PHILIPS

LED Components Catalog

Strengthen your **path to success**

Fall 2016 guide to OEM products and services for LED applications

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The right LED solutions **to help you succeed**

LED technologies are still evolving at a rapid pace. The right partner can help you stay at the forefront of lighting trends and regulations and react quickly to customer needs to ultimately grow and sustain your business. With Philips as your trusted LED lighting components partner, you can take advantage of over 125 years of lighting expertise, the broadest selection of industry-leading LED lighting components and comprehensive services to strengthen your path to success.

Throughout this catalog, you have fast access to the latest high-performing, energy-saving LED components that best meet your needs and those of your customers. LED drivers, emergency drivers, point modules, linear modules and more allow you to build endless solutions. Each component is sustainably manufactured to high standards to ensure robust and long-lasting performance. We also strive to achieve full RoHS compliance to minimize harmful impact to the environment.

Together, we will deliver targeted lighting solutions that create value for your customers ***and help you succeed.***

Confidence through Philips **design-in services**

Depend on the global leader in lighting technologies to help you create robust, cutting-edge LED lighting solutions without wasted time or unnecessary expense through our OEM design-in services. Our dedicated experts perform vigorous thermal, mechanical, electrical and optical testing to your desired tolerances to take the guesswork out of the validation process and propose solutions or alternatives as necessary – all at no charge when Philips components are used.

With Philips as your trusted partner, you can take advantage of our long-standing relationships with industry associations and approbation organizations. Together, we will help you develop solutions that create value for your customers.

For more information on Philips design-in services, please contact your local Philips sales representative or go to www.philips.com/oemna.

For the latest product updates, please visit:

LED Modules	www.philips.com/ledmodulesna
LED Drivers	www.philips.com/leddrivers
Emergency	www.philips.com/bodine

Innovation starts here

Philips would like to introduce the OEM My Technology Portal. With access to the portal, you can empower yourself with complete, reliable and personalized online services to drive your business with Philips OEM technology. The portal widgets shown below will provide you with access to a variety of information and tools. Log on today to request access to the My Technology Portal.

My Account

Set preferences for notification to stay up to date on the latest product developments

My Product Portfolio

Customized overview of products you have bought with notifications if they are to be phased out

Product News

Overview of products that will be phased in or phased out in the coming quarter

Download Center

Quick, sortable access to all technical and commercial documentation in a clear overview

News

Keeps you up to date with all other Philips Lighting OEM news

Share Center

Enables you to send, receive and store documents to/from your key account managers in dedicated folders

Inside Advance

Access to Inside Advance where you can monitor your orders

Easy Design-in Tool

Access to the LED Easy Design-in Tool to help you find the right LED product for your application

My Contact

Overview of your Philips contact persons for all your questions, including technical ones

Available in November 2016

www.mytechnologyportal.philips.com

Create your ideal LED configuration **in a minute!**

Check out
our tool online! Visit
www.na.easydesignintool.philips.com.

Design your LED system in the fastest, most flexible way with our real-time Easy Design-in Tool.

It takes just a few minutes to find the right combination of modules, drivers and settings. Simple, easy-to-use filters enable you to deal quickly and effectively with the growing complexity of LED systems. In the end you will have a complete detailed technical overview of your system configuration.

LED driver selector

If you don't need a full system specification, you can use the Driver Selector function to find the right Philips Advance Xitanium LED driver for your application.

Online product information **at your fingertips**

Online OEM lighting components provides you with...

- Online access to the entire OEM lighting components portfolio.
- An easy format to search by product type or name.
- Up-to-date product information so you can always find current specs and literature.

philips.com/oemna

Online news **at your fingertips**

The Philips Lighting blog provides you with...

- A platform to learn more about our latest products and installations.
- A direct connection to thought leaders and product experts within Philips.
- The opportunity to learn more about LED technology, design, sustainability and other important industry topics.
- A chance to contribute to discussions by offering your own insights and experiences.

philips.com/lightingblog

The Philips Twitter account provides you with...

- Important industry news.
- New product announcements and blog posts.
- Information on our latest lighting installations.

https://twitter.com/PhilipsLight

Philips Innovations in Light provides you with...

- An opportunity to collaborate and share knowledge and ideas.
- A chance to get your questions answered by peers or other industry experts.
- A platform to discuss the challenges and opportunities facing our industry.

www.linkedin.com/company/philips-lighting

Evaluating lifetime and reliability of **LED systems**

After at least half a decade of LED adoption in general lighting applications, the dust has settled on many of the provisions surrounding the reliability and quality of the new technology. Lifetime promises beyond what has ever been seen before in the lighting industry have been proven in many applications and actual installations.

However, in absence of clearly defined standards governing the qualification of lifetime and reliability of LED systems (e.g., LED lamps, LED retrofit kits or LED luminaires), many false expectations for system lifetime have been created by interpreting technical data from single components within the system and using that information to define the lifetime of an entire system.

Both EnergyStar and Design Lights Consortium promote LED adoption and performance criteria for LED systems. The TM21 standard utilizing LM80 test data for L1 LED packages has been the commonly used source of lifetime predictions for product qualification initiatives.

Lumen maintenance, represented by TM21 calculations, is certainly an important component selection criteria parameter in an LED system.

However, studies have shown that when it comes to evaluating the lifetime of an LED system, ***critical or catastrophic failures of the system should be the main concern*** *in assessing the reliability of the system.*

The LED Systems Reliability Consortium (LSRC) has identified the main causes for these catastrophic failures as wide-ranging and most commonly including failure of power electronics, solder joint, moisture ingress and corrosion, mechanical connections, gasket sealing leaks or poor thermal management.[17]

All of these failure modes cannot be predicted using only the LM80 data that have been generated under laboratory conditions. Moreover, most LM80 datasets do not provide more than 10,000 hour of data. Lifetime claims of

*See footnotes on page 79.

more than 100,000 hours for LED systems are, therefore, not supported by statistical evidence or product design and testing but are solely a result of a mathematical model based on one single subcomponent of the LED system.

In addition, application conditions like ambient temperature or ambient humidity are a key area of importance in assessing the lifetime expectation/ prediction. Environmental factors like outgassing of volatile chemical components can also dramatically and negatively influence the lifetime of the LED itself and, thus, the entire system. Thermal cycling can lead to solder reliability issues and catastrophic failures of the LED. Power line quality is another factor to look at when considering potential failures in the application. Surges, brownouts or voltage spikes can also have an impact.

Assessing the reliability and performance of the LED system holistically through advanced methods of product design and validation is required to ensure that products meet lifetime specifications and are as reliable as the abiding LED promise suggests.

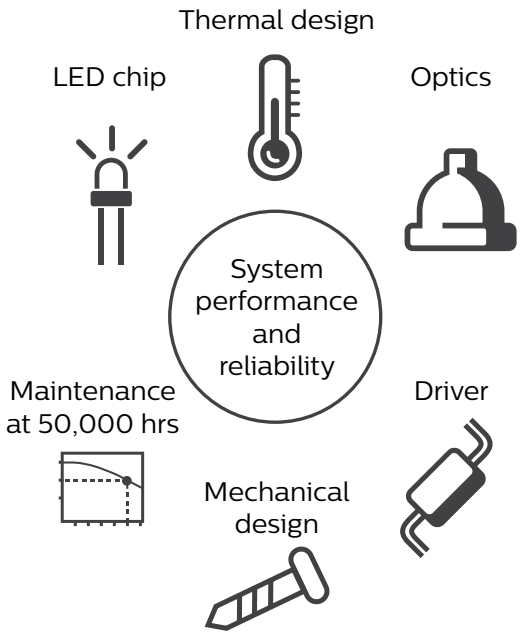


Figure 1. Impact of design choices on performance and reliability of an LED system.

With this in mind, Philips designs, manufactures and services high quality LED component systems, including LED drivers and LED modules, that are meeting customer expectations. Throughout the following four phases of the Philips product lifecycle, products are rigorously tested and evaluated.

1. During the design phase, methods like FMEA and advance system modeling are used to ensure that quality and reliability are part of the product from day one. Demanding product validation test procedures like highly accelerated lifetime tests and multiple environmental overstress tests are among the tests that a product must pass before it is released for mass production.
2. Suppliers are carefully selected, audited and controlled for their quality according to stringent qualification standards.
3. Inline testing, process control and ongoing reliability testing are among the measures Philips uses to help guarantee state-of-the-art industrial quality.
4. Last but not least, Philips offers compassionate service quality to its customers. New systems of LED modules and drivers are tested and released as a system in the final application and backed by warranty. If against all odds a product in the field fails, customers experience hassle-free support. With more than 120 years of experience, Philips delivers peace-of-mind to lighting fixture manufacturers, specifiers and end users who want to engage in the world of LED lighting with a company they can trust.

Philips
Fortimo LED Modules

Fortimo LED linear family

The Philips Fortimo LED linear module family has been designed to replace fluorescent lighting in new luminaires. By standardizing form factors, Philips has made it easy for designers to fit LED solutions into a variety of linear applications, including standard office to high-bay industrial and now into very slim fixtures where fluorescent light might not be suitable.

Fortimo LED line
Designed to replace general fluorescent lighting in new luminaires, the Fortimo LED line system goes into the third generation with improved efficiency and the same Zhaga[9] footprint.

Fortimo LED line high flux
The Fortimo LED line high flux system is ideal for installations at greater application heights where more light output is needed, such as high-bay. It was designed to withstand high ambient temperatures that are common to applications like industry or vapor tight fixtures.

Fortimo LED strip
The Fortimo LED strip system enables design of high-energy efficacy slim linear LED fixtures, which may not be possible with fluorescent lighting or the Fortimo LED line system.

Fortimo LED strip value offer (VO)
Philips Fortimo LED strip value offer (VO) is designed to enable cost breakthrough in recessed ambient LED lighting applications. With its optimized design and high overdrive capability of up to 1100 lm/ft, it offers high design flexibility to lighting fixture manufacturers, and the module's cost provides excellent price-per-lumen value.

*See footnotes on page 79.

Fortimo LED line

Benefits for the end users

- High energy efficiency
- Improved light output (3R) and quality of light (3 SDCM)[18]
- Improved total cost of ownership[13]
- Applicable for all fluorescent luminaires
- Flexible system design due to pairing with Philips Advance Xitanium LED drivers
- 5-year limited system warranty with Philips Advance Xitanium LED drivers[11]

Philips Fortimo linear LED systems are the ideal solution for LED luminaires that traditionally would have been equipped with fluorescent lamps.

The wide range of system offerings provides a solution for all the different types of luminaires, including recessed and surface-mounted office luminaires, trunking and profile luminaires in retail and waterproof luminaires in industrial applications.

Fortimo LED line LV3 offers best-in-class module efficiency up to 165 lm/W, an increase of approximately 10% versus the previous generation. The new generation offers an improved color consistency of 3 SDCM. A 1,100 lm option is added to the 3R portfolio, which serves the need for higher output.

LED Module	Flux[2,3] (lm)	Power (W)	Efficacy (lm/W)	CCT[4] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life (°C)
Fortimo LED Line 1ft 1100lm 830 1R LV3	1046	7.2	145	3000	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 835 1R LV3	1079	7.2	149	3500	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 840 1R LV3	1100	7.2	152	4000	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 850 1R LV3	1100	7.2	152	5000	>80	3	>50,000	70
Fortimo LED Line 2ft 2200lm 830 1R LV3	2092	14.5	145	3000	>80	3	>50,000	70
Fortimo LED Line 2ft 2200lm 835 1R LV3	2157	14.5	149	3500	>80	3	>50,000	70
Fortimo LED Line 2ft 2200lm 840 1R LV3	2200	14.5	152	4000	>80	3	>50,000	70
Fortimo LED Line 2ft 2200lm 850 1R LV3	2200	14.5	152	5000	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 830 3R LV3	1046	6.7	156	3000	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 835 3R LV3	1079	6.7	161	3500	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 840 3R LV3	1100	6.7	164	4000	>80	3	>50,000	70
Fortimo LED Line 1ft 1100lm 850 3R LV3	1100	6.7	164	5000	>80	3	>50,000	70

RoHS COMPLIANT[7] [8] Zhaga[9]

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED line high flux

Benefits for the end users

- Enables LED fixture designs in thermally challenging applications of -20°C to ± 55°C ambient temperatures
- High energy efficacy and optimal total cost of ownership vs. conventional lighting systems[13]
- Flexible system design due to pairing with programmable Philips Advance Xitanium LED drivers with SimpleSet technology

Philips Fortimo LED line high flux is designed to replace conventional lighting in high lumen and high ceiling applications such as high-bay linear 80W TL 5 fluorescent systems.

The Fortimo LED line high flux offers high energy efficacy and an optimal thermal design.

Its high lumen output of >2,000 lm/ft and thermal capability of Tc life of 90°C for a 50,000-hour lifetime[1] make it an excellent fit for the most demanding applications.

Together with the wide range of available Philips Advance Xitanium LED drivers, it provides peace of mind for both OEM and end user, backed by a five-year limited system warranty.[11]

LED Module	Flux[2,3] (lm)	Power (W)	Efficacy (lm/W)	CCT[4] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life (°C)
Fortimo LED Line 1ft 2000lm 830 1R LV2[9]	1910	14.1	136	3000	80	3	50000	90
Fortimo LED Line 1ft 2000lm 835 1R LV2[9]	1950	14.1	139	3500	80	3	50000	90
Fortimo LED Line 1ft 2000lm 840 1R LV2[9]	2000	14.1	142	4000	80	3	50000	90
Fortimo LED Line 1ft 2000lm 850 1R LV2[9]	2010	14.1	143	5000	80	3	50000	90
Fortimo LED Line 2ft 4000lm 830 1R LV2[9]	3820	28.2	136	3000	80	3	50000	90
Fortimo LED Line 2ft 4000lm 835 1R LV2[9]	3900	28.2	139	3500	80	3	50000	90
Fortimo LED Line 2ft 4000lm 840 1R LV2[9]	4000	28.2	142	4000	80	3	50000	90
Fortimo LED Line 2ft 4000lm 850 1R LV2[9]	4020	28.2	143	5000	80	3	50000	90
Fortimo LED Line 2ft 6000lm 830 2R LV1	5770	38.5	150	3000	80	3	50000	90
Fortimo LED Line 2ft 6000lm 835 2R LV1	5950	38.5	155	3500	80	3	50000	90
Fortimo LED Line 2ft 6000lm 840 2R LV1	6070	38.5	158	4000	80	3	50000	90
Fortimo LED Line 2ft 6000lm 850 2R LV1	6130	38.5	160	5000	80	3	50000	90

RoHS COMPLIANT[7] [8] Zhaga[9]

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED strip LV3

Benefits for the end users

- High energy efficiency and long lifetime allow state-of-the-art luminaire design
- Slim width enables optimized luminaire design and new form factors
- High color rendering and excellent color consistency bring linear LED lighting to the next level for quality of light
- 5-year limited system warranty with Philips Advance Xitanium LED drivers[11]

Philips Fortimo LED strip systems are ideal for use in narrow width luminaire designs for architectural applications that may not be possible with fluorescent lighting. This Fortimo LED strip product offers best-in-class module efficiency of up to 163 lm/W and flux packages.

The Fortimo LED strip systems are excellent for use in luminaires for direct lighting in offices, banks, schools, public buildings, supermarkets and other applications to replace high energy efficiency T5 fluorescent lighting.

LED Module	Flux[2,3] (lm)	Power (W)	Efficacy (lm/W)	CCT[4] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life (°C)
Fortimo LED Strip 0.5ft 550lm 830 1R LV3	530	3.4	155	3000	80	3	50000	70
Fortimo LED Strip 0.5ft 550lm 835 1R LV3	530	3.4	155	3500	80	3	50000	70
Fortimo LED Strip 0.5ft 550lm 840 1R LV3	550	3.4	161	4000	80	3	50000	70
Fortimo LED Strip 0.5ft 550lm 850 1R LV3	560	3.4	164	5000	80	3	50000	70
Fortimo LED Strip 0.5ft 550lm 930 1R LV3	433	3.4	126	3000	90	3	50000	70
Fortimo LED Strip 0.5ft 550lm 935 1R LV3	460	3.4	135	3500	90	3	50000	70
Fortimo LED Strip 0.5ft 550lm 940 1R LV3	470	3.4	139	4000	90	3	50000	70
Fortimo LED Strip 1ft 1100lm 830 1R LV3	1,060	6.9	155	3000	80	3	50000	70
Fortimo LED Strip 1ft 1100lm 835 1R LV3	1,060	6.9	155	3500	80	3	50000	70
Fortimo LED Strip 1ft 1100lm 840 1R LV3	1,100	6.9	161	4000	80	3	50000	70
Fortimo LED Strip 1ft 1100lm 850 1R LV3	1,120	6.9	164	5000	80	3	50000	70
Fortimo LED Strip 1ft 1100lm 930 1R LV3	865	6.9	126	3000	90	3	50000	70
Fortimo LED Strip 1ft 1100lm 935 1R LV3	920	6.8	135	3500	90	3	50000	70
Fortimo LED Strip 1ft 1100lm 940 1R LV3	950	6.8	139	4000	90	3	50000	70
Fortimo LED Strip 2ft 2200lm 830 1R LV3	2,120	13.7	155	3000	80	3	50000	70
Fortimo LED Strip 2ft 2200lm 835 1R LV3	2,120	13.7	155	3500	80	3	50000	70
Fortimo LED Strip 2ft 2200lm 840 1R LV3	2,200	13.7	161	4000	80	3	50000	70
Fortimo LED Strip 2ft 2200lm 850 1R LV3	2,240	13.7	164	5000	80	3	50000	70
Fortimo LED Strip 2ft 2200lm 930 1R LV3	1,730	13.7	126	3000	90	3	50000	70
Fortimo LED Strip 2ft 2200lm 935 1R LV3	1,840	13.7	135	3500	90	3	50000	70
Fortimo LED Strip 2ft 2200lm 940 1R LV3	1,900	13.7	139	4000	90	3	50000	70
Fortimo LED Strip 24in 2200lm 830 1R LV3	2,120	13.7	155	3000	80	3	50000	70
Fortimo LED Strip 24in 2200lm 835 1R LV3	2,120	13.7	155	3500	80	3	50000	70
Fortimo LED Strip 24in 2200lm 840 1R LV3	2,200	13.7	161	4000	80	3	50000	70
Fortimo LED Strip 24in 2200lm 850 1R LV3	2,240	13.7	164	5000	80	3	50000	70
Fortimo LED Strip 24in 2200lm 930 1R LV3	1,730	13.7	126	3000	90	3	50000	70
Fortimo LED Strip 24in 2200lm 935 1R LV3	1,840	13.7	135	3500	90	3	50000	70
Fortimo LED Strip 24in 2200lm 940 1R LV3	1,900	13.7	139	4000	90	3	50000	70

RoHS COMPLIANT[7] [8]

Zhaga[9]

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED strip value offer

Benefits for the end users

- Enables easy and economical fixture design for existing LED luminaires utilizing 20mm linear LED modules
- Perfectly married system components offer low system cost and excellent system performance
- 5-year limited system warranty with Philips Advance Xitanium LED drivers[11]

Philips Fortimo LED strip value offer (VO) is designed to enable cost breakthrough in recessed ambient LED lighting applications. With its optimized design and high overdrive capability of up to 1100 lm/ft, it offers high design flexibility to lighting fixture manufacturers, and the module's cost provides excellent price-per-lumen value.

With module efficacies of up to 150 lm/W, CRI80, 3SDCM color consistency, 50,000-hour life[1] and a five-year limited system warranty[11], Fortimo LED strip VO is designed to meet all the basic needs of indoor linear lighting applications for maximum customer satisfaction.

LED Module	Flux[2, 3] (lm)	Power (W)	Efficacy (lm/W)	CCT[4] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life (˚C)
700lm/ft.								
Fortimo LED Strip VO 1ft 700lm 830 LV1	640	4.7	137	3000	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 835 LV1	670	4.7	142	3500	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 840 LV1	700	4.7	150	4000	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 850 LV1	700	4.7	150	5000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 830 LV1	1280	9.4	137	3000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 835 LV1	1330	9.4	142	3500	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 840 LV1	1400	9.4	150	4000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 850 LV1	1400	9.4	150	5000	80	3	> 70	80
1100lm/ft.								
Fortimo LED Strip VO 1ft 700lm 830 LV1	1006	8.4	120	3000	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 835 LV1	1045	8.4	124	3500	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 840 LV1	1103	8.4	131	4000	80	3	> 70	80
Fortimo LED Strip VO 1ft 700lm 850 LV1	1103	8.4	131	5000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 830 LV1	2008	16.8	120	3000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 835 LV1	2085	16.8	124	3500	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 840 LV1	2201	16.8	131	4000	80	3	> 70	80
Fortimo LED Strip VO 2ft 1400lm 850 LV1	2201	16.8	131	5000	80	3	> 70	80

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED downlight module (DLM) family

LED technologies continue to shift the lighting paradigm across all applications, and downlighting is no exception. In fact, downlighting was one of the first lighting applications to commercially embrace LED technology.

As the technologies continue to evolve, long lifetimes, environmental sustainability and low initial costs attract general commercial audiences requiring functional lighting, while the exponential rise in LED efficiency, light quality and light output are creating new opportunities for high-end, sophisticated applications. The challenge remains for luminaire manufacturers to leverage these valuable advancements with costly and time-consuming retooling while also satisfying functional and performance end user lighting needs.

Fortimo DLM flex and DLM gen 4
New Philips Fortimo LED downlight module (DLM) flex and Fortimo LED downlight module (DLM) gen 4 systems now provide you with the latest high quality LED options to satisfy both functional and performance requirements, along with excellent energy efficiencies and color consistency. Best of all, we retained the same familiar DLM footprint so that you don't have to endure the hassles of retooling or redesigning fixtures.

Reliable options in the **evolving LED downlight world**

In close cooperation with UL, Philips has released its latest additions of the Fortimo LED downlight module (DLM) product family for the UL Safety Related Electronic Circuit program. By designing a system consisting of a Fortimo LED downlight module and Philips Advance Xitanium LED driver, this solution complies with UL991 and CSA22.2 No. 0.8 and enables fixture design without additional thermal protection.

c UL us
Safety Related
Electronic Circuit

This system uses a thermal sensing circuit to help prevent hazardous conditions caused by potential overheating of the electronic components. If the temperature of the module and/or the driver rises above a critical threshold, a thermal circuit in the driver is activated and reduces the drive current of the module until the temperature returns below 90°C, meeting UL Safety regulations for recessed downlight fixtures.

The UL SREC feature reduces components and complexity while providing an energy savings to the end user of up to 2W of power compared to a similiar product requiring active thermal protection.*

* Based on Fortimo LED DLM 1100 9W/840 UL gen 4 and the assumption of 2W power consumption of a thermal protector.

Fortimo LED downlight module (DLM) flex L2 and accessories

Benefits for the end users

- High energy efficiency (up to 159lm/W at Tc 85°C), also enabling excellent thermal management
- Flexible output/ performance when set through our Philips Advance Xitanium LED drivers with SimpleSet technology
- Limited glare
- Integrated thermal protection, enabling universal voltage fixtures and low power consumption (compliant with UL SREC/991)

Philips Fortimo LED downlight module (DLM) flex L2 expands application possibilities beyond downlight commercial fixtures, bringing even more possibilities than the previous DLM flex generation. Fortimo DLM flex L2 expands applications to include high-bay and other sectors. We provide you with a system proposition ranging from 1,100 lm to 10,000 lm, from high performance to low cost, all in one flexible portfolio. Models can be easily tuned to meet your needs through Philips Advance Xitanium LED drivers with SimpleSet technology.

- Wide lumen output range: from 1,100 to 10,000 lm
- Variation of color temperatures (2700K, 3000K, 3500K and 4000K)
- Lifetime > 50,000hrs (B50L70 at Tc 85°C)[1]
- High color consistency: 3SDCM
- Various mechanical interface options
  - Enabling standard or slim designs
  - Self-cooled option for up to 3,000 lm[24]
  - No additional heat sink needed[25]

Fortimo LED DLM Flex L2 Module with Cover

LED Module	Flux[19] (lm)	Power (W)	Efficacy (lm/W)	CCT[20] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life[21] (°C)	Rad. angle[22]
Fortimo LED DLM Flex L2 827 24 G1 NA	1,046	9.2	115	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 24 G1 NA	1,104	9.2	120	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 24 G1 NA	1,104	9.2	120	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 24 G1 NA	1,187	9.2	129	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 30 G1 NA	1,386	12.2	113	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 30 G1 NA	1,453	12.2	119	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 30 G1 NA	1,453	12.2	119	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 30 G1 NA	1,560	12.2	128	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 36 G1 NA	1,909	17.4	110	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 36 G1 NA	2,009	17.4	115	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 36 G1 NA	2,009	17.4	115	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 36 G1 NA	2,158	17.4	124	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 54 G1 NA	3,021	27.9	108	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 54 G1 NA	3,171	27.9	114	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 54 G1 NA	3,171	27.9	114	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 54 G1 NA	3,411	27.9	122	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 80 G1 NA	4,590	42.7	108	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 80 G1 NA	4,814	42.7	113	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 80 G1 NA	4,814	42.7	113	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 80 G1 NA	5,179	42.7	121	4000	>80	<3	>50,000 hs	85	120

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED DLM Flex L2 Module

LED Module	Flux[19] (lm)	Power (W)	Efficacy (lm/W)	CCT[20] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life[21] (˚C)	Rad. angle[22]
Fortimo LED DLM Flex L2 827 24 G1 NA	1260	9.2	138	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 24 G1 NA	1330	9.2	145	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 24 G1 NA	1330	9.2	145	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 24 G1 NA	1430	9.2	155	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 30 G1 NA	1670	12.2	136	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 30 G1 NA	1750	12.2	143	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 30 G1 NA	1750	12.2	143	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 30 G1 NA	1880	12.2	154	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 36 G1 NA	2300	17.4	132	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 36 G1 NA	2420	17.4	139	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 36 G1 NA	2420	17.4	139	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 36 G1 NA	2600	17.4	149	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 54 G1 NA	3640	27.9	130	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 54 G1 NA	3820	27.9	137	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 54 G1 NA	3820	27.9	137	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 54 G1 NA	4110	27.9	147	4000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 827 80 G1 NA	5530	42.7	130	2700	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 830 80 G1 NA	5800	42.7	136	3000	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 835 80 G1 NA	5800	42.7	136	3500	>80	<3	>50,000 hs	85	120
Fortimo LED DLM Flex L2 840 80 G1 NA	6240	42.7	146	4000	>80	<3	>50,000 hs	85	120

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

Fortimo LED downlight module (DLM) gen 4

Benefits

- Increased efficacies of up to 32% compared to gen 3[13]
- CRI of minimum 80
- Excellent quality of white light (3 SDCM)
- Dimming options include 0-10V

RoHS[7] COMPLIANT

[8]

The Philips Fortimo LED downlight module (DLM) is equipped with a special remote phosphor technology that enables very high levels of LED efficacy. Additionally, the excellent lumen maintenance and long lifetime of 50,000 hours[1] make frequent re-lamping a thing of the past – a promise that is backed by a Philips five-year limited warranty.[11]

Peace of mind for manufacturers

The LED module and driver have been developed and rigorously tested in combination with each other, including key enhancements like thermal protection for the module. Additionally, the module has been successfully implemented using LM-80 guidelines. As a result, they provide a great lumen output and light distribution, while efficacy upgrades can be implemented when available.

LED Module	Flux[2,3] (lm)	Power (W)	Efficacy (lm/W)	CCT[4] (K)	CRI[5] (Ra)	SDCM[6]	Lifetime[1] (L70)	T case life (°C)
Fortimo LED DLM 1100 10W/827 UL Gen 4	1100	10.3	107	2700	> 80	3	> 50,000	80
Fortimo LED DLM 1100 10W/830 UL Gen 4	1100	10.1	109	3000	> 80	3	> 50,000	80
Fortimo LED DLM 1100 10W/835 UL Gen 4	1100	9.6	114	3500	> 80	3	> 50,000	80
Fortimo LED DLM 1100 9W/840 UL Gen 4	1100	9.2	120	4000	> 80	3	> 50,000	80
Fortimo LED DLM 1500 16W/827 UL Gen 4	1500	15.4	97	2700	> 80	3	> 50,000	80
Fortimo LED DLM 1500 14W/830 UL Gen 4	1500	14.5	103	3000	> 80	3	> 50,000	80
Fortimo LED DLM 1500 14W/835 UL Gen 4	1500	13.8	108	3500	> 80	3	> 50,000	80
Fortimo LED DLM 1500 13W/840 UL Gen 4	1500	13.2	114	4000	> 80	3	> 50,000	80
Fortimo LED DLM 2000 22W/827 UL Gen 4	2000	22.3	90	2700	> 80	3	> 50000	80
Fortimo LED DLM 2000 21W/830 UL Gen 4	2000	20.9	95	3000	> 80	3	> 50000	80
Fortimo LED DLM 2000 20W/835 UL Gen 4	2000	19.9	100	3500	> 80	3	> 50000	80
Fortimo LED DLM 2000 19W/840 UL Gen 4	2000	18.9	106	4000	> 80	3	> 50000	80
Fortimo LED DLM 3000 34W/827 UL Gen 4	3000	33.5	90	2700	> 80	3	> 50000	80
Fortimo LED DLM 3000 32W/830 UL Gen 4	3000	31.8	94	3000	> 80	3	> 50000	80
Fortimo LED DLM 3000 30W/835 UL Gen 4	3000	30.1	100	3500	> 80	3	> 50000	80
Fortimo LED DLM 3000 28W/840 UL Gen 4	3000	28.7	105	4000	> 80	3	> 50000	80

For additional specification details and the most current product datasheets, please see www.philips.com/oemna.

*See footnotes on page 79.

LED module SKUs and minimum order quantities

Linear Modules

Part Number	Description	Minimum Order Quantity / Box Size [pcs]
929000757713	FORTIMO LED STRIP 24IN 2200LM 830 1R LV3	180
929000757813	FORTIMO LED STRIP 24IN 2200LM 835 1R LV3	180
929000757913	FORTIMO LED STRIP 24IN 2200LM 840 1R LV3	180
929000758013	FORTIMO LED STRIP 24IN 2200LM 850 1R LV3	180
929000758113	FORTIMO LED STRIP 24IN 2200LM 930 1R LV3	180
929000758213	FORTIMO LED STRIP 24IN 2200LM 935 1R LV3	180
929000758313	FORTIMO LED STRIP 24IN 2200LM 940 1R LV3	180
929000759413	FORTIMO LED STRIP VO 1FT 700LM 830 LV1	160
929000759513	FORTIMO LED STRIP VO 1FT 700LM 835 LV1	160
929000759613	FORTIMO LED STRIP VO 1FT 700LM 840 LV1	160
929000759713	FORTIMO LED STRIP VO 1FT 700LM 850 LV1	160
929000759813	FORTIMO LED STRIP VO 2FT 1400LM 830 LV1	200
929000759913	FORTIMO LED STRIP VO 2FT 1400LM 835 LV1	200
929000760013	FORTIMO LED STRIP VO 2FT 1400LM 840 LV1	200
929000760113	FORTIMO LED STRIP VO 2FT 1400LM 850 LV1	200
929000719713	FORTIMO LED LINE 1FT 2000LM 830 1R LV2	180
929000719813	FORTIMO LED LINE 1FT 2000LM 835 1R LV2	180
929000719913	FORTIMO LED LINE 1FT 2000LM 840 1R LV2	180
929000720013	FORTIMO LED LINE 1FT 2000LM 850 1R LV2	180
929000720513	FORTIMO LED LINE 2FT 4000LM 830 1R LV2	180
929000720613	FORTIMO LED LINE 2FT 4000LM 835 1R LV2	180
929000720713	FORTIMO LED LINE 2FT 4000LM 840 1R LV2	180
929000720813	FORTIMO LED LINE 2FT 4000LM 850 1R LV2	180
929000743813	FORTIMO LED LINE 2FT 6000LM 830 2R LV1	100
929000743913	FORTIMO LED LINE 2FT 6000LM 835 2R LV1	100
929000744013	FORTIMO LED LINE 2FT 6000LM 840 2R LV1	100
929000744113	FORTIMO LED LINE 2FT 6000LM 850 2R LV1	100
929000922706	FORTIMO LED STRIP 1FT 1100LM 830 1R LV3	168
929000922806	FORTIMO LED STRIP 1FT 1100LM 835 1R LV3	168
929000922906	FORTIMO LED STRIP 1FT 1100LM 840 1R LV3	168
929000923006	FORTIMO LED STRIP 1FT 1100LM 850 1R LV3	168
929000923206	FORTIMO LED STRIP 1FT 1100LM 940 1R LV3	168
929000923806	FORTIMO LED STRIP 2FT 2200LM 830 1R LV3	168
929000923906	FORTIMO LED STRIP 2FT 2200LM 835 1R LV3	168
929000924006	FORTIMO LED STRIP 2FT 2200LM 840 1R LV3	168
929000924106	FORTIMO LED STRIP 2FT 2200LM 850 1R LV3	168
929000937906	FORTIMO LED STRIP 1FT 1100LM 935 1R LV3	168
929000996606	FORTIMO LED STRIP 0.5FT 550LM 830 1R LV3	56

Linear Modules (continued)

Part Number	Description	Minimum Order Quantity / Box Size [pcs]
929000996706	FORTIMO LED STRIP 0.5FT 550LM 835 1R LV3	56
929000996806	FORTIMO LED STRIP 0.5FT 550LM 840 1R LV3	56
929000996906	FORTIMO LED STRIP 0.5FT 550LM 850 1R LV3	56
929000997006	FORTIMO LED STRIP 0.5FT 550LM 930 1R LV3	56
929000997106	FORTIMO LED STRIP 0.5FT 550LM 935 1R LV3	56
929000997206	FORTIMO LED STRIP 0.5FT 550LM 940 1R LV3	56
929000999206	FORTIMO LED STRIP 0.5FT 550LM 865 1R LV3	56
929000918806	FORTIMO LED LINE 1FT 1100LM 830 1R LV3	180
929000918906	FORTIMO LED LINE 1FT 1100LM 835 1R LV3	180
929000919006	FORTIMO LED LINE 1FT 1100LM 840 1R LV3	180
929000919106	FORTIMO LED LINE 1FT 1100LM 850 1R LV3	180
929000919906	FORTIMO LED LINE 2FT 2200LM 830 1R LV3	180
929000920006	FORTIMO LED LINE 2FT 2200LM 835 1R LV3	180
929000920106	FORTIMO LED LINE 2FT 2200LM 840 1R LV3	180
929000920206	FORTIMO LED LINE 2FT 2200LM 850 1R LV3	180
929000921706	FORTIMO LED LINE 1FT 1100LM 830 3R LV3	180
929000921806	FORTIMO LED LINE 1FT 1100LM 835 3R LV3	180
929000921906	FORTIMO LED LINE 1FT 1100LM 840 3R LV3	180
929000922006	FORTIMO LED LINE 1FT 1100LM 850 3R LV3	180
929000758013	Fortimo LED Strip 24in 2200lm 850 1R LV3	180
929000758113	Fortimo LED Strip 24in 2200lm 930 1R LV3	180
929000758213	Fortimo LED Strip 24in 2200lm 935 1R LV3	180
929000758313	Fortimo LED Strip 24in 2200lm 940 1R LV3	180

Downlight Modules

Part Number	Description	Minimum Order Quantity / Box Size [pcs]
929000895406	Fortimo LED DLM 1100 10W/827 UL Gen 4	30
929000877403	Fortimo LED DLM 1100 10W/830 UL Gen 4	30
929000877503	Fortimo LED DLM 1100 10W/835 UL Gen 4	30
929000877603	Fortimo LED DLM 1100 9W/840 UL Gen 4	30
929000895506	Fortimo LED DLM 1500 16W/827 UL Gen 4	30
929000877703	Fortimo LED DLM 1500 14W/830 UL Gen 4	30
929000877803	Fortimo LED DLM 1500 14W/835 UL Gen 4	30
929000877903	Fortimo LED DLM 1500 13W/840 UL Gen 4	30
929000895606	Fortimo LED DLM 2000 22W/827 UL Gen 4	30
929000878003	Fortimo LED DLM 2000 21W/830 UL Gen 4	30
929000878103	Fortimo LED DLM 2000 20W/835 UL Gen 4	30
929000878203	Fortimo LED DLM 2000 19W/840 UL Gen 4	30
929000895706	Fortimo LED DLM 3000 34W/827 UL Gen 4	30
929000878303	Fortimo LED DLM 3000 32W/830 UL Gen 4	30
929000878403	Fortimo LED DLM 3000 30W/835 UL Gen 4	30
929000878503	Fortimo LED DLM 3000 28W/840 UL Gen 4	30
929000749613	Fortimo LED DLM Flex L2 827 24 G1 NA	40
929000749713	Fortimo LED DLM Flex L2 830 24 G1 NA	40
929000749813	Fortimo LED DLM Flex L2 835 24 G1 NA	40
929000749913	Fortimo LED DLM Flex L2 840 24 G1 NA	40
929000750013	Fortimo LED DLM Flex L2 827 30 G1 NA	40
929000750113	Fortimo LED DLM Flex L2 830 30 G1 NA	40
929000750213	Fortimo LED DLM Flex L2 835 30 G1 NA	40
929000750313	Fortimo LED DLM Flex L2 840 30 G1 NA	40
929000750413	Fortimo LED DLM Flex L2 827 36 G1 NA	40
929000750513	Fortimo LED DLM Flex L2 830 36 G1 NA	40
929000750613	Fortimo LED DLM Flex L2 835 36 G1 NA	40
929000750713	Fortimo LED DLM Flex L2 840 36 G1 NA	40
929000750813	Fortimo LED DLM Flex L2 827 54 G1 NA	40
929000750913	Fortimo LED DLM Flex L2 830 54 G1 NA	40
929000751013	Fortimo LED DLM Flex L2 835 54 G1 NA	40
929000751113	Fortimo LED DLM Flex L2 840 54 G1 NA	40
929000751213	Fortimo LED DLM Flex L2 827 80 G1 NA	40
929000751313	Fortimo LED DLM Flex L2 830 80 G1 NA	40
929000751413	Fortimo LED DLM Flex L2 835 80 G1 NA	40
929000751513	Fortimo LED DLM Flex L2 840 80 G1 NA	40
929000765413	Fortimo LED DLM Thermal Accessory G1	40
929000765313	Fortimo LED DLM Flex Cover NA	40

Complementary partners

In order to make the Fortimo LED module systems more easily accessible to all luminaire manufacturers, whether small or large, Philips has set up links with our complementary partners.

These are companies who have developed components specifically for the Fortimo LED systems. These complementary partners have regular contact with Philips and receive early information about the Philips Fortimo product roadmap. We recommend that you visit the websites of these companies and contact them directly about their Fortimo-related products.

The following are suggestions of products that can be used with certain Philips Fortimo systems. Philips makes no warranties regarding these products and assumes no legal liability or responsibility for loss or damage resulting from the use of the information herein.

The list of partners below is current as of October 2016. Please contact your local Philips sales representative for a complete listing.

Cooling Systems

AVC
www.avc.com.tw

MechaTronix
www.mechatronix-asia.com

Nuventix
www.nuventix.com

Sunon
www.sunon.com

Wisefull
http://www.wisefull.com

Thermal Interface

Laird Technologies
www.lairdtech.com

The Bergquist Company
www.bergquistcompany.com

Reflector

ACL
www.reflektor.com

Almeco
www.almecogroup.com

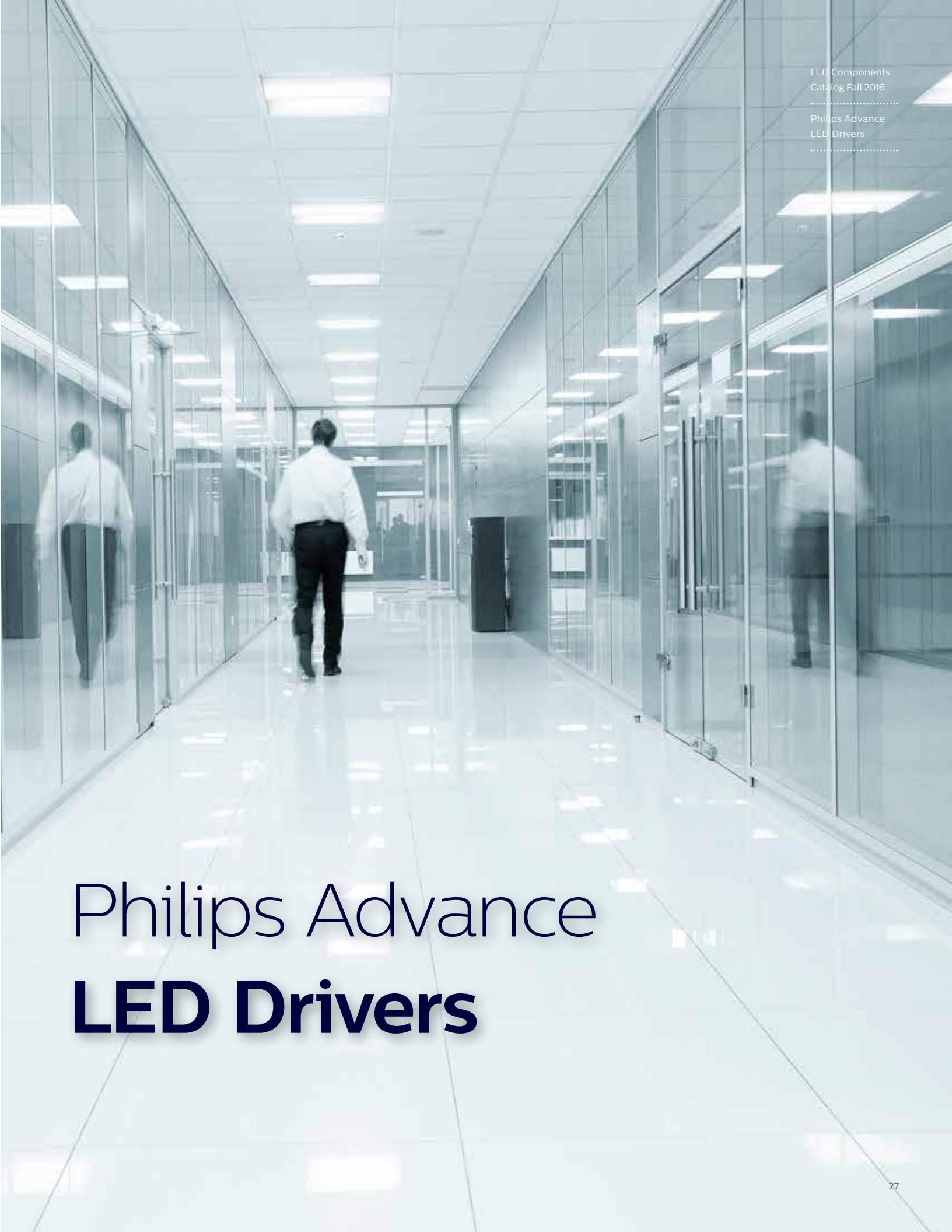
Alux Luxar
www.alux-luxar-reflektoren.com

Jordan
www.jordan-reflektoren.de/en/home

LEDIL
www.ledil.com

NATA
www.nata.cn

Widegerm
www.widegerm.com.hk



Philips Advance
LED Drivers

Philips Advance LED drivers

All Philips Advance LED drivers comply with Part 15 of the FCC rules.

Canada:
CAN ICES-005 (A) / NMB-005 (A)

Versatility delivered

LED light sources require reliable LED drivers for optimal performance that is long-lasting with low-maintenance. Our wide range of Philips Advance Xitanium and CertaDrive[27] LED drivers are specifically designed to operate LEDs in a variety of indoor and outdoor lighting applications while flexibly meeting a wide variety of customer needs for the application. Setting the standard in reliability and performance, all Philips LED drivers lead the transformation with:

Benefits:

- Reliable and consistent operation
- High efficiency >90% in some cases
- Greater than 0.9 PF and less than 20% THD
- Class P on select models
- Greater than 50k hrs[10] lifetime
- 5-year limited warranty[11]
- ROHS compliance[7]

Xitanium drivers

Philips Advance Xitanium drivers are designed to maximize performance with unmatched flexibility to handle the varying demands of LED lighting configurations.

Rated for long life with efficient performance, these drivers are excellent design choices for LED fittings, offering the benefits of long-lasting energy savings with low maintenance costs.

Speed up your business with new wireless programmable LED technology

Philips' new SimpleSet wireless programming technology for Xitanium LED drivers is designed to help OEMs quickly and easily program LED drivers at any time during the manufacturing, distribution or installation process. Visit www.philips.com/simpleset for more information.

CertaDrive drivers

Philips Advance CertaDrive indoor LED drivers are designed to meet basic lighting needs. These drivers are offered with specific voltage-current settings and are, thus, optimized with specifications that are appropriately suited for the application, making LED conversion even more affordable.

Available in an array of current outputs and operating ranges, Philips Advance CertaDrive models are designed with simplified features to fit the application, thus offering an excellent economic alternative for general purpose indoor linear applications.

*See footnotes on page 79.

Xitanium SR LED drivers

Benefits of Xitanium SR for OEMs

- Streamlined design: no need for auxiliary component costs and management of excessive parts and pieces, simple 2-wire connection to the sensor
- Drop-in design, Xitanium footprint: faster time to get your products to market
- Wireless luminaire-based data collection: gather valuable sensing data, send it directly to the cloud or network of your choice
- UL recognized, CSA and RoHS compliant: minimize the time and cost of approbations
- Low standby power
- DC power to sensors: eliminates the need for redundant auxiliary components
- SimpleSet wireless programming technology: quickly and wirelessly program the driver at any time without cumbersome wires or time-consuming manual methods

Uncomplicated and amenable to your choice sensor or network

In today's digital age, people can gather real-time data and use it to make highly informed decisions in areas from personal finance to time management and much more. However, this method of detailed insight is not relegated to personal use. In fact, it's now possible to wirelessly harvest specific, real-time lighting information in commercial spaces.

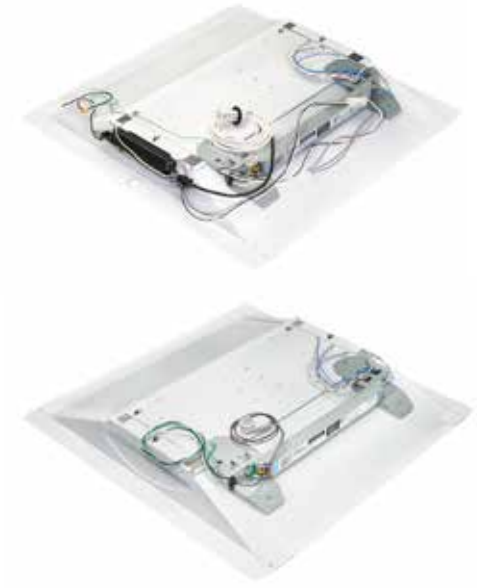
Philips Advance Xitanium SR LED drivers streamline wireless connected lighting. They reduce overall costs by standardizing the digital connection between the driver and sensor, bundling important functionality into the driver and eliminating the need for auxiliary components. Xitanium SR drivers enable power reporting and dim/on/off functionality at each fixture.

This streamlined approach and easy design-in means that OEMs can spend less time and money to bring products to market. And for your customers, Xitanium SR LED drivers enhance energy efficiency by monitoring real-time system data and making this information available at any time to the network. It also manages sensors and commands related to occupancy, daylight harvesting and dim/on/off at each luminaire. Together with Philips, it's never been easier to create robust, cutting-edge wireless lighting solutions.

Simplicity for everyone

Using our Xitanium SR LED drivers, digital system data is collected at each luminaire and then routed wirelessly through your customers' preferred networks. This means that very specific and actionable data can be used to make informed business decisions and optimize resource distribution within workspaces. Visit www.philips.com/xitaniumsr/na for more information.

Simplified luminaire design



Separate components add unnecessary complexity to luminaires (top), while Xitanium SR LED drivers integrate many of the components (bottom) for a streamlined luminaire design.

Visit www.philips.com/xitaniumsr/na or call your local Philips sales representative for more information.

SimpleSet technology

Benefits of Xitanium with SimpleSet and OEMs

- Speed: program fixtures faster without requiring complex and time-consuming wiring mechanics or powering up drivers
- Flexibility: program at any stage in the manufacturing process, either single components or multiple drivers at once
- Reduced costs: meet a diverse set of customer needs without overextending your SKUs or managing different driver SKUs
- Simplicity: deploy anywhere in the assembly process without complex training; intuitive for anyone in the value chain, regardless of experience
- Security: set and protect proprietary information with dedicated memory space for OEMs with password protection

Wireless programming for Xitanium drivers

Philips Advance Xitanium LED drivers with SimpleSet technology are designed to help OEMs quickly and easily program LED drivers at any time during the manufacturing, distribution or installation process. As a result, OEMs and their customers can meet orders faster with greater confidence while potentially reducing costs and inventory.

Accelerate LED programming

Currently, there are a variety of methods used to adjust output current of LED drivers. One method is putting a resistor on the driver that allows you to set the desired drive current. Other methods include DIP switches, adjustable potentiometers or programming via software. These solutions are cumbersome to incorporate into high volume production environments because the driver either has to be powered for programming or needs to be wired to a programming device.

Using our Xitanium LED drivers with SimpleSet technology, you will be able to quickly and easily program drive current and set specific lumen levels without the driver being powered or wired. This speed and flexibility will allow you and your customers to set and reset parameters as needed.

Accelerate LED programming

1. Take the driver out of the box. Locate the designated communication area on the driver.

2. Touch the LED driver to the programming device. Programming confirmation will appear on the monitor.

3. Install the driver into the fixture.

Stay ahead of business demands

SimpleSet technology enables you to do more for your customers and your business. OEMs can quickly meet a broad range of customer requirements and order variations. In addition, wireless programming is flexible so it can be incorporated directly into any and all areas of your product development process, warehouse and distribution. You now have never-before-available possibilities to create differentiation for your business.

Visit www.philips.com/simpleset or call your local Philips sales representative for more information.

Catalog number explanation

Prior to January 2011

LED	INT	A	C035	V	425	DN	M
							Packaging: M=Midpack
						Fixed or Dimming: FO=Fixed DO=Dimming (0-10V) Isolated DN=Dimming (0-10V) NON-Isolated	DL=Dimming (0-10V) NON-Isolated in F-can F3=Tritap FL=Fixed in F-can
					Max Voltage or Max Current: 210=210V 24=24V 30=3.0A 425=425V 07=0.7A 32=3.2A 140=140V 21=2.1A 41=4.1A 280=280V 14=1.4A 24=24V 80=80V 20=2.0A 60=60V 33=3.3A 22=2.2A 80=80V 28=2.8A 36=36V 18=1.8A 10=1.0A 50=5.0A		
				Constant Current or Constant Voltage: C= Constant Current V= Constant Voltage			
			Max Current or Max Voltage: 0350=350mA 1050=1.05A 0036=36V 0400=400mA 2000=2.0A 0520=520mA 0530=530mA 0024=24V 1000=1.0A 0700=700mA 0012=12V 1600=1.6A				
		Input Voltage: A=AC Voltage D=DC Voltage					
	Input Voltage: INT=120 - 277V UNI=120 - 240V 120=120V HCN=347-480V 277=277V						
General: LED= Xitanium LED Driver							

After January 2011

X	I	075	C070	V105	C	N	Y	1	M
									Packaging: M=Midpack
								Version Control: 1=Version 1, 2=Version 2, ...	
							Enclosure Designation		
						Features: P=Programming S=SimpleSet N=Non-Programming			
					Fixed or Dimming: B=0-10V, AOC R=Leading Edge & Trailing Edge Dimming C=0-10V S=Step Dim D=0-10V, AOC, MTP V=SensorReady F=Fixed X=0-10V, AOC, MTP, CLO (linear) K=DALI, 0-10V, MTP X=TE, 0-10V, AOC, MTP, FAN (downlight) M=DALI, 0-10V, AOC, MTP Y=DALI, AOC, MTP, CLO				
				Max Voltage: Examples: 012=12V, 054=54V, 280=280V					
			Max Current: Examples: 035=350mA, 070=700mA, 053=530mA, 105=1050mA						
		Max Power: Examples: 025=25W, 060=60W, 300=300W							
	Input Voltage: I=120-277V G=347V R=120V H=347-480V V=277V								
General: X= Xitanium LED Driver, C=CertaDrive									

Date codes

Most date codes are stamped on the back of the driver (opposite the label side). The date code is part of a larger group of numbers and letters that call out the various codes for the factory where the driver was manufactured. Depending upon which Philips Lighting factory manufactured the driver, the date stamp can vary slightly in terms of its position on the driver and the number sequence.

For plastic case drivers the date code will appear as a label.

693P0MMA
53301707
The date code is the 5th day of the 33rd week of 2001 stamped on the back of the ballast.

06127M50
F2104571
The date code is the 127th day of 2006 stamped on the back of the ballast.

CertaDrive indoor LED drivers

Benefits

- Optimized for use with Philips Fortimo value offer (vo) modules
- Small form-factor
- Class P Listing
- Input voltage range of 120-277V
- 5% 0-10V dimming
- High efficiency for maximum payback
- 5-year limited warranty[11]

Philips Advance CertaDrive indoor LED drivers are designed to meet basic lighting needs, thus making LED conversion even more attainable.

Philips Advance CertaDrive drivers are offered in the following categories:

Fixed

IntelliVolt models are designed for basic indoor applications that do not require dimming, while still meeting the energy-saving benefits from LED.

Dimmable

Addressing the needs of essential dimming applications, these models are offered in an assortment of voltage-current combinations for (0-10V) diming systems.

Optimized

These drivers are offered with specific voltage-current settings and are, thus, optimized with specifications that are appropriately suited for the application.

The CertaDrive LED drivers along with the Fortimo LED strip value offer (vo) boards cater to the varying lighting needs in both non-dimming and dimming applications for economically designed luminaires.

	Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
NEW!	CI018C039V046FNN1	18	0.39	40 - 46	Yes	120 - 277	No	Class P	65	75	N-Can	1
NEW!	CI021C045V046FNN1	21	0.45	30 - 46	Yes	120 - 277	No	Class P	65	75	N-Can	1
NEW!	CI035C075V046FNN1	35	0.75	30 - 46	Yes	120 - 277	No	Class P	65	75	N-Can	1
NEW!	CI036C078V046FNN1	36	0.78	40 - 46	Yes	120 - 277	No	Class P	65	75	N-Can	1
NEW!	CI023C048V046CNN1	23	0.48	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI024C045V052CNN1	24	0.45	35 - 52	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI026C055V046CNN1	26	0.55	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI030C065V046CNN1	30	0.65	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI031C068V045CNN1	31	0.68	30 - 45	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI034C072V046CNN1	34	0.72	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI037C082V045CNN1	37	0.82	30 - 45	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI039C075V052CNN1	39	0.75	35 - 52	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI041C087V046CNN1	41	0.87	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI042C092V045CNN1	42	0.92	30 - 45	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI045C096V046CNN1	45	0.96	30 - 46	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2
NEW!	CI046C102V045CNN1	46	1.02	30 - 45	Yes	120 - 277	0-10V	Class P	65	75	N-Can	2

CertaDrive indoor LED driver dimensions

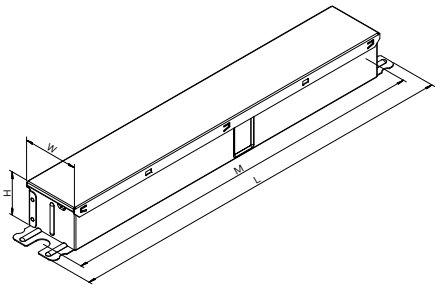
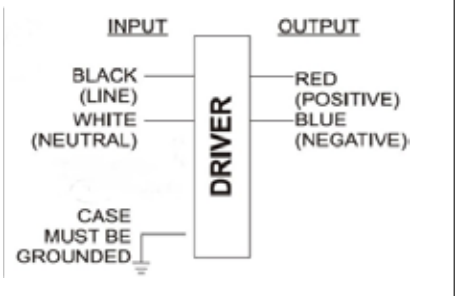
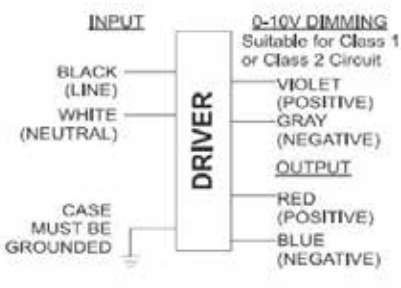


Fig. N-Can

CertaDrive indoor LED driver wiring diagrams



Diag. 1



Diag. 2

Xitanium indoor linear LED drivers

Benefits

- Adjustable output current
- Wide operating windows
- UL Class 2
- Input voltage range of 120-277V
- 1% 0-10V dimming on select models
- Class P on select models
- High efficiency for maximum payback
- High reliability for low maintenance costs

Applications

- Office
- Retail
- Hospitality
- Meeting rooms

Philips Advance Xitanium LED drivers for linear applications are available in three types:

Dimmable

Dimmable drivers include 0-10V, step-dim or leading-edge dimming to integrate into common dimming systems used in commercial applications. Dimming enables maximum energy savings and can help to facilitate worker comfort.

Programmable

These drivers provide a feature set managed through a programmable interface. This allows the OEM to create a fixture portfolio to meet specific needs for a wide range of applications, using a minimum number SKUs to reduce complexity and simplify logistics.

SR

Xitanium SR drivers share the same footprint as the dimmable drivers for simple, hassle-free integration into luminaires. These versatile drivers provide power metering and DC power to the sensor over the DALI 2.0 open standard digital interface.

Philips Advance Xitanium LED drivers for linear applications are available in wattages up to 95W for hard-wired integration into linear fluorescent style fixtures (troffers). The form factor is perfectly suited to these applications and enables quick time to market by utilizing mechanical aspects familiar in traditional fluorescent fixtures. Visit www.philips.com/leddrivers for more information.

Xitanium linear LED drivers

Dimmable

	Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
	XI020C056V054BST1	20	0.1 - 0.56	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset)	75	80	T-254	9
	XI020C056V054BST2	20	0.1 - 0.56	22.5 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), 1% Dimming, Class P	75	80	T-254	9
	XI040C110V054BPT1	40	0.1 - 1.1	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset)	75	85	T-360	9
	XI040C110V054BST1	40	0.1 - 1.1	22.5 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), 1% Dimming, Class P	75	80	T-360	29
	LEDINTA2000C24DO	48	1.0 - 2.0	12 - 24	Yes	120 - 277	0-10V	AOC (Rset)	80	80	T-425	7
	XI054C150V054BST1	54	0.1 - 1.5	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), 1% Dimming, Class P	75	85	T-360	29
	XI054C150V054DNT1	54	0.1 - 1.5	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP	75	85	T-360	8
	XG054C150V054BPT1	54	0.1 - 1.5	27 - 54	Yes	347	0-10V	AOC (SimpleSet/Rset)	75	85	T-360	9
	XI054C150V054SNT1	54	0.1 - 1.5	27 - 54	Yes	120 - 277	Step-Dim	AOC (Rset), MTP	75	85	T-360	27
	XR054C150V054RNT1	54	0.1 - 1.5	27 - 54	Yes	120	LE	AOC (Rset), MTP	75	85	T-360	10
	XV054C150V054RNT1	54	0.1 - 1.5	27 - 54	Yes	277	LE	AOC (Rset), MTP	75	85	T-360	10
	XI075C200V054BPT1	75	0.1 - 2.0	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset)	80	85	T-425	9
	XI075C200V054BST1	75	0.1 - 2.0	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), 1% Dimming, Class P	80	85	T-425	9
NEW!	**XI095C275V054BSS1**	**95**	**0.1 - 2.75**	**20 - 54**	**Yes**	**120 - 277**	**0-10V**	**AOC (SimpleSet), Class P**	**80**	**85**	**S-Can**	**25**
	XI095C275V054DNF1	95	1.0 - 2.75	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP	85	90	F-Can Chassis Mount	22
NEW!	**XH095C275V054BSF1**	**95**	**0.1 - 2.75**	**20 - 54**	**Yes**	**347 - 480**	**0-10V**	**AOC (SimpleSet), Class P**	**80**	**85**	**F-Can Gen 2**	**33**
NEW!	**XI190C275V054BSG1**	**190**	**0.1 - 2.75**	**27 - 54**	**Yes**	**120 - 277**	**0-10V**	**AOC (SimpleSet), Class P, Dual Channel**	**80**	**85**	**G-Can**	**34**

AOC: Adjustable Output Current
MTP: Module Temperature Protection
PROG: Programmable, includes Constant Light Output (CLO)

Programmable

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
XI075C200V054XPT1	75	0.7 - 2.0	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP, PROG	75	75	T-425	11
XI075C200V054YPT1	75	0.7 - 2.0	27 - 54	Yes	120 - 277	DALI	AOC (Rset), MTP, PROG	75	75	T-425	12

SR

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
XI040C110V054VPT1	40	0.1 - 1.1	27 - 54	Yes	120-277	SR	AOC (SimpleSet/Rset)	75	85	T-360	23
XI075C200V054VPT1	75	0.7 - 2.0	27 - 54	Yes	120 - 277	SR	AOC (SimpleSet/Rset)	75	85	T-425	23

Xitanium linear LED driver dimensions

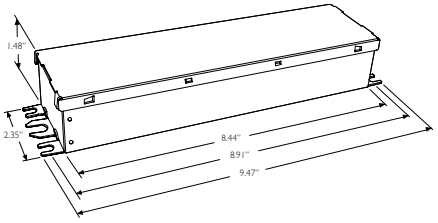


Fig. F-Can Chassis Mount

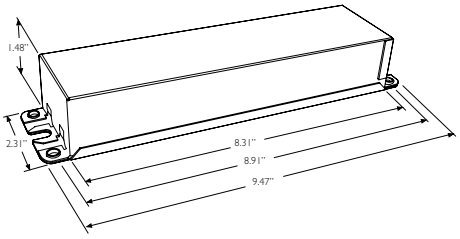


Fig. F-Can Gen 2

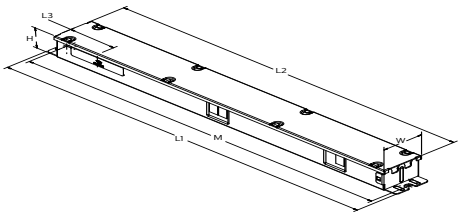


Fig. G-Can

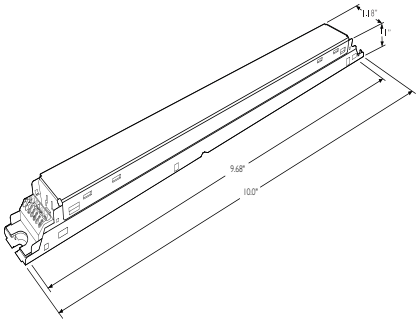


Fig. T-254

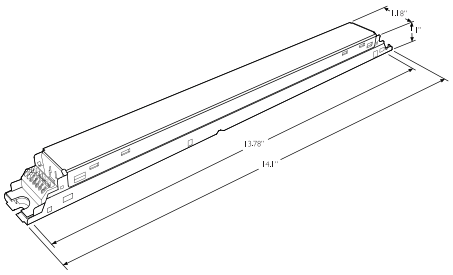


Fig. T-360

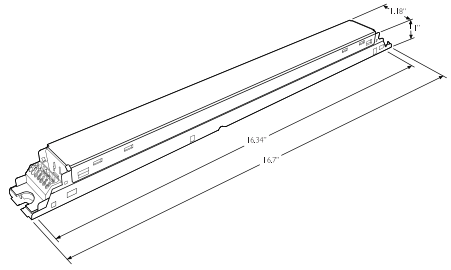
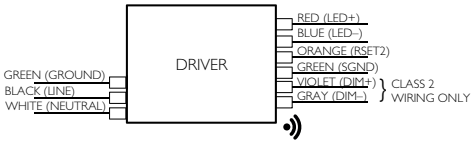


Fig. T-425

Xitanium linear LED driver wiring diagrams

Diag. 7

Diag. 8

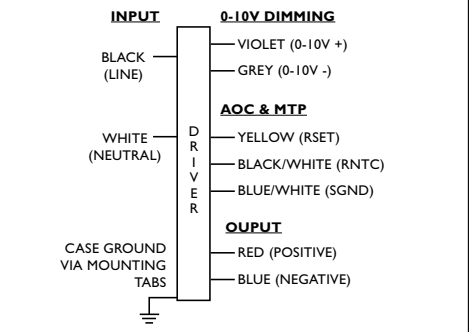


Diag. 9

Diag. 10

Diag. 11

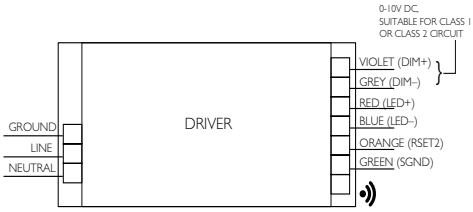
Diag. 12



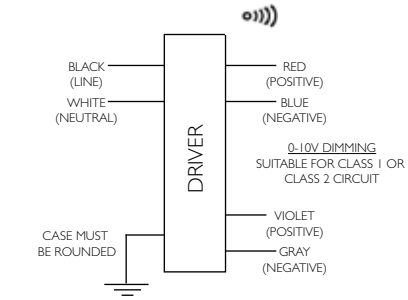
Diag. 22

Diag. 23

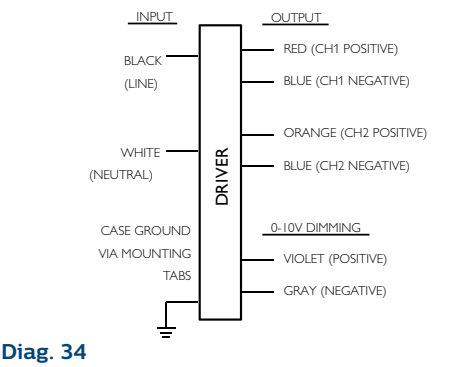
Diag. 27



Diag. 29



Diag. 33



Diag. 34

Xitanium indoor downlight and track LED drivers

Benefits

- Adjustable output current
- Wide operating windows
- UL Class 2
- Input voltage range of 120-277V
- 1% 0-10V dimming on select models
- Class P on select models
- High efficiency for maximum payback
- High reliability for low maintenance costs

Applications

- Office
- Retail
- Hospitality
- Meeting rooms

Philips Advance Xitanium LED drivers for indoor downlight and track applications are available in three types:

Fixed output

Fixed output LED drivers set the standard for reliability and performance needed for indoor downlight and track lighting.

Dimmable

Dimmable drivers include 0-10V, step-dim or leading-edge dimming to integrate into common dimming systems used in commercial applications. Dimming enables maximum energy savings and can help to facilitate worker comfort.

Programmable

These drivers provide a feature set managed through a programmable interface. This allows the OEM to create a fixture portfolio to meet specific needs for a wide range of applications, using a minimum number SKUs to reduce complexity and simplify logistics.

Philips Advance Xitanium LED drivers for indoor downlight and track applications are available in wattages up to 95W for hard-wired integration into recessed downlights and track light fixtures. These LED drivers are available in the familiar SmartMate housing for junction-box mounting in downlights and slim housings for incorporation into track housings. Visit www.philips.com/leddrivers for more information.

Xitanium downlight LED drivers

Fixed Output

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
LEDUNIA0350C12F	4	0.35	2.8 - 12	Yes	120 - 230	60	69	8W	13
LEDUNIA0700C12F	6.5	0.70	2.4 - 12	Yes	120 - 230	60	69	8W	13
LED120A0024V07F	17	0.10 - 0.70	24	Yes	120	70	80	V-Can Indoor	13
LED120A0700C24F	17	0.70	2.8 - 24	Yes	120	75	85	V-Can Indoor	13
LED120A1400C24F	34	1.40	2.8 - 24	Yes	120	75	85	J-Box Indoor	21

Dimmable

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
XR009C022V042RNO2	9	0.22	25-42	Yes	120	LE, TE		85	85	O-Can	13
XR013C033V042RNO2	13	0.33	25-42	Yes	120	LE, TE		85	85	O-Can	13
XI013C030V048DNM1	13	0.1-0.3	24-48	Yes	120-277	0-10V	AOC (Rset), MTP	80	80	M1 BS-Can	15
NEW! **XI013C036V054DNM1**	**13**	**0.1 - 0.36**	**27 - 54**	**Yes**	**120 - 277**	**0-10V**	**AOC (Rset), MTP, SREC, 1% Dimming, Class P**	**80**	**90**	**M1 BS-Can**	**15**
XI020C050V042RNP1	20	0.35 - 0.5	20 - 42	Yes	120 - 277	LE, TE	AOC (Dip Switch)	75	80	P-Can	13
XI020C070V030RNP1	20	0.4 - 0.7	15 - 30	Yes	120 - 277	LE, TE	AOC (Dip Switch)	75	80	P-Can	13
XI025C070V036DNM1	25	0.2 - 0.7	18 - 36	Yes	120 - 277	0-10V	AOC (Rset), MTP	75	80	M5 BS-Can	17
XI025C070V054DSM1	25	0.1 - 0.70	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M1 BS-Can	30
XI025C070V054DSM5	25	0.1 - 0.70	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M1 LD-Can	30
NEW! **XI025C100V036DSM1**	**25**	**0.1 - 1.0**	**18 - 36**	**Yes**	**120 - 277**	**0-10V**	**AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P**	**80**	**90**	**M1 BS-Can**	**30**
NEW! **XI025C100V036DSM5**	**25**	**0.1 - 1.0**	**18 - 36**	**Yes**	**120 - 277**	**0-10V**	**AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P**	**80**	**90**	**M1 LD-Can**	**30**
XI025C100V036DNM1	25	0.1 - 1.0	18 - 36	Yes	120 - 277	0-10V	AOC (Rset), MTP	80	90	M1 BS-Can	15
XI025C100V036DNMX	25	0.1 - 1.0	18 - 36	Yes	120 - 277	0-10V	AOC (Rset), MTP, SREC	80	90	M1 BS-Can	15
XI025C100V045DNM1	25	0.1 - 1.0	18 - 45	Yes	120 - 277	0-10V	AOC (Rset), MTP, SREC	80	90	M1 BS-Can	15

AOC: Adjustable Output Current
MTP: Module Temperature Protection
SREC: Safety Related Electrical Circuit
FAN: 12V auxiliary voltage to power an active cooling device

Chart continues on next page.

Dimmable (continued)

LEDINTA0520C60DB	30	0.35 - 0.52	25 - 56	Yes	120 - 277	0-10V	AOC (Rset), MTP	70	75	M5 BS-Can	17
XI036C100V048DNM1	36	0.1 - 1.0	20 - 48	Yes	120 - 277	0-10V	AOC (Rset), MTP	80	90	M1 BS-Can	15
XI036C100V048DNMX	36	0.1 - 1.0	20 - 48	Yes	120 - 277	0-10V	AOC (Rset), MTP, SREC	80	90	M1 BS-Can	15
XI036C100V054DSM1	36	0.1 - 1.0	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M1 BS-Can	30
XI036C100V054DSM5	36	0.1 - 1.0	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M1 LD-Can	30
913701213402	39	0.20 - 0.70	20 - 56	Yes	120 - 277	0-10V	AOC (Rset), MTP, Fan	70	75	M5 BS-Can	16
LEDINTA0520C80DB	40	0.35 - 0.52	40 - 77	No	120 - 277	0-10V	AOC (Rset), MTP	70	75	M5 BS-Can	17
XI050C100V054DNM1	50	0.1 - 1.0	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP, Fan	75	75	M2 BS-Can	14
XI050C100V054DNMX	50	0.1 - 1.0	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP, Fan, SREC	75	87	M2 BS-Can	14
XI050C140V054DSM1	50	0.1 - 1.4	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M5 BS-Can	**30**
XI050C140V054DSM5	50	0.1 - 1.4	27 - 54	Yes	120 - 277	0-10V	AOC (SimpleSet/Rset), MTP, SREC, 1% Dimming, Class P	80	90	M5 LD-Can	**30**
LEDINTA1000C60DB	50	0.7 - 1.05	25 - 48	Yes	120 - 277	0-10V	AOC (Rset), MTP	70	75	M5 BS-Can	17
XI050C105V052DNM1	50	0.7 - 1.05	25 - 52	Yes	120 - 277	0-10V	AOC (Rset), MTP	70	75	M5 LD-Can	17
XI095C275V054DNF5	95	1.0 - 2.75	27 - 54	Yes	120 - 277	0-10V	AOC (Rset), MTP	85	90	F-Can Bottom Stud	22

Programmable

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
XI025C100V036XPL1	25	0.3 - 1.0	18 - 36	Yes	120 - 277	0-10V (120V only), TE (120V only)	AOC, MTP, FAN, PROG	65	75	25W LH-Can	20
XI050C100V054XPL1	50	0.3 - 1.0	27 - 54	Yes	120 - 277	0-10V (120V only), TE (120V only)	AOC, MTP, FAN, PROG	75	75	50W LH-Can	20

AOC: Adjustable Output Current
MTP: Module Temperature Protection
FAN: 12V auxiliary voltage to power an active cooling device
PROG: Programmable, includes Constant Light Output (CLO)

Xitanium downlight LED driver dimensions

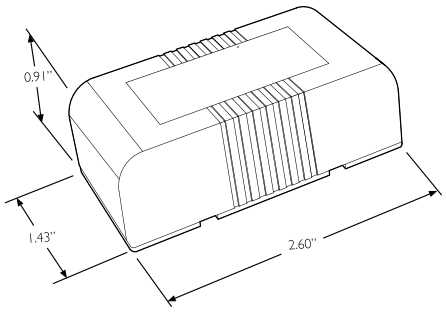


Fig. 8W

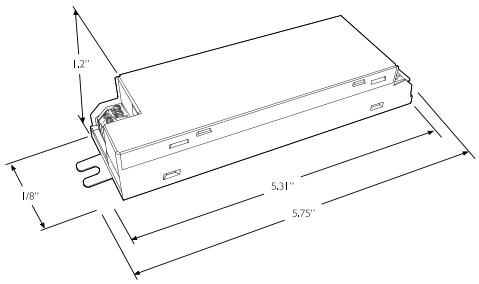


Fig. 25W LH-Can

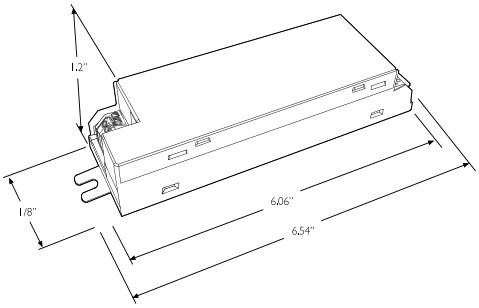


Fig. 50W LH-Can

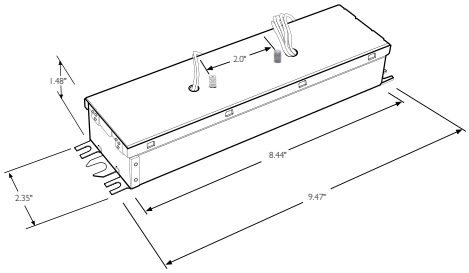


Fig. F-Can Bottom Studs

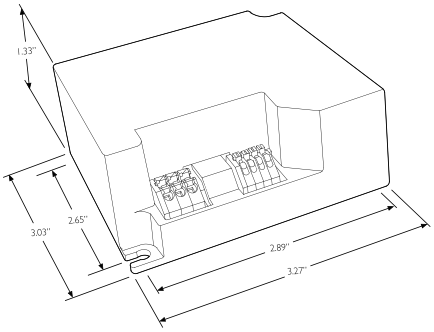


Fig. J-Box Indoor

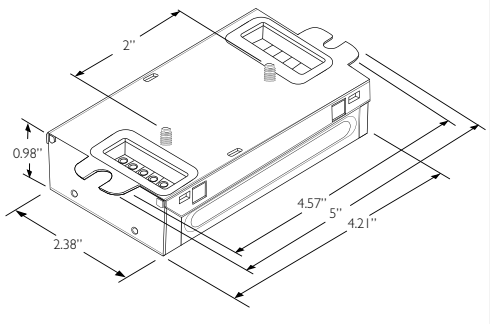


Fig. M1 BS-Can

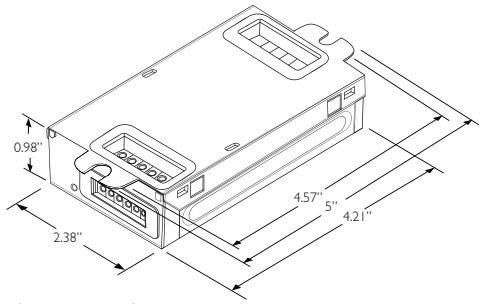


Fig. M1 LD-Can

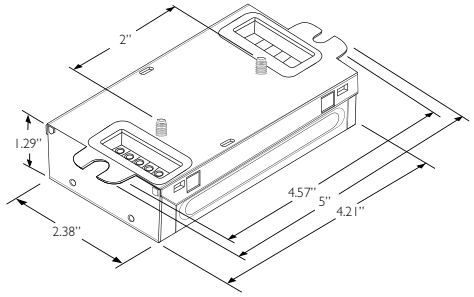


Fig. M2 BS-Can

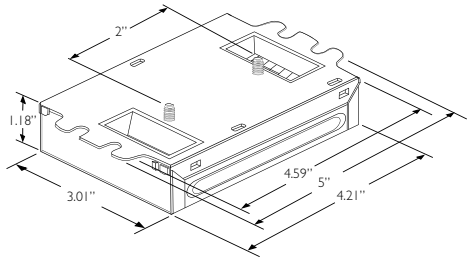


Fig. M5 BS-Can

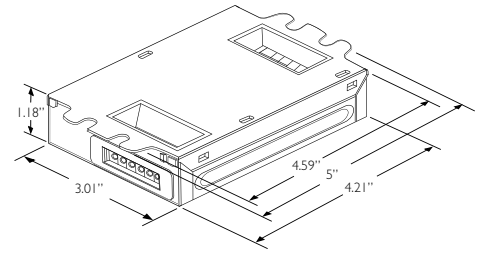


Fig. M5 LD-Can

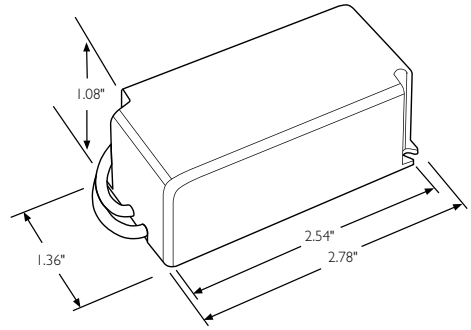


Fig. O-Can

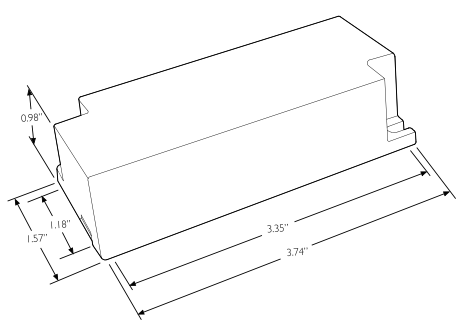


Fig. P-Can

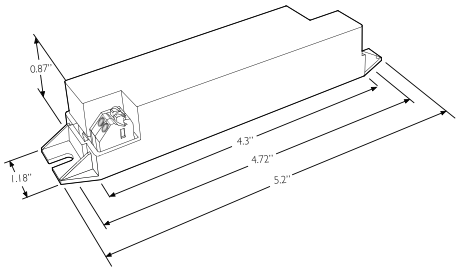
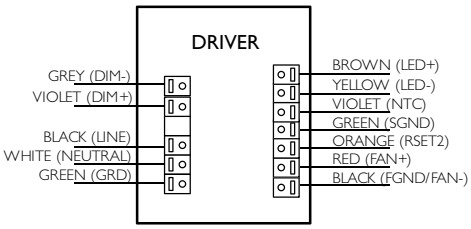


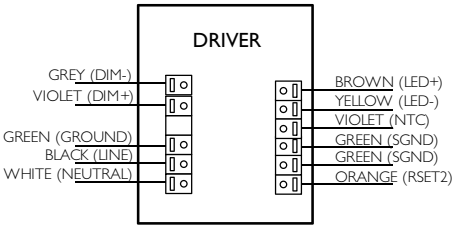
Fig. V-Can Indoor

Xitanium downlight
LED driver wiring diagrams

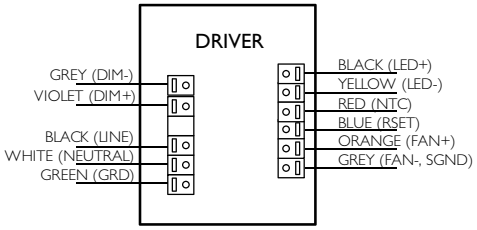
Diag. 13



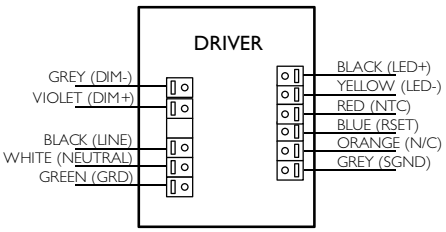
Diag. 14



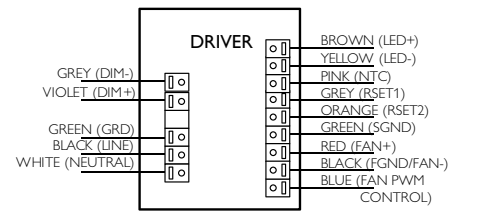
Diag. 15



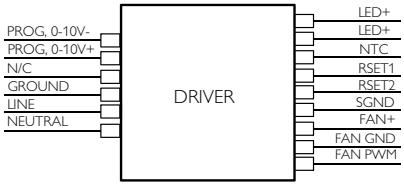
Diag. 16



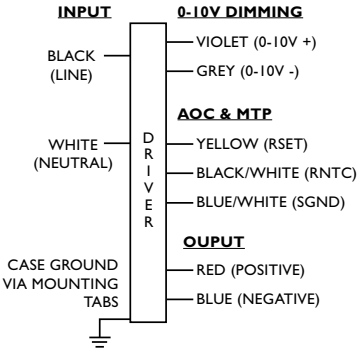
Diag. 17



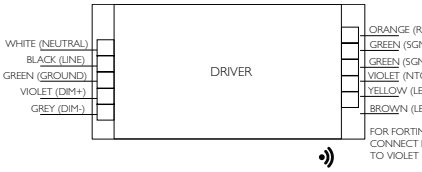
Diag. 18



Diag. 20



Diag. 22



Diag. 30

Xitanium outdoor LED drivers

Benefits

- Standard drive currents 350, 530, 700, 1050 and 1500mA
- UL Class 1 or Class 2
- Input voltage range of 120-277V
- Surge protection
- High efficiency for maximum payback
- High reliability for low maintenance costs

Applications

- Area
- Roadway
- Parking garage
- Gas station canopy
- Wallpacks
- Floodlights

Xitanium LED drivers for outdoor applications are available in three types:

Fixed output

Fixed output LED drivers set the standard for reliability and performance needed for outdoor lighting.

Dimmable

These 0-10V dimming drivers help address the growing demand for controllability and flexibility allowing the lighting system to be used with various controls to maximize energy savings.

Programmable

Programmable LED drivers provide a feature set managed through a programmable interface. This allows the OEM to create a fixture portfolio to meet specific needs for a wide range of applications, using a minimum number SKUs to reduce complexity and simplify logistics.

Philips Advance Xitanium LED drivers for outdoor applications are available in wattages up to 300W for hard-wired integration into outdoor luminaires for the most rugged applications. They operate to specification under wide temperature and electrical ranges to ensure reliability. Visit www.philips.com/leddrivers for more information.

Xitanium outdoor LED drivers

Fixed Output

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
LED120A0350C28FO	10	0.35	2.8 - 28	Yes	120	80	90	V-Can	13
LED120A0012V10F	12	1.00	12	Yes	120	80	90	V-Can	13
LED120A0700C24FO	17	0.70	2.8 - 24	Yes	120	80	90	V-Can	13
LED120A0700C28FO	20	0.70	2.8 - 28	Yes	120	80	90	V-Can	13
LED277A0700C28FO	20	0.70	2.8 - 28	Yes	277	80	90	V-Can	13
LED120A0024V14FO	34	1.40	2.8 - 24	Yes	120	80	90	J-Box	13
LED120A0024V18FO	40	1.75	2.8 - 24	Yes	120	80	85	J-Box	13
LEDINTA0024V20FLO	48	0.10 - 2.0	24	Yes	120 - 277	75	85	F-Can Bump	1
LEDINTA0024V22FO	53	2.20	24	Yes	120 - 277	80	90	S-Can	1
LED120A0012V50F	60	0.8 - 5.0	12	Yes	120	80	90	S-Can	1
LEDINTA0012V50FO	60	0.10 - 5.0	12	Yes	120 - 277	80	90	S-Can	1
LEDINTA0024V28FO	67	0.10 - 2.8	24	Yes	120 - 277	80	90	S-Can	1
LEDINTA0024V30FLO	72	0.10 - 3.0	24	Yes	120 - 277	75	85	F-Can	1
LEDINTA0024V32FO	77	3.20	24	Yes	120 - 277	80	90	S-Can	1
LED120A0024V33F	80	0.8 - 3.3	24	Yes	120	80	85	S-Can	1
LEDINTA700C140F3O	100		60 - 140	No	120 - 277	75	80	F-Can Bump	6
XI100C230V042FNS1	100	2.30	21 - 42	Yes	120 - 277	80	90	S-Can	1
LEDINTA0024V41FLO	100	4.16	3.5 - 24	Yes	120 - 277	75	85	F-Can Bump	1
LEDINTA0024V41FO	100	4.16	6 - 24	Yes	120 - 277	80	90	S-Can	1
LEDHCNA0024V41FLO	100	4.16	3.5 - 24	Yes	347 - 480	75	85	F-Can Bump	31
LEDINTA0350C425FO	150	0.35	120 - 425	No	120 - 277	80	80	F-Can Bump	1
LEDHCNA0350C425FO	150	0.35	120 - 425	No	347 - 480	80	80	F-Can Bump	31
LEDINTA0700C210FO	150	0.70	60 - 210	No	120 - 277	80	80	F-Can Bump	1
XH150C070V210FNF1	150	0.70	60 - 210	No	347 - 480	80	80	F-Can Gen 2	31

Dimmable

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
LED120A0700C28DO	20	0.70	10 - 28	Yes	120	0-10V		80	90	V-Can	28
LED277A0700C30DO	21	0.70	15 - 30	Yes	277	0-10V		80	90	V-Can	28
XI040C070V056CNJ1	40	0.70	12 - 54	Yes	120 - 277	0-10V		75	80	J-Can	2
XI040C105V042CNJ1	40	1.05	14 - 42	Yes	120 - 277	0-10V		80	80	J-Can	2
XI040C120V035CNJ1	40	1.20	12 - 36	Yes	120 - 277	0-10V		80	80	J-Can	2
LEDINTA0024V20DLO	48	2.00	24	Yes	120 - 277	0-10V		75	85	F-Can Bump	2
XI050C105V050CNY1	50	1.05	25 - 50	Yes	120 - 277	0-10V		75	75	Y-Can	2
XI050C120V042BNY1	50	0.50 - 1.20	25 - 42	Yes	120 - 277	0-10V	AOC (Dip Switch)	75	75	Y-Can Gen 2	2
XI050C150V038CNH1	50	1.50	20 - 36	Yes	120 - 277	0-10V		80	80	H-Can	2
XI055C105V052BNY1	55	0.35 - 1.05	25 - 52	Yes	120 - 277	0-10V	AOC (Dip Switch)	75	75	Y-Can	2
XI063C150V042CNS1	63	1.50	21 - 42	Yes	120 - 277	0-10V		80	90	S-Can	2
LEDINTA0024V30DLO	72	3.00	24	Yes	120 - 277	0-10V		75	85	F-Can Bump	2
XI075C053V140CNY1	75	0.53	71 - 143	No	120 - 277	0-10V		80	80	Y-Can	2
XI075C053V140DNY1	75	0.10 - 0.53	71 - 143	No	120 - 277	0-10V	AOC (Rset), MTP	80	80	Y-Can	3
XI075C070V105CNY2	75	0.70	43 - 107	No	120 - 277	0-10V		80	80	Y-Can Gen 2	2
XI075C070V105DNY1	75	0.10 - 0.70	54 - 107	No	120 - 277	0-10V	AOC (Rset), MTP	80	80	Y-Can	3
929000708003	75	0.10 - 0.70	54 - 107	No	120 - 277	0-10V	AOC (Rset), MTP	80	80	Y-Can	3
XI075C105V070CNY2	75	1.05	32 - 72	No	120 - 277	0-10V		80	80	Y-Can Gen 2	2
XH075C105V070CNF1	75	1.05	24 - 71	No	347 - 480	0-10V		80	80	F-Can Gen 2	32
XI075C150V050CNY1	75	1.50	25 - 50	No	120 - 277	0-10V		80	80	Y-Can Gen 2	2
XI076C180V042CNS1	76	1.80	21 - 42	Yes	120 - 277	0-10V		80	90	S-Can	2
XI080V070V054CNH1	80	0.70	27 - 54	Yes	120 - 277	0-10V	Dual Channel	80	80	H-Can	24
NEW! XI095C275V054BSS1	**95**	**0.1 - 2.75**	**20 - 54**	**Yes**	**120 - 277**	**0-10V**	**AOC (SimpleSet), Class P**	**80**	**85**	**S-Can**	**25**
NEW! XH095C275V054BSF1	**95**	**0.1 - 2.75**	**20 - 54**	**Yes**	**347 - 480**	**0-10V**	**AOC (SimpleSet), Class P**	**80**	**85**	**F-Can**	**33**
XI100C110V143BSY1	100	0.1 - 1.10	48 - 143	No	120 - 277	0-10V	AOC (SimpleSet), 6kV Surge	85	85	Y-Can Gen 2	25
XI100C150V038CNH1	100	1.50	20 - 36	Yes	120 - 277	0-10V	Dual Channel	80	80	H-Can	4
XI100C230V042CNS1	100	2.30	21 - 42	Yes	120 - 277	0-10V		80	90	S-Can	2

Chart continues on next page.

Dimmable (continued)

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
LEDINTA0024V41DLO	100	4.10	15 - 24	Yes	120 - 277	0-10V		75	85	F-Can Bump	2
LEDHCNA0024V41DLO	100	4.10	15 - 24	Yes	347 - 480	0-10V		75	85	F-Can Bump	32
LEDINTA0350C425DO	150	0.35	120 - 425	No	120 - 277	0-10V	6kV Surge	80	80	F-Can Bump	2
LEDHCNA0350C425DN	150	0.35	120 - 425	No	347 - 480	0-10V	6kV Surge	80	80	F-Can Bump	32
LEDINTA0530C280DO	150	0.53	120 - 280	No	120 - 277	0-10V	6kV Surge	80	80	F-Can Bump	2
XH150C053V280CNF1	150	0.53	120 - 280	No	347 - 480	0-10V	6kV Surge	80	80	F-Can Gen 2	32
LEDINTA0700C210DO	150	0.70	60 - 210	No	120 - 277	0-10V		80	80	F-Can Bump	2
XH150C070V210CNF1	150	0.70	60 - 210	No	347 - 480	0-10V	6kV Surge	80	80	F-Can Gen 2	32
XI150C105V140CNF1	150	1.05	44 - 140	No	120 - 277	0-10V	6kV Surge	80	80	F-Can Gen 2	2
XH150C105V140CNF1	150	1.05	47 - 142	No	347 - 480	0-10V	6kV Surge	80	80	F-Can Gen 2	32
XI150C150V100CNF1	150	1.50	30 - 100	No	120 - 277	0-10V	6kV Surge	80	80	F-Can Gen 2	2
NEW! **XI180C090V285BSF1**	**180**	**0.1 - 0.90**	**100 - 285**	**No**	**120 - 277**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**25**
NEW! **XH180C090V285BSF1**	**180**	**0.1 - 0.90**	**100 - 285**	**No**	**347 - 480**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**33**
NEW! **XI180C125V200BSF1**	**180**	**0.1 - 1.25**	**70 - 210**	**No**	**120 - 277**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**25**
NEW! **XH180C125V200BSF1**	**180**	**0.1 - 1.25**	**70 - 210**	**No**	**347 - 480**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**33**
NEW! **XI180C180V144BSF1**	**180**	**0.1 - 1.80**	**50 - 144**	**No**	**120 - 277**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**25**
NEW! **XH180C180V144BSF1**	**180**	**0.1 - 1.80**	**50 - 144**	**No**	**347 - 480**	**0-10V**	**0-10V, AOC (SimpleSet), 6kV Surge, Class P**	**85**	**90**	**F-Can Gen 2**	**33**
XI300C150V300BSR1	300	0.10 - 1.50	100 - 300	No	120 - 277	0-10V	AOC (SimpleSet)	85	85	R-Can	25

AOC: Adjustable Output Current
MTP: Module Temperature Protection

Programmable

Catalog Number	Max Output Power (W)	Output Current (Adc)	Output Voltage (Vdc)	UL/ CSA Class 2	Input Voltage (Vac)	Dimming	Additional Features	Max Tcase for Warranty (°C)	Max Tcase for UL (°C)	Housing	Wiring
929000710303	40	0.10 - 0.53	38 - 76	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	80	80	J-Can	5
929000708803	40	0.10 - 0.70	29 - 57	Yes	120 - 277	0-10V, DALI	AOC, MTP, PROG+	80	80	J-Can	5
929000702302	75	0.35 - 0.70	80 - 152	No	120 - 277	0-10V, DALI	AOC, MTP, PROG	80	80	F-Can Flat	5
929000710103	75	0.10 - 0.70	54 - 107	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	75	80	Z-Can	5
929000708903	75	0.10 - 1.05	36 - 75	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	80	80	F-Can Flat	5
XH075C120V075KPF1	75	0.35 - 1.20	25 - 75	No	347 - 480	0-10V	AOC, MTP, PROG	85	85	F-Can Chassis Mount	7
929000710403	100	0.10 - 0.53	94 - 189	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	75	80	Z-Can	5
929000708703	100	0.10 - 0.70	71 - 143	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	75	80	Z-Can	5
XI150C035V425MPH1	150	0.2 - 0.35	212 - 425	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	75	80	H-Can	5
929000702202	150	0.35 - 0.70	125 - 280	No	120 - 277	0-10V, DALI	AOC, MTP, PROG	80	80	F-Can Flat	5
929000709003	150	0.10 - 1.05	70 - 148	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	80	80	F-Can Flat	5
XH150C120V150KPF1	150	0.35 - 1.20	50 - 150	No	347 - 480	0-10V	AOC, MTP, PROG	80	85	F-Can Chassis Mount	7
929000712703	300	0.10 - 1.50	80 - 280	No	120 - 277	0-10V, DALI	AOC, MTP, PROG+	75	80	R-Can	26

AOC: Adjustable Output Current
MTP: Module Temperature Protection
PROG: Programmable, includes DALI, Dynadimmer, Constant Light Output (CLO), Adjustable Startup Time (AST), Over The Life (OTL)
PROG+: All the above + AMP DIM

Xitanium outdoor LED driver dimensions

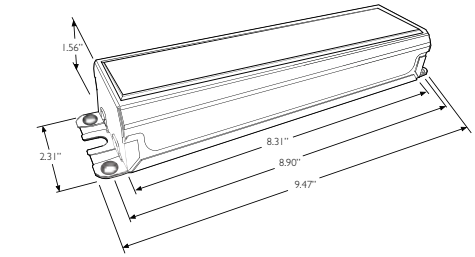


Fig. F-Can with Bump

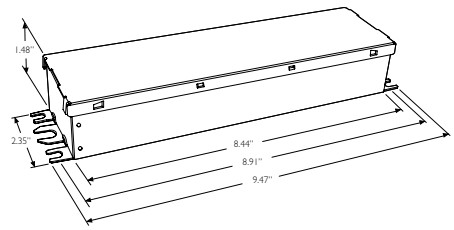


Fig. F-Can Chassis Mount

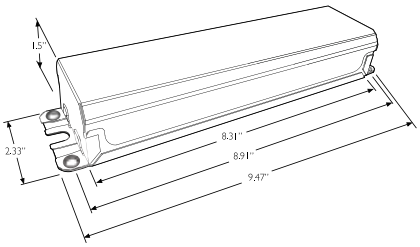


Fig. F-Can Flat Bottom

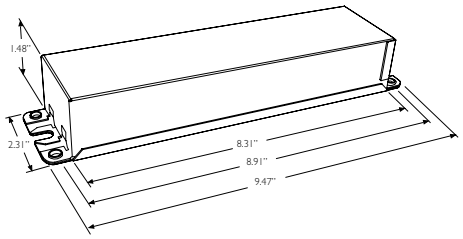


Fig. F-Can Gen 2

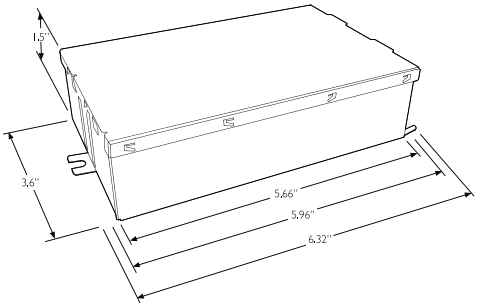


Fig. H-Can

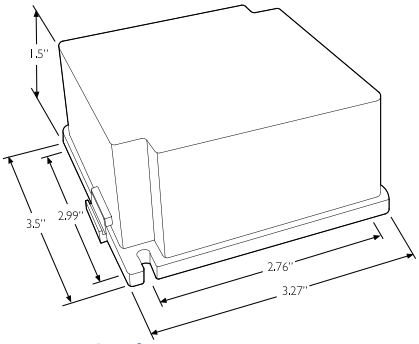


Fig. J-Box Outdoor

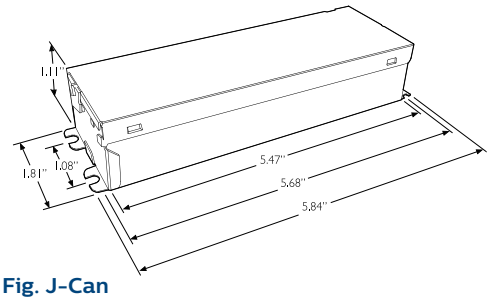


Fig. J-Can

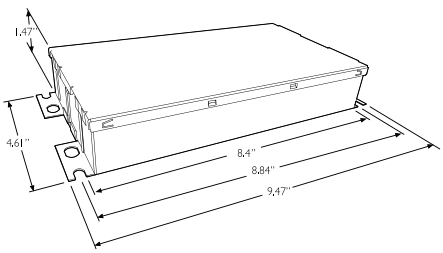


Fig. R-Can

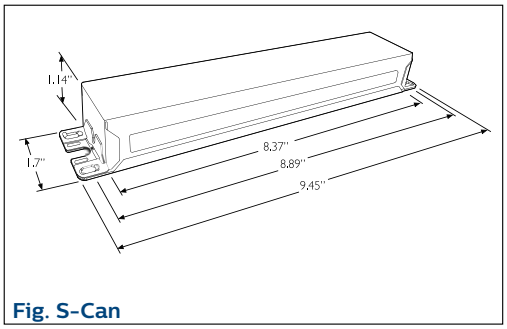


Fig. S-Can

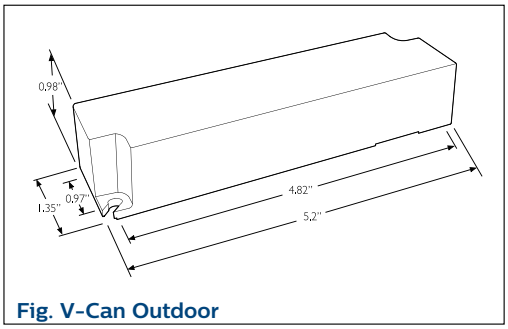


Fig. V-Can Outdoor

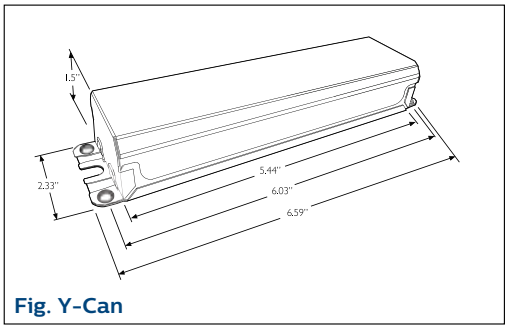


Fig. Y-Can

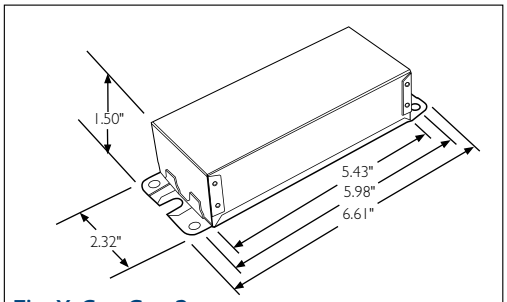


Fig. Y-Can Gen 2

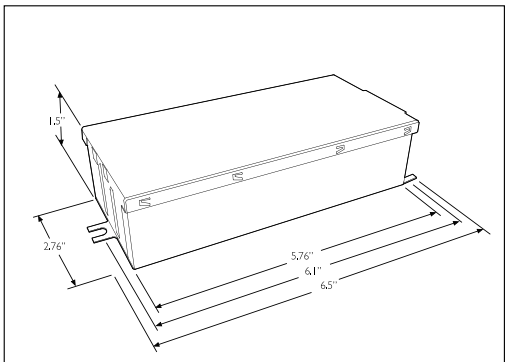
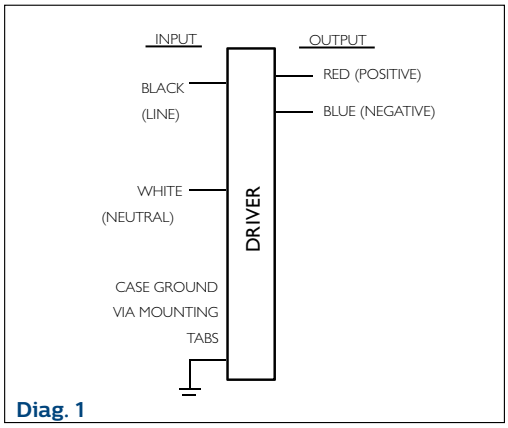
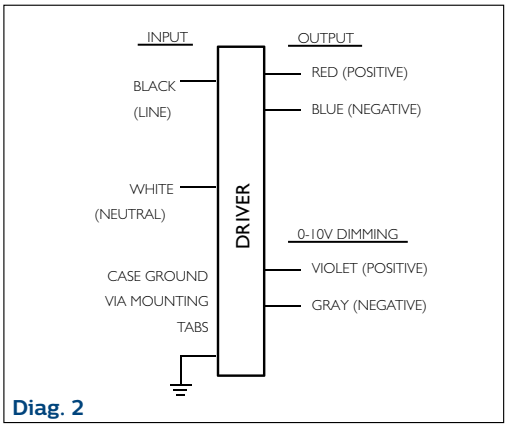


Fig. Z-Can Outdoor

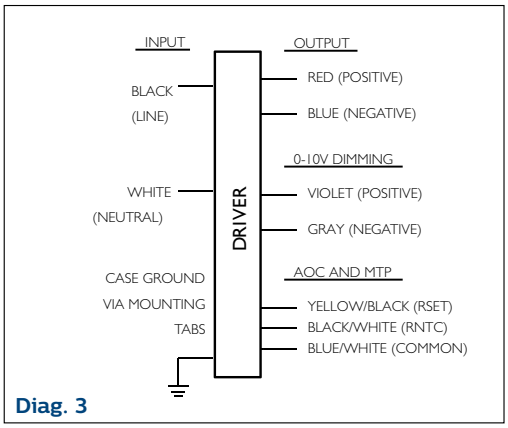
Xitanium outdoor LED driver wiring diagrams



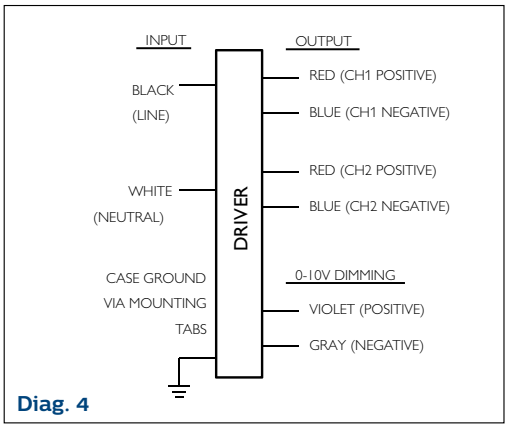
Diag. 1



Diag. 2



Diag. 3



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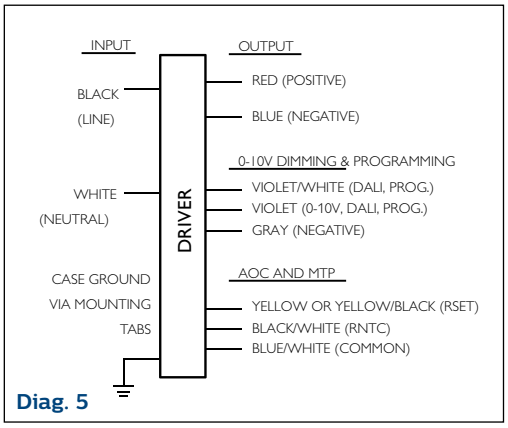

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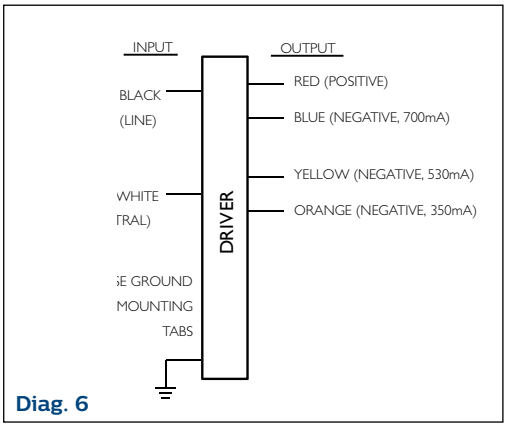
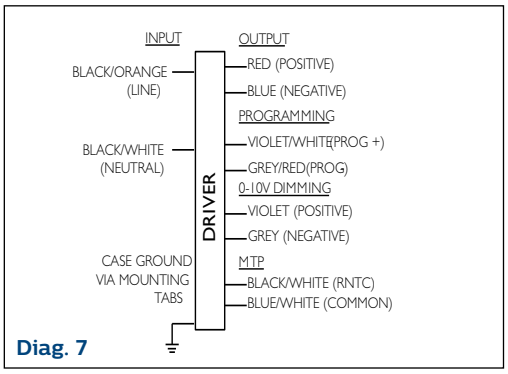


Diag. 6



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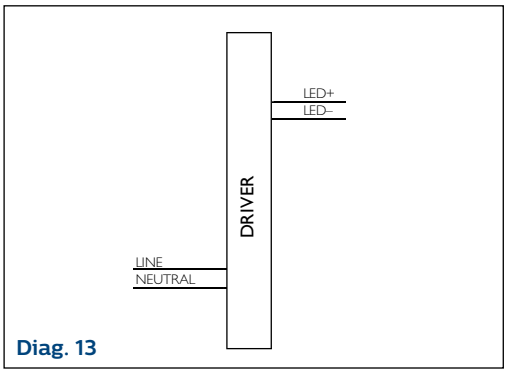
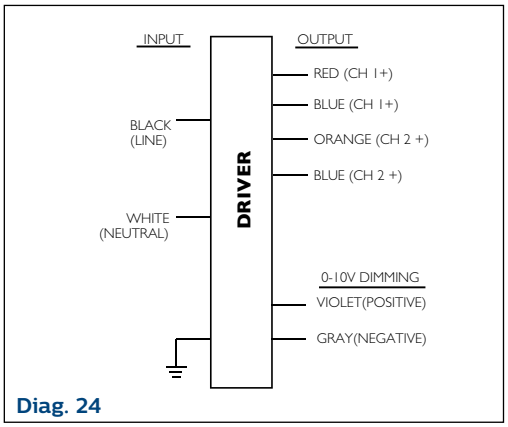
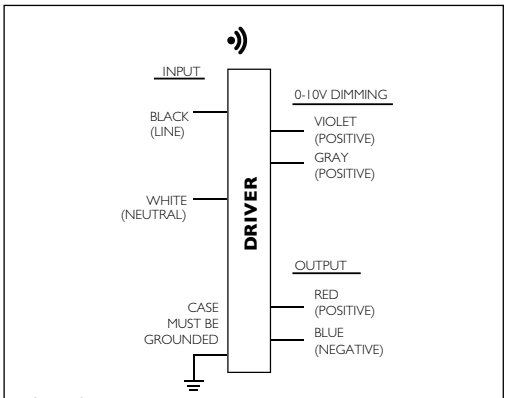


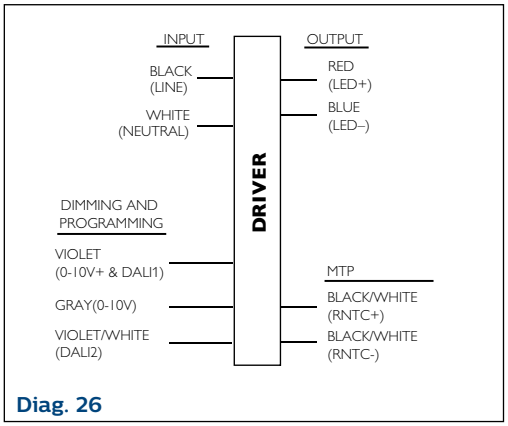
Diag. 13



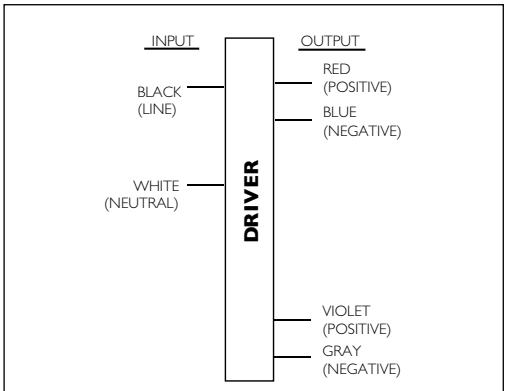
Diag. 24



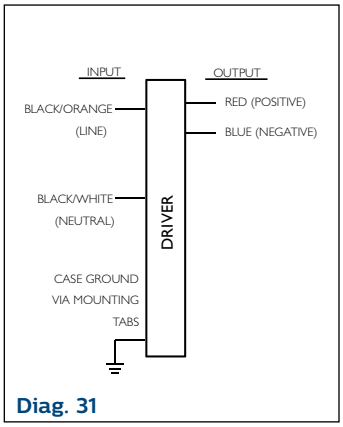
Diag. 25



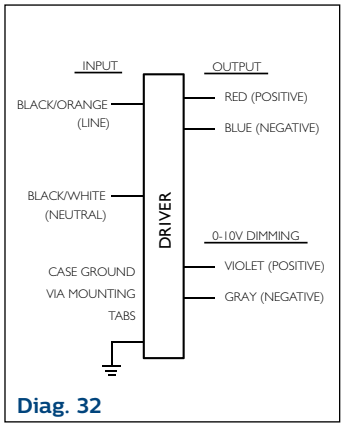
Diag. 26



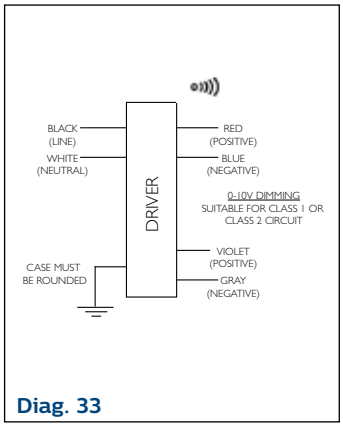
Diag. 28



Diag. 31



Diag. 32



Diag. 33

277V surge protection device

Benefits

- Maximize the lifetime value of outdoor lighting applications
- No downtime due to calamities (storms, lightning strikes, etc.)
- Lower maintenance costs
- Easy to apply in new or existing installations
- Peace of mind on product performance

The Philips 277V surge protection device (SPD) is the ideal solution to the challenge of using outdoor LED lighting. The SPD clamps the voltage at the terminals of the luminaire, protecting the complete system against multiple nominal surges up to 10 kV / 5 kA. For maximum-level of protection, the SPD can withstand a single hit of 10 kV /10 kA and also eliminates the need for all internal luminaire components – wires, connectors, wire nuts, etc. – to be designed to withstand 10 kV. Essential for LED systems installed in high-risk areas, the advantages of using the SPD are not limited only to LED systems. The product can be used in any new or existing lighting solution, regardless of technology.

General product characteristics

T ambient (°C): -40 to +70°C
Tcase life (°C): +70°C

Compliances and approvals

ANSI/UL 1449

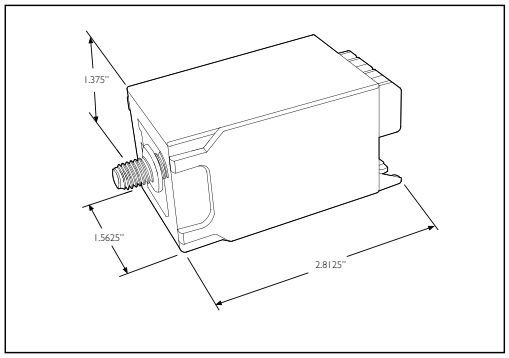
Features

- Resistant to peaks and surges of up to 10 kA / 10 kV
- Xtreme standard: Long lifetime, robust protection against moisture, vibration and temperature extremes
- Can be used with all lighting technologies

Type	Line Voltage (V)	Protection Level Up (L-N) (kV)	Protection Level Up (LN-earth) (kV)	Open Circuit Voltage (kV)	Nominal Surge Current IN (kA)	Number of Surges, Nominal Current (Comm/Diff. Mode)
Surge Protection Device 277V	100-277	≤ 1.6	≤ 2.5	10	1	100/100
Surge Protection Device 277V	100-277	≤ 1.6	≤ 2.5	10	3	100/100
Surge Protection Device 277V	100-277	≤ 1.6	≤ 2.5	10	5	45/35

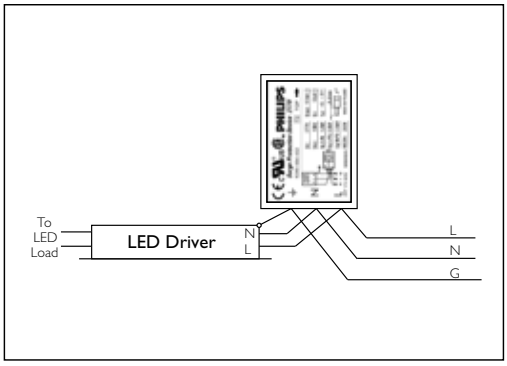
Type	Maximum Surge Current IMAX (kA)	Number of Surges, Maximum Current	Lifetime @ Tc life, 90% Survivals (hrs)	Suitable for Outdoor Use?
Surge Protection Device 277V	10	Comm. mode: 1 Diff. mode: 1	100,000	Yes

Dimensions



Mounting Screw Type: M8

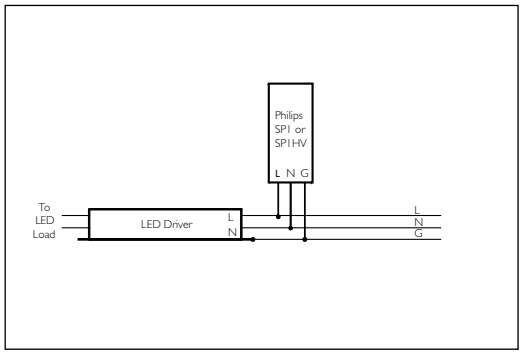
Wiring diagram

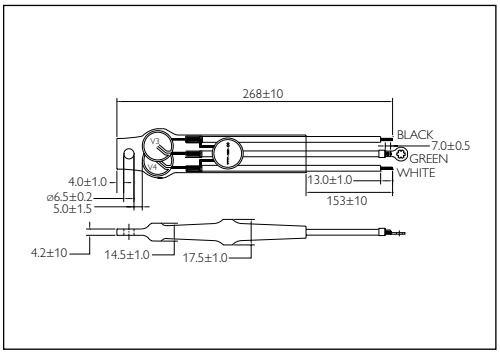


SP1 surge protection device

Adapted to SSL outdoor lighting, the Philips SP1 surge protection device provides single phase protection for line/neutral, line/ground and neutral/ground in accordance with IEEE C62.41 2002 C Low. The SP1's small size corresponds to the current design requirements for the new technology luminaires, like an LED light engine in outdoor lighting.

Catalog	**SP1**
Voltage Input	120V-277V (+/- 10%)
Frequency	50Hz-60Hz
Maximum Continuous RMS Voltage AC	320V
Maximum Energy	430 Joules
Maximum Peak Current (single pulse)	10kA (8/20µs standard wave)
Wiring	14 Gauges stranded wires, 105°C, 600V
Wire Connections	Black and white: 12mm skinned and thin platted Green: 12mm skinned with terminal malt
Mounting Hole	5.5mm
Ambient Temperature (Operating)	-55°C to 85°C



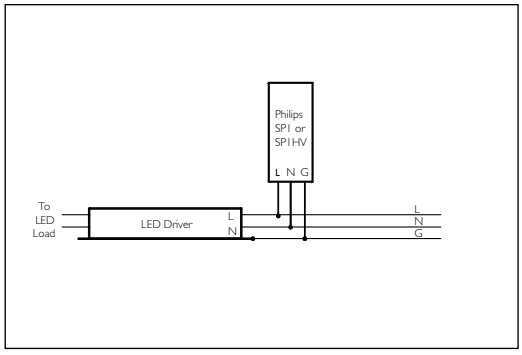


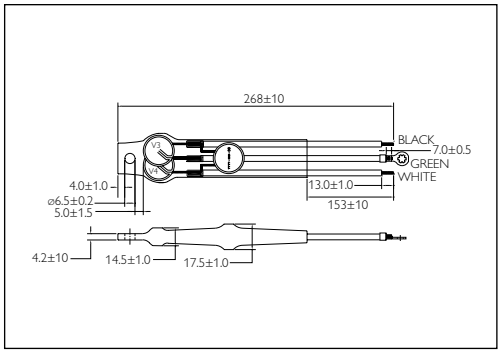
In order to protect the surrounding environment, this surge protection device must be enclosed in a luminaire that can contain flames and sparks, which may occur in case of malfunction, such as overvoltage power connection (ex: 600V).

SP1HV surge protection device

Adapted to SSL outdoor lighting, the Philips SP1HV surge protection device provides single phase protection for line/neutral, line/ground and neutral/ground in accordance with IEEE C62.41 2002 C Low. The SP1HV's small size corresponds to the current design requirements for the new technology luminaires, like an LED light engine in outdoor lighting.

Catalog	**SP1HV**
Voltage Input	347V-480V (+/- 10%)
Frequency	50Hz-60Hz
Maximum Continuous RMS Voltage AC	520V
Maximum Clamping Voltage (8/20µs)	1500V
Maximum Energy	570 Joules
Maximum Peak Current (single pulse)	10kA (8/20µs standard wave)
Wiring	14 Gauges stranded wires, 105°C, 600V
Wire Connections	Black and white: 12mm skinned and thin platted Green: 12mm skinned with terminal malt Mounting hole: 6.5mm
Ambient Temperature (Operating)	-55°C to 85°C





In order to protect the surrounding environment, this surge protection device must be enclosed in a luminaire that can contain flames and sparks, which may occur in case of malfunction, such as overvoltage power connection (ex: 600V).

MultiOne Configurator

Benefits

- One software tool for all the Philips programmable LED drivers (see supported product list at www.philips.com/multione)
- Provides a simple user interface with easy access to the features supported by Philips programmable LED drivers
- Future-proof, scalable platform for new feature deployment
- Unprecedented flexibility before, during and after the product installation

A unified easy-to-use programming tool box that configures the different features in multiple lighting solutions

The MultiOne Configurator is a tool that enables flexibility and differentiation in the programming and commissioning of Philips programmable LED drivers and controls. The MultiOne Configurator consists of two key building blocks:

- **The MultiOne Interface –** a hardware component that connects to a PC via a USB connection for communication between the driver or controls and the connected PC.
- **The MultiOne Software –** available in two versions, optimized for either the production environment (WorkFlow) or full configurability (Engineering).

Download the software at www.philips.com/multione.

DALI MultiOne Interface

SimpleSet MultiOne Interfaces

Options of hand-held and flat-bed programming tools for effortless deployment into production.

MultiOne Engineering

MultiOne WorkFlow

Philips **Sensors**

Philips EasySense fixture-mount sensor

Until now, it hasn't been simple or cost-effective to add sensors to every luminaire in order to meet stringent customer energy-saving requirements or to address code-compliance strategies. Most sensors use a bulky two-box system that is expensive and cumbersome to design-in and install.

The sensors are also typically remote mounted from the fixtures, installed in the ceiling and unsightly to occupants. However, the Philips EasySense fixture-mount sensor, with its single-box format, makes it easy to save both time and cost when integrating occupancy sensing and daylight harvesting into every luminaire.

Simple design-in

Philips EasySense fixture-mount sensors are connected to Philips Advance Xitanium SR LED drivers with two simple wires to reduce design-in complexity and facilitate installation while becoming an integral part of energy-saving and code-compliance strategies.

Increase project efficiency

Specify Philips EasySense fixture-mount sensors as part of energy-saving and code-compliance strategies without hindering project time or aesthetics:

- Per fixture control reduces installation time and eliminates the need to wire sensors outside the fixture in the ceiling, so projects can be completed quickly and with reduced chance of errors.
- Integrated sensors blend within the luminaire, leaving the ceiling uncluttered.
- Setting of sensor parameters and grouping to applicable wireless switches are easily done with Philips field apps.
- Ideal for open offices, individual offices, conference rooms, stairways and classrooms.

EasySense and OEMs

Increase speed to market

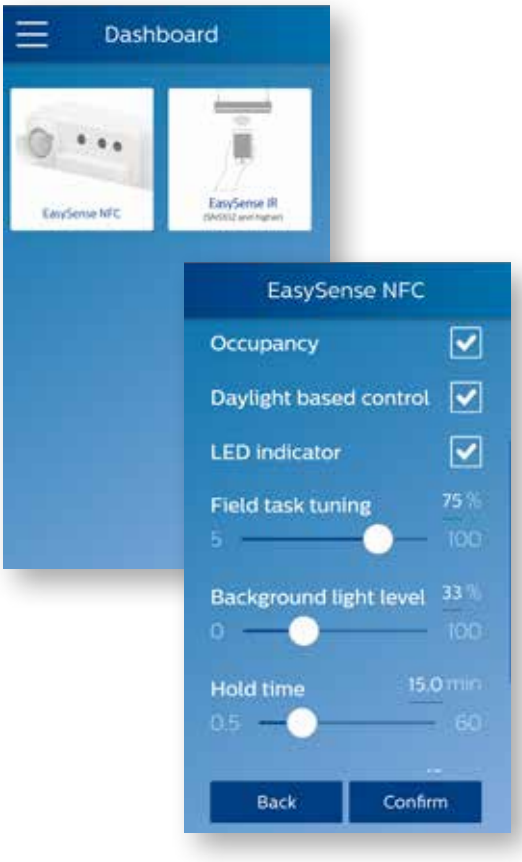
Incorporate Philips EasySense fixture-mount sensors as part of a standard fixture portfolio while saving design time and money:

- Compatibility with Philips Advance Xitanium SR LED drivers eliminates the need for auxiliary devices and alleviates time-consuming configuration issues.
- Simple two-wire connection from driver to sensor reduces design-in complexity.
- Single, compact device combining occupancy and daylight sensing makes per-fixture controls practical.

Convenient smartphone-based app

Philips field apps allow programming of occupancy/daylight sensing parameters and fine-tuning of lumen levels during installation. This is easily done through two available features on the app: EasySense NFC and EasySense IR. Basic grouping to applicable wireless switches can also be accomplished from floor level through EasySense IR.

To use Philips field apps, register for a username/password at www.philips.com/easysense and download "Philips field apps" from the Google Play Store. An app user manual and compatible phone list is also available at www.philips.com/easysense.

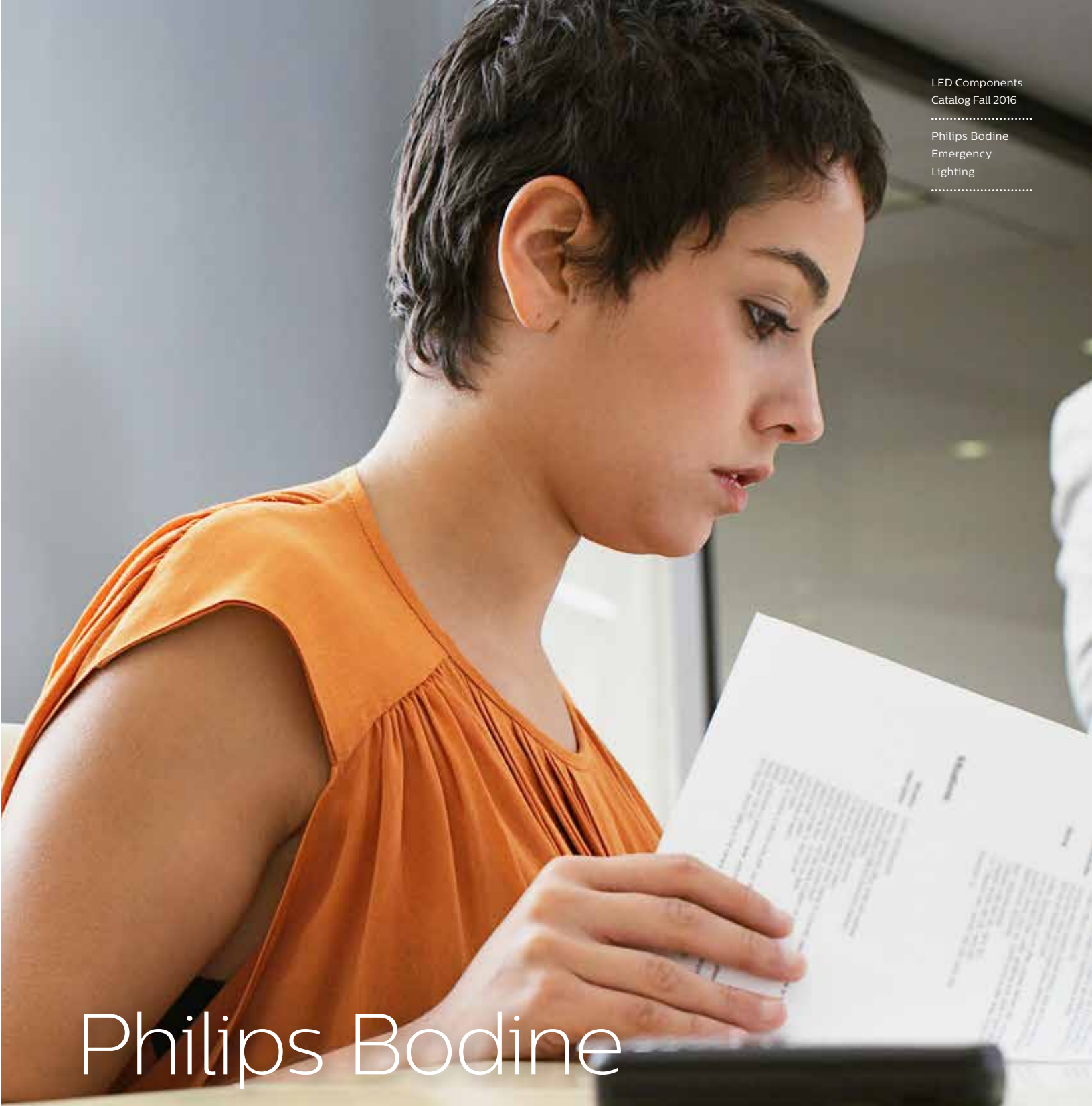


Catalog Number SNS102

- EasySense fixture mount for basic grouping
- Per fixture controls including occupancy and daylight sensing
- Field task tuning
- Grouping to applicable wireless switches for on/off and dim-up/dim-down
- Satisfies use cases for auto-off/manual-on and auto-off/partial-on
- Configuration and grouping via Philips field apps (NFC and IR)

Have questions? **Contact us**

For additional information on how EasySense fixture-mount sensors can quickly and easily facilitate energy-saving and code-compliance strategies, go to **www.philips.com/easysense** or contact your local Philips sales representative.



Philips Bodine
Emergency Lighting

Philips Bodine emergency lighting introduction

Emergency lighting is a vital part of every facility's life safety program. Local, state and national building codes, such as the NFPA® 101® Life Safety Code® and National Electrical Code®, require reliable and sufficient emergency illumination for commercial, industrial and institutional buildings in the United States[14]. When normal power fails for any reason, emergency lighting provides critical illumination.

Philips Bodine emergency lighting provides instant backup
Philips Bodine emergency LED drivers and inverters from Philips Emergency Lighting provide instant backup lighting whenever normal power fails. They deliver 90 minutes of battery-supplied power.

Complements original designs
Philips Bodine emergency lighting units complement original lighting designs. Because they can be installed inconspicuously inside, on top of, near or remote from the fixture – depending on factors such as fixture, emergency lighting product and product model – they do not detract from fixture or interior design. Philips Bodine emergency lighting is emergency lighting you'll never see until you need it.

*See footnotes on page 79.

Looks like normal lighting

Philips Bodine emergency lighting products use the same light source for normal and emergency lighting. As a result, emergency lighting appears similar to lighting under normal conditions.

May reduce the risk of tampering

Installed Philips Bodine units are generally less visible than other forms of emergency lighting, such as wall packs. Their inconspicuous placement helps reduce their visibility to potential vandals.

Application

Philips Emergency Lighting provides Philips Bodine emergency lighting products for a wide variety of applications, including indoor, outdoor, damp, cold temperature and hazardous locations.

Operation

When normal power fails, Philips Bodine emergency lighting products sense the loss and immediately switch into emergency mode. This means the emergency lighting unit immediately begins supplying supplemental power to support emergency lighting operation for a minimum of 90 minutes. When normal power is restored, the emergency lighting unit returns to the charging mode.

UL testing

Philips Bodine emergency lighting products are tested by Underwriters' Laboratories (UL) in accordance with standards set forth in UL 924, "Emergency Lighting and Power Equipment," and/or by other nationally recognized testing laboratories.

Emergency code

AC power failures occur for a variety of reasons. Storms, tornadoes, hurricanes and other extreme weather conditions can affect AC power. Vehicular accidents, fires or equipment failure can also result in power outages. When this happens, liability concerns are inevitable. Serious accidents or mishaps could occur when occupants are left in total darkness during a power failure. In such instances, the first area of inquiry is often, "Did this building meet code?"

Laws, Codes and Regulations

Although state and local building codes vary, most are based upon:

1. National Electrical Code®, NFPA 70®, Article 700;
2. Life Safety Code®, NFPA 101®, Section 7.9;
3. Occupational Safety and Health Act (OSHA) regulations.

These codes provide complete information about emergency lighting requirements. However, a basic starting point is provided in the LSC 7.9.2.1 (2012), which states:

Emergency illumination shall be provided for a minimum of 1.5 hours in the event of failure of normal lighting. Emergency lighting facilities shall be arranged to provide initial illumination that is not less than an average of 1 ft-candle (10.8 lux) and, at any point, not less than 0.1 ft-candle (1.1 lux), measured along the path of egress at floor level. Illumination levels shall be permitted to decline to not less than an average of 0.6 ft-candle (6.5 lux) and, at any point, not less than 0.06 ft-candle (0.65 lux) at the end of 1.5 hours. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

It is important to remember that codes generally set minimum standards. Specifiers, building owners, facility management or municipalities may choose to go beyond minimums in their effort to keep people and property safe.

Maintenance

Codes mandate periodic monitoring of emergency lighting equipment once it is installed. Emergency operation must be tested at 30-day intervals for a minimum of 30 seconds, and, for battery-powered systems, a 90-minute discharge test must be conducted once a year. Additionally, the NFPA requires that records be kept as proof of maintenance.[15]

Specifiers, building owners or facility management may choose to go beyond minimums in their effort to keep people and property safe.

*See footnotes on page 79.

Emergency LED drivers

The Philips Bodine emergency LED driver line allows LED fixtures to serve as emergency lighting sources. The expanding line includes drivers designed for a variety of applications: indoor, outdoor, damp, cold temperatures, steplights, downlights, security lighting, Class 2 installations and more.

As with other types of lighting, LED lighting must meet life safety code requirements for emergency lighting when it is used in an emergency capacity. Therefore, LED fixtures serving as emergency lighting sources must provide 90 minutes of illumination in the event of a power failure.

LED lighting is a rapidly growing segment of the lighting industry. Its popularity is not a mystery. LED technology is continually improving. LEDs offer long life and high efficiency, have low operating costs and are mercury free.

When normal AC power fails, the emergency LED drivers switch into emergency mode and support LED fixtures for 90 minutes. When AC power is restored, the drivers automatically return to the charging mode.

Emergency LED driver product summary

When normal AC power fails, the emergency LED drivers switch into emergency mode and support LED fixtures for 90 minutes.

Model	Maximum Output Power	Flexible Output Voltage	Features
BSL10 Cold-Pak+	14.0 W§ controlled output	24-52 VDC	Operates in an extended-temperature range of -20°C to +55°C (-4°F to +131°F)
BSL17C	7.0 W§ controlled output	30-130 VDC	Multiple mounting/test switch options
BSL17C-C2+°	7.0 W§ controlled output	15-50 VDC	Compatible with Philips Fortimo
BSL17CC2ST+	7.0 W§ controlled output	15-50 VDC	Compatible with Philips Fortimo; self-testing
BSL20LV+	20.0 W† controlled output	20-50 VDC	High output emergency LED driver
BSL20MV	20.0 W† controlled output	50-130 VDC	High output emergency LED driver
BSL20HV	20.0 W† controlled output	125-200 VDC	High output emergency LED driver
BSL23C	4.5 W*	3-20 VDC	For lower wattage LED fixtures
BSL26C	5.1 W*	3-30 VDC	Multiple mounting/test switch options
BSL36 Cold-Pak+	6.0 W§ controlled output	15-52 VDC	Operates in an extended-termperate range of -20°C to +55°C (-4°F to +131°F)
BSL36LP+	6.0 W§ controlled output	15-52 VDC	Low-profile emergency LED driver
BSL310+°	10.0 W*	10-50 VDC	Compatible with LED strips
BSL310C/ C-DF+	10.0 W*	10-50 VDC	Compatible with LED strips
BSL310LP+	10.0 W§ controlled output	15-52 VDC	Low-profile emergency LED driver
BSL310LPST+	10.0 W§ controlled output	15-52 VDC	Low-profile, self-testing emergency LED driver
BSL310M+	10.0 W*	10-50 VDC	Compatible with LED strips
BSL310HAZ+	10.0 W*	10-50-VDC	Suitable for hazardous location fixtures; Class l, Division ll
BSL310SB+	10.0 W*	10-50 VDC	Compatible with LED strips; Separate battery design
BSL718	18.0 W†	20-50 VDC	Operates in an extended temp range of -20°C to +60°C (-4°F to 140°F); Separate battery design (single & dual battery options)

* Measured at nominal battery voltage.
+ Output Class 2 compliant.
° Multiple case/conduit options available.
¥ Average.
§ Initial.
† Constant.

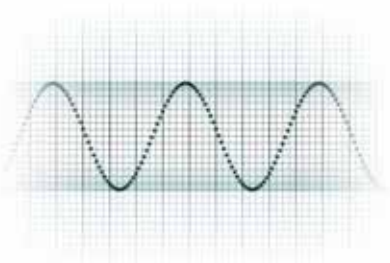
Please see product sepcification sheets for approbation information.

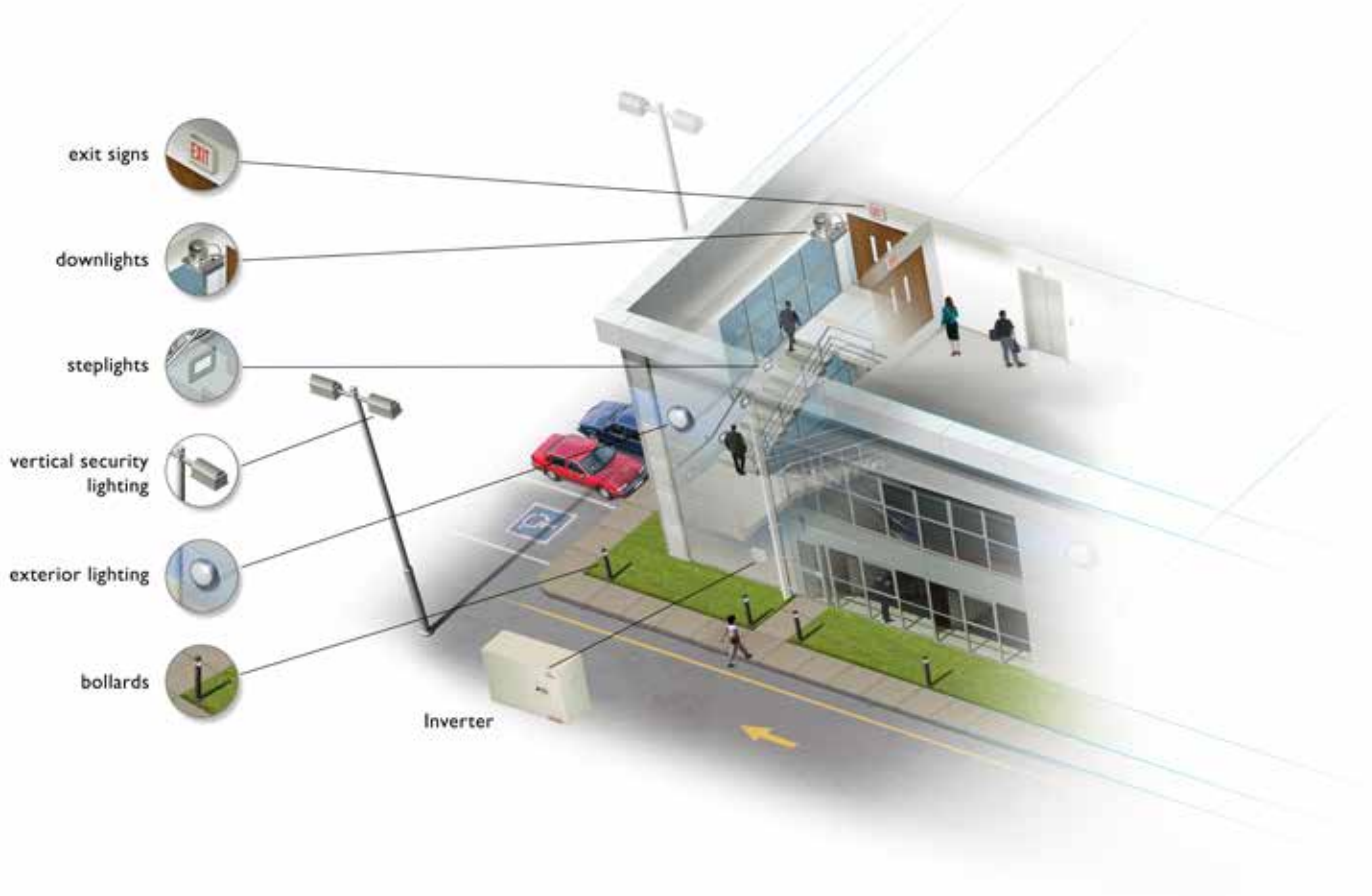
Inverters for emergency lighting applications

Philips Bodine emergency lighting inverters are sinusoidal (sine wave) units that support LED and fluorescent fixtures during loss of normal AC power. The inverters sense the loss and immediately begin supplying emergency power to the designated lighting load. Philips Bodine inverters support emergency lighting for 90 minutes, in accordance with code-established runtime requirements (NFPA® 101® Life Safety Code®).

When an emergency LED driver cannot be used, line voltage inverters, such as the Philips Bodine ELI-S-20, may be the best solution.

A key feature of Philips Bodine emergency lighting inverters is sinusoidal output. Sinusoidal output is especially important for LED applications and is characterized by low harmonic distortion and by clean power similar to that produced by utility-supplied electricity.





ELI-S-20 emergency lighting inverter

Benefits

- Works with LED and fluorescent fixtures up to 25W
- Supplies 90 minutes of emergency illumination at full brightness
- Provides power to the input side of connected lighting loads
- Ideal for but not limited to screw-base LED lamps
- Compatible with Philips 22W TLED linear LED lamps and most manufacturers' LED lamps[23]
- Suitable for indoor, dry and damp applications
- Features fused output load connections
- AC input Power Rating: 9.5W; output voltage 120/277 VAC (auto select), 60 Hz
- Dimensions: 16.6" x 2.8" x 2.85"
- Remote mounting distance: 250 feet max.
- 5-year limited warranty[16]
- UL Listed for 25W / CSA Certified for 20W

The Philips Bodine 25W ELI-S-20 emergency lighting inverter transforms LED and fluorescent fixtures into code-compliant emergency lighting.

It is the ideal emergency backup for the Edison-base (screw-base) LED lamps that are commonly replacing CFLs in retrofit applications and is a superior choice for office, retail, hospitality and other similar spaces.

ELI-S-20 allows fixtures to be on, off, switched or dimmed. It supports 100% of AC rated output throughout its 90-minute runtime so fixtures operate at full brightness during emergency operation. The device provides power to the input side of the fixture, including the ballast, and is designed for use with indoor applications.

The ELI-S-20 features an LED-friendly sinusoidal (sine) waveform and is UL Listed (25W) and CSA Certified (20W) unit equipment designed for new and retrofit lighting projects.

Model	Wattage	Feature
ELI-S-20	25	For LED and fluorescent lamps

ELI-S-20 includes auto select (120/277 VAC) to help reduce wiring errors. With the convenient auto select, ELI-S-20 automatically detects input voltage and sets the output voltage accordingly.

*See footnotes on page 79.

Emergency lighting contact information

Phone

Sales: 800-223-5728

Tech Support: 888-263-4638

Local: 901-853-7211

Fax: 901-853-5009

E-mail

For technical questions, contact tech support at BodineTech@philips.com or visit the Tech Support page on our website, www.philips.com/bodine. For general questions, e-mail us at BodineInfo@philips.com.

Coming soon

Modules

Philips Fortimo LED strip LV4

The generation 4 (LV4) of Fortimo LED strip comes with a multitude of performance and product advancements that include higher efficacy, higher lumen output, increased lumen maintenance (TM21), additional mechanical designs and additional CCT/ CRI options.[28] No need to compromise design freedom or quality of light of TCO.

Applications

- Office
- Commercial
- Schools

Expected launch: Q4 2016

Philips Fortimo LED line LV4

- Generation upgrade
- Higher efficiency when compared to the current generation

Expected launch: Q1 2017

Philips Fortimo LLS EaseSelect

Fortimo LLS EaseSelect is Philips' first linear integrated LED light engine solution that combines a 36W UL Class 2 constant current LED driver with a 4ft long L2 LED module into a fully optimized system. It enables OEM fixture manufacturers to design and manufacture LED strip and wrap lighting fixtures meeting minimum DLC requirements and optimized for cost efficiency. Its patented system design provides opportunity to educe mechanical and electrical fixture BoM while delivering high quality of light and performance.

- Fortimo LLS ES 4ft 4400lm 830 1R LV1
- Fortimo LLS ES 4ft 4400lm 835 1R LV1
- Fortimo LLS ES 4ft 4400lm 840 1R LV1
- Fortimo LLS ES 36W INT LV1

Expected launch: Q4 2016

Philips Fortimo LED line HFHT LV3

- 2000lm/ft.
- 1 row
- 1ft., 2ft. and 4ft. versions

Expected launch: Q1 2017

*See footnotes on page 79.

Philips Fortimo LED SLM gen 6

Key features and benefits

- Product specifications already available at Philips the easy design-in tool website: https://www.na.easydesignintool.philips.com/select-module/2
- High quality of white light with Philips exclusive premium white technology (available for CRI90)
- Small LES for narrow beam angles and small reflector designs and a new 23mm LES COB, reaching higher lumen application than SLM previous generations
- Flexibility to select different lumen outputs, from 700 to 12,000lm[26]
- High energy efficacy, up to 162 lm/W or even higher (depending on driving conditions and CRI/CCT)
- Complete system offering (CoB + holder + driver)
- CoB and holder available separately with new holder options (flat and Zhaga without leads)
- Philips Advance Xitanium LED window drivers with SimpleSet technology for maximum flexibility
- Five-year limited system warranty[11]
- Over 50,000-hour lifetime[1]

Expected launch: Q3 2016

Philips Fortimo FastFlex LED gen 3

Key features and benefits

- Optical flexibility via standard FastFlex or third-party lenses
- State-of-the-art specifications, with unparalleled lumen per watt for outstanding fixture performance
- Temperature and drive current designed for fixture optimization
- Flexible lumen output
- Wide range of CCT and CRI options

Applications

- Road lighting
- Urban street lighting
- Flood and area lighting
- Tunnel lighting
- High-bay lighting

Expected launch: Q3 2016

Drivers

Philips Advance 347V Xitanium linear LED drivers with SimpleSet technology

Key features:

- 20W, 40W, 54W and 75W
- 1% minimum dim level
- SimpleSet programming

Expected launch: Q1 2017

Philips Advance 75W Xitanium downlight LED driver with SimpleSet technology

Key features:

- Full output power up to 2.A
- 1% minimum dim level
- SimpleSet programming

Expected launch: Q1 2017

Philips Advance 220W Xitanium outdoor LED driver

Key features:

- High Efficiency > 92%
- 6kV combi-wave surge rating
- PF>0.9 and THD<20% down to 75W

Expected launch: Q1 2017

Philips Advance 150W Xitanium SR LED drivers

Key features:

- Two models for 0.70A and 1.05A drive currents
- Ideal for outdoor and high-bay applications
- Compatible with SR-certified devices
- Auxiliary power supply for high-power devices
- Logic signal input for connection to motion sensor
- Accurate energy reporting

Expected launch: Q4 2016

Footnotes

1. Average rated life is based on engineering data testing and probability analysis. The hours are at the B50, L70 - 50,000 hours life with 70% lumen maintenance at Tc of 56°C for 3R and 61°C for 1R.
2. Photometric testing consistent with CIE 127:2007 2nd Edition.
3. Production units fall between +/-7.5% of listed values.
4. 3000K = +/-100K, 3500K = +/-120K, 4000K = +/-140K, 5000K = +/-160K.
5. All CRI are 80 or above.
6. Production units will fall between +/- 0.2 of listed value.
7. Restrictions on Hazardous Substances (RoHS) is a European directive (2002/95/EC) designed to limit the content of 6 substances [lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)] in electrical and electronic products. For products used in North America compliance to RoHS is voluntary and self-certified.
8. Indicates that the LEDs are components recognized with UL and complies with UL8750 Standard for LEDs.
9. Philips Fortimo LED linear module is a Zhaga certified light engine. For more information visit www.zhagastandard.org.
10. Philips Advance Xitanium LED drivers are designed and manufactured to engineering standards correlating to an average life expectancy of 50,000 hours of operation at maximum rated case temperature. Minimum 90% survivals based on MTBF modeling.
11. View limited warranty at http://www.usa.lighting.philips.com/support/support/warranty for details and restrictions.
12. Minimum 90% survivals based on MTBF modeling.
13. Fortimo LED DLM 1100/840 (Gen 3 91 lm/W, Gen 4 120 lm/W module efficacy). Improved over generation 2.
14. NFPA® 101® Life Safety Code® e.g., 30.2.9 Emergency Lighting, 36.2.9 Emergency Lighting and 37.2.9 Emergency Lighting, 2012.
15. NFPA® 101® Life Safety Code® 7.9.3 Periodic Testing of Emergency Lighting Equipment, 2012.
16. Warranty information is available at www.bodine.com/sales/warranty.html.
17. Next Generation Lighting Industry Alliance LED Systems Reliability Consortium: LED LUMINAIRE LIFETIME: RECOMMENDATIONS FOR TESTING AND REPORTING - THIRD EDITION, SEPTEMBER 2014.
18. Compared to Gen 2: 650lm, 3.5 SDCM.
19. Luminous flux of 100% of all production units fall between -10% and +20% of the listed value.
20. Correlated color temperature (CCT) complies with ANSI C78.377A Specifications.
21. Value at which lifetime is specified (Max. T case at typical current within warranty).
22. Radiation angle falls between -10% and 10% of the listed value.
23. Contact Philips Emergency Lighting technical support at 888-236-4638 for compatibility information.
24. When combined with Fortimo LED thermal accessory G1. Please refer to product design-in guide for design instructions and restrictions.
25. When combined with the Fortimo thermal accessory G1, the need for an external heat sink is eliminated (for up to 3,000lm, according to the product design-in guide rules), resulting in simplified thermal management design and testing.
26. SLM C 740 1216 L23 at 140 lm/W.
27. For indoor linear applications.
28. When compared to current generation.

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