



# Advancing technology to express your creativity

Philips SSL Drivers Catalogue  
December 2008

**PHILIPS**

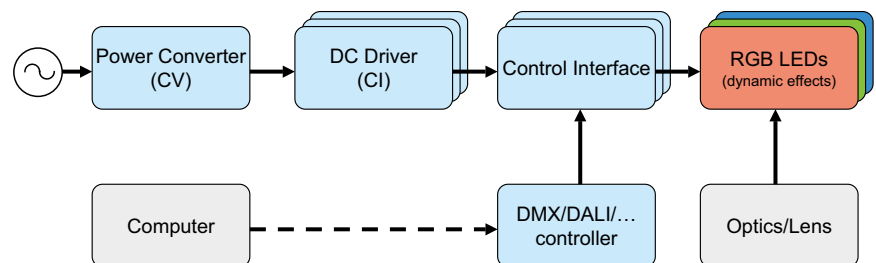


# Original thinking

In the past 10 years dramatic progress has been made in LED technology – especially the color range, luminous efficacy, and light output. This has created new opportunities for lighting designers in all kinds of applications ranging from retail to orientation and emergency lighting to signage. At the forefront of this progress is Philips Lighting. In 1999 our joint venture with Agilent Technologies, Lumileds, launched the world's first commercially available high output LED: the Luxeon range. This has been continually improved and is now at the heart of Philips LED Module and Component Systems.

# Key contents

- Power Converters
- Drivers
- Controllers & Control Interfaces
- System Solutions



SSL Integrated System





# What is a Philips LED Power Driver?



- LED Power Drivers/Supplies from Philips Lighting Electronics are designed specifically for Philips LED String Generation-2 and LED Module System.
- Ensure an operating life matching that of LEDs.
- Universal mains input ensures the installation in practically any location.



## Description

Philips LED Power Drivers have a universal mains input (100-240V) and generate a 24VDC or 12VDC voltage. The LED Power Drivers have an operating life matching that of LEDs. The range consist of a slim 20W version with a plastic housing and 60 and 100W versions with a metal housing. All three types have been tested according IP66.

Philips LED Power Drivers perfectly operate the Philips LED based systems including:

- LED String Generation 2
  - a wire connected string of LEDs for safer, more energy efficient signs and architectural effects
- The LED Module System
  - lighting blocks that can be joined in a flexible "domino" like arrays to produce creative luminaires and displays
- LED Rigid Strips

## Independent

60W-24V also has independent version for the use of the outside of the fixture.

## Excellent reliability

LED Power Drivers last up to 50,000 hours, to take advantage of the long life of LEDs. They come with the Philips electronic ballast guarantee

## Low-temperature performance (-30°C)

So you can be confident in any outdoor application (tested according IP66)

## Hazard-free & universal mains (100-240V)

All major safety requirements (as defined in CE, UL, CSA and VDE) are met. Furthermore all three types come in universal mains, so you can install them in practically any location

## Improved safety

Philips LED Power Drivers generate a limited output voltage and also provide isolation for safe operation (SELV)

## Typical applications include

- Channel letter/contour lighting
- Architectural lighting
- Retail/theme lighting
- Orientation lighting
- Entertainment lighting
- Emergency and security lighting

## Specifications

### Input

Parameter	Symbol	20W-24V driver	60W-24V driver	100W-24V driver	60W-12V driver	Unit
Input voltage range	$V_{in}$	100-240	100-240	100-240	100-240	V
Frequency	$f$	47-63	47-63	47-63	47-63	Hz
Power consumption range	$P_{in}$	25 max.	75 max.	120 max.	75 max.	W
Power factor	$P_f$	0.9 min	0.9 min	0.9 min	0.9 min	-
Total harmonic distortion	THD	20	20	20	20	%
Efficiency	-	80% typical	80% typical	80% typical	80% typical	%

### Output

Parameter	Symbol	20W-24V driver	60W-24V driver	100W-24V driver	60W-12V driver	Unit
Output voltage range	$V_{out}$	23 - 25.6	23 - 25.6	23 - 25.6	11.4 - 12.6	V
Output current	$I_a$	0.85	2.5	4.1	5.0	A
Output voltage ripple	-	1.0	1.0	1.0	1.0	%
Short circuit protection	-	yes	yes	yes	yes	-

## Environmental ratings

Parameter	Symbol	Minimum	Maximum	Unit
Storage ambient temperature	$T_{st}$	- 40	+ 85	°C
Operating ambient temperature	$T_{op}$	- 30	+ 60	°C
Case temperature	$T_c$	-	+ 90	°C
Life time (at $T_a=40^\circ\text{C}$ and $T_c=65^\circ\text{C}$ )	L	-	50K	hrs.
Failure rate at max. life time	$L_{50k}$	-	5	%

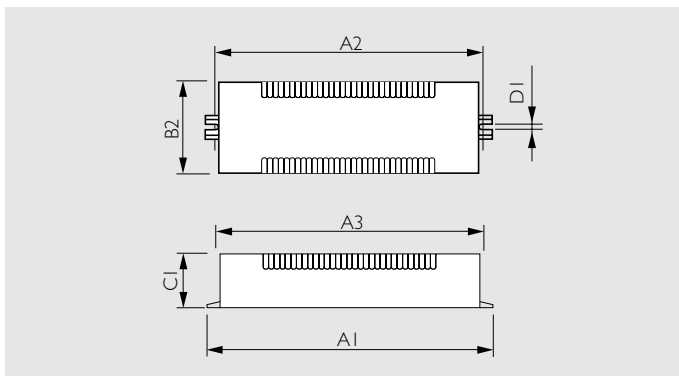
## Ordering information

Description LED Power Driver (IP66)	Box packaging	Order number
100-240V 20W-24V	10	9137 006 20891
100-240V 60W-24V	10	9137 006 20991
100-240V 100W-24V	10	9137 006 21091
100-240V 60W-12V	10	9137 100 52466
100-240V 60W-24V Independent	10	9137 132 20366

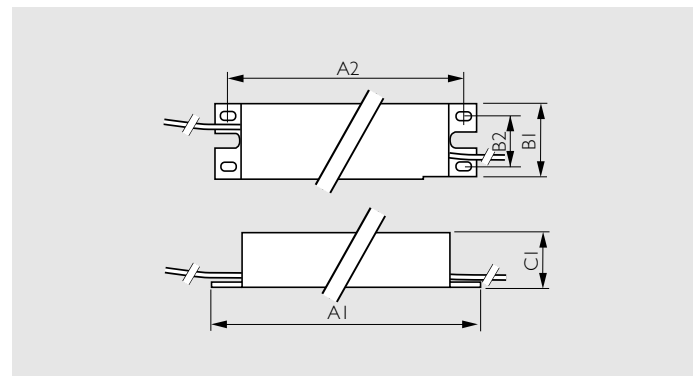
### Note:

- Case temperature should be measured at test point (Tc) as marked on driver label
- The housing provides protection against the ingress of dust and heavy seas or water jets, tested according to the IP66 classification for luminaries by the IEC.

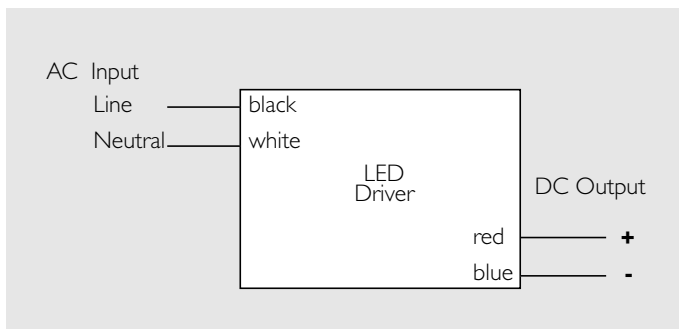
## Dimensional drawings



LED Power Driver 20W



LED Power Driver 60W & 100W



Driver wiring diagram for 20W, 60W & 100W

Driver type	A1	A2	B1	B2	C1	D1
20W	130.0	140.0	37.0	18.5	25.0	4.4
60W	241.3	228.6	43.1	26.6	30.0	4.4
100W	241.3	228.6	43.1	26.6	30.0	4.4

### Notes:

- All dimensions are in mm
- Drawings are not to scale
- Two mounting slots for M4 or #6 screws
- Lead wires: 300mm length, 0.8 mm<sup>2</sup> solid-core copper

# LED Power Converter LP-500-24



## Description

Philips LP-500-24 is a standalone power converter with an output of 500W and 24VDC for LED luminaires in outdoor application, for instance, city beautification, architectural and ambient lighting system etc. It gives a freedom for installation in a big SSL outdoor system with a protection against the ingress of dust and heavy seas or water jets, i.e. IP-66. It also provides a quality and reliable power to other components in the SSL system, for instance, drivers and LED modules. Moreover this power converter has an operating lifetime matching that of LEDs.

## High Power Output

Philips LED Power Converter LP-500-24 provides an output power of 500W to the LED system so that it can drive more LED luminaires. In a City Beautification system, the cable connection can be reduced to a low level. Then the system installation can be simpler with the contribution of this power converter.

## Suitable for Outdoor Application

Philips LED Power Converter LP-500-24 gives a protection of IP-66 classification for the luminaires by the IEC without other extra accessory to make sure you can be fully confident in an outdoor application.

## Excellent Reliability

Philips LED Power Converter LP-500-24 lasts up to 50,000 hours to take advantage of the long life of LEDs.

## Improved Safety

Philips LED Power Converter LP-500-24 generates a limited output voltage and also provides isolation for safety operation (SELV).

## Hazard-free

All the safety requirements as defined in CE and CCC are met. It's safe to install in a location.

## EMC compliant

Philips LED Power Converter LP-500-24 is in compliance with the EMC standards for lighting products, including CISPR-22 Class-B even.

## RoHS Compliant

## Typical applications include:

- Architectural lighting
- Ambient lighting



## Specifications

Input			
Parameter	Symbol	LP-500-24	Unit
Rated input voltage	$U_{in}$	220, 230, 240	V
Input voltage range	$U_{operating}$	180-264	V
Frequency	F	50, 60	Hz
Input current range	$I_{operating}$	2.2-3.3	A
Power consumption range	$P_{in}$	585 max.	W
Power factor (typical)	PF	0.97	-
Total harmonic distortion (typical)	THD	15	%
Efficiency (typical)	-	85	%
Inrush current (typical @ 230V)	-	40	A

Output			
Parameter	Symbol	LP-500-24	Unit
Output power range	$P_{out}$	500 max.	W
Output voltage	$U_{out}$	$24 \pm 1.5\%$	V
Output current	$I_{out}$	0 - 20.8	A
Output voltage ripple (peak to peak)	-	240	mV
Short circuit protection	-	Yes	-
Over load protection	-	Yes	-
Over voltage protection	-	Yes	-
Over temperature protection	-	Yes	-

## Environmental ratings

Parameter	Symbol	Minimum	Maximum	Unit
Storage ambient temperature	$T_{st}$	-20	80	°C
Storage humidity	-	10	95	%RH
Operating ambient temperature	$T_{op}$	-20	50	°C
Operating humidity	-	10	90	%RH
Case temperature	$T_c$	-	60	°C
Life time (at $T_s=50^\circ\text{C}$ and $T_c=60^\circ\text{C}$ )	L	-	50K	Hours
Failure rate max. lifetime	$L_{50k}$	-	<10	%

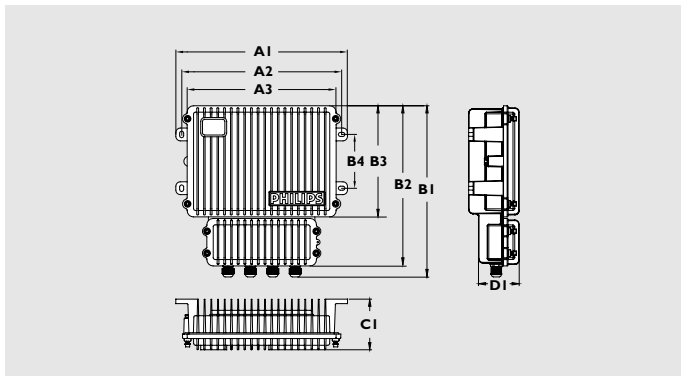
## Ordering information

Description	Box packaging	Order number	Remark
LP-500-24	I	9137 100 51862	English label
LP-500-24	I	9137 100 51863	Chinese label

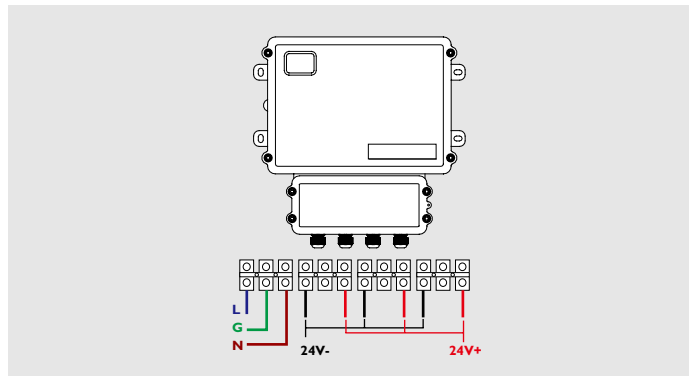
### Note:

Case temperature should be measured at the test point ( $T_c$ ) as marked on the product label.

## Dimensional drawings



## Wiring diagram



A terminal block in LP-500-24 provides the wire connection junctions for input and output.

## Dimension drawing table

	A1	A2	A3	B1	B2	B3	B4	C1	D1
LP-500-24	383.7	357.7	333.0	382.0	357.5	248.0	120.0	113.0	91.0

### Note:

- All dimensions are in mm
- Case material: Aluminum
- Weight: 7.5Kg





# What is a Xitanium™ LED Driver?



Outdoor

Xitanium LED Drivers from Philips are designed specifically to power Luxeon high power LEDs. Philips has used its extensive expertise in electronics to ensure that Driver and LED are perfectly 'fine-tuned' to each other, and that the exceptionally steady DC output enhances the long life and optimum operation of the high power LEDs.



Indoor



## Description

These drivers are included in the illumination segment of the Xitanium™ family of products. The Xitanium™ drivers are designed specifically to optimally power Luxeon™ high power LEDs. The constant DC current output provides the long life and optimum operation of high power LEDs. Xitanium™ drivers have an operating life matching that of LEDs.

The 25W dimming driver controls the LEDs by pulsing the LEDs on and off in relation with the input voltage for the driver's light regulation circuit. The input voltage for this light regulation circuit varies from 1V to 10V DC: 1V results in a minimum lighting level (5% LED output) and 10V in a maximum (100% LED output). The PWM-frequency is 700Hz (± 10%). Dimming does not affect LED life.

The outdoor versions have an IP66 rating.

Xitanium™ drivers also perfectly operate the Philips LED based systems including:

- The LED Module System: lighting blocks which can be joined in flexible "domino" like arrays to produce creative luminaries and displays
- LED String: a wire connected string of LEDs for safer, more energy efficient signs and architectural effects
- Luxeon LEDs from the Lumileds Lighting company are state-of-the-art solid-state lighting devices – the brightest LEDs on the market in a very compact package. Ideal for high-lumen, general lighting



## New design opportunities

The Xitanium's small, compact size enables you to innovate with new, low-profile fixture designs.

## Hazard-free

All the major safety requirements (as defined in CE, ENEC, KEMA, and UL) are met, so you can install them in practically any location.

## Excellent reliability

Xitanium LED Drivers last up to 50,000 hours, to take advantage of the long life of LEDs. They come with the Philips electronic ballast guarantee.

## Wide choice

Extensive product portfolio gives you a wide choice. Portfolio consist of in- and outdoor types with power ratings from 12 to 80W, including a 25W for dimming possibilities.

## Improved safety

Xitanium LED Drivers generate a limited output voltage and current and also provide isolation for safe operation.

## Low-temperature performance (-40°C)

So you can be confident in any outdoor application (IP66).

## Universality

Although optimized for high power Luxeon LEDs, the Xitanium range of Drivers is also suitable for other LED based systems.

## Typical applications include:

- Channel letter/contour lighting
- Architectural lighting
- Retail/theme lighting
- Orientation lighting (path lighting)
- Entertainment lighting
- Emergency and security

[www.philips.com/LED](http://www.philips.com/LED)

## Quick selection table

### Description Configuration options

- 12W 350mA (outdoor only)
- 1-8 one-watt Luxeons
  - max. 3.2m Philips LED String Red & Amber
  - max. 3.5m Philips LED String Blue & Green
- 17W 700mA (outdoor only)
- 2, 4, 6, 8, 10 or 12 one-watt Luxeons
  - 6-up and 12-up Luxeon lines, rings or arrays
  - 1-5 three-watt Luxeons
  - 1-3 five-watt Luxeons
  - max. 5.0m Philips LED String Red & Amber
  - max. 4.2m Philips LED String Blue & Green
  - 1-10 Philips LED Modules

### Description Configuration options

- 25W 1050mA (indoor only)
- 3, 6, 9, 12, 15 or 18 one-watt Luxeons
  - 18-up Luxeon array
  - 1-5 three-watt at 1.0A Luxeons
- 25W 1050mA Dimming (indoor only)
- 15 or 18 one-watt Luxeons
- 40W 1750mA
- 5, 10, 15, 20, 25 or 30 one-watt Luxeons
  - Philips LED String White max. 4.0m
  - 1-24 Philips LED Modules
- 67W 2800mA (outdoor only)
- 8, 16, 24, 32, 40 or 48 one-watt Luxeons
  - 4, 8, 12, 16 or 20 three-watt Luxeons
- 80W 3150mA (outdoor only)
- 9, 18, 27, 36, 45 or 54 one-watt Luxeons
  - 5, 10, 15, 20 or 25 three-watt Luxeons

## Specifications

Description LED Driver	Input			Output			Tc max.
	Voltage V	Max. power W	Max. current A	Max. power W	Current mA	Voltage V	
12W outdoor	207 - 264	15.0	0.09	12.0	350 +/- 5%	2.4 - 33.0	85
17W outdoor	207 - 264	21.5	0.10	17.0	700 +/- 5%	5.6 - 24.6	85
25W indoor	207 - 264	31.9	0.20	25.2	1050 +/- 5%	5.6 - 24.0	85
25W indoor Dim	207 - 264	25.0	0.20	20.3	1050 +/- 5%	5.6 - 24.0	85
40W indoor	207 - 264	51.0	0.30	40.8	1750 +/- 5%	5.6 - 24.0	85
40W outdoor	207 - 264	48.0	0.24	40.8	1750 +/- 5%	5.6 - 24.0	85
67W outdoor	207 - 264	85.0	0.40	67.0	2800 +/- 5%	3.6 - 25.0	90
80W outdoor	207 - 264	95.0	0.43	80.0	3150 +/- 5%	3.2 - 25.0	90

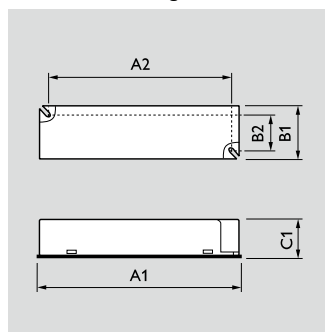
## Ordering Information

Description LED Driver	Box packaging	Order Number	Description LED Driver	Box packaging	Order Number
12W outdoor	10	9137 006 15882	40W indoor	12	9137 001 81682
17W outdoor	10	9137 006 15982	40W outdoor	12	9137 006 25082
25W indoor	12	9137 001 81582	67W outdoor	20	9137 007 04582
25W indoor Dim	12	9137 001 81982	80W outdoor	20	9137 006 07382

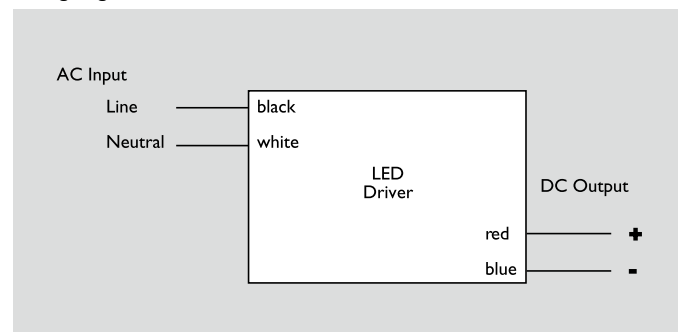
Note: for more detailed information on LED Drivers, LED Modules and LED String ask for specific product data sheets.

### 12W outdoor

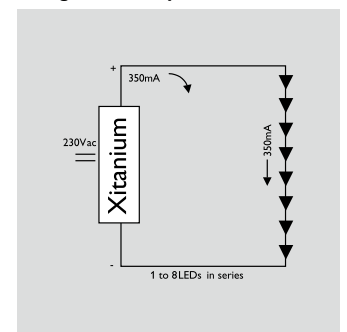
#### Dimensional drawing



#### Wiring diagram



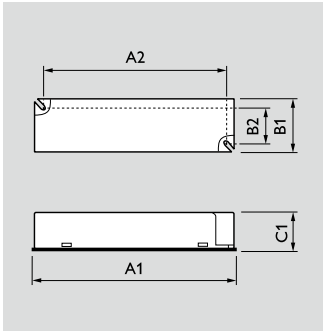
#### Configuration arrays



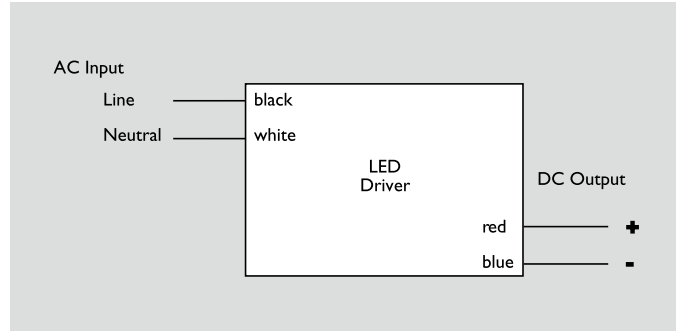
Note: Special attention is required for parallel connections in case of Vf binning differences.

**17W outdoor**

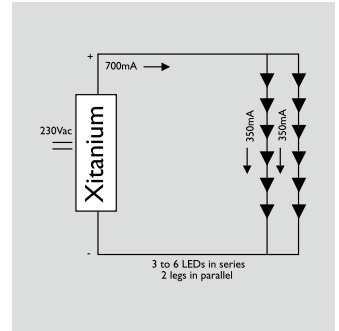
**Dimensional drawing**



**Wiring diagram**

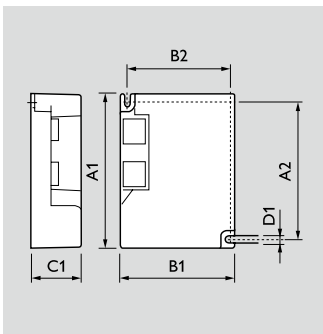


**Configuration arrays**

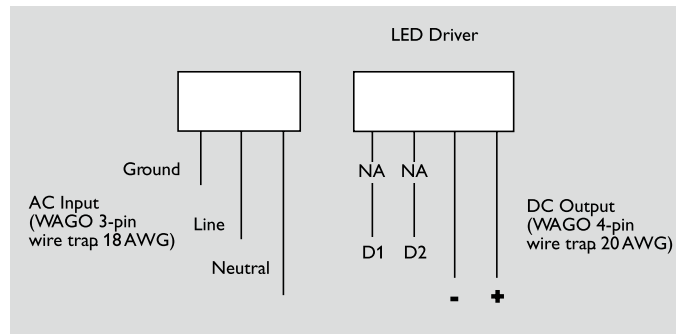


**25W indoor**

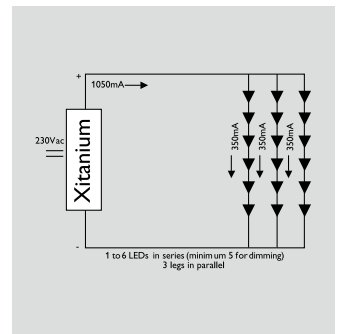
**Dimensional drawing**



**Wiring diagram**

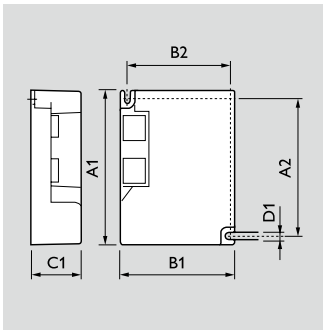


**Configuration arrays**

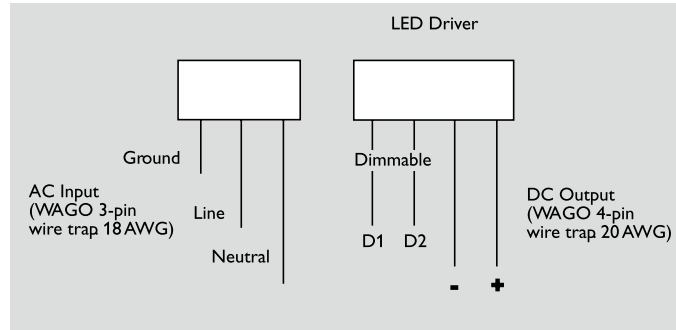


**25W DIM indoor**

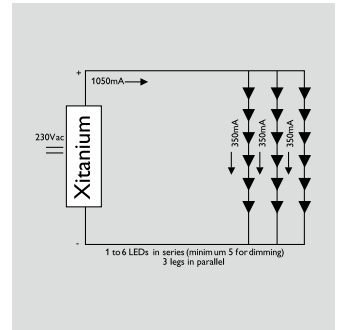
**Dimensional drawing**



**Wiring diagram**

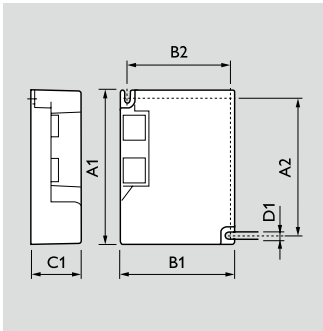


**Configuration arrays**

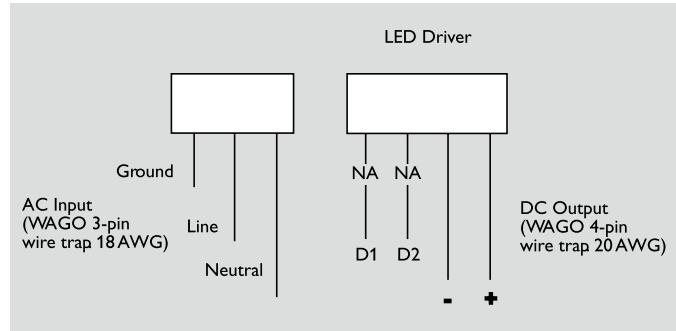


**40W indoor**

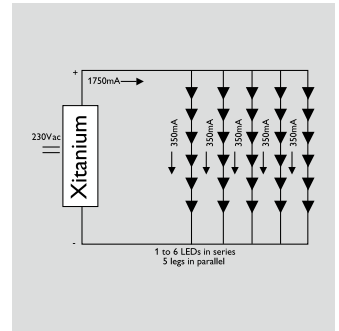
**Dimensional drawing**



**Wiring diagram**



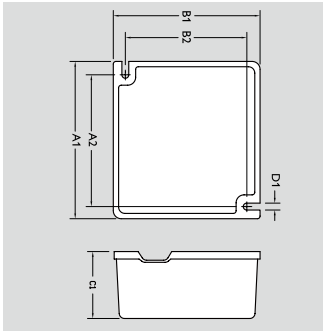
**Configuration arrays**



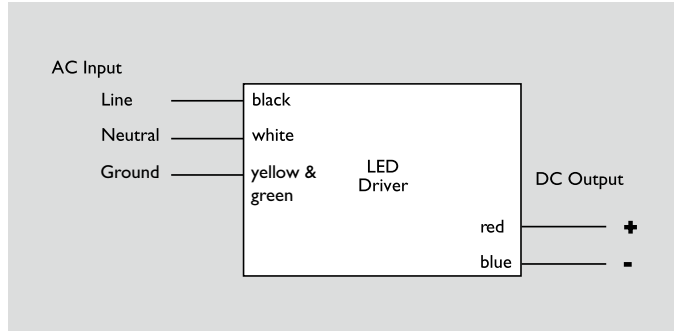
Note: Special attention is required for parallel connections in case of Vf binning differences.

**40W outdoor**

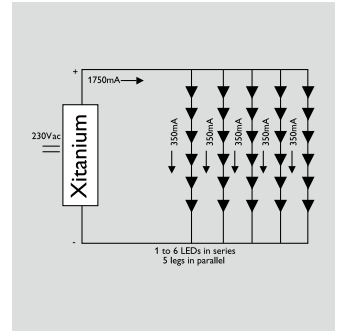
**Dimensional drawing**



**Wiring diagram**

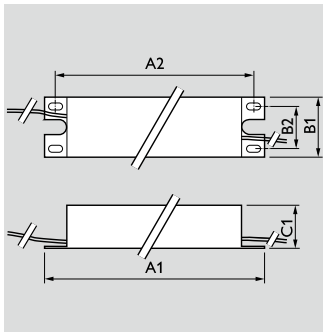


**Configuration arrays**

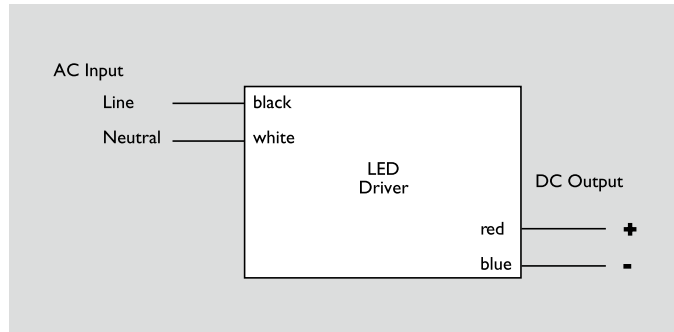


**67W outdoor**

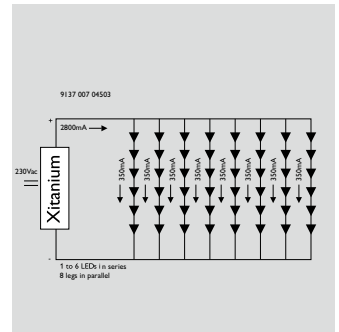
**Dimensional drawing**



**Wiring diagram**

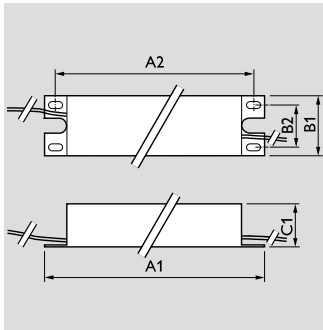


**Configuration arrays**

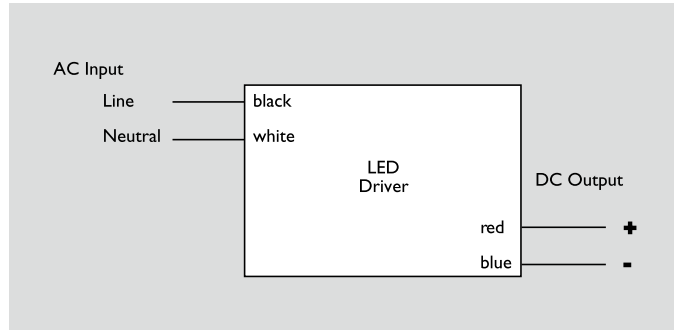


**80W outdoor**

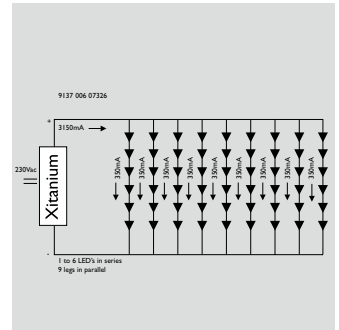
**Dimensional drawing**



**Wiring diagram**



**Configuration arrays**



Note: Special attention is required for parallel connections in case of Vf binning differences.

**Dimension drawing table**

	A1	A2	B1	B2	C1	D1
12W outdoor	132,0	122,4	34,2	24,6	25,0	4,4
17W outdoor	132,0	122,4	34,2	24,6	25,0	4,4
25W indoor	83,0	73,4	77,0	67,4	33,8	4,4
25W indoor Dim	83,0	73,4	77,0	67,4	33,8	4,4
40W indoor	83,0	73,4	77,0	67,4	33,8	4,4
40W outdoor	88,9	76,0	83,0	70,0	38,0	3,8
67W outdoor	240,0	225,0	43,2	30,0	29,5	4,4
80W outdoor	240,0	225,0	43,2	30,0	29,5	4,4

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



Representing a flexible and cost-effective solution for the market's wide variety of applications requiring lower levels of illumination, Philips' Xitanium™ Low Power Drivers for 350mA and 700mA LEDs offer maximum performance and unprecedented design freedom. Supporting 1-3 Luxeon I models, 1-2 Luxeon III models, 1 Luxeon V model, or 1-2 Luxeon K2 models by Lumileds as well as a range of market-equivalent LEDs, Philips's Xitanium low power drivers optimally support high lumen general lighting applications as well as the market's needs for orientation/step, spot, task, decorative, gaming, and appliance lighting in a variety of commercial and public settings.

Versatile and compact, the 350mA and 700mA Xitanium models are nearly 50% smaller in length than Philips' previous offerings to optimally support new, low-profile fixture designs. The drivers carry a CE marking and a CSA listing and feature UL Class 2 rating with inherent shortcircuit protection for added safety and ease of maintenance. Long lasting and reliable, their tightly regulated output (1% line and 5% load) ensures consistent light output regardless of line conditions, load levels, and ambient temperatures, and the drivers offer low temperature performance down to -40°C to enable their use in any outdoor application. The drivers additionally operate models from 100V-240V, 50/60 Hz to reliably support a range of global voltages. Drivers are rated for 50,000 hours of life.

High-performing and energy-efficient, Philips' Xitanium Low Power Drivers for 350mA and 700mA LEDs represent a breakthrough in LED driver technology for a broad range of low power LED lighting applications.

### DESIGN HIGHLIGHTS:

- Compact and lightweight housing measuring some 50% smaller in length than Philips' previous 350mA and 700mA offerings
  - Promotes enhanced versatility and design flexibility for the market's wide range of applications requiring lower levels of illumination
  - Drivers easily blend into modern fixture designs to support a range of visual and aesthetic objectives
- 350mA and 700mA drivers support 1-3 Luxeon I models, 1-2 Luxeon III models, 1 Luxeon V model, or 1-2 Luxeon K2 models by Lumileds as well as a range of marketequivalent LEDs
  - Facilitates new, low-profile fixture design
  - Highly compatible with current market offerings
- CE-certified, CSA-listed and UL Class 2-rated with inherent short-circuit protection
  - Ensures safety, reliability, and ease of maintenance
- Tightly regulated output (1% line and 5% load)
  - Ensures consistent light output regardless of line conditions, load levels, and ambient temperatures
- Low temperature performance down to -40°C
  - Enables the drivers' reliable use in a wide range of extreme temperature conditions
- Supports lamp models from 100V-240V, 50/60 Hz
  - Reliably operates LEDs in a range of global voltages
- The drivers last up to 50,000 hours to take advantage of the long life of LEDs
- RoHS compliant
- For luminaires with protection class I and II; class I metal luminaires with earth connection require special measures for EMC compliance

### APPLICATIONS:

- Spot/Track Lighting
- Undercabinet Lighting
- Task Lighting
- Orientation/Step Lighting
- Appliance Lighting
- Gaming/Casino Lighting



**Quick selection table**

Description	Configuration options
4 Watt 350mA	- 1-3 Luxeon I
8 Watt 700mA	- 2, 4, or 6 Luxeon I - 1-2 Luxeon III - 1 Luxeon V - 1-2 Luxeon K2

**Specifications**

Description LED Driver	Input		Output				Case Temp. max.
	Voltage V	Max. current A	Min. power W	Max. power W	Current A	Voltage V	
4 Watt	120±10%	0.09	1.0	4.0	0.35	2.8 ~ 12.0	65
	230±10%	0.04					
8 Watt	120±10%	0.18	2.0	8.0	0.70	2.8 ~ 12.0	65
	230±10%	0.09					

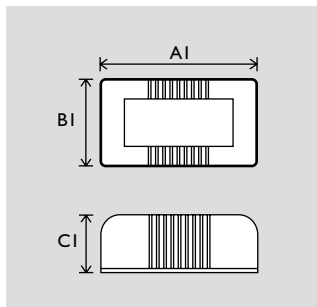
- Environmental Protection: IP20 dry location
- Safety: CE' UL Class 2 (US/CAN)' CSA' Inherent short-circuit protection, self-limited overload protected
- AC Input and DC Output: 2 (0.5mm<sup>2</sup>) stranded wires, 10cm long
- Case Material: Plastic, UL94VO flame retardant, white color
- Dimensions: 65 x 35 x 23 mm
- Weight: 74 grams

**Ordering information**

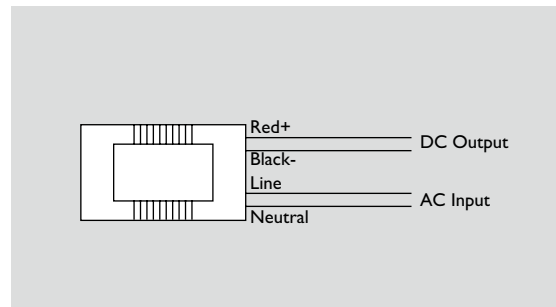
Description LED Driver	Box packaging	Order Number
4W 350mA	100	9137 100 52262
8W 700mA	100	9137 100 52362

**4W 350mA**

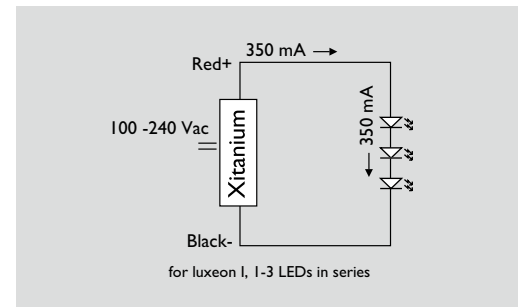
Dimensional drawing



Wiring diagram

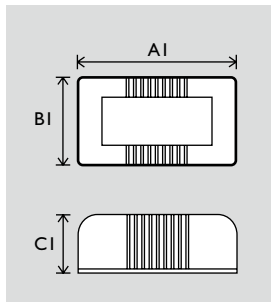


Configuration examples

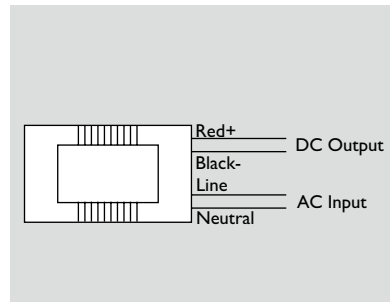


**8W 700 mA**

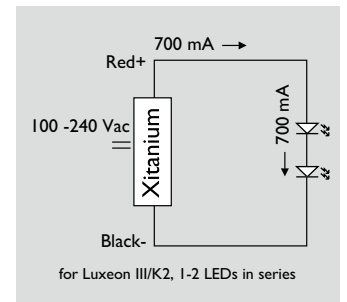
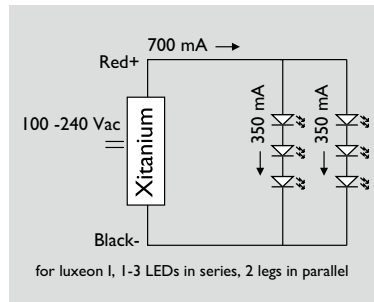
Dimensional drawing



Wiring diagram



Configuration examples



**Dimension drawing table**

	AI	BI	CI
4W 350mA	65	35	23
8W 700mA	65	35	23



LED Driver Indoor 10W 700mA Dimming



LED Driver Indoor 30W 700mA Dimming

### Description

Philips LED indoor dimming drivers are designed for the market's wide variety of applications, such as controlling light effect on Spot lighting or Decorative lighting. Indoor Spot and Decorative light applications include Dining, Reading, Living, Restaurant, Shops, Stage and Museum...

LED driver indoor 10W dim is a dedicated driver to deliver power to 3 pcs of 700mA LEDs in series, suitable for nominal 220V to 240V, 50Hz and 60Hz mains supply. The driver is to be mounted inside or outside luminaries for indoor use and class II applications. The output must be connected to the 3 LEDs in series

LED driver indoor 30W dim is a dedicated driver to deliver power to 6 ~ 12 pcs of 700mA LEDs in series, suitable for nominal 220V to 240V, 50Hz and 60Hz mains supply. The driver is to be mounted inside luminaries for indoor use and class II applications. The output must be connected to the 6 ~ 12 LEDs in series.

The driver converts AC mains to constant current output by an AC/DC transition. Users can connect a trailing edge dimmer at input side to dim LEDs' light output. Both drivers are SELV (safety extra low voltage), and the drivers have following characteristics:

- Excellent dimming performance - no dimming steps visible, no humming, no flickering
- High Power Factor, low THD
- Short circuit protection
- Open circuit protection

### Design Highlight

Excellent dimming behavior

- no dimming steps visible
- no humming
- no flickering

Well controllable light output to the environment

- Working with trailing edge dimmers (see the recommendation list below)
- Can dim down to 20% or even less (dimmer depended)

Low profile design with compact size

Working with all 700 mA LEDs

- 10W delivers power to 3 LEDs
- 30W delivers power to 6 ~ 12 LEDs

Trailing edge dimming

- Excellent EMI (Electro Magnetic Interference) performance
- Optimal to low power LED system

Wide operation temperature performance (-20°C to +50°C)

CE compliant

RoHS compliant

SELV compliant

### Applications

Indoor Spot and Decorative light applications:

Dinning	Shops
Reading	Restaurant
Living	Museum

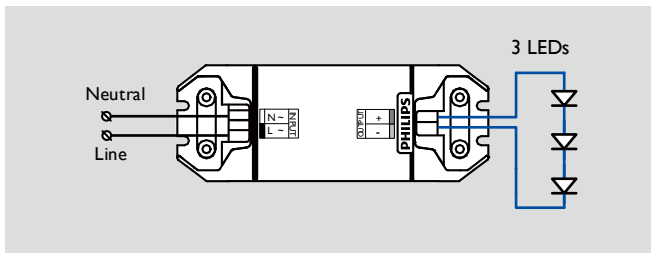
### Specifications

Description LED Driver	Input			Output		Case Temp Max.	Dimming Range	Note
	Rated Voltage V	Max. Current A	Max. Power W	Rated Current A dc	Voltage V dc			
LD-R 10W 700mA	220-240	0.06	10	0.7	14	80	25%-100%	100% while no dimmer, 25% is a typical value depending on dimmer
LD-R 30W 700mA	220-240	0.17	30	0.7	18-42	80	20%-100%	100% while no dimmer, 20% is a typical value depending on dimmer

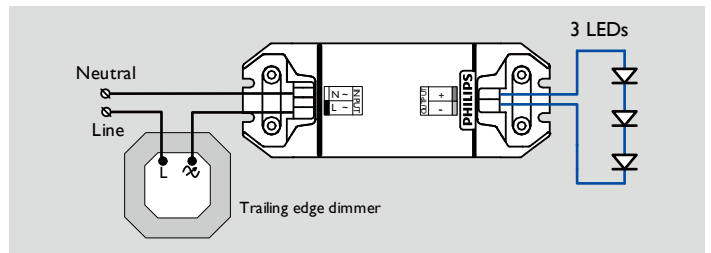
### Quick selection table on load

Description	Configuration options
LD-R 10W 700mA	3 pcs of 700mA LEDs
LD-R 30W 700mA	6 ~ 12 pcs of 700mA LEDs

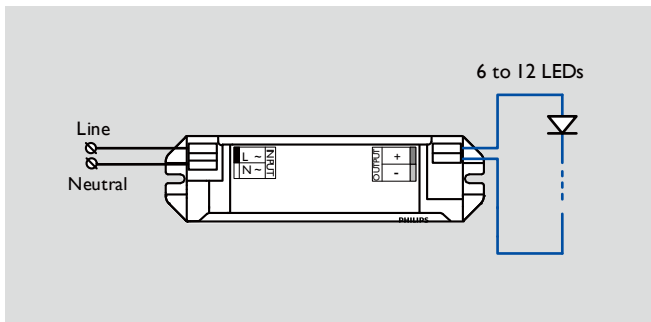
Wiring Diagram for 10w using without dimmer



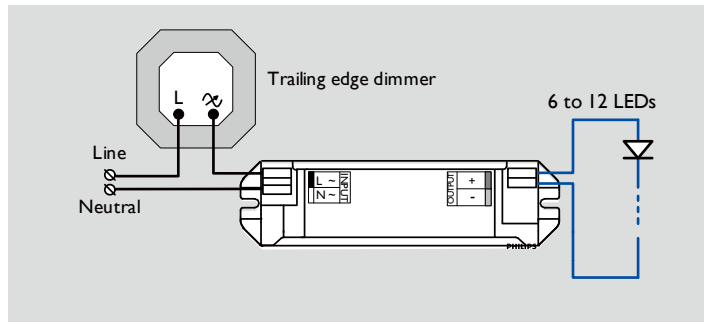
Wiring Diagram for 10w using with dimmer



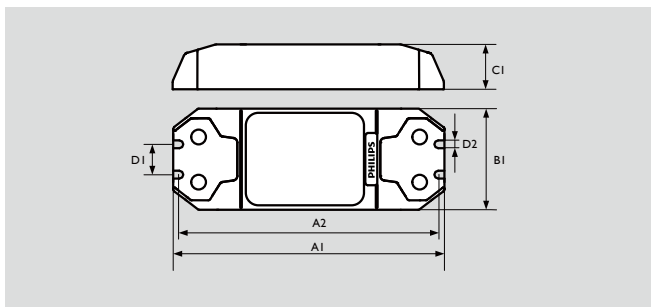
Wiring Diagram for using without dimmer for 30w



Wiring Diagram for 30w using with dimmer

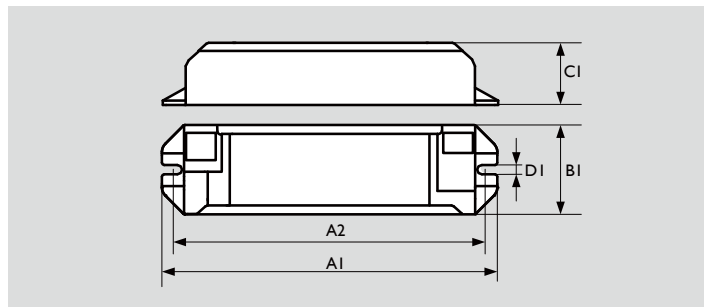


Dimension and Weight for 10w



TYPE	Dimension (mm)						Weight (g)
	A1	A2	B1	C1	D1	D2	
10W Dim	120.0	114.5	45.0	20.0	13.5	3.5	75.0

Dimension and Weight of 30w



TYPE	Dimension (mm)					Weight (g)
	A1	A2	B1	C1	D1	
30W Dim	150.0	136.0	40.0	28.0	4.2	115.0

### Ordering information

Description	Box packaging	Order number	Remark
LD-R 10W 700mA	36	913710053666	English
LD-R 30W 700mA	20	913710053866	English
LD-R 10W 700mA	36	913710053667	Chinese
LD-R 30W 700mA	20	913710053867	Chinese

### Recommended dimmer list

Brand	Description	Supplier	Supplier reference
PEHA	Tronic-dimmer 433 HAB	Tronic dimmer	433 HAB
GIRA	Universal- drehdimmer	GIRA	1176 00/100
GAMMA	Halogendimmer 20-300W	Merten	5771
Siemens	Delta I Halogendimmer 20-600W	Siemens	5TC8 284
Niko	09-017	Niko	09-017
GAMMA	Elektronische dimmer	Drespa/Tronic dimmer	0817/433 HAB



Representing a flexible and cost-effective solution for the market's wide variety of applications requiring lower levels of illumination, LDI 4W350mA12V(I) for 350mA LEDs offers maximum performance and unprecedented design freedom. Supporting 1-3 Luxeon I models by Lumileds as well as a range of market-equivalent LEDs, LDI 4W350mA12V(I) optimally supports high lumen general lighting applications as well as the market's needs for orientation/step, spot, task, decorative, gaming, and appliance lighting in a variety of commercial and public settings. Move over, LDI 4W350mA12V(I) is also an independent device, which can be used outside of a fixture.

Independent and compact, the LDI 4W350mA12V(I) is smaller in length than Philips' previous independent offerings to optimally support new, low-profile fixture designs. The drivers carry features of inherent short circuit protection for added safety and ease of maintenance. Long lasting and reliable, its tightly regulated output (1% line and 5% load) ensures consistent light output regardless of line conditions, load levels, and ambient temperatures, and the drivers offer low temperature performance down to -20°C to enable their use in any outdoor application. The drivers additionally operate models from 100V-240V, 50/60 Hz to reliably support a range of global voltages. Drivers are rated for 20,000 hours of life.

High-performing and energy-efficient, LDI 4W350mA12V(I) represents a breakthrough in LED driver technology for a broad range of low power LED lighting application.

#### DESIGN HIGHLIGHTS:

- Independent with compact size and lightweight housing
  - Independent feature allows the driver designed outside of the fixture
  - Promotes enhanced versatility and design flexibility for the market's wide range of applications requiring lower levels of illumination
- Support 1-3 Luxeon I models by Lumileds as well as a range of market equivalent LEDs
  - Facilitates new, low-profile fixture design
  - Highly compatible with current market offerings
- Tightly regulated output (1% line and 5% load)
  - Ensures consistent light output regardless of line conditions, load levels, and ambient temperatures
- Low temperature performance down to -20°C
  - Enables the drivers' reliable use in a wide range of extreme temperature conditions
- Supports lamp models from 100V-240V, 50/60 Hz
  - Reliably operates LEDs in a range of global voltages
- The drivers last Min 20,000 hours to take advantage of the long life of LEDs
- RoHS compliant
- For luminaires with protection class I and II; class I metal luminaires with earth connection require special measures for EMC compliance

#### APPLICATIONS:

- Spot/Track Lighting
- Undercabinet Lighting
- Task Lighting
- Orientation/Step Lighting
- Appliance Lighting
- Gaming/Casino Lighting

**Quick selection table**

Description	Configuration options
LDI 4W350mA12V(I)	1-3 Luxeon I

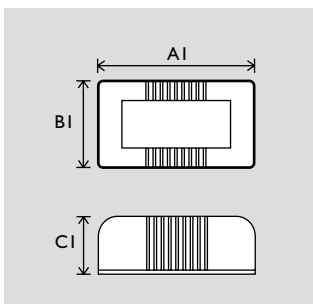
**Specifications**

Description	Input		Output				Case Temp. max.
	Voltage V	Max. current A	Min. power W	Max. power W	Current A	Voltage V	
LDI 4W350mA12V(I)	120±10% 230±10%	0.09 0.04	1.0	4.0	0.35	2.8 ~ 12.0	65

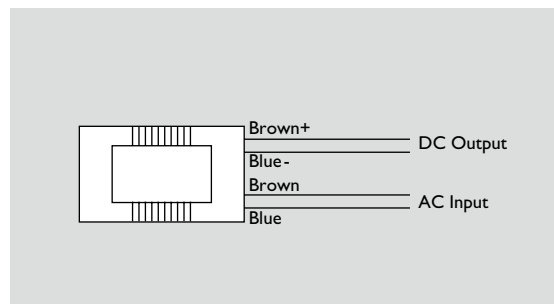
**Ordering information**

Description	Box packaging	Order Number	Type
LDI 4W350mA12V (I)	100	9137 100 54462	English
LDI 4W350mA12V (I)	100	9137 100 54463	Chinese

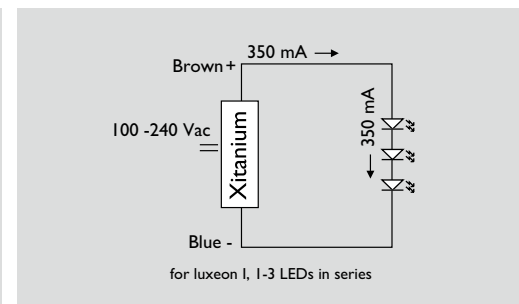
**LDI 4W350mA12V (I)**  
Dimensional drawing



**Wiring diagram**



**Configuration examples**



**Dimension drawing table**

	A1	B1	C1
LDI 4W350mA12V (I)	99	48	28



**Description**

LDI 3W 0.7A OB AC is designed specially to optimal drive Luxeon high power LEDs in an OB lighting system. The constant DC current output provides the long life and optimum operation of high power LEDs. LDI 3W 0.7A OB AC drivers have an operating life matching that of LEDs.

**Two output modes**

- 30 flash-on/30 flash-off per minute
- Constant-on

**Surge protection**

OB lighting system strongly requires for surge protection due to lighting strike, and LDI 3W 0.7A OB AC driver can handle the situation firmly.

**Long life time**

The drivers last up to 50000 hours to take advantage of the long life of LEDs, to ensure the whole OB light can last longer as a system.

**Compatibility**

Support lamp models from 100v-240v, 50/60 Hz, a range of global voltage

**RoHS compliant**

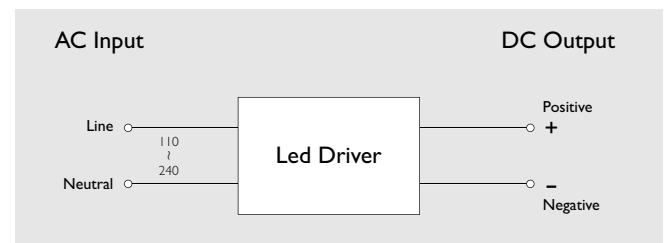
**Specification**

	Input			Out put			TC max.
	Voltage	Max. Power	Max. current	Max. Power	Current	Voltage	
	V	W	A	W	mA	V	
3W 0.7A OB driver AC	110 ±10%	5.5	0.060	3.0	700 ±10%	5V	73
	240 ±10%	5.5	0.025	3.0	700 ±10%	5V	73

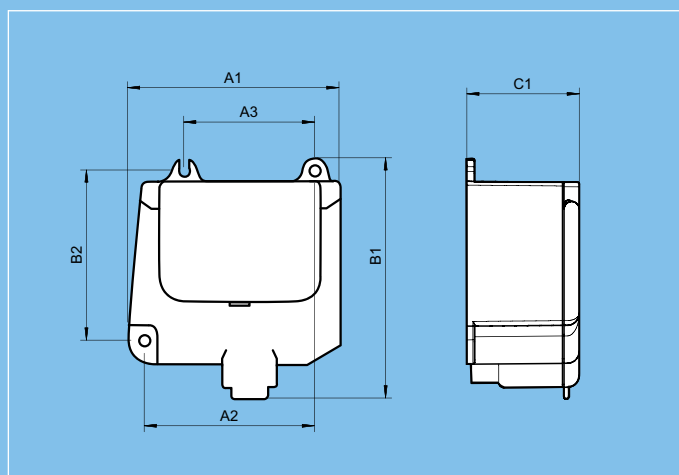
**Ordering information**

Description	Box packaging	Order number	Remark
LDI 3W 0.7A OB AC	40	913710052066	English
LDI 3W 0.7A OB AC	40	913710052066	Chinese

**Wiring diagram**



Dimensions in mm



Dimension(mm)	A1	A2	A3	B1	B2	C1
LDI 3W 0.7A OB AC	70	56	43	80	56	37



### Description

LDI 3W 0.7A OB DC is designed specially to optimal drive Luxeon high power LEDs in an OB lighting system. The constant DC current output provides the long life and optimum operation of high power LEDs. LDI 3W 0.7A OB DC drivers have an operating life matching that of LEDs.

### Surge protection

OB lighting system strongly requires for surge protection due to lighting strike, and LDI 3W 0.7A OB DC driver can handle the situation firmly.

### Long life time

The drivers last up to 50000 hours to take advantage of the long life of LEDs, to ensure the whole OB light can last longer as a system.

### Compatibility

Support lamp models from 12v-48v, a range of 2 types of common battery supply

### RoHS compliant

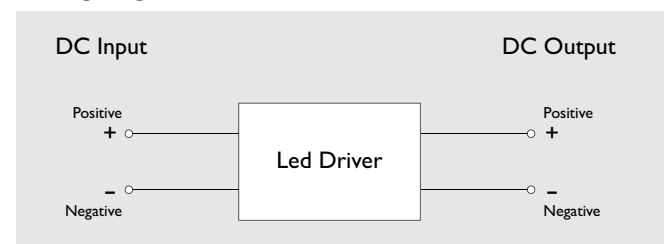
### Specification

	Input			Out put			TC max.
	Voltage	Max. Power	Max. current	Max. Power	Current	Voltage	
	V	W	A	W	mA	V	
3W 0.7A OB driver DC	12-48	5.5	0.6	3.0	700±10%	5V	71

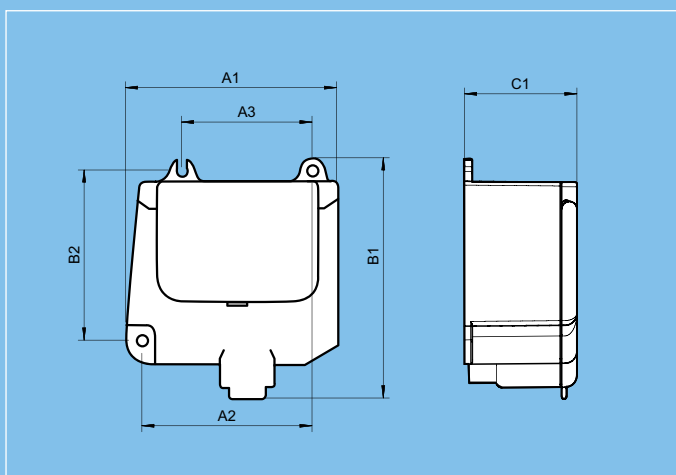
### Ordering information

Description	Box packaging	Order number	Remark
LDI 3W 0.7A OB DC	40	913710052166	English
LDI 3W 0.7A OB DC	40	913710052167	Chinese

### Wiring diagram



Dimensions in mm



Dimension(mm)	A1	A2	A3	B1	B2	C1
LDI 3W 0.7A OB DC	70	56	43	80	56	37



### Description

Philips LED outdoor 30W driver is designed for the market's wide variety of outdoor lighting applications, such as spot light, wall application, lantern type, recessed spot...

LED driver outdoor 30W is a dedicated driver to deliver power to 6 ~ 12 white Rebel LEDs from Philips Lumileds, suitable for nominal 220V to 240V, 50Hz and 60Hz mains supply. The driver is to be mounted inside luminaries for outdoor use and class II applications. The output can be connected to 6 ~ 12 white LEDs. The converter converts AC mains to constant current output by an AC/DC transition. Users can connect a trailing edge dimmer at input side to dim LEDs' light output. The output side is SELV (safety extra low voltage). The driver has following characteristics:

- High humidity (95%) resistant.
- High power factor, low THD
- Short circuit and open circuit protection

The components in this product have RoHS compliance (EU directive 2002/95/EC).

### Design Highlight

Compact and thin design of the driver meets the fixture design of LED applications, so that the final fixture shape can be very unique from others.

- 28mm only on the height as an outdoor 30W driver

High humidity resistant

- Can work in high humidity (up to 95%) environment

Wide operation temperature performance (-20°C to +50°C)

Safety & EMC compliant (fulfilled all lighting standards)

RoHS compliant

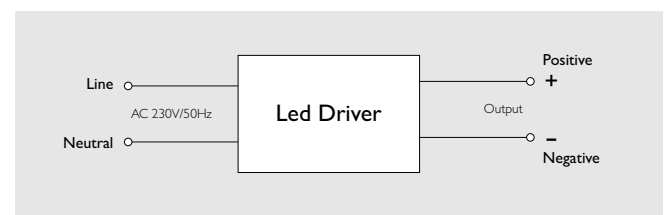
### Specification

	Input			Out put		TC max.	
	Voltage	Max. Power	Max. current	Max. Power	Current		
	V	W	A	W	mA		
LD 30W 700mA(O)	220-240	40	0.17	30	700	18-42	80

### Ordering information

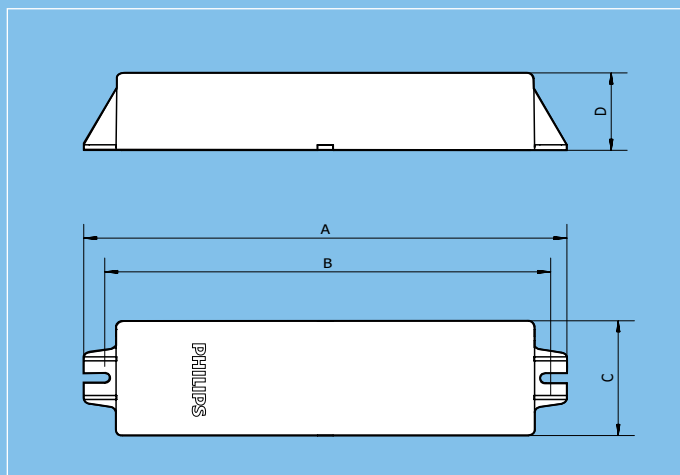
Description	Box packaging	Order number	Remark
LD 30W 700mA(O)	20	913713220562	English
LD 30W 700mA(O)	20	913713220563	Chinese

### Wiring diagram



Dimension(mm)	A	B	C	D
LD 30W 700mA(O)	150.0	138.5	41.5	28.0

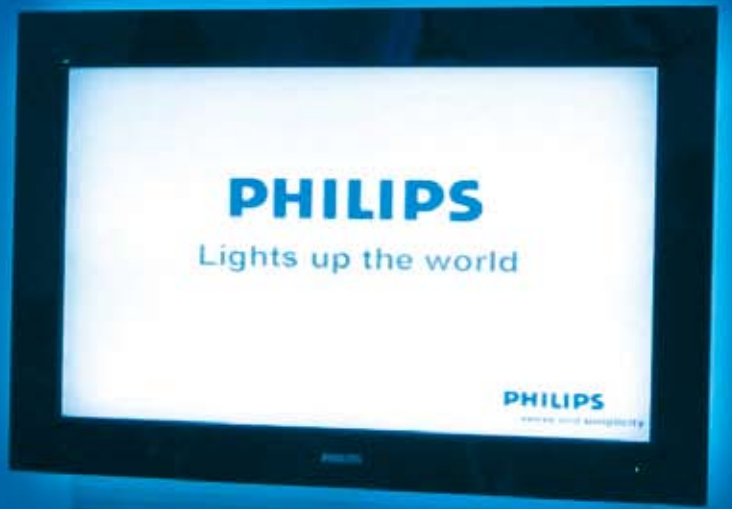
Dimensions in mm







PHILIPS  
sense and simplicity



Today Products





# What is a LED Controller & a LED Control Interface?



The combination of LED technology and programmable controls open doors to new design possibilities. Depending on the luminaire and configuration, you can use controls for programmed switching, dimming and even dynamic color changing effects.

A LED Control Interface is meant to be operated with LED drivers and LEDs. It gives the possibility to create dynamic effects with LEDs by using DMX, DALI or other controls.



### Description

Philips LED Controller Basic 60W is a standalone lighting controller for LED luminaires. Depending on the luminaire and its configuration, the controller can be used for programmed dimming, color switching, or even dynamic color changing and washing effect. Push the buttons to select the different scene setting for specific color effect.

Philips LED Controller Basic 60W perfectly operates the Philips LED system including:

- LED RGB Rigid Strips  
slim printed circuit boards with RGB LEDs, which can be snapped together for decorative linear lighting application

### Ease-of-use

A compact design with four buttons gives a simple selection for On/Off, Step dimming-up, Step dimming-down and Color setting scenarios. Easy to experience the dynamic color changing effects.

### Excellent reliability

LED Controller LC-B 60 lasts up to 50,000 hours, to take advantage of the long life of LEDs.

### Compatible with either 12VDC or 24VDC

LED Controller LC-B 60 can handle an input voltage of either 12VDC or 24VDC, and give the corresponding output voltage (12VDC or 24VDC) to the LED load.

### Hazard-free

All the safety requirements as defined in CE are met. It is safe to install.

### EMC compliant

LED Controller LC-B 60 is in compliance with the EMC standards for lighting products.

### RoHS compliant

### Typical applications include:

- Cove lighting
- Contour lighting
- Stair lighting
- Entertainment lighting
- Emergency and rescue signs

## Specifications

Input		Output		
Voltage (Vdc)	Current Max. (A)	Voltage (Vdc_peak)	Current_Total (A)	Power (W)
12	5.0	12	1.7 - 5.0	6 - 60
24	2.5	24	0.8 - 2.5	6 - 60

- Environmental protection: IP20 dry location
- Weight: 45.3 grams
- Input wires: 2 (1mm<sup>2</sup>) stranded wires, white (Positive) and black (Negative), 30cm long
- Output wires: recommend to use 4 (1mm<sup>2</sup>) stranded wires
- Case material: Plastic, UL94VO flame retardant, light gray color

### Preset Scenarios

Setting	Color(s)	Dimming
White color	White	Yes
Fixed color	Red, Green, Blue, Yellow, Magenta, Cyan, Orange	Yes
Color changing cycle	White → Cyan → Grass Green → Green → Purple → Blue → Red	No
Color washing cycle	White → Cyan → Grass Green → Green → Purple → Blue → Red	No

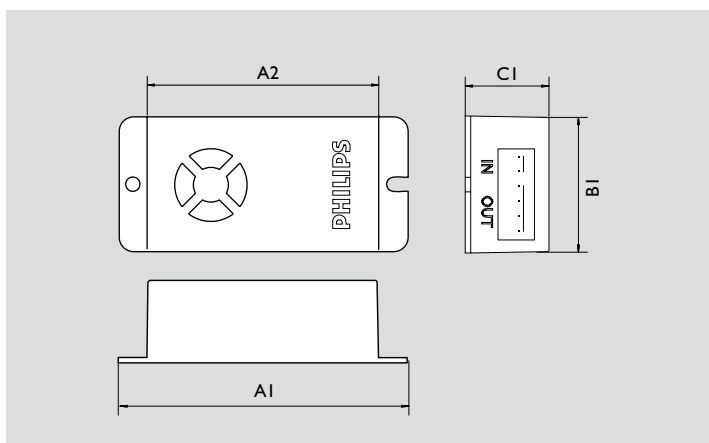
## Environmental ratings

Parameter	Symbol	Minimum	Maximum	Unit
Storage ambient temperature	T <sub>st</sub>	-40	80	°C
Operating ambient temperature	T <sub>op</sub>	-20	50	°C
Case temperature	T <sub>c</sub>	-	63	°C
Life time (at T <sub>s</sub> =40°C and T <sub>c</sub> =53°C)	L	-	50K	Hours
Failure rate max. life time	L <sub>50k</sub>	-	5	%

## Ordering information

Description	Box packaging	Order number
LC-B 60	24	9137 100 51762

## Dimensional drawing



## Dimension drawing table

	A1	A2	B1	C1
LC-B 60	80.6	64.6	37.6	23



**Description**

LC-S DMX is an Ethernet interface for linking DMX and RS-485 signal to the Ethernet so that users can use PC or laptop to control the lighting, security and air-conditioning systems. It allows exchanging data with PC to download and upload scene, sequence and timer programs. Through the Internet, users can control lighting system from anywhere and update software on-line. LC-S DMX can be connected to any DMX console and makes it computerized. With its build-in timer clock and memory, it can store all the settings in its own memory and operate under a weekly schedule by itself without a computer.

**Key Features**

- 2 DMX-512 outputs for controlling up to 1024 channels in total.
- Large memory size for 512 scenes.
- Modify channel dimming level and clock
- Edit scene, sequence, and timer
- Set IP address and Mac address
- Scene chaser, color mix and speed adjustment.
- Possibility to control remotely via Internet
- Key lock/unlock
- Can be connected to Ethernet
- fade in/out time setting
- LCD display and user-friendly interface.
- Light, handy and portable.

**RoHS compliant**

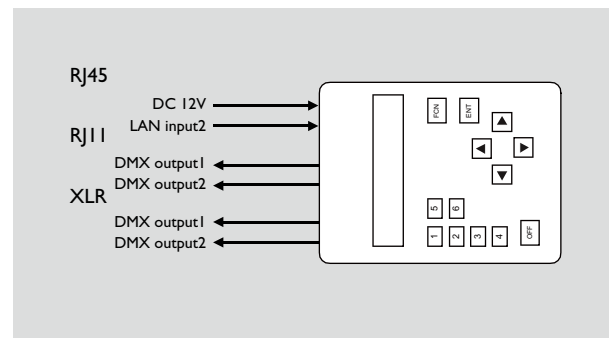
**Specifications**

- Power: DC 12V/1A
- Protocol DMX-512
- Dimension 110 (W) x 175 (H) x 40 (D) mm
- Weight 0.80 Kg

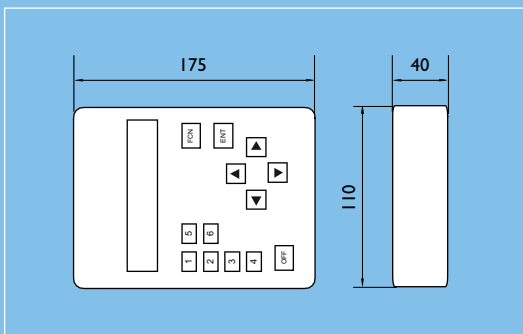
**Ordering information**

Description	Box packaging	Order number	Remark
LC-S DMX	1	9137 100 52501	Chinese
LC-S DMX	1	9137 100 52502	English

**Wiring diagram**



Dimensional in mm





**Description**

LC-OB 25 is designed specially for the OBL system running multiple OB lights, as the controller works with one or more OBL DC lamps, and the system handles up to 10 OB lights.

**Synchronization**

Controller solution can provide 5 outputs working synchronously, and master/slave feature can increase the system outputs up to 10.

**Friendly user interface**

Friendly UI makes the system ease of installation and operation, as MMI makes the operation can be managed through 4 buttons easily.

**Alternative input power**

Works in both AC and DC (21V-52V) environment.

**Surge protection**

OB lighting system strongly requires for surge protection due to lighting strike, and the OB controller can handle the situation firmly.

**Long life time**

The controller lasts up to 50000 hours to take advantage of the long life of LEDs, to ensure the controller can last longer as a system.

**Compatibility**

Support lamp models from 12v-48v, a range of 2 types of common battery supply

**RoHS compliant**

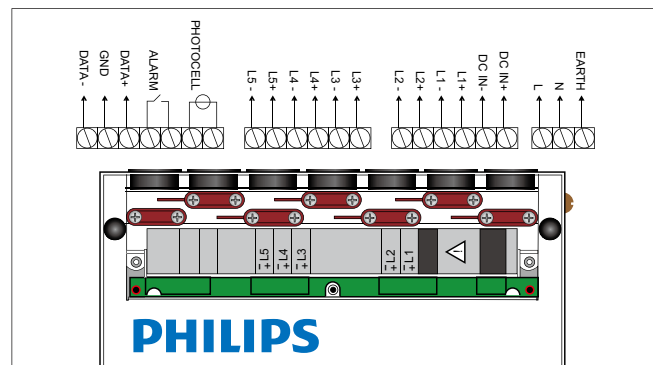
**Specification**

	Input			Out put			TC max.
	Voltage	Max. Power	Max. current	Max. Power	Current	Voltage	
	V	W	A	W	mA	V	
LC-OB 25	21-52	30	1.50	30	1.50	21-52V	70
	100-240 ±10%	35	0.35	30	1.25	24V	70

**Ordering information**

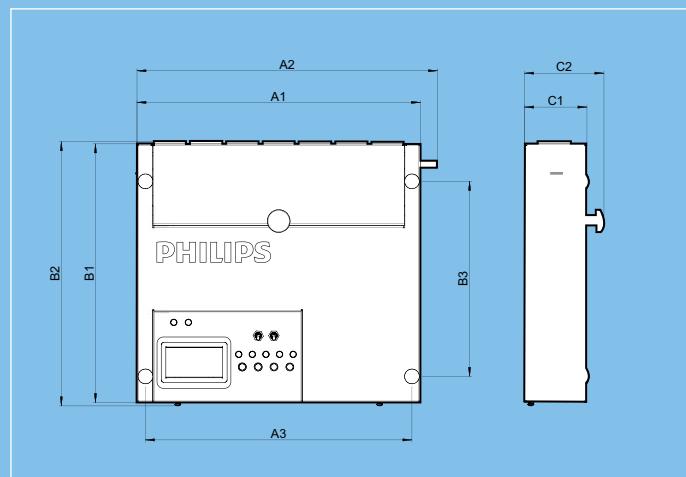
Description	Box packaging	Order number	Remark
LC-OB 25	I	913713220266	English
LC-OB 25	I	913713220267	Chinese

**Wiring diagram**



Dimension(mm)	A1	A2	A3	B1	B2	B3	C1	C2
LC-OB 25	250	265	235	228	233	172	55	70

Dimensions in mm

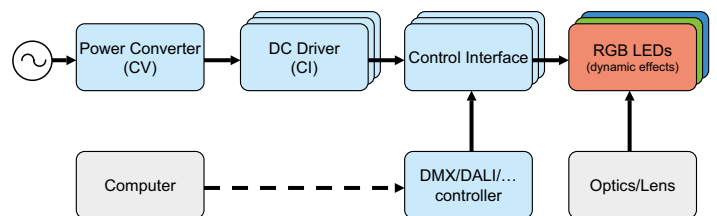








# What is the SSL integrated system?



SSL Integrated System



## Description

### System Option-1

- Downlight module
- Driver
- Remote controller
- 220-240 Vac input
- On/Off
- 0-100% light output dimming
- 1-to-1 dimming control
- 20° beam angle (or others)

### System Option-2

- Downlight module
- Driver
- Variable resistor dimmer\* ( \*not offered in the system )
- 220-240 Vac input
- On/Off
- 5-100% light output dimming
- 1-to-multiple dimming control
- 20° beam angle (or others)



## Specifications

- Light output > 300 lumen @ Ta = 25°C
  - Dimming available
  - CRI > 70%
  - CCT 6500K
  - UV & IR free
  - Either wireless remote control or wall control
  - Lumen maintenance > 70% after 35,000 hours\*
- \* under testing

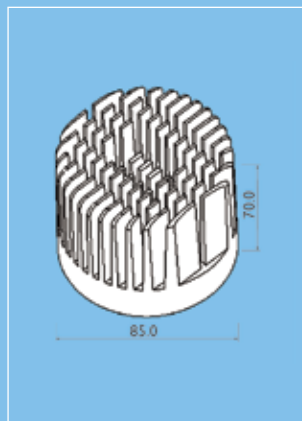
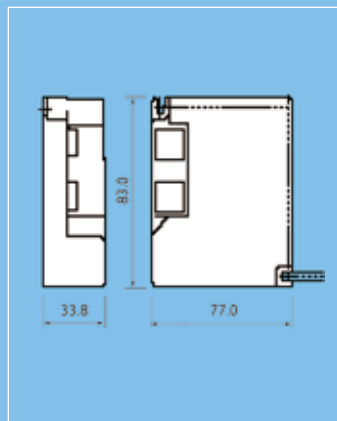
## Features to Benefits (End Users)

Benefit	Reasons to believe	Product feature
'Set & Forget'	Long lifetime and maintenance-free	35,000 hrs *
Modern and hi-tech image	High power LED solution	Lumileds Luxeon™ K2 LEDs
Perfect light effect	Cool light	UV & IR free in the light beam
Easy to use	Remote controller Or, wall dimmer	On/Off and dimming

## Features to Benefits (Fixture Makers)

Benefit	Reasons to believe	Product feature
Easily incorporated in the fixture	Design freedom	Module and driver with compact size and light weight
Optimal system	Driver and LEDs are perfect fine-tuned to each other	Xitanium™ driver + Luxeon™ K2 LEDs
Reliability	Heat management	LEDs with heat sink
Flexibility	Precise optical control	20° (and other) beam angles

Dimensions in mm



## Application

- Spot light
- Task light
- Museum light
- Shop light, e.g. for fashion, jewelry and crystal etc



## Description

Philips LED Strip module 288mm is a standard component as a module solution for standard fixture in LED outdoor/indoor applications, such as city beautification, architectural, and ambient lighting system. This module consists 8 pieces of LUXEON I, 288mm PCBA, 8 Lens, and a protection circuit (as an option). It gives freedom to fixture size, resolve heat sink issues, and increase the stableness of the whole system by modularize and protection circuit.

## Improve System Stability

To decrease the total failure rate and portion, module designed with the following methodologies:

- One module one driver: one driver handles one module, to minimize driver failure effect to one module only.
- Protection circuit: ensuring the module work properly under a failure of 5 LEDs or Less.

## Excellent heat sink solution

MCPCB brings the best heat sink solution to the system, so that the strip module can be easily designed into an outdoor fixture and closely to the driver as well.

## Easy Assembling

Strip module with nice appearance can be easily installed into the fixture with driver together, rather than mounting each LED onto the fixture board.

## RoHS Compliant

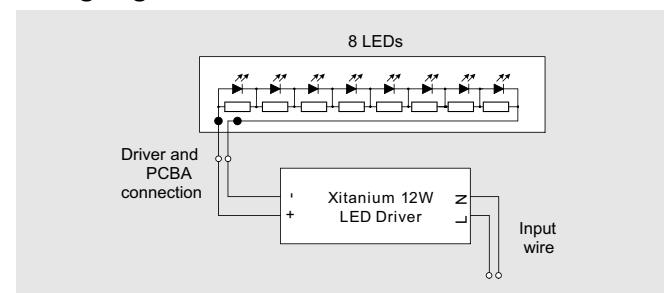
## Specifications

Material	MC PCB		
LED	8 pcs LED	Luxeon 350mA Blue(460-470nm)	Flux Bin L: 10.7-13.9LM Flux Bin N: 18.1-23.5LM
Dimension	288x30mm		
LED open protection	Optional		
Ambient temp	-10 to 40 Deg C		
Working humidity	90%		
Storage temp., humidity	-10 to 50 Deg C		
RoHS	Yes		
Lamp average lifetime *	(50,000hrs (w.r.t. Lumileds specification))		
System warranty *	5 yrs (Luminaire specification)		

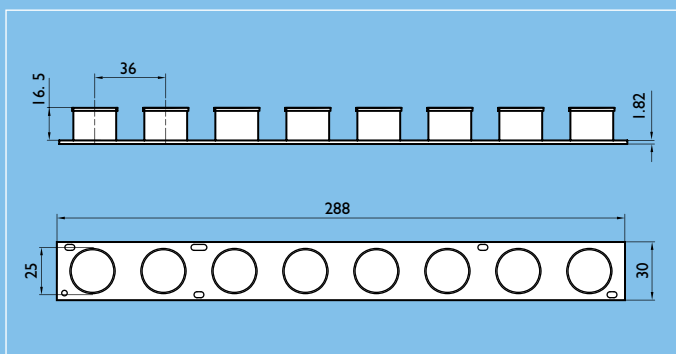
## Ordering information

Description	Box packaging	Order number	Remark
LED Strip Module 288mm L	4	913710053467	with protection circuit with Lumileds Luxeon-I of flux bin L
LED Strip Module 288mm LS	4	913710054067	w/o protection circuit with Lumileds Luxeon-I of flux bin L
LED Strip Module 288mm N	4	913710054167	with protection circuit with Lumileds Luxeon-I of flux bin N
LED Strip Module 288mm NS	4	913710054267	w/o protection circuit with Lumileds Luxeon-I of flux bin N

## Wiring diagram



Dimensions in mm





**PHILIPS**



Registration

PHILIPS

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