

# Design flexibility for shops and outdoor

LED Module and LED Component Systems

**PHILIPS**

Eindhoven, the Netherlands. Philips LED Lighting Systems help create lighting that changes color and intensity, to complement the dynamic atmosphere of the Strip café at Philips R&D center:



Manchester, England. Leading retailer WHSmith uses LED-based luminaires to create a high-tech image.



# New dynamic opportunities

You can use LED Module and LED Component Systems from Philips to create innovative LED-based luminaires, or simply embed them into walls, floors, ceilings or almost any object or surface. And when you couple them to electronic controls, you can program them to change color and intensity for highly creative lighting effects. Think of the benefits:

## **Dynamic atmospheres**

In restaurants, for example, LED Lighting Systems can create cool white general lighting for the afternoon and then evolve to a warmer, softer ambience for the evening.

## **Attractive luminaire and architectural designs**

LED Lighting Systems are compact and extremely reliable, so you can build them into almost any luminaire or architectural design.

## **High reliability**

LED Modules and Components are extremely robust with nothing to crack, leak or rupture.

## **Maximum visual effect**

Colored LED Lighting Systems radiate a single-color output, providing a much higher color saturation and brilliance than by filtering conventional light sources. Philips' white LED Lighting Systems come in a choice of warm- and cool-white.

## **Improved safety**

LED Module and Component Systems run on low voltage current, making them safer and easier to work with.

## **UV and IR safe**

The LED light beam contains no UV or IR radiation, so it's safe for use on food and light-sensitive materials.

## **Immediate start-up**

Our LED range start in an instant, even at temperatures as low as -30°C.



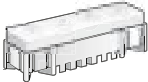
## **Low maintenance costs**

LED Module and Components Systems are virtually maintenance-free, whereas conventional lighting needs frequent lamp replacements.

## **Any color in the spectrum**

LEDs are dimmable down to 0%, which means that with Red-Green-Blue clusters you can create any color in the spectrum.

# LED Module System Specification

	Description LED Module System	Color	Optics	Correlated Color Temperature / Wavelength K / nm	Max. power consumption W	Lumen output (expected at advised max. case temperature) lm	Advised max. case temperature °C	Min. ambient temperature °C	Number of products per box	EOC			
										8711559			
	LMS 1x1 1W 20-24VDC WW 8D/932	Warm White	Narrow beam	3150	1.5	10	60		10	760124 30			
	LMS 1x1 1W 20-24VDC WW 36D/932		Medium beam						10	760186 30			
	LMS 1x1 1W 20-24VDC WW 8Dx50/932		Line beam						10	760209 30			
	LMS 1x1 1W 20-24VDC CW 8D/760	Cool White	Narrow beam	6050		10			760223 30				
	LMS 1x1 1W 20-24VDC CW 36D/760		Medium beam			10			760247 30				
	LMS 1x1 1W 20-24VDC CW 8Dx50/760		Line beam			10			760261 30				
	LMS 1x1 1W 20-24VDC R 8D	Red	Narrow beam	613,5-620,5		10			760285 30				
	LMS 1x1 1W 20-24VDC R 36D		Medium beam			10			760308 30				
	LMS 1x1 1W 20-24VDC A 8D	Amber	Narrow beam	589,5-592,0		10			760322 30				
	LMS 1x1 1W 20-24VDC A 36D		Medium beam			10			760346 30				
	LMS 1x1 1W 20-24VDC B 8D	Blue	Narrow beam	465,0-470,0		10			760360 30				
	LMS 1x1 1W 20-24VDC B 36D		Medium beam			10			760384 30				
	LMS 1x1 1W 20-24VDC G 8D	Green	Narrow beam	540,0-545,0		10			760407 30				
	LMS 1x1 1W 20-24VDC G 36D		Medium beam			10			760421 30				
	LMS 1x1 3W 20-24VDC CW 8D/763	Cool White	Narrow beam	6300		3			33	70		10	761145 30
LMS 1x1 3W 20-24VDC CW 36D/763	Medium beam		10		761169 30								
LMS 1x1 3W 20-24VDC CW 8Dx50/763	Line beam		10		761183 30								
LMS 1x1 3W 20-24VDC B 8D	Blue	Narrow beam	480,0-485,0	10	761206 30								
LMS 1x1 3W 20-24VDC B 36D		Medium beam		10	761220 30								
LMS 1x1 3W 20-24VDC G 8D	Green	Narrow beam	540,0-545,0	10	761244 30								
LMS 1x1 3W 20-24VDC G 36D		Medium beam		10	761268 30								
	LMS 2x2 4W 20-24VDC WW 8D/932	Warm White	Narrow beam	3150	4.5		40	60	-30			5	760445 30
	LMS 2x2 4W 20-24VDC WW 36D/932		Medium beam									5	760469 30
	LMS 2x2 4W 20-24VDC CW 8D/767	Cool White	Narrow beam	6700			5					760506 30	
	LMS 2x2 4W 20-24VDC CW 36D/767		Medium beam				5					760520 30	
	LMS 2x2 4W 20-24VDC R 8D	Red	Narrow beam	613,5-620,5			5					760568 30	
	LMS 2x2 4W 20-24VDC R 36D		Medium beam				5					760582 30	
	LMS 2x2 4W 20-24VDC A 8D	Amber	Narrow beam	589,5-592,0			5					760605 30	
	LMS 2x2 4W 20-24VDC A 36D		Medium beam				5					760629 30	
	LMS 2x2 4W 20-24VDC B 8D	Blue	Narrow beam	465,0-470,0		5	760643 30						
	LMS 2x2 4W 20-24VDC B 36D		Medium beam			5	760667 30						
	LMS 2x2 4W 20-24VDC G 8D	Green	Narrow beam	535,0-540,0		5	760681 30						
	LMS 2x2 4W 20-24VDC G 36D		Medium beam			5	760704 30						
	LMS 2x2 12W 20-24VDC CW 8D/763	Cool White	Narrow beam	6300		12	130			70		5	761282 30
	LMS 2x2 12W 20-24VDC CW 36D/763		Medium beam									5	761305 30
	LMS 2x2 12W 20-24VDC B 8D	Blue	Narrow beam	475,0-480,0			5					761343 30	
LMS 2x2 12W 20-24VDC B 36D	Medium beam		5		761367 30								
LMS 2x2 12W 20-24VDC G 8D	Green	Narrow beam	540,0-545,0	5	761381 30								
LMS 2x2 12W 20-24VDC G 36D		Medium beam		5	761404 30								
	LMS 1x4 4W 20-24VDC WW 8D/930	Warm White	Narrow beam	2950	4.5		40	60				5	760728 30
	LMS 1x4 4W 20-24VDC WW 36D/930		Medium beam									5	760742 30
	LMS 1x4 4W 20-24VDC WW 8Dx50/930		Line beam									5	760766 30
	LMS 1x4 4W 20-24VDC CW 8D/767	Cool White	Narrow beam	6700			5					760780 30	
	LMS 1x4 4W 20-24VDC CW 36D/767		Medium beam				5					760803 30	
	LMS 1x4 4W 20-24VDC CW 8Dx50/767		Line beam				5					760827 30	
	LMS 1x4 4W 20-24VDC R 8D	Red	Narrow beam	613,5-620,5			5					760841 30	
	LMS 1x4 4W 20-24VDC R 36D		Medium beam				5					760865 30	
	LMS 1x4 4W 20-24VDC A 8D	Amber	Narrow beam	589,5-592,0			5					760889 30	
	LMS 1x4 4W 20-24VDC A 36D		Medium beam			5	760902 30						
	LMS 1x4 4W 20-24VDC B 8D	Blue	Narrow beam	475,0-480,0		5	760926 30						
	LMS 1x4 4W 20-24VDC B 36D		Medium beam			5	760940 30						
	LMS 1x4 4W 20-24VDC G 8D	Green	Narrow beam	530,0-535,0		5	760964 30						
	LMS 1x4 4W 20-24VDC G 36D		Medium beam			5	760988 30						
	LMS 1x4 12W 20-24VDC CW 8D/755	Cool White	Narrow beam	5500		12	130			70		5	761008 30
LMS 1x4 12W 20-24VDC CW 36D/755	Medium beam		5		761022 30								
LMS 1x4 12W 20-24VDC CW 8Dx50/755	Line beam		5		761046 30								
LMS 1x4 12W 20-24VDC B 8D	Blue	Narrow beam	475,0-480,0	5	761060 30								
LMS 1x4 12W 20-24VDC B 36D		Medium beam		5	761084 30								
LMS 1x4 12W 20-24VDC G 8D	Green	Narrow beam	535,0-540,0	5	761107 30								
LMS 1x4 12W 20-24VDC G 36D		Medium beam		5	761121 30								





## LED Module System Accessories

LMS Module connector	100	761800 30
LMS Cable Connector	100	761824 30

## DALI /DMX Control Interface for LED Module System

CI 36W 20-24VDC DALI/DMX	-30	5	761787 30
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# LED Component System Specification

	Description LED Component System	Color	Correlated Color Temperature / Wavelength K / nm	Max. power consumption W	Lumen output (at T <sub>junction</sub> 25 °C), see note lm	Advised max. board temperature °C	Min. ambient temperature °C	Number of products per box	EOC
									8711559
	LCS 2x2 4W 20-24VDC WW/930	Warm White	2950	4.5	64	65	-30	10	761428 30
	LCS 2x2 4W 20-24VDC CW/780	Cool White	8000		108			10	761442 30
	LCS 2x2 4W 20-24VDC R	Red	613,5 - 620,5		240			10	761466 30
	LCS 2x2 4W 20-24VDC A	Amber	589,5 - 592,0		108			10	761480 30
	LCS 2x2 4W 20-24VDC B	Blue	470,0 - 475,0		36			10	761503 30
	LCS 2x2 4W 20-24VDC G	Green	520,0 - 525,0		108			10	761527 30
	LCS 2x2 12W 20-24VDC CW/780	Cool White	8000 K	12	240	75		10	761541 30
	LCS 2x2 12W 20-24VDC B	Blue	470,0 - 475,0		72			10	761565 30
	LCS 2x2 12W 20-24VDC G	Green	530,0 - 535,0		240			10	761589 30
	LCS 1x4 4W 20-24VDC WW/932	Warm White	3150	4.5	64	65		10	761602 30
	LCS 1x4 4W 20-24VDC CW/763	Cool White	6300		108			10	761626 30
	LCS 1x4 4W 20-24VDC R	Red	613,5 - 620,5		240			10	761640 30
	LCS 1x4 4W 20-24VDC A	Amber	589,5 - 592,0		108		10	761664 30	
	LCS 1x4 4W 20-24VDC B	Blue	475,0 - 480,0		36		10	761688 30	
	LCS 1x4 4W 20-24VDC G	Green	525,0 - 530,0		108		10	761701 30	
		LCS 1x4 12W 20-24VDC CW/767	Cool White	6700	12	240	75	10	761725 30
		LCS 1x4 12W 20-24VDC B	Blue	470,0 - 475,0		72		10	761749 30
		LCS 1x4 12W 20-24VDC G	Green	530,0 - 535,0		240		10	761763 30

Note: Lumen output is strongly dependent on application / operating temperature.

## LED Component System Accessories

LCS Jumper cable								100	761848 30
Optics	Narrow	2x6°	LCS Optic 12D					80	761862 30
	Medium	2x15°	LCS Optic 30D					80	761886 30
	Wide	2x25°	LCS Optic 50D					80	761909 30
	Elliptical	2x25°/2x6°	LCS Optic 50x12D					80	761923 30

## Xitanium™ LED Drivers

Description LED Drivers	Input voltage range	Max. power consumption W	Output power max	Max. case temperature °C	Min. ambient temperature °C	Number of products per box	EOC
							8711500
LED Driver Indoor 17W/0.7A 24V-230V	207-264	21.5	17.1	85	-40	10	749963 30
LED Driver Indoor 40W/1.75A 24V-230V		51	40.8	85		12	927385 30
LED Driver Outdoor 17W/0.7A 24V-230V	207-264	21.5	17.1	90		10	930958 30
LED Driver Outdoor 40W/1.75A 24V-230V		51	40.8	50		3	931221 30



LED Module-based luminaires can create any color in the spectrum, including warm- and cool-white.

People feel better with lighting that reflects people's natural daily rhythms.

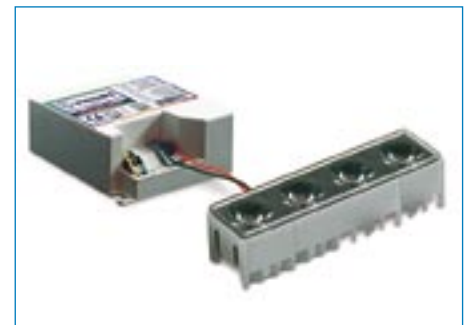


## What is a LED Module System?

A LED Module is a highly versatile, self-contained lighting system that you can easily connect to other LED Modules – almost any configuration is possible. Our LED Modules also come with DALI- and DMX-compatible control interfaces, so your customers can change the light intensity and create lighting that complements the time of day or establishes their desired mood.

### Integrated confidence

You can confidently integrate LED Modules into your next luminaire or architectural design, because we have taken care of all the optical-, thermal- and mechanical-optimization. This eases and even accelerates your product development times. Each LED Module also includes a choice of optics (for narrow, medium and line beams) and operates on a Xitanium™ driver of either 17 or 40W. For outdoor applications watertight cable connectors are available.



Highly innovative lighting systems are now possible, thanks to the flexible "domino-like" connection system and the option to place LED Modules up to 10 meters from the power supply and control interface (only for 2x2 and 1x1 versions).

## What is a LED Component System?

These are printed circuit boards, and they provide maximum flexibility to enable you to seamlessly integrate LEDs into your new product designs. We also offer separate matching Xitanium™ drivers, control interfaces and a range of optics.



- LED Xitanium™ driver
- Printed circuit board including electronics and LEDs

### Where can you take advantage?

LED Module and Component Systems are ideal for:

- Cove lighting, wall washing and arcades
- Shop and outdoor architectural lighting
- Internal and external orientation such as path-lighting, escape route and directional lighting
- Displays and showcases
- Outdoor furniture
- Hotel foyers and restaurants

## Today's progress in LED Lighting Systems

In our product range we have integrated LEDs that are 10 times brighter than the best LEDs of just five years ago. This rate of progress is set to continue. In addition, thanks to recent technology breakthroughs, today's LEDs provide all colors with a high degree of saturation, making them ideal for color mixing. Color rendering has also dramatically improved and now warm- as well as cool-white light is available. At the same time, efficiency is improving and already exceeds tungsten halogen in this area.

## Keep pace with the progress

Each day, new imaginative lighting applications are becoming possible, thanks to the rapidly accelerating breakthroughs in LED technology. LED specifications are constantly improving and higher brightness LEDs are increasingly being introduced. There's also continuous advances in configuration flexibility.

But all this progress doesn't mean that you must constantly upgrade your LED-based luminaire designs, because we will, wherever possible, incorporate the latest LED advances in LED Module and Component Systems for you.

## System overview

	LED Module System Overview	LED Component System Overview
Shape	Rectangular (1x4 LEDs) Square (2x2 LEDs) Single (1x1 LED)	Rectangular (1x4 LEDs) Square (2x2 LEDs)
LED power	1W or 3W	1W or 3W
Colors (1W)	Warm white, cool white, red, blue green and amber	Warm white, cool white, red, blue, green and amber
Colors (3W)	Cool white, blue and green	Cool white, blue and green
Optics	Narrow beam Medium-wide beam Line beam	Narrow beam Medium beam Wide beam Elliptical beam
Protection	IP67	IP20
Lifetime expectancy	1W types: 35,000hrs 70% lumen maintenance <5% failure  3W types: 25,000hrs 70% lumen maintenance <5% failure	1W types: 35,000hrs 70% lumen maintenance <5% failure  3W types: 25,000hrs 70% lumen maintenance <5% failure
Approval	ENEC (pending)	ENEC (pending)
Marking	CE (pending)	CE (pending)
Standards	ISO 9001-2000 ISO 14001	ISO 9001-2000 ISO 14001

Note: for more detailed information on LED Modules and Components and LED Drivers ask for specific data sheets.



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