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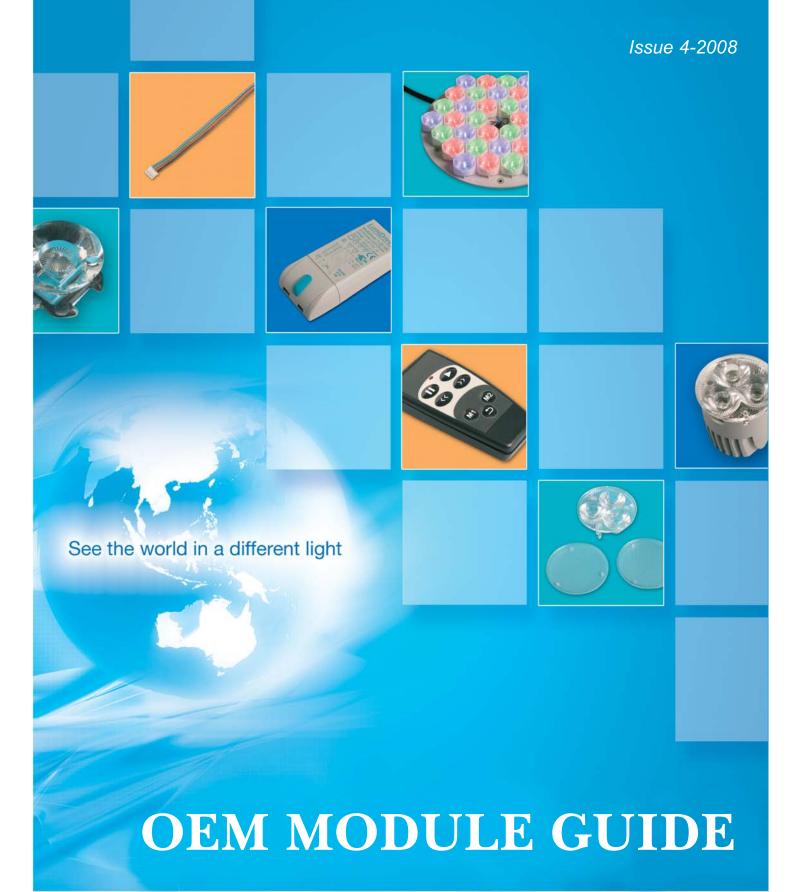
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# **About Dialight Corporation**

Front cover photos: A selection of products from our wide range including power drivers, single and full color lighting arrays and optics. Founded in 1938, Dialight Corporation is the worldwide leader in applied LED technology. With applications ranging from low power Panel Mount and Circuit Board Indicators, to high power Traffic, Obstruction, Beacon, Vehicle, and Rail, our experience with LED is unparalleled. With expertise in optical, thermal, mechanical and electrical design, as well as ISO 9001 certified manufacturing, Dialight has the technical & practical expertise to turn the dream of solid state lighting into reality.



### **OEM Module Guide**

Issue 4.2008

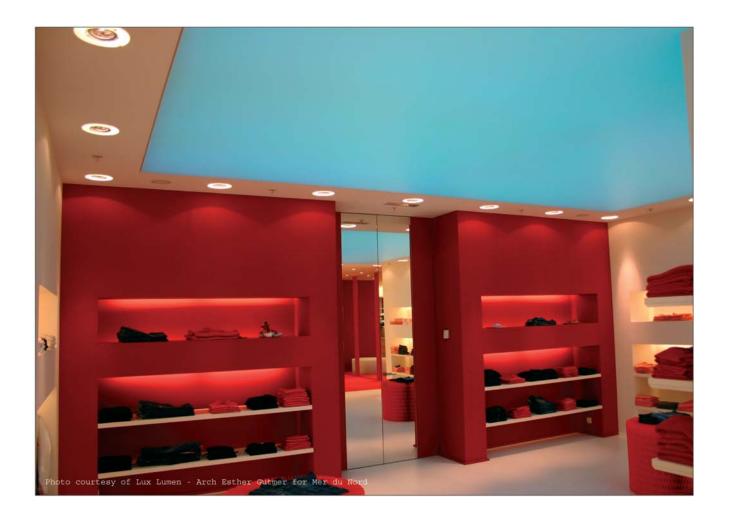
This guide is intended to give an overview of Dialight Lumidrives standard product offerings as of April 2008. If you have a requirement which is not covered by the standard products within this guide, please do not hesitate to contact us, as a large part of our business is built around getting companies to market with our innovative custom designed solutions.

Please contact us at info@dialight.com, or call us at 1-732-919-3119 to discuss your particular requirements and see how Dialight can best meet your needs.



# **Symbols and Definitions**

Boxed Symbol	<b>Explanation of the symbol</b>
350 mh	The minimum and maximum number of LEDs per channel that can be run at 350mA
700 mA	The minimum and maximum number of LEDs per channel that can be run at 700mA
1000 mA	The minimum and maximum number of LEDs per channel that can be run at 1000mA
RGB DMX	Dimming (0-100%) is achieved via an on board DMX512 interface combined with PWM power control
RGB BEMOTE	The driver is designed for use with RGB LEDs which can be controlled via a remote control
DIM r-rov	The driver has a 1-10V dimming facility
<b>-1</b>	Dimmable on Phase Cut Dimming
DIM	The LEDs can be dimmed via an external potentiometer
1 240V	The Lifesaver™ is a unique thermal feedback circuit which constantly monitors LED temperature ensuring reliability and protection
~	Input voltage range measured in V AC
12-24	Input voltage range measured in V DC
ta	The operating ambient temperature measured in degrees Celcius
$t_c$	The max. permitted case temperature of the driver measured in degrees Celcius



### **Useful Information**

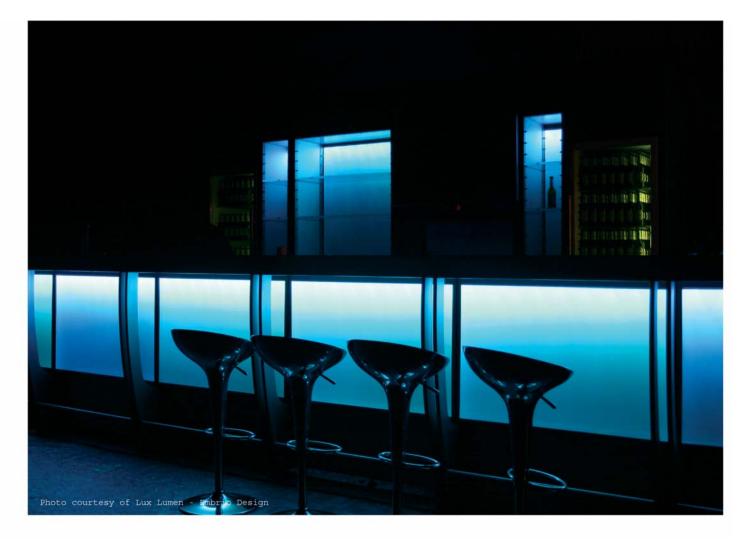
In January 2006 Lumidrives was acquired by Dialight PLC the world leader in applied LED technology. Moving forward the combined strengths of Dialight-Lumidrives means we are well positioned to drive the advancement of solid state lighting on a global basis, through product innovation, manufacturing excellence and dedicated customer support at a local level.

Dialight Lumidrives is a vertically integrated supplier providing system level modules in all technology areas required to create reliable LED lighing solutions.

Dialight Lumidrives has been providing leading edge technology for illumination applications since 2001. Our technology is working reliably in millions of applications worldwide.







#### **Technology Trends**

Dialight Lumidrives is committed to supplying customers with the best possible LED technology and associated value adding products. This technology driving our business is moving fast with month by month improvements in efficiency and power density. In this catalog, we only present products which are available to ship now, but in our development program we have many new products and concepts. To keep fully up to date with what innovation we can offer please visit our web site www.dialight.com and select "Solid State Lighting".

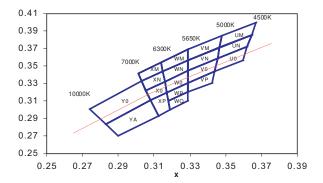
Dialight Lumidrives uses LEDs only from quality LED manufacturers who provide accurate data and reliability criteria. We select the LED on the basis of performance in a particular application e.g. flux, color performance, uniformity, thermal characteristics and cost. The type of LED used in a product may change to reflect the best total performance offered in the LED market.

### **Product Labeling and Binning**

When LEDs are manufactured they are grouped or "binned" according to luminous flux, color (nm or CCT) and voltage. This means that when viewing LEDs from multiple bins, different colors or shades may be noticeable. This affects LEDs from all manufacturers and the industry is continuously researching and improving production methods to reduce variability.

During our normal production we select LEDs to minimize the effects of binning for our customers. Products produced by Lumidrives are uniquely labeled to identify the type and bin of LED used, should a replacement be required in the future.

The human eye is very susceptible to variations in white light, we recommend new users of white LEDs and users with large projects to contact us to discuss the details of the application. Dialight Lumidrives has extensive application expertise in projects with 100,000s of individual LEDs and has successfully managed LED selection in very demanding applications.

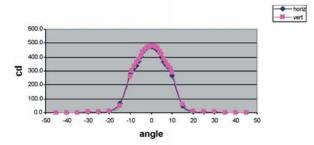


### **Photometrics**

Dialight Lumidrives offers full photometric performance data for all standard light engines. Copies of this data are available upon request together with IES files for integration within lighting design programs.

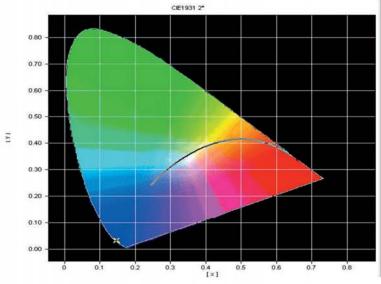
Part:	blue	no lens	Date:	
VAC:		mA	Distance:	26.8 718.24

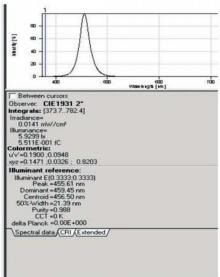
Chron			Chromaticity Dom			ССТ	Flux
х		(nm)		(K)	lm		
0.1471	0.0326	459.5	455.6	0	100.9		



Data quoted for light output in our data sheets is based upon typical operating temperatures and conditions rather than manufacturer's junction temperature test conditions.

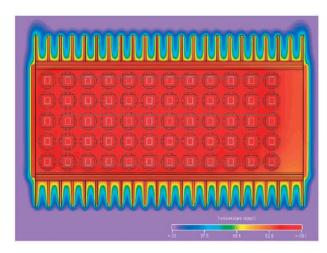
V Angle	cd	H Angle						
45		45						
40		40						
35		35						
30		30						
25		25						
20		20						
15		15						
10		10						
	420.5							
		0						
-2								
		-4						
-6								
-8		-8						
-10		-10						
-15		-15						
-20		-20						
-25		-25						
-30		-30						
-35		-35						
-40		-40						
-45		-45						



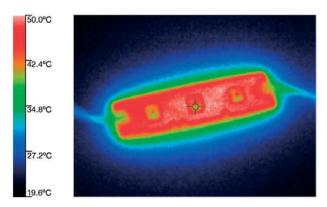


### **Thermal Management**

Thermal management of LED products is critical to short term performance and longer term reliability. Generally most LED light engines contained in the catalog require additional heat sink components; the heat sink ultimately is the lighting fixuture in which they are fitted.



Dialight Lumidrives has experience in both retrofitting components to existing fixture designs, where possible, and advising customers on the optimum way to design new fixtures.



CAD Thermal Analysis of design prior to manufacture

Thermal analysis of assembled Light Engine

We select thermal management materials to achieve the best performance in the final application and combine this is many products with our unique lifesaver thermal protection and feedback.

### **Design and Integration**

Dialight Lumidrives can support customers from the specification of an individual optic, driver or light engine through to integration of components into existing product lines or the design of new ranges to maximize the benefits of LED technology.

Where our range of standard solutions do not match the product requirements, we can offer custom designed solutions or derivatives in optics, drivers, light engines, or heat-sinks.



### **New Designs**



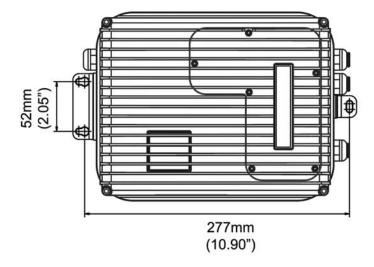
Exterior fixture using Lumidrives Color engine 36



Custom linear lighting solution



### Colordriver® XP



The Colordriver XP is an IP67 rated, four-channel RGBA/RGBW led driver capable of driving up to 48 LEDs with total output power of up to 132W.

With 4 independent channels for wider color gamuts, the colordriver XP supports today's high power LED color mixing applications. Max output current per channel can be independently set at 350, 500, 700 or 1000ma allowing you to drive InGaN leds harder than AllnGaP. The Colordriver XP is DMX addressable and also comes with 38 pre-programmed shows. The unit accepts input voltage from 90-264VAC 50/60Hz and is rated for dry,

damp & wet environments.

Order codes: CDU-XP-DMX-CON-IP

**Dimensions:** L297mm x W198mm x

H82mm

Weight: 2.45kg



















### Colordriver<sup>TM</sup> RFCC

#### **Connection Conditions**

1W LEDs per Master Unit	18
1W LEDs per Slave Unit	18
No. of Slaves per Master Unit	100
Max. Cable Length to LEDs	10m
Max. Cable Length between Drive Units	30m
Total Circuit Cable Length	1km

### **Colordriver RF Remote Control Specification**

Battery Voltage/Type AAA alkaline cell
Battery Life >30,000 keypresses
RF Frequency 433.92MHz

Modulation FM

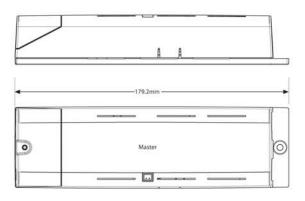
Dimensions L96.0mm x W47.0mm x

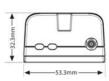
H24.0mm

### **Operating Modes**

Color Cycle Fixed Color On/Off

Two selectable memories





The Colordriver <sup>™</sup> RFCC is a three-channel RGB LED driver, which combines an intelligent power driver with an intuitive RF remote control. Both masters & slaves can drive up to 18 total 1W LEDs (3 channels X6). Up to 99 slaves can be added per master thus allowing control of up to 1800 LEDs with a single remote.

All Dialight Lumidrives Colordrivers come with the "Lifesaver™" system which (when used with "Lifesaver" equipped Dialight-Lumidrives Colorengines) monitors PCB temperature and automatically throttles back the drive current should the system overheat to ensure long LED lifetime.

#### **Wall Mounted Control Unit**

The control unit plugs directly into a slave module giving the same functions as a wireless remote. Additionally it can accept an input from a DMX control system. In this mode the front plate is disabled.

### Order codes: RFCC Master:

RFCC Master: CDURF-3-35
RFCC Slave: CDUSL-3-35
RFCC Remote: CDURF-TX
SL Control: CDUSL-CU

**Dimensions:** L179mm x W53mm x

H32mm

Weight: 163g









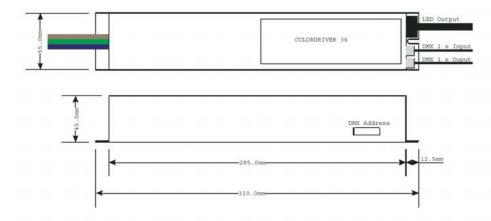








## Colordriver<sup>™</sup> 36



The Colordriver  $^{\text{TM}}$  36 is a DMX controlled three-channel RGB LED driver, capable of driving up to a maximum of 36 LEDs.

All Dialight Lumidrives Colordrivers come with the "Lifesaver™" system which (when used with "Lifesaver" equipped Dialight-Lumidrives Colorengines) monitors PCB temperature and automatically throttles back the drive current should the system overheat to ensure long LED lifetime.

All connections to the driver are plug and socket for rapid installation.

Order codes: CDU-L-3-35-DMX

Dimensions: L310mm x W55mm x

H45mm

Weight: 1020g











### **PowerWhite Driver**

The PowerWhite Driver is designed to run up to 45 LEDs at 350ma or 24 LEDs at 700ma from a 90-264Vac power supply. With up to 60W output power, built in thermal protection, no electrolytic capacitors, die-cast construction and IP67 rating, it is ideal for use in applications requiring high reliability, long life & rugged construction.

Order codes: PWD60-35-70

Dimensions: L191mm x W538mm x

H33mm

Weight: 670g







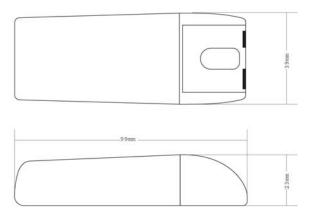








## **Microdriver 4**



The Microdriver 4 is designed to drive up to 4 x 1W high powered LEDs at 350mA from a 110 - 240V AC power supply.

Order codes: MDU4-SC-35

**Dimensions:** L99mm x W39mm x

H23.5mm

Weight: 70g



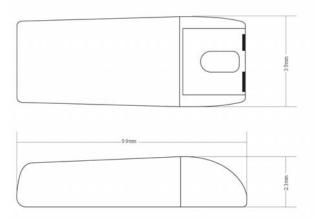








## **Microdriver 9**



The MDU9-SC-35/70 is designed for driving 9 x 1W LEDs at 350mA or 4 x 3W LEDs at 700mA from a 110 - 240V AC supply.

Order codes: MDU9-SC-3570

Dimensions: L99mm x W39mm x

H23mm

Weight: 70g





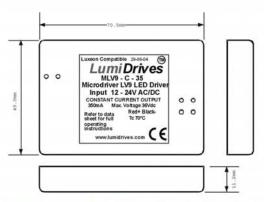








## Microdriver LV9 & LV3







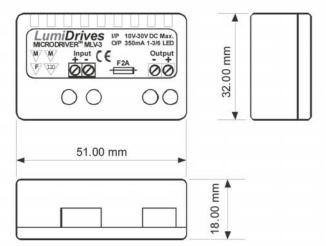












The Microdriver LV9 is a fully potted & dimmable unit ideal for driving high power LEDs from a range of low voltage power supplies between 12 to 24 volts. It will drive up to 9 x 1W LEDs at 350mA or 4 x 3W LEDs at 700mA.

## For full output, the dimming link must be cut.

Order codes: MLV9-C-35

MLV9-C-70

Dimensions: L70.5mm x W49mm x

H11.2mm

Weight: 65g

The Microdriver LV3 is ideal for driving high power LEDs from a range of low voltage power supplies between 10 to 30 VDC. It will drive up to 3 x 1W LEDs at 350mA or 4 x 1W at 700mA.

Order codes: MLV3-C-35

MLV3-C-70

Dimensions: L51mm x W32mm x

H11.2mm

Weight: 18g



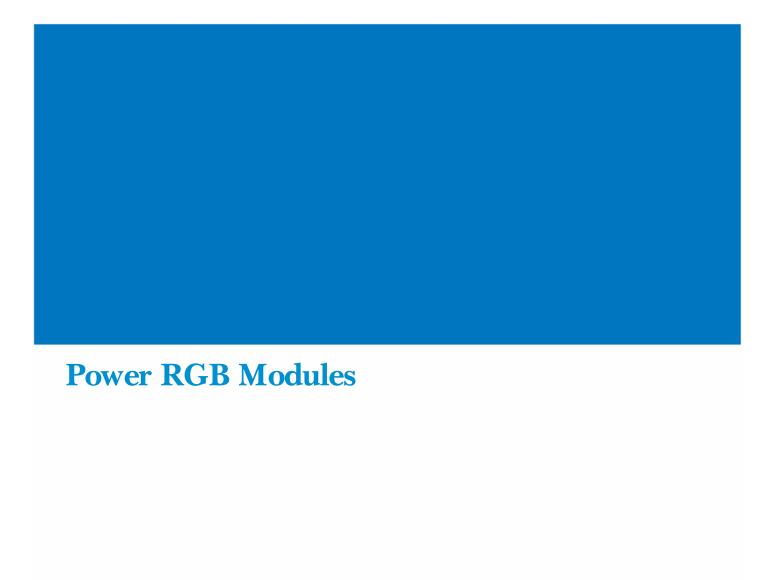




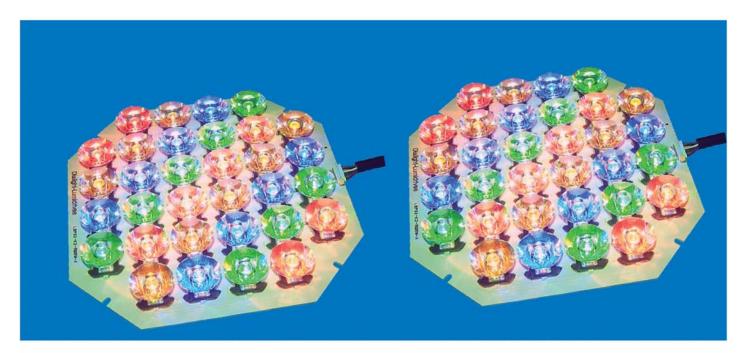








COMING SOON



## **K2** Lumispot Light Engines

Code 1	# of LEDs	Code 2	Color			
				Red / Green / Royal Blue / Amber		
LSP	LSP 32	K2	RGBW	Red / Green / Royal Blue / Cool White		

LED output data in Lumens or mW							
Color	@ 350mA	@ 700mA	@ 1000mA				
Red	361m		n/a				
Green	361m	601m	801m				
Royal Blue	176mW	294mW	380mW				
Amber	361m	601m	n/a				
Cool White	361m		801m				

LSP12 - K2 - RGBA (example only)
Create your own order code by using the above table.

The Lumispot K2 light engines are clusters of 12 or 32 Luxeon® K2 LEDs in either RGBA, RGBW, or WWWW colors. Ideal for creating powerful beams of white or color changing light with wide gamuts, they come complete with thermal protection, input cables & 3 degree spot optics. Secondary optics can also be added to create wide, diffuse, or oval optical patterns.

#### **Lumispot K2 12-up**

**Dimensions:** L127mm x W100mm x

H15.5mm

### Lumispot K2 32-up

Dimensions: L180mm x W180mm x

H15.5mm

### Recommended sub-lenses:

OPAA-1-DF 6 degree diffused sub-lens
OPAA-1-WSL 12 degree wide sub-lens
OPAA-1-OSL 4x27 degree oval sub-lens

All angles are half divergence

### **Recommended driver:**

CDU-XP-DMX-CON-IP Colordriver XP

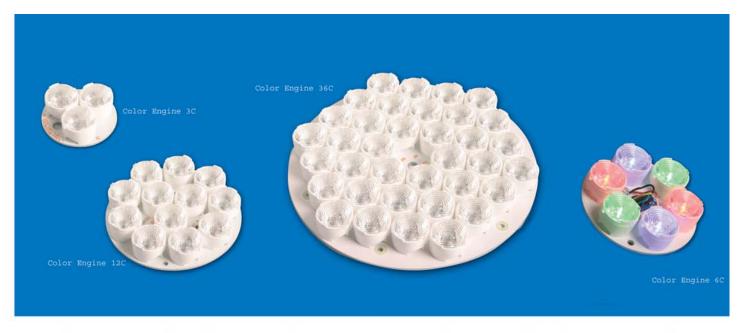








(Exception (Exception



# **Color Engines**

Co	de		Color	Opt	ics	Lumens/mW
CE	3C		Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	
CE	6C		Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	
CE	12C	R G B	Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	420 504 2112 mW
CE	18C		Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	
CE	36C		Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	
CE	12L	R G B	Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	420 504 2112 mW
CE	18L	R G B	Red Green Blue	005 015 025 520 xxx	5° 15° 25° 5° x 20° none	630 756 3168 mW



Note- All Color Engine models are typically sold as "XXX" versions with optic holder but no optic. F-form 005, 015, 025 or 520 optics can be purchased and installed seperately.











The Color Engine is an integrated Red, Green and Blue light engine, which enables the creation of dynamic color changing applications using LED technology. It is available in a choice of five circular and two linear modules and is complete with optics and optic holders. There are also four different beam angle options for the optics.

Noted models come with the "Lifesaver™" system which (when used with any Dialight-Lumidrives Colordriver) monitors PCB temperature and automatically throttles back the drive current should the system overheat to ensure long LED lifetime.

#### Color Engine 3C

A circular Color Engine complete with 1 each of Red, Green & Blue LUXEON® I LEDs.

Dimensions: L48mm diameter H15.5mm

### Color Engine 6C

A circular Color Engine complete with 2 each of Red, Green & Blue LUXEON  $^{\! @}$  I LEDs.

Dimensions: L69mm diameter H15.5mm

### **Color Engine 12C**

A circular Color Engine complete with 4 each of Red, Green & Blue LUXEON® I LEDs.

Dimensions: L90mm diameter H15.5mm

### **Color Engine 18C**

A circular Color Engine complete with 6 each of Red, Green & Blue LUXEON® I LEDs.

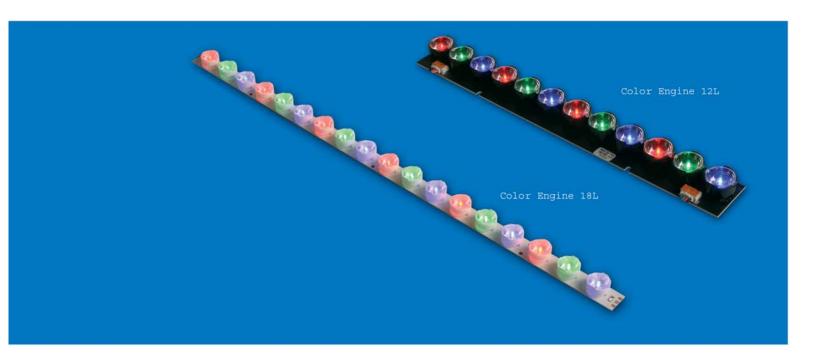
Dimensions: L110mm diameter H15.5mm

### Color Engine 36C

A circular Color Engine complete with 12 each of Red, Green & Blue LUXEON® I LEDs.

Dimensions: L120mm diameter

H15.5mm



## Color Engines cont.

### **Color Engine 12L**

A linear Color Engine complete with 4 each of Red, Green & Blue LUXEON® I LEDs & CT4 Quick Connects for easy wiring & installation.

Dimensions: L290mm x W35mm x

H15.5mm

### **Color Engine 18L**

A linear Color Engine complete with 6 each of Red, Green & Blue LUXEON® I LEDs & CT4 Quick Connects for easy wiring & installation.

Dimensions: L590mm x W22.5mm x

H15.5mm

Note- All Color Engine models are typically sold as "XXX" versions with optic holder but no optic. F-form 005, 015, 025 or 520 optics can be purchased and installed seperately.







### **Powerwhite Modules**

Code	Driver		LI	ED Color		Optic
	LML6		CW	Cool White		
			CVV		MD	
LML6			NW	Neutral White	WD	25 degree wide
					OV	5x20 degree oval
LV			ww	Warm White		7 degree frosted spot
					All ang	

LED data								
Color	min output @ 350mA	min output @ 700mA	Median color temp					
	80 LM	145 LM						
Neutral White	70 LM	130 LM	3950k ("S" bins)					

Powerwhite modules represent the latest best innovation in LED light engines. Incorporating the best readily available flux Luxeon® REBEL LEDs, Powerwhite modules are truly lighting grade. Built in primary heatsinking, optics, thermal protection and available on-board constant current drivers along with quick connect cabling systems allow for a complete plug and play LED lighting solution.

#### LML6-C1 series

6 Rebel LEDs per module Requires constant current driver

### Recommended driver:

PWD60-35-70 Powerwhite Driver

Can be driven at 350mA or 700mA

### **LML6-LV series**

6 Rebel LEDs per module Comes with onboard 350mA constant current driver Input voltage 8-17VDC / 12-24VAC Power consumption 8.5W per module

Dimensions: L297mm x W38mm x

(both series) H15mm







LML6 - C1 - NW - SP (example only)
Create your own order code by using the above table.



## **Lumispot Light Engines**

Code				Optics		Lumens/mW
LSP	1	R	Red	005	5°	35
LSP				015	15°	
LSP				025	25°	
LSP				520	5° x 20°	
LSP						
LSP				xxx	none	
LSP				005		
LSP				015	15°	
LSP				025	25°	
LSP				520	5° x 20°	
LSP						
LSP				xxx	none	
LSP				005		
LSP				015	15°	
LSP				025	25°	
LSP				520	5° x 20°	
LSP						
LSP	6	WW	Warm White	xxx	none	
LSP				005		
LSP				015	15°	
LSP				025	25°	
LSP				520	5° x 20°	
LSP						
LSP				xxx	none	

LSP9 - R - XXX (example only)
Create your own order code by using the above table.

Note- All Lumispot light engines are typically sold as "XXX" versions with optic holder but no optic. F-form 005, 015, 025 or 520 optics can be purchased and installed seperately.

The Lumispot Light Engines are available in a range of circular LED arrays complete with optics and white optic holders. They come in a choice of six different single color LEDs and four different beam angles.

### Lumispot 1

A single LUXEON<sup>®</sup> I LED with optic and optic holder on PCB, which has 4 notches cut out of the profile to allow for rear cable entry without encroaching on the circumference of the PCB.

**Dimensions:** L21.5mm diameter

H15.5mm

### <u>Lumispot 3</u>

A group of 3 LUXEON  $^{\circledR}$  I LEDs with optics and optic holders.

**Dimensions:** L48mm diameter

H15.5mm

### **Lumispot 6**

A group of 6 LUXEON  $^{\mbox{\scriptsize 8}}$  I LEDs with optics and optic holders.

**Dimensions:** L69mm diameter

H15.5mm

L23mm inner diameter

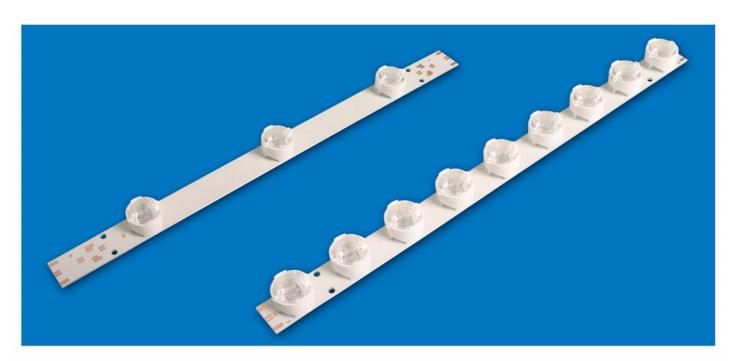
### Lumispot 9

A group of 9 LUXEON $^{\scriptsize (8)}$  I LEDs with optics and optic holders.

Dimensions: L90mm diameter

H15.5mm





## **Lumiline Light Engines**

Code	No. of LEDs	Color		Color Optics		Lumens/mW
LLN	3			005	5°	
LLN	3			015	15°	
LLN	3			025	25°	
LLN	3			520	5° x 20°	
LLN	3					
LLN	3		Warm White	xxx	none	
LLN	9		Red	005	5°	315
LLN	9			015	15°	
LLN	9			025	25°	
LLN	9			520	5° x 20°	
LLN	9					
LLN	9		Warm White	xxx	none	

LLN9 - R - XXX (example only)
Create your own order code by using the above table.

Note- All Lumiline light engines are typically sold as "XXX" versions with optic holder but no optic. F-form 005, 015, 025 or 520 optics can be purchased and installed seperately.

The Lumiline Light Engines are available in two linear module types complete with optics and white holders to match the white surface of the PCB. they come in a choice of six different single color LEDs and four different beam angles.

Modules with production dates of 5/2007 or later come with 12" lead wires.

#### **Lumiline 3**

A linear array of three LUXEON® I LEDs.

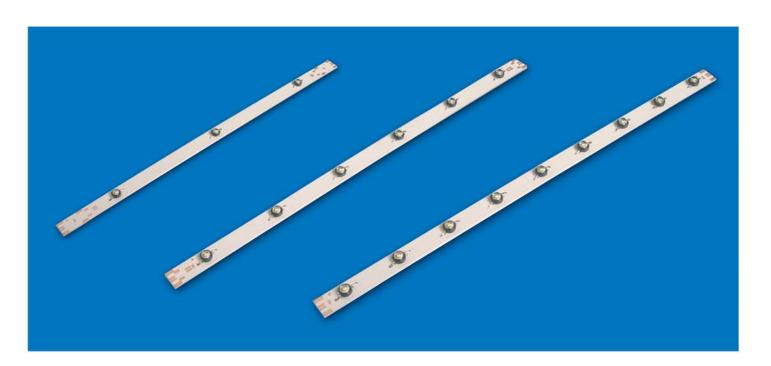
Dimensions: 324mm x 15.5mm

### Lumiline 9

A linear array of nine LUXEON® I LEDs.

Dimensions: 324mm x 15.5mm





# **Lumilight Light Engines**

Code	No. of LEDs	Color		Lumens/mW
LLT	3			
LLT				
LLT	6		Red	210
LLT				
LLT	9		Red	315
LLT				
LLT	9			

LLT9 - R (example only)
Create your own order code by using the above table.

The Lumilight Light Engines are available in a range of three linear modules and come in a choice of six different single color LEDs. Each LED linear array will fit into a standard 15mm wide aluminium "U" channel and is designed to be attached to a heatsink structure with thermal adhesive or double-sided thermal tape. It offers a wide 120° viewing angle.

Modules with production dates of 5/2007 or later come with 12" lead wires.

### **Lumilight 3**

A linear array with three LUXEON  $^{\! (\!R\!)}$  I LEDs.

Dimensions: 324mm x 13.5mm

### **Lumilight 6**

A linear array with six LUXEON® I LEDs.

Dimensions: 324mm x 13.5mm

### **Lumilight 9**

A linear array with nine LUXEON® I LEDs.

Dimensions: 324mm x 13.5mm





### **LUXEON® K2 BASED HL16**

HL16K Single Color Selection Guide with or without built in driver

Code	Driver	Color		Lumens/mW @ 350mA
HL16K		R	Red	
	D = Onboard Driver  (blank) = Requires  CC Driver			
	33 2			

HL16K - D - R (HL16 with driver in Red)
Create your own order code by using the above table.

**HL16K - R** (code without built in driver)

**HL16K - RGB** (color changing option)

A new and innovative range of compact lighting modules utilizing LUXEON<sup>®</sup> K2 LEDs designed to retrofit to existing MR16 based products. The HL16 Series incorporate a newly developed triple lens which is available in a choice of beam angles by means of an interchangeable sub-lens system. See page 24 for sub-lens changes.

#### **HL16KD and HL16K**

The HL16K can be used with our standard range of drivers. The HL16KD can be connected directly to a 12 - 24V AC/DC source.

The Dialight Lumidrives HL16D comes with the "Lifesaver™" system which monitors PCB temperature and automatically throttles back the drive current should the system overheat to ensure long LED lifetime.

#### **Dimensions:**

Height: 35.5mm

Diameter of body: 46.5mm

Diameter of lens: 50mm

#### **HL16K RGB**

A compact light fitting equipped with RGB LEDs to provide a full color change facility.

### **Dimensions:**

Height: 35.5mm

Diameter of body: 46.5mm

Diameter of lens: 50mm











### **HL16**

### HL16 Single Color Selection Guide with or without built in driver

Code	Driver	Color		
HL16				
	D = Onboard Driver			
	(blank) = Requires			
	CC Driver			

HL16 - D - R (HL16 with driver in Red)
Create your own order code by using the above table.

HL16 - R (code without built in driver)

**HL16 - RGB** (color changing option)

A new and innovative range of compact lighting modules utilizing the latest best available high flux LEDs designed to retrofit to existing MR16 based products. The HL16 Series incorporate a newly developed triple lens which is available in a choice of beam angles by means of an interchangeable sub-lens system. See page 24 for sub-lens changes.

### HL16D and HL16

The HL16 can be used with our standard range of drivers. The HL16D can be connected directly to a 12 - 24V AC/DC source.

The Dialight Lumidrives HL16D comes with the "Lifesaver™" system which monitors PCB temperature and automatically throttles back the drive current should the system overheat to ensure long LED lifetime.

### **Dimensions:**

Height: 35.5mm

Diameter of body: 46.5mm

Diameter of lens: 50mm

#### HL16 RGE

A compact light fitting equipped with RGB LEDs to provide a full color change facility.

### **Dimensions:**

Height: 35.5mm

Diameter of body: 46.5mm

Diameter of lens: 50mm





