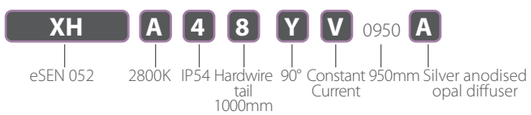
L41mm W45mm H30mm

eSEN Order Code Table

			eSEN 052 XH	eSEN 094 ZH
LED Colour	2800K	A	•	•
	3200K	B	•	•
	3800K	C	•	•
	6500K	E	•	•
	Red	F	•	•
	Green	G	•	•
	Blue	H	•	•
IP	IP54	4	•	•
	IP67	7	•	•
Cable	Hardwire tail 1000mm	8	•	•
Lens Type	30degree	F	•	•
	90degree (No lens)	Y	•	•
	Linear Spread Lens	H	•	•
Volt	Constant Current	V	•	•
Length Availability			480 & 950mm	480, 950, 1420 & 1890mm
Finishes	Silver anodised opal diffuser*	A	•	•
	Silver anodised clear diffuser	B	•	•
	Black anodised opal diffuser*	E	•	•
	Black anodised clear diffuser	F	•	•

* Only lighting effect is diffused, spotting on the diffuser remains visible

Example of code:

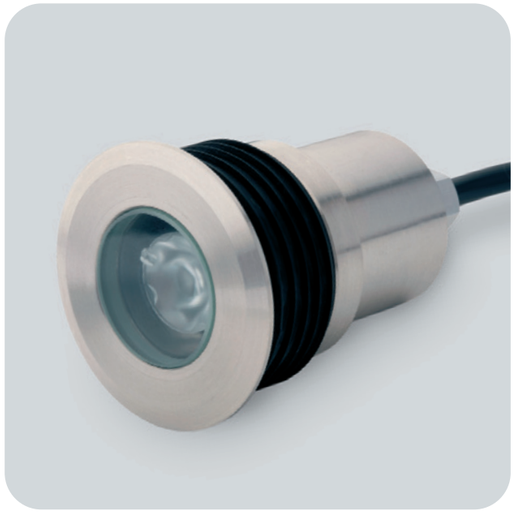


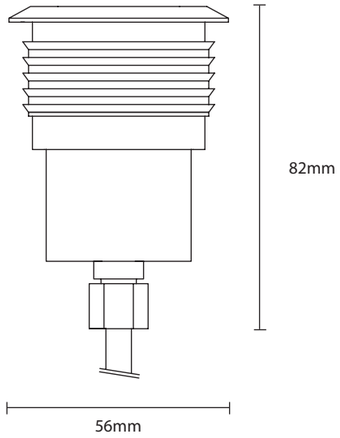
Spotlights

TAYO

A range of high performance recessed spotlights designed primarily for in-ground use in uplighting and marker/orientation.

TAYO Spot





8kN | 12V DC | 36 lm/W | 2.4W | IP67

- White: 2800K, 3800K, 6500K
- Single colours: Red, Blue, Green
- Stainless steel body with safety glass
- Frosted or clear glass diffuser with choice of 15, 25 or 60degree lens options
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

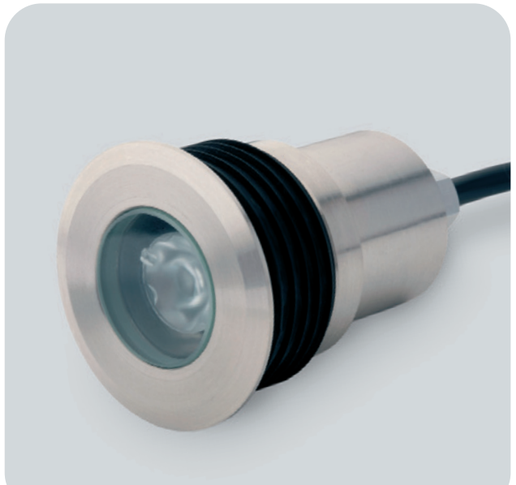
A recessed spot with single Cree LED source within a robust stainless steel housing.

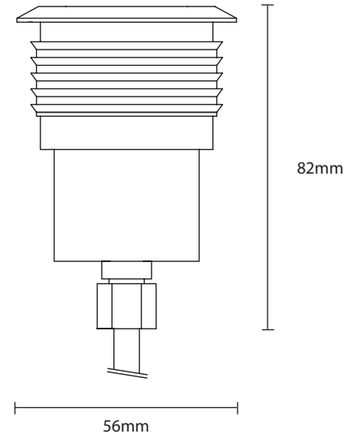
Tayo Spot is IP rated for interior or exterior in-ground installation and is supplied in colours and beam angles to suit many applications.

TAYO Spreader

A recessed spot with single Cree LED source within a very robust stainless steel housing.

IP rated for interior or exterior in-ground installation the TAYO Spreader provides a spread linear beam pattern for linear uplighting.

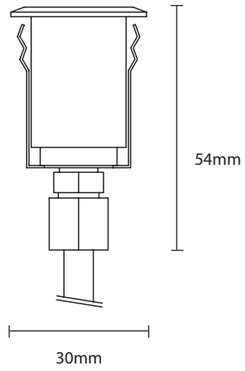




linear | 8kN | 12V DC | 36 lm/W | 2.4W | IP67

- White: 2800K, 3800K, 6500K
- Single colours: Red, Blue, Green
- Linear spread lens for wide, narrow beam distribution
- Stainless steel body with safety glass
- Clear glass diffuser
- 50,000hrs lifetime (T_a = -20°C to 50°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

TAYO Micro-Lo

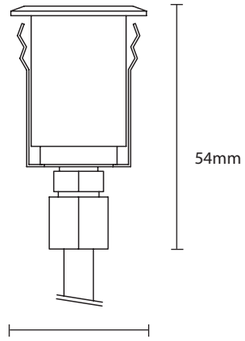


A compact recessed marker spot with single Citizen LED source and anodised aluminium housing. IP rated for interior or exterior in-ground installation.

diffused | 1kN | 12V DC | 41.67 lm/W | 0.144W | IP67

- White: 2800K, 3800K, 6500K
- Single colours: Red, Blue, Green
- Anodised aluminium body with opal diffuser
- 50,000hrs lifetime (T_a = -20°C to 60°C T_c max = 65°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

TAYO Micro-Hi



diffused | 1kN | 12V DC | 50.5 lm/W | 0.78W | IP67

- White: 2800K, 3800K, 6500K
- Single colours: Red, Blue, Green
- Anodised aluminium body with opal diffuser
- 50,000hrs lifetime (T_a = -20°C to 60°C T_c max = 70°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request

A compact and bright, recessed marker spot with single Cree LED source and anodised aluminium housing. IP rated for interior or exterior in-ground installation.

Auckland Convention Centre

TAYO Accessories

KKBK-13

TAYO Spot housing

For use with
TAYO Spot/Spreader

In ground housing tube

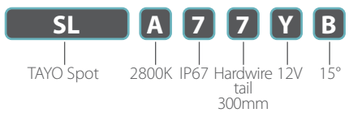
Anodised aluminium

Cutout 50mm dia, H100mm

TAYO Order Code Table

			TAYO Spot SL	TAYO Spreader SP	TAYO Micro-Lo SU	TAYO Micro-Hi ST
LED Colour	2800K	A	•	•	•	•
	3800K	C	•	•	•	•
	6500K	E	•	•	•	•
	Red	F	•	•	•	•
	Green	G	•	•	•	•
	Blue	H	•	•	•	•
IP	IP67	7	•	•	•	•
Cable	Hardwire tail 300mm	7	•	•	•	•
Volt	12V	Y	•	•	•	•
Lens Type	15degree	B	•	n/a	n/a	n/a
	25degree	D	•	n/a	n/a	n/a
	60degree	E	•	n/a	n/a	n/a
	Spreader Lens	S	n/a	•	n/a	n/a
	Diffused	F	•	n/a	•	•

Example of code:



LED MR16

LED alternative to standard GU5.3 base MR16 lamps.

12V DC | GU5.3 | 49.9 lm/W | 4W | IP20

An efficient and dimmable*, single point, high CRI, Citizen LED source in a compact cast aluminium housing. Suitable as an alternative to 20-35W halogen MR16 lamps.

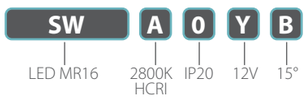
*Requires additional dimming sub-controller (see KKDM-03)

- White: 2800K, 3000K, 5000K
- 15 or 30 degree beam angles available
- Cast anodised aluminium body, black with white bezel
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c Max = 70°C)
- Dimming via KKDC 1-10V interface module (KKDM-03)
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

LED MR16 Order Code Table

			LED MR16 SW
LED Colour	2800K HCRI	A	•
	3000K HCRI	P	•
	5000K HCRI	D	•
IP	IP20	0	•
Volt	12V	Y	•
Lens	15degree	B	•
	30degree	F	•

Example of code:



Light Panels

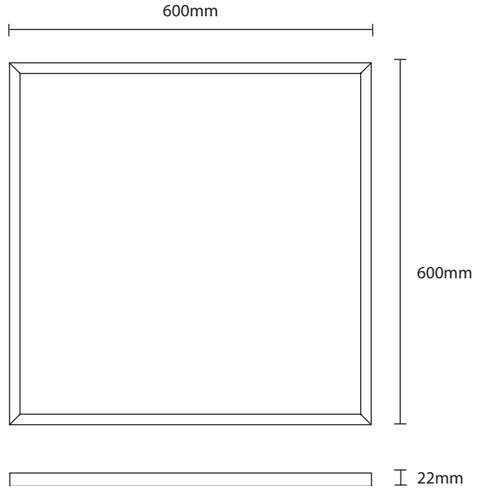
FLAT

A low profile light panel with a powerful, edge-lit source and layered diffusion for overhead lighting and display.

FLAT-P

MacQuarie Bank, Vision Design

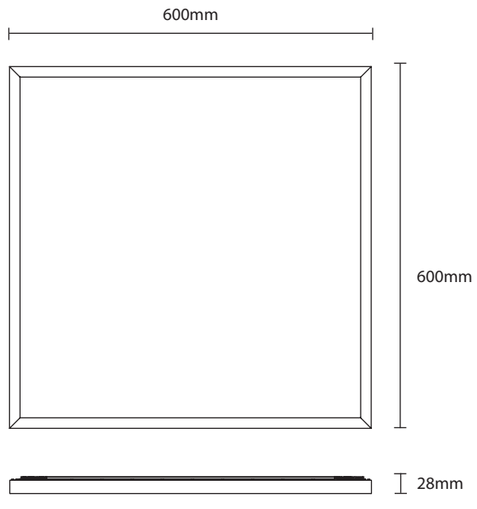
The Flat-P is a remarkable, low profile, evenly illuminated panel, edge-lit through layered polycarbonate diffusion and surface mounted or suspended for overhead illumination or as part of illuminated structures.



24V 67.2W IP20

- Single colour low profile high output suspended flat panel 600 x 600 x 22mm
- Edge lit panel with uniform illumination
- For custom panel requirements please contact KKDC
- Anodised aluminium frame
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c Max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

FLAT-V



Variable temp | 24V | 102W | IP20

- Colour temperature adjustable low profile flat panel 600 x 600 x 28mm
- Edge lit panel with uniform illumination
- For custom panel requirements please contact KKDC
- Anodised aluminium frame
- 50,000hrs lifetime (T_a = -20°C to 40°C T_c Max = 60°C)
- Dimming via 1-10V/DMX/DALI interface modules or other PWM systems
- Specification sheet & installation guide available on request
- Photometric data in accordance with LM79 standard available on request

The Flat-V is a remarkable, low profile, evenly illuminated panel, edge-lit through layered diffusion and surface mounted or suspended for overhead illumination or within illuminated structures.

MacQuarie Bank, Vision Design

FLAT Accessories

KKSW-04

Suspension wire kit

4 x 1000mm cable

FLAT Order Code Table

			FLAT-P FA	FLAT-V FB
LED Colour	2800K	A	•	n/a
	6500K	E	•	n/a
	Variable temp	M	n/a	•
IP	IP20	0	•	•
Cable	Hardwire tail 1000mm	8	•	•
Volt	24V	W	•	•
Size Availability			L600mm, W600mm, H22mm	L600mm, W600mm, H28mm

Example of code:

FA A 0 8 W 600x600

FLAT-P | 2800K | IP20 | Hardwire tail 1000mm | 24V

Power/Control

Power Supplies

24V Power Supplies

KK6024

60W/24V DC power supply for KKDC 24V products

For Interior use

White Polycarbonate casing

L174mm W77mm H31mm

KK10024

100W/24V DC power supply for KKDC 24V products

For Interior use

Black metal casing

L190mm W88mm H36mm

L6024

IP67 60W/24V DC power supply for KKDC 24V products

For Interior/exterior use

Black metal casing

L198mm W44mm H40mm

L10024

IP67 100W/24V DC power supply for KKDC 24V products

For Interior/exterior use

Black metal casing

L230mm W65mm H42mm

12V Power Supplies

KK6012

60W/12V DC power supply for KKDC 12V products

For Interior use

Black metal casing

L190mm W88mm H36mm

L6012

IP67 60W/12V DC power supply for KKDC 12V products

For Interior/exterior use

Black metal casing

L198mm W44mm H40mm

L10012

IP67 100W/12V DC power supply for KKDC 12V products

For Interior/exterior use

Black metal casing

L230mm W65mm H42mm

Constant Current Power Supplies (for eSEN range)

L18350C

IP67 18W/350mA constant current driver PSU for use with KKDC eSEN

Constant Current LED driver, 350mA

Black metal casing

L133mm W40mm H31mm

L18350D

IP67 18W/350mA constant current 1-10V dimmable driver PSU for use with KKDC eSEN

Constant Current LED driver, 350mA

Black metal casing

L133mm W40mm H31mm

L36700C

IP67 36W/700mA constant current driver PSU for use with KKDC eSEN

Constant Current LED driver, 700mA

Black metal casing

L133mm W40mm H31mm

L36700D

IP67 36W/700mA constant current 1-10V dimmable driver PSU for use with KKDC eSEN

Constant Current LED driver, 700mA

Black metal casing

L133mm W40mm H31mm

Controls

1-10V Dimmable Sub-Controllers

KKDM-01

1-10V Dimmer

Compatible with KKDC LED

Dimming unit used in conjunction with PSU

Black metal casing

L195mm W50mm H30mm

KKDM-02

XEN Dimmer

Compatible with KKDC 'XEN' LED

Dimming unit used in conjunction with PSU

Black metal casing

L195mm W50mm H30mm

KKDM-03

LED MR16 Dimmer

Compatible with KKDC LED MR16

Dimming unit used in conjunction with PSU

Black metal casing

L195mm W50mm H30mm

DMX Sub-Controllers

KKSC-02

DMX Sub-controller

Compatible with KKDC LED

DMX interface, used in conjunction with PSU

Black metal casing

L195mm W50mm H30mm

Dimming Controls

KKMC-01

RGB Master Controller

Compatible with KKDC RGB LED

Dimming control device for RGB LED

White Polycarbonate casing

L117mm W73mm H45mm

Cable Management

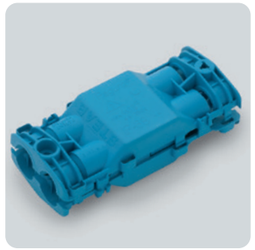
KKJB-01

IP67 Large Junction box

Exterior junction box

White Polycarbonate casing

L128mm W88mm H44mm



KKJB-06

IP68 Slimline Junction box

Exterior junction box

Gel filled ABS casing

L94mm W44mm H24mm

General Information

Standards

Product standards

CE (DoC)

RoHS Directive 2002/95/EC

EN 60598-1

EN 60695-2-11

ETL Conforms to ANSI / UL 1598 & 8750
Certified to CSA STD. C22.2 No. 250.0-08
(North America/Canada)

Power Supplies/Control

Please consult manufacturers product specification details for safety compliance and standards according to geographical territory and application.

KKDC quality management systems

ISO 14001 Environmental management systems

ISO 9001 Quality management system

General note

With increased awareness and application of LED technology, international safety standards are being updated and change constantly. Please consult local KKDC distributor for further information/confirmation regarding specific LED products and requirements of related local/international standards.

Photometric Testing

An LED is an electronic device, and with this the testing for photometry data with solid state lighting (SSL) has to be conducted differently to that performed with a traditional luminaire.

There has been increasing awareness in the lighting industry of the inherent differences and resulting problems with the testing of LED and data supplied by manufacturers.

KKDC has achieved success in the architectural lighting market through the design and manufacture of high performance LED products that deliver both performance and colour in linear formats. It is important to give designers independent and accurate testing data for product photometry. This means testing each complete luminaire, and not just the LED component – the LED cannot be tested separately from the fitting.

The correct way to test SSL is using Absolute photometry as opposed to Relative photometry used with traditional lighting sources.

Absolute photometry requires that the lighting manufacturer submits the complete SSL lighting system for measurement so that the resulting data reflects the actual flux, colorimetric performance and the electrical power measurement of the actual lighting fixture that is packaged for intended use.

As a result of inconsistencies with testing methods and data, the IESNA (Illuminating Engineering Society of North America) has introduced the approved Standard LM79-08 designed to correctly and independently test the Electrical and Photometric measurements of Solid-state lighting products.*

In the last year, lighting designers in the both the USA and Australia have increasingly endorsed and utilised this standard when assessing the performance of an LED luminaire for accurate project specification.

Please contact KKDC for relevant photometric product data, tested to LM79-08 standard through accredited UK testing laboratory.

* The LM79-08 standard is also used for the US DOE Energy Star programme.

LED Lighting Terms

Absolute photometry (see also Relative photometry)

The collected photometric data produced from testing a finished and complete solid state lighting system (as supplied to end users) under realistic conditions. Essential for accurate comparison and evaluation of LED lighting products.

Data produced allows true specification of luminous flux, chromaticity, efficacy and electrical power. Absolute photometry is the basis of the IESNA LM79 testing standard.

Anodising (aluminium)

An electrolytic process producing a very hard oxide layer on the surface of aluminium parts.

When a thick layer is produced and then sealed, anodising can protect against corrosion in harsh chlorinated or marine environments.

Anodising can also incorporate coloured dyes for decorative effect.

AWG

Abbreviation for 'American Wire Gauge' – a numerical scale for wire size. The AWG number relates to the diameter, cross sectional area and thus the current carrying capacity of electrical wires.

By contrast, in the Metric system electrical conductors are described directly by cross sectional area in mm^2 or in stranded wires by the number and size of the strands.

Bin/Binning

During manufacture LED dies will have significant performance variations and can be sorted or 'binned' into smaller groups according to spectral distribution, luminous intensity, and forward voltage for example. The application of phosphors during the packaging of white LED's introduces further variations in colour and performance which may in turn be 'binned'. The scale and parameters of the bins used will often determine the colour consistency and cost of finished white LED products – (co-ordinates (x, y or u', v') of quadrangles on colour space plots are used to document colour consistency of binned white LEDs).

Chip (see also Die)

Usually used to refer to the die within an LED package. A 3 chip or tri-chip LED having 3 dies in a single package.

Constant Current (see also Constant Voltage)

The individual LED chips on the circuit boards of power LED products are supplied with a constant current power source for stable performance and control of thermal output. The voltage supplied varies to accommodate multiple chips. Almost all KKDC LED products employ on-board constant current conversion of an external constant voltage power supply.

Constant Voltage (see also Constant Current)

Used to describe circuits, components and power sources that require or produce a regulated and constant voltage. Current will vary to supply the power required. Most low voltage DC power supplies for LED's and other electronic equipment, produce a constant voltage.

Control Gear

Any electronic devices located between the power source and LED product designed to dim, to switch, or otherwise interface with and modify the LED output.

Colour Rendering/CRI – Colour Rendering Index

The ability of a light source to faithfully reproduce the colours of illuminated objects as compared with a typical incandescent light source or daylight. CRI is one means of rating the chromaticity of light sources by calculation from comparison with an idealised light source – a CRI (Ra) of 100 representing the highest possible correspondence. CRI alone is not an indication of the observed colour for white LED's.

Colour Space (CIE colour space/chromaticity diagrams)

A theoretical colour concept illustrated by a series of graphical projections mathematically representing all visible colours of light. The International Commission on Illumination (CIE) has defined several of these spaces – the CIE 1931 colour space and CIE 1976 CIELUV colour space being the most widely referenced in lighting. A three dimensional colour space is projected as a two dimensional chromaticity diagram on which other colorimetric scales – CCT ranges and black body curves for example can be overlaid. Measured colorimetric data for LED sources can be plotted and compared to illustrate colour performance and consistency between products and relative to the colour specifications of lighting test standards.

Colour Temperature/CCT – correlated colour temperature

A numerical description of the colour character of white light sources. CCT is the temperature in Kelvin of an idealised incandescent source whose colour appears to match the appearance of an LED or other light source of the same brightness – typically ranging from about 2700K (warm/reddish) through to 6500K and above (cool/bluish).

It is important to note that for white LED sources CCT can only provide a partial description of the colour produced. A single quoted CCT figure does not account for variations in production of LEDs.

DALI – Digitally Addressable Lighting Interface

A digital communication protocol originally developed for the centralised control of fluorescent lighting in buildings and now also used for control of LED installations.

Die (see also Chip)

The semiconductor material with junction circuit within an LED package Multiple dies/dice can be contained in a single package.

Diffusion/Diffuser

Where an optical element – often translucent glass or plastic – covers the light source within a housing. The light transmitted throughout the diffuser will be redirected and scattered with the optical properties and transmission efficiency of the material used.

DMX

Or DMX-512 – a digital communication standard or protocol for control of dimming, colour and other parameters. Used extensively in the theatre and entertainments industry and becoming widespread for digital control of architectural lighting and LED colour change lighting in particular.

Driver

General term for a power supply unit or power supply circuit. KKDC keep use of this term for devices performing constant current power conversion to avoid confusion with the term 'power supply'.

ETL

An international testing mark certifying product quality and electrical safety. Testing is inclusive of the requirements of other national marks and regulations. Administered by the independent testing company Intertek, ETL certification of KKDC products incorporates testing to applicable UL standards as required by U.S. and other government regulators.

Heatsink

In LED lighting – a component or assembly to conduct heat away from an LED package to the environment. KKDC products have heat sinking elements as integral parts of the product design and require no additional heatsink under all normal operating conditions.

Illuminance

Given in lux (lx) – the luminous flux incident on a unit surface area. Used to indicate the intensity of light falling on illuminated surfaces in lighting design. Building codes and regulations can specify lux levels required for different tasks in workspaces for example.

LED Array

An assembly of LED packages on a printed circuit board or substrate.

LED Lifetime

The useful lifetime of an LED light source in hours.

L70 (lifetime to 70% of initial lumen output) has become a standard way of stating lifetime. The length of time an LED light source actually performs to an acceptable standard, depends on most aspects of design and manufacture, including quality of source components, thermal, electrical and environmental.

Poor design, components, manufacture or operation can result in premature loss of light output, colour shifts and failure. The LM80 lumen maintenance test can provide data that can be extrapolated to give more reliable L70 lifetime figures.

LED Module

A component part of an LED light source that includes one or more and associated connection and power handling circuitry. Electrical, electronic, optical, and mechanical components may also be part of an LED module.

LM79

LM79-08 defines a testing procedure and standard developed by the IES in the US for evaluating the performance of LED lighting products. It provides absolute photometric, colorimetric and electrical data for luminous flux, chromaticity, CCT and CRI for complete LED products. LM79 allows fair comparison of LED lighting products and evaluation for use in particular environments.

KKDC products have been independently tested by an accredited UK laboratory and testing facility to the LM79 standards.

LM80

Developed by the IES in the US, LM80-08 defines a testing procedure and standard to measure lumen maintenance over time for LED light sources. Packages, arrays and modules undergo accelerated testing over a long duration at different case temperatures. The data produced can be projected to give realistic LED lifetime information.

KKDC products have been independently tested by an accredited UK laboratory and testing facility to the LM80 standards.

Luminous Flux

Measured in lumens (lm), luminous flux describes the total amount of light emitted by a light source as perceived by the human eye. Obtained by measurement of radiant power across the visible spectrum with adjustment for the sensitivity of the human eye to different wavelengths.

MacAdam Ellipse (see also CIE colour space)

A mathematically derived elliptical figure plotted on a colour space diagram, the edges of which represent a set deviation in colour from the that at its centre. The scale of the ellipse is determined by the number of standard deviations of colour matching or 'steps' used in plotting.

The colour variation represented by a 1 step MacAdam ellipse in not visible but becomes progressively more discernible in ellipses with a greater number of steps and is usually obvious above 2 steps. MacAdam ellipses are sometimes quoted in the specifications of white LED products to quantify colour consistency.

1-10V

A standard convention for control of dimming used in LED lighting – originally developed for fluorescent lighting. An analogue control voltage is varied between 1 and 10 Volts by means of a potentiometer or other controller and produces a corresponding change in the pulse width modulated power supplied to an LED circuit and thus the brightness.

Package

An assembly or encapsulation of one or more LED dies that contains wire bond connections along with any phosphors, optical elements and thermal or mechanical structures.

The complete LED component for incorporation into arrays, modules and finished products.

PCB – Printed Circuit Board

An assembly of single or multi-layered mounting surfaces with conductive tracks (and soldered components) found at the heart of most modern electronic devices. Most KKDC products use metal based PCB technologies which provide significant advantages in thermal management. As a result KKDC's metal based flexible linear products can be used without additional heatsinking.

PWM – Pulse Width Modulation (LED)

An electronic method for varying the power supplied to LED light sources through rapid pulsing. Adjustment of pulse duration in control interfaces set between power supply and light source gives rise to variations in brightness for dimming and colour mixing.

Relative Photometry (see also Absolute Photometry)

Data set produced from comparative photometric testing using a reference light source or by separation of light source from other parts of the system. Some figures may be obtained by normalisation calculations. Provides at best only a partial description of LED product performance.

Silicone

Any one of a class of largely inert, synthetic polymer compounds – many produced as rubbers and resins. Used for sealing and encapsulation in some KKDC products. Thermal, optical and environmental factors govern the choice of compound for a particular application.

Temperature – T_a/T_c/T_j

T_a – Ambient temperature;
T_c – Reference point (Case) temperature;
T_j – Junction temperature.

Values for these are often quoted in the testing of LED components, specification of LED products and discussion of thermal design of LED products.

T_j is the temperature at the semiconductor junction within an LED die. Heat produced must be removed by efficient thermal design of LED package, PCB and housing in order that T_j does not exceed a specified maximum (T_j max) or degradation of performance and failure may occur.

T_a is the temperature of the surroundings. In KKDC specifications T_a is given as a range of temperatures within which the product is designed to operate.

T_c, in testing of products – may refer to any named reference point where temperature is measured. In KKDC products T_c is given as a maximum value which the outside of a product housing or mounting may reach in operation within the T_a range given.

Thermal Management

Referring to the practical steps taken by the designers of LED packages and LED lighting products to ensure that heat is conducted away from the light producing junction within an LED to the surroundings. In general, higher LED light output requires more electrical power and generates more heat. Failure to address this adequately leads to degradation of output power, colour quality and ultimately premature LED failure.

Thermal Resistance

Describes the heat conducting or transferring properties of a material, component or assembly. Expressed in degrees Celsius per Watt (ºC/W). Thermal resistance is minimised in the design of high quality LED lighting products.

Ultrasonic Welding

A low heat method for joining suitable plastics. Used as part of the waterproofing process in some KKDC product housings.

UV – Ultraviolet

A range of non visible radiation with wavelengths less than 380nm beyond the blue end of the visible spectrum. Protection from the sun's UV radiation is required to prevent degradation of plastics and other materials used in exterior lighting products.

VP – Vacuum Plating

A protective conformal coating produced by vacuum deposition polymerisation techniques on circuit boards and assemblies to prevent dust and moisture ingress. KKDC use this process within some products to enhance waterproofing and protection of components.

Wavelength (LED)

LED dies producing light in the visible spectrum emit light of wavelengths ranging from around 330 to 780 nanometres – a specified range of wavelengths indicating the colour of light produced. In most white LED's, phosphors absorb the shorter blue wavelengths and re-emit light at a wider range of longer wavelengths.

KKDC Global

KKDC Australia
info@kkdc.com.au

KKDC New Zealand
info@kkdc.co.nz

KKDC Asia
info@kkdc.com.au

KKDC UAE
info@kkdc.co.uk

KKDC North America
info@kkdc.co.uk

KKDC UK
info@kkdc.co.uk

KKDC Europe
info@kkdc.co.uk

KKDC France
info@kkdc.fr

KKDC Scandinavia
info@kkdc.co.uk

International Distribution and Trading Partners

Light Project
hamish@light.com.au

Please contact KKDC (info@kkdc.co.uk) for full contact details of international trading partners and distributors.

Warranty Information/Terms & Conditions

1. THESE TERMS AND CONDITIONS OF SALE ESTABLISH THE RIGHTS, OBLIGATIONS AND REMEDIES OF KKDC AND THE CUSTOMER WHICH APPLY TO ANY CONTRACT FOR THE PURCHASE OF KKDC'S GOODS. NO ADDITIONAL OR DIFFERENT TERMS OR CONDITIONS, WHETHER CONTAINED IN THE CUSTOMER'S ORDER FORM OR ANY OTHER DOCUMENT OR COMMUNICATION PERTAINING TO THE CUSTOMER'S ORDER, WILL BE BINDING UPON KKDC UNLESS ACCEPTED IN WRITING, AND KKDC HEREBY EXPRESSLY OBJECTS TO ANY SUCH TERMS AND CONDITIONS WHICH SHALL BE DEEMED INEFFECTIVE AND ARE REJECTED

2. Interpretation

2.1 In these conditions, unless the contrary intention appears:

2.1.1 **Confidential Information** has the meaning as set out in clause 15.1;

2.1.2 **contract** means any contract or agreement whatsoever made by KKDC to supply any goods to the customer, whether resulting from the acceptance by KKDC of an order given by a customer, the acceptance by a customer of a quote from KKDC or otherwise;

2.1.3 **contract price** means the total of the prices specified for the Supply by KKDC to a customer;

2.1.4 **KKDC** means KKDC Pty Ltd ACN 117 624 370 being a company duly incorporated under the laws of Australia and having its registered office at Suite 305, 160 Rowe Street, Eastwood in the State of New South Wales;

2.1.5 **customer** means a customer of KKDC who buys goods from KKDC;

2.1.6 **goods** means any or all of the products the subject of Supply by KKDC to a customer;

2.1.7 **order** means any offer to purchase the goods from KKDC made by a customer;

2.1.8 **parties** means both KKDC and the customer;

2.1.9 **party** means KKDC and the customer;

2.1.10 **price** means, in relation to any goods, the price of those goods;

2.1.11 **Supply** means the supply of any goods the subject of any contract; and

2.1.12 **Tax** means sales tax, GST, value added tax, retail tax or any other tax or duty that may be imposed on or in relation to any Supply made by KKDC;

2.1.13 a reference to a clause is a reference to a clause of these conditions;

2.1.14 where any word or phrase is given a definite meaning in these conditions, any part of speech or other grammatical form of that word or phrase has a corresponding meaning;

2.1.15 a reference to a statute, statutory provision or regulation includes all amendments, consolidations or replacements thereof;

2.1.16 headings and captions are for convenience or reference only and do not alter the meaning or interpretation of these conditions;

3. Orders & Specifications

3.1 The customer shall be responsible for ensuring the accuracy of the terms of any order (including any applicable specification) submitted by the customer, and for giving KKDC any necessary information relating to the Supply within a sufficient time to enable KKDC to perform the contract in accordance with its terms.

3.2 The quantity, quality and description of and any specification for the Supply shall be those set out in the quotation (if accepted by the customer) or the customer's order (if accepted by KKDC).

3.3 If the goods are to be manufactured or any process is to be applied to the goods by KKDC in accordance with a specification submitted by the customer, the customer shall indemnify KKDC against all loss, damages, cost and expenses awarded against or incurred by KKDC in connection with or paid or agreed to be paid by KKDC in settlement of any claim for infringement of any patent, copyright, design, trade mark or other industrial or intellectual property rights of any other person which results from KKDC's use of the customer's specification.

3.4 KKDC reserves the right to make any changes in the specification of the goods which are required to conform to any applicable statutory requirements or, where the goods are to be supplied to the customer's specification, which do not materially affect their quality or performance.

3.5 No order which has been accepted by KKDC may be cancelled by the customer except with the written consent of KKDC and on terms that the customer shall indemnify KKDC in full against all loss (including loss of profit), costs (including the cost of all labour and material used), damages, charges and expenses incurred by KKDC as a result of cancellation.

3.6 The customer may issue a written change order to request changes within the scope of the contract. Such requests are subject to acceptance by KKDC.

3.7 KKDC will inform the customer if the change will cause an increase in KKDC's costs or time required to perform the contract. The change will become effective, and KKDC will commence performance, only upon execution of a written amendment to the contract.

3.8 Unless otherwise agreed in writing, upon performance of the change order KKDC will be entitled to invoice the customer and the customer shall be obligated to pay for the costs of the change, even if KKDC agreed to proceed with the change prior to execution of an amendment.

3.9 KKDC reserves the right to establish minimum order sizes or to reject purchase orders if KKDC does not have sufficient capacity to fulfil such orders.

3.10 KKDC reserves the right to change its prices if series production ends, or if, from the time of quotation:

3.10.1 raw material prices have changed; or

3.10.2 actual volume is less than forecast volume; or

3.10.3 there is any significant change in economic circumstances.

4. Terms of Payment

4.1 Time for payment of the price for any Supply is of the essence in any contract.

4.2 Payment must be made in the applicable currency quoted.

4.3 If KKDC:

4.3.1 accepts an order, and KKDC has not agreed in writing to extend credit to the customer, the customer must pay the contract price to KKDC in full on delivery of the goods; or

4.3.2 has agreed in writing to extend credit to the customer, the customer must pay the contract price to KKDC in full prior to the end of the month following the date of the invoice sent by KKDC in relation to that Supply.

4.4 If the customer is delinquent in its payment obligation to KKDC, KKDC may upon written notice to the customer stop work and withhold future shipments until all delinquent amounts and late interest, if any, are paid. Additionally, KKDC may at its option:

4.4.1 repossess goods for which payment has not been made;

4.4.2 charge interest on delinquent amounts at the maximum rate permitted by law for each full or partial month;

4.4.3 recover all costs of collection, including but not limited to reasonable legal fees;

4.4.4 combine any of the above rights and remedies as may be permitted by applicable law.

4.5 These remedies are in addition to all other remedies available at law or in equity.

4.6 KKDC may re-evaluate the customer's credit standing at all times.

4.7 If KKDC reasonably determines in its sole discretion that the customer fails to qualify for the above payment terms at any time, then KKDC may without notice to Buyer modify or withdraw credit terms, including but not limited to requiring advance payment, guarantees, or other security.

5. Setoff

5.1 The customer will not set off or recoup invoiced amounts or any portion thereof against sums that are due or may become due from KKDC.

6. Taxes

6.1 All prices are in the applicable currency of the contract.

6.2 If, notwithstanding the provisions hereof, the customer's terms and conditions of purchase are deemed to apply by a court of competent jurisdiction, then KKDC reserves the right to either:-

6.2.1 modify the prices (including retroactively) according to the additional level of risk and responsibility that the customer's terms and conditions require KKDC to undertake; or

6.2.2 cancel the contract any time after such determination without liability for such termination other than for the goods already delivered on the terms set out herein;

6.3 Unless otherwise expressly agreed by, or shown on an invoice issued by KKDC, the prices specified do not include any charges for services such as packaging; insurance; or brokerage fees. KKDC's pricing excludes all taxes (including but not limited to, sales, use, excise, value-added, and other similar taxes), duties and charges.

6.4 The customer is responsible for all such taxes, duties and charges resulting from a contract or as a result of KKDC's performance hereunder, whether now or hereafter imposed, levied, collected, withheld, or assessed.

6.5 If KKDC is required to impose, levy, collect, withhold or assess any such taxes, duties or charges on any transaction under these terms, then in addition to the price, KKDC will invoice the customer for such taxes, duties, and charges unless at the time of order placement the customer furnishes KKDC with an exemption certificate or other documentation sufficient to verify exemption from such taxes, duties or charges.

7. Delivery and Costs

7.1 KKDC will not be liable for any delays or increased costs caused by a failure of the customer, such as delays in providing necessary information.

7.2 KKDC may, but is not obliged to, deliver the goods to the customer's premises, in accordance with KKDC's usual practices, but if:

7.2.1 the customer requests another method of delivery; or

7.2.2 KKDC elects to use an independent courier to deliver the goods; KKDC may arrange another form of transport with that independent courier by a separate contract, and the customer must pay to KKDC on demand any costs of that courier incurred by KKDC.

7.3 KKDC reserves the right to quote additional charges for any special routing, packing, labeling, handling or insurance required by the customer.

7.4 Where the goods are to be delivered in installments, each delivery shall constitute a separate contract and failure by KKDC to deliver any one or more of the installments in accordance with these conditions or any claim by the customer in respect of any one or more installments shall not entitle the customer to treat the contract as a whole as repudiated.

7.5 If KKDC fails to deliver the goods (or any installment) for any reason other than any cause beyond KKDC's reasonable control or the customer's fault, and KKDC is accordingly liable to the customer, KKDC's liability is limited to the excess (if any) of the cost of the customer (in the cheapest available market) of similar goods to replace those not delivered over the price of the goods.

7.6 If delivery of the goods fail (otherwise than by reason of any cause beyond the customer's reasonable control or by reason of KKDC's fault) then, without prejudice to any other right or remedy available to KKDC, KKDC may:

7.7 Store the goods at the customer's risk and expense and, may invoice the customer just as if there had been no delay in delivery and charge the customer for the reasonable costs (including insurance) or storage; or

7.7.1 Sell the goods at the best readily obtainable and (after deducting all reasonable storage and selling expenses) account to the customer for the excess over the price under the contract or charge the customer for any shortfall below the price under the contract

8. Export and Import Compliance

8.1 The customer is responsible for compliance with all import and export control laws and regulations. The customer will obtain import, export, and re-export approvals and licenses required for goods delivered and will retain documentation evidencing compliance with those laws and regulations.

8.2 KKDC will not be liable to the customer for any failure to provide goods as a result of government actions that impact KKDC's ability to perform, including:

8.2.1 The failure to provide or the cancellation of export or re-export licenses;

8.2.2 Any subsequent interpretation of applicable import, transfer, export or re-export law or regulation after the date of any order or commitment that has a material adverse effect on KKDC 's performance; or

8.2.3 Delays due to the customer's failure to follow applicable import, export, transfer, or re-export laws and regulations.

8.3 If the customer designates the freight forwarder/independent courier for export shipments from Australia, then the customer's forwarder/ independent courier will export on the customer's behalf and the customer will be responsible for any failure of the customer's forwarder/ independent courier to comply with all applicable export requirements. KKDC will provide the customer's designated freight forwarder/ independent courier with required commodity information.

9. Hardship

9.1 If for any reason KKDC's production or purchase costs for the goods (including without limitation costs of energy, equipment, labour, regulation, transportation, raw material, or goods) increases over KKDC's production or purchase costs for the goods on the date of entering into a contract, then KKDC may, by written notice to the customer of such increased costs, request a renegotiation of the price of the goods under a contract. In the event the parties are not able to agree on a revised price within 10 days after a request for renegotiation is given, then KKDC may terminate the contract on 10 days written notice to the customer.

10. Acceptance

10.1 Unless other acceptance criteria have been expressly agreed to by the parties under a contract the customer will inspect goods within a reasonable period after delivery not to exceed 30 calendar days.

10.2 Goods are presumed accepted unless KKDC receives written notice of rejection explaining the basis for proper rejection within the same timeframe.

10.3 KKDC will have a reasonable opportunity to repair or replace rejected goods, at its option.

10.4 Following initial delivery, the party initiating shipment will bear the risk of loss or damage to goods in transit.

10.5 If KKDC reasonably determines that rejection was improper, the customer will be responsible for all expenses caused by the improper rejection.

10.6 Subject to clause 10.5, KKDC assumes shipping costs in an amount not to exceed normal surface shipping charges to KKDC's designated facility for the return of properly rejected goods.

11. Title and Property

11.1 The title to and property in the goods will not pass from KKDC to the customer until the customer has paid the contract price in full (other than the costs of any independent courier referred to in clause 7.2) to KKDC in accordance with these conditions. Until then, the customer:

11.1.1 holds the goods in a fiduciary relationship with KKDC as bailee only;

11.1.2 must keep the goods separate from other items it holds and must not resell or transfer possession of the goods;

11.2 If the customer:

11.2.1 fails to pay the contract price in full when due;

11.2.2 pays for the goods by cheque (in whole or in part) and that cheque is not met on presentation;

11.2.3 commits any act of bankruptcy, becomes bankrupt, or is insolvent under administration, as defined in section 9 of the Corporations Act;

11.2.4 is or becomes insolvent within the meaning as given by any of section 9 and subsection 95A (2) of the Corporations Act or regulation 7.5.02 of the Corporations Regulations; or

11.2.5 has a controller appointed, as defined in section 9 of the Corporations Act, in respect of any of the customer's property;

11.3 KKDC may:

11.3.1 enter onto the premises where the goods are situated; and

11.3.2 repossess the goods, notwithstanding that the goods may have been affixed to any structure by KKDC or the customer, and if necessary for that purpose, may sever the goods from any structure to which they may have been affixed.

11.4 If KKDC repossesses the goods, it reserves the right to resell them.

11.5 The customer must also indemnify and keep KKDC indemnified against, and pay to KKDC, all expenses, loses and damages incurred or sustained by KKDC as a result of, or in relation, to KKDC exercising its rights under:

11.5.1 this clause;

11.5.2 under any other term, express or implied, of these conditions; or

11.5.3 otherwise at law or in equity, and

11.5.4 any bank or other costs, charges or expenses incurred by KKDC resulting from any customer's cheque not being met on presentation

12. Risk and Insurance

12.1 Notwithstanding clauses 7 and 11, the goods will be at the customer's risk after they leave KKDC's premises.

12.2 If the customer requests it in writing, KKDC may, at the customer's expense, insure the goods.

13. Compliance with Laws

13.1 The customer shall comply with all local laws and regulations applicable to the installation, use or import of all goods delivered under a contract. As a condition of purchase the customer shall comply with all applicable export control laws and regulations of Australia, the United States, the European Union and any other country having proper jurisdiction and shall obtain all necessary export licenses in connection with any subsequent export, re-export, transfer and use of all goods delivered under a contract.

14. LIMITED WARRANTY

14.1 KKDC DISCLAIMS ALL WARRANTIES, WHETHER WRITTEN, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

14.2 No provision of these conditions purports to exclude, restrict or modify or have the effect of excluding, restricting or modifying:

14.2.1 the application in relation to the supply of the goods of any provision of the Trade Practices Act 1974 or of any similar State or Federal legislation that may not be excluded, restricted or modified;

14.2.2 the exercise of a right conferred by such provision; or

14.2.3 subject to clauses 14.2.3.1, 14.2.3.2, 14.2.3.3 and 14.2.3.4 any liability of KKDC for breach of a condition or warranty implied by such a provision of Division 2 of Part V of the Trade Practices Act 1974, or of any similar State or Federal legislation where KKDC may similarly limit its liability, will be limited to any one of the following:

14.2.3.1 the replacement of the relevant goods or the supply of equivalent goods;

14.2.3.2 the repair of the relevant goods;

14.2.3.3 the payment of the costs of replacing the relevant goods, or of acquiring equivalent goods; or

14.2.3.4 the payment of the costs of having the relevant goods repaired; and KKDC may in its sole discretion determine which of the foregoing limits will apply in any case.

15. Confidentiality

15.1 'Confidential Information' means:

15.1.1 any information, technical data or know-how in whatever form, including, but not limited to, documented information, machine readable or interpreted information, information contained in physical components, mask works and artwork, that is clearly identified as being confidential, proprietary or a trade secret;

15.1.2 business related information including but not limited to pricing, manufacturing, or marketing;

15.1.3 the terms and conditions of any proposed or actual contract between the parties;

15.1.4 either party's business policies, or practices; and

15.1.5 the information of others that is received by either party under an obligation of confidentiality.

15.2 The receiving party will keep all Confidential Information disclosed hereunder confidential for a period of 5 years following the expiration or termination of a contract.

15.3 Each party will retain ownership of its Confidential Information including, without limitation, all rights in patents, copyrights, trademarks and trade secrets.

15.4 No right or license is granted hereby to a party or its customers, employees or agents, expressly or by implication, with respect to the Confidential Information or any patent, patent application or other Confidential right of the other party, notwithstanding the expiration of the confidentiality obligations stated herein.

15.5 KKDC agrees to use the Confidential Information of the customer only to provide goods for the customer. The customer agrees that it will not use or disclose KKDC's Confidential Information for any purpose besides the purchase or use of goods under these terms.

15.6 The customer will not use KKDC's Confidential Information for the manufacture or procurement of parts that are the subject of these conditions or any similar parts or to cause such goods to be manufactured or procured from any other source.

15.7 The receiving party has no duty to protect information that is proven by written records to be:

15.7.1 publicly known at the time of disclosure or becomes publicly known through no fault of recipient;

15.7.2 known to recipient at the time of disclosure through no wrongful act of recipient;

15.7.3 received by recipient from a third party without restrictions similar to those in this section; or

15.7.4 independently developed by recipient

16. Intellectual Property

16.1 Any design, source code, drawing, description, model, documentation, sample and/or the like, created by KKDC, shall remain the intellectual property of KKDC

16.2 Intellectual property may only be used under license from KKDC

16.3 The customer agrees not to remove or alter any indicia of manufacturing contained on or within the goods, including without limitation trademarks on nameplates or cast or machined components.

17. LIMITATION OF LIABILITY

17.1 IN NO EVENT WILL KKDC BE LIABLE TO COMPENSATE OR INDEMNIFY THE CUSTOMER FOR ANY LOSS OR DAMAGE SUFFERED OR INCURRED BY THE CUSTOMER IN RELATION TO THE ORDER, THE GOODS, OR THEIR DELIVERY, MIS-DELIVERY OR NON-DELIVERY FOR ANY INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, SPECIAL DAMAGES, PUNITIVE DAMAGES, STATUTORY DAMAGES, INDIRECT DAMAGES, LOSS OF PROFITS, LOSS OF REVENUES, OR LOSS OF USE, EVEN IF INFORMED OF THE POSSIBILITY OF SUCH DAMAGES.

17.2 KKDC'S LIABILITY FOR DAMAGES ARISING OUT OF OR RELATED TO THESE CONDITIONS SHALL IN NO CASE EXCEED THE AMOUNT ACTUALLY PAID TO KKDC FOR THE GOODS FROM WHICH THE CLAIM AROSE. TO THE EXTENT PERMITTED BY APPLICABLE LAW, THESE LIMITATIONS AND EXCLUSIONS WILL APPLY REGARDLESS OF WHETHER LIABILITY ARISES FROM BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING BUT NOT LIMITED TO NEGLIGENCE), BY OPERATION OF LAW, OR OTHERWISE. NOTHING HEREIN, HOWEVER, IS INTENDED TO DISCLAIM KKDC'S LIABILITY FOR PERSONAL INJURY OR DEATH CAUSED BY DEFECTIVE GOODS TO THE EXTENT SUCH LIABILITY IS MANDATED BY APPLICABLE LAW.

17.3 The customer's sole remedy for any defective goods will be the repair or replacement of the defective goods.

18. Governing Law

18.1 Any Supply by KKDC to the customer, and the construction and interpretation of these conditions, shall be governed by the laws of New South Wales including the United Nations Convention on the International Sale of Goods of 1980 (and any amendments or successors thereto) and any dispute not resolved by the parties shall be subject to the exclusive jurisdiction of the Courts of New South Wales.

19. Dispute Resolution

19.1 If a dispute arises out of or relates to these conditions, or the breach, termination, validity or subject matter thereof, or as to any claim in tort, in equity or pursuant to any domestic or international statute or law, the parties to the contract and to the dispute expressly agree to endeavour in good faith to settle the dispute by mediation administered by the Australian Commercial Disputes Centre (ACDC) before having recourse to arbitration.

19.1.1 A party claiming that a dispute has arisen, must give written notice to the other party to the dispute specifying the nature of the dispute.

19.1.2 On receipt of the notice specified in clause 19.1.1, the parties to the dispute must within 7 days of receipt of the notice seek to resolve the dispute.

19.1.3 If the dispute is not resolved within 7 days or within such further period as the parties agree then the dispute is to be referred to ACDC.

19.1.4 The mediation is to be conducted in accordance with ACDC Mediation Guidelines which set out the procedures to be adopted, the process of selection of the mediator and the costs involved and which terms are deemed incorporated.

19.2 In the event that the dispute has not settled within 28 days or such other period as agreed to in writing between the parties after the appointment of the mediator, the dispute is to be submitted to arbitration (administered by ACDC) and conducted in accordance with ACDC's Arbitration Guidelines available at https://www.acdcltd.com.au. The arbitrator is not to be the same person as the mediator.

19.2.1 Any such arbitration is to be administered by ACDC.

19.2.2 The appointing authority is to be ACDC.

19.2.3 The number of arbitrators is to be one.

19.2.4 The place of arbitration is to be New South Wales, Australia.

19.2.5 The language to be used in the arbitral proceedings is to be English.

20. General

20.1 Any notice required or permitted to be given by either party to the other under these conditions shall be in writing addressed to that other party at its registered office or principal place of business or such other address as may at the relevant time have been notified pursuant to this provision to the party given the notice.

20.2 No waiver by KKDC of any breach of these conditions by the customer shall be considered as a waiver of any subsequent breach of the same or any other provision nor shall any such waiver prejudice the right of KKDC to take any action in the future to enforce any provisions of a contract.

20.3 If any provision of these conditions is held by any competent authority to be illegal, invalid or unenforceable in whole or in part the validity of the other provisions of these conditions and the remainder of the provision in question shall not be affected and, in lieu of such illegal, invalid or unenforceable provision, there will be added, as part of these conditions, one or more provisions as similar in terms as may be legal, valid and enforceable under applicable law.

20.4 All provisions of these conditions which by their nature should apply beyond the term of a contract will remain in force after acceptance and complete performance of a contract, including but not limited to, the Payment, Confidentiality, Limitation of Liability and Dispute Resolution clauses.

20.5 The customer will not assign any rights or obligations under these conditions without the prior written consent of KKDC. KKDC may assign any rights or obligations under these conditions without the prior written consent of the customer.

20.6 For the avoidance of doubt nothing in these conditions shall confer on any third party any benefit or the right to enforce any term of these conditions.

Editor: KKDC Ltd

Concept/Graphics: Tim Young, Akino Tsuga

Image Editing: Jan Tickell

KKDC would like to thank the following lighting design companies for use of project pictures.*

Point of View
www.pov.com.au

Haron Robson/Light Matters
www.haronrobson.com.au

* Whilst every effort has been made to accurately depict KKDC product in context with use of genuine project photography, some images may be for illustrative purposes only.

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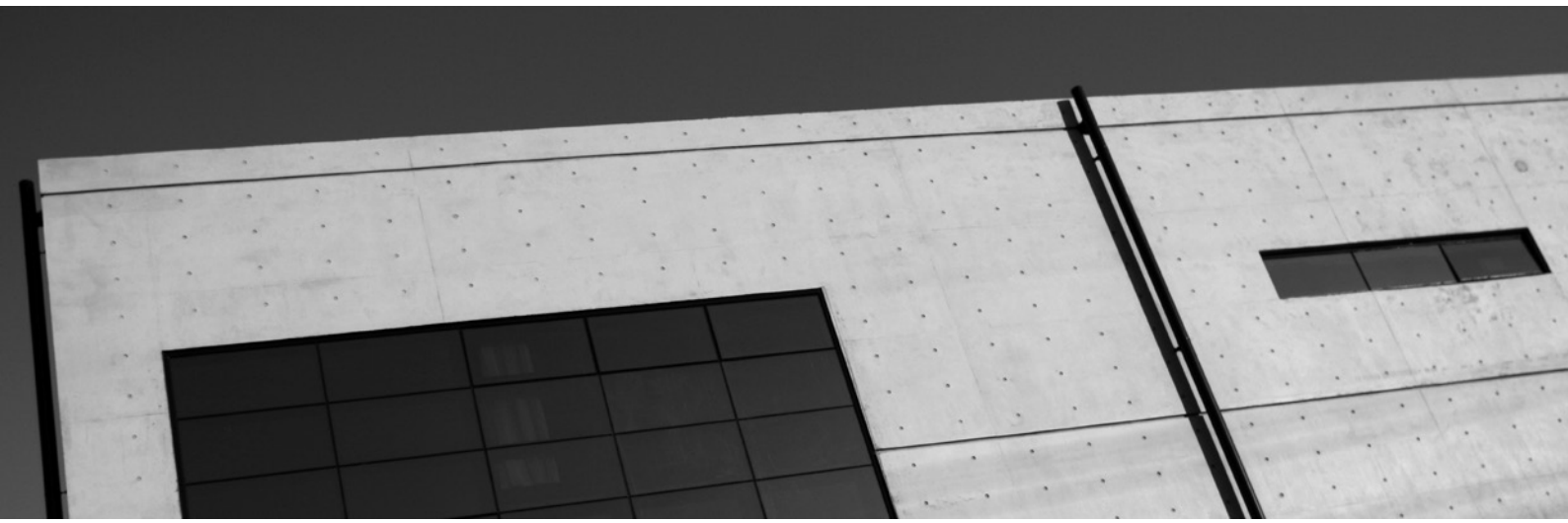

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