



# Versatility Delivered

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Xitanium LED Drivers Quick Guide



**PHILIPS**  
**ADVANCE**



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# Philips Advance LED Drivers

## Versatility Delivered

Long-lasting and low maintenance, LED-based light sources are an excellent solution for all lighting applications. For optimal performance, these solutions require reliable drivers matching the long lifetime of the LEDs. The Philips Advance Xitanium LED driver portfolio offers a range of products specially designed to operate LED solutions for a variety of lighting applications such as office, retail, industrial and outdoor as well as meet wide variety of customer needs, but they can all provide certain common benefits.



### Including:

- Reliable and consistent operation
- High efficiency – >90% in some cases
- Greater than 0.9 PF and Less than 20% THD
- Greater than 50k hrs<sup>4</sup> lifetime
- 5-year limited warranty<sup>1</sup>
- ROHS compliance<sup>2</sup>
- Safety approbations (UL, CSA, CE, ENEC, PSE, SELV or CQC)

Based on the features that each driver has to offer the Philips Advance Xitanium LED Drivers can be classified into three main categories: Fixed, Dimmable and Programmable.

### Fixed

These are designed to meet the basic needs of LED lighting. Available in either dedicated input voltage or Intelivolt options, these drivers can address wide variety of output current and power requirements.

### Dimmable

Along with the benefits of fixed drivers, these drivers are designed to address the growing demand for controllability and flexibility. The Adjustable Output Current (AOC) feature enables operation of various LED configurations from different LED manufactures as well as offers “future proof” solutions for new LED generations. There are specific dimmable versions enabling use of lighting controls to increase energy saving through a wide variety of protocols, such as 0-10V and Trailing Edge (Step-Dim and Leading Edge coming soon). In most of the cases the indoor drivers also integrate a 12V output for active cooling and NTC feedback for LED module temperature protection.

### Additional Benefits with Dimmable LED Drivers Include:

- Wide variety of dimming interfaces (0-10V, Phase Cut, Step-Dim)
- Helps you address code requirements for energy efficient buildings
- Offers fixture design flexibility with the AOC feature
- Models offering features such as fan output and module temperature protection

See footnote on page 31.

# Programmable Driver



Optimized to meet the ever evolving needs of today's LED lighting customers, Philips Advance Xitanium Programmable LED Drivers are a one-stop solution for the varying power needs of industrial high bay, office, or retail lighting. Offering an unparalleled level of flexibility, these drivers provide a large number of features which can be customized based on the desired functionality of the luminaire design with simple programming interface. With multiple choices for current output levels, module temperature control settings and a network-ready DALI interface, this is an easily integrated driver solution. Luminaire designers and manufacturers are also able to streamline logistics without compromising on performance.

## Additional Benefits with Programmable LED Drivers Include:

- Robust programmable solution that offers ultimate design flexibility with a reliable long lifetime
- Reduced SKU complexity and simplified logistics management (one driver to serve many needs)
- Multiple dimming options provide energy savings and can help reduce light pollution and CO<sup>2</sup> impact
- Easily programmable user interface for onsite customization of driver requirements
- Optimized life expectancies of up to 100,000 hours<sup>3</sup>
- Driver programmability provides features for the ever-evolving improvements in LED efficacy, removing the need to design-in a new LED driver as technology improves or changes

## Current Product Portfolio Positioning

	Point	Linear	Outdoor	
Programmable	<ul style="list-style-type: none"> <li>• Programmable solution</li> <li>• Reduced SKU complexity</li> <li>• Programmable Features: CLO, AOC, MTP</li> </ul>	<ul style="list-style-type: none"> <li>• Programmable solution</li> <li>• Reduced SKU complexity</li> <li>• Programmable Features: CLO, AOC, MTP</li> </ul>	<ul style="list-style-type: none"> <li>• Programmable solution</li> <li>• Reduced SKU complexity</li> <li>• Programmable Features: CLO, AOC, MTP, OTL, AST, Dimming type (0-10V, DALI, AmpDiim or Dynadimmer)</li> </ul>	
	Dimmable	<ul style="list-style-type: none"> <li>• Dimming interface options</li> <li>• AOC</li> <li>• MTP</li> <li>• Fan out for active cooling</li> </ul>	<ul style="list-style-type: none"> <li>• Dimming interface options</li> <li>• AOC</li> <li>• MTP</li> </ul>	<ul style="list-style-type: none"> <li>• 0-10V dimming</li> <li>• AOC</li> <li>• MTP</li> </ul>
	Fixed	<ul style="list-style-type: none"> <li>• Fixed output current</li> <li>• 50kHr Lifetime<sup>4</sup></li> <li>• Connectors</li> <li>• Compact Housing</li> <li>• Reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Fixed output current</li> <li>• 50kHr Lifetime<sup>4</sup></li> <li>• Connectors</li> <li>• Linear Housing</li> <li>• Reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Fixed output current</li> <li>• 50kHr Lifetime (min)<sup>4</sup></li> <li>• High surge capability</li> <li>• Reliability</li> </ul>

AOC: Adjustable Output Current,  
MTP: Module Temperature Protection,  
CLO: Constant Light Output,  
OTL: Over The Life,  
AST: Adjustable Startup Time

See footnote on page 31.



# Adjustable Output Current (AOC)

AOC is a means of setting the secondary drive current of the LED driver to a prescribed level. This level is determined by the OEM during fixture design in order to create desired illumination levels, and is not intended for field modification. The desired current level is set by adding an external resistance across two terminals identified on the LED driver as “RSET” and SGND.” The data sheets for applicable drivers include a table and graph that correlates desired drive current to a specific resistance value. Additional specifications on resistor type is also included. Resistors with >0.25W and >20V are typically acceptable.

The resistor is furnished by the OEM and can be connected separately or incorporated elsewhere in the system (e.g., on the LED module). Two different current vs. resistance curves are used in these drivers, referred to as RSET1 and RSET2. RSET1 has a maximum current rating of 700mA (no resistance across the specified terminals). RSET2 has a maximum current rating of 2000mA (no resistance across the specified terminals).

## Rset vs. Driver Current

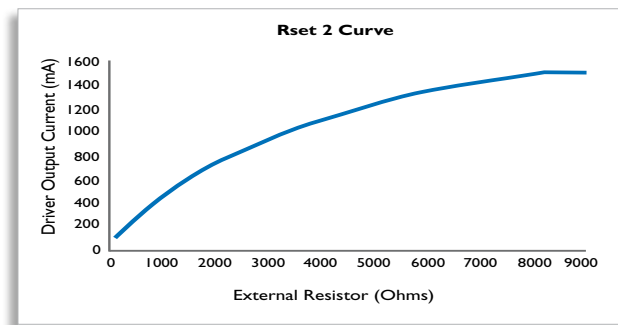
Rset (Ohms)	Current (mA)
100	100
120	111
150	124.5
180	138.2
220	154.6
270	176.4
330	203.7
390	228.3
470	261.0
560	296.5
680	340.2
820	392.1
1000	452.1
1200	514.9
1500	602.3
1800	684.2
2200	779.7
2700	883.5
3300	992.7
3900	1085.5
4700	1191.9
5600	1273.0
6800	1402.1
8200	1503.1
>8200	1503.1

## AOC enables:

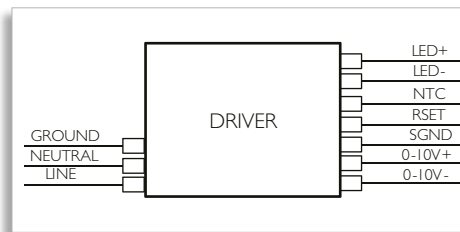
- Flexibility to select specific drive currents to optimize fixture performance
- Ability to consolidate SKUs and use one driver for multiple fixtures
- Ability to upgrade light engines and use the same driver, hence reducing qualification time and cost

## Typical AOC application:

54W Linear Driver catalog number [XI054C150V054DNT1](#)



## Example Wiring Diagram



# Module Temperature Protection (MTP)

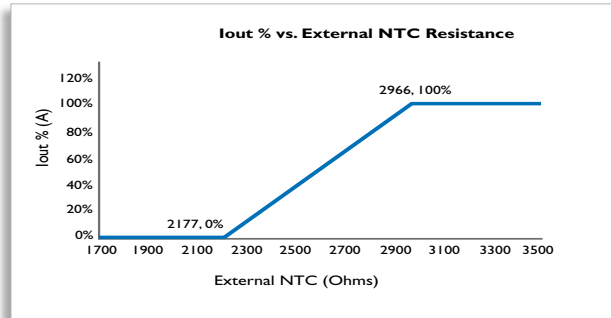
The Module Temperature Protection feature allows the OEM to design the LED system to reduce drive current in the event that the module overheats, hence reducing heating and potentially avoiding failure. This feature is enabled by adding an external Negative Temperature Coefficient (NTC) across two terminals identified on the LED driver as “NTC” and “SGND.” When activated in application—by reaching the minimum temperature appropriate for the given NTC—drive current begins reducing according to the temperature-current curve of the specific NTC. The data sheets for applicable drivers include a graph illustrating current output vs. NTC resistance, and also typically include an example graph of module temperature vs. current output using a specific NTC.

Module Temperature Protection enables:

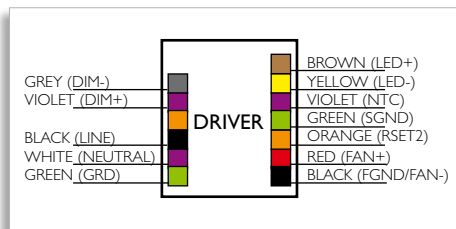
- Enhanced protection of the LED system from misapplication (e.g., day-burning)
- Longer potential life expectancy of the LED system

Typical MTP application:

50W Downlight Driver catalog number XI050C100V054DNM1



Example Wiring Diagram



## Xitanium LED driver Tc points

The lifetime of LED drivers depends on the temperature during operation. This means there is a relationship between the Tc point on the LED driver and its lifetime. With this in mind, several diagrams have been made to aid in pinpointing the general area of the Tc point on the driver(s). Each driver has a designated diagram. See below to identify where the Tc point is. For completed details on Tc Point please visit or contact your local sales representative.

# Remote Mounting

Most LED drivers are utilized in self-contained fixtures where the driver is included within the fixture, which is considered an electrical enclosure. Some applications call for remote mounting of the driver whereby the driver is in a separate electrical enclosure and not within the same enclosure/fixture as the LED light source. In these applications, it is typically acceptable to have the driver remote mounted but care is required to ensure that voltage drop is minimized to not impact performance of the LED system.

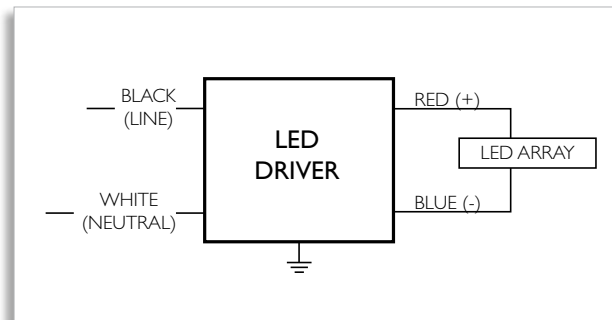
In general, larger gauge wires will enable longer maximum distance, and higher LED drive currents will have lower maximum distances. Published maximum wiring distances are typically based on full load and longer distances are usually practical for lower load levels (consult your sales representative for complete information).

Typical remote mounting application:  
100W Outdoor Driver catalog number LEDINTA0024V41FO

Wire Size (AWG)	Distance (feet)
26	3
24	4
22	7
20	11
18	18
16	29
14	46
12	71
10	120

Maximum Wiring Distance (at full load)

## Typical Wiring Diagram



# Catalog Number Explanation - Prior to 2011

LED	INT	A	C035	V	425	DN	M
Packaging: M = Midpack, I = Individual Pack, B = Bulk Pack							
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 1600=1.6A 0400=400mA 2000=2.0A 700=700mA 1000=1.0A 0530=530mA 0024=24V 0520=520mA 0700=700mA 0012=12V 0520=520mA							
Input Voltage: A=AC Voltage D=DC Voltage							
Input Voltage: INT= 120 - 277V (UL, CSA) UNI = 120 - 240V 120 = 120V (UL, CSA) HCN = 347-480V (UL, CSA) 277 = 277V (UL, CSA)							
General: LED= Xitanium LED Driver							





# Catalog Number Explanation - After January 2011

X	I	075	C070	V105	C	N	Y	I	M
									<b>Packaging:</b> M = Midpack, I = Individual Pack, B = Bulk Pack
									<b>Version Control:</b> I = Version 1, 2 = Version 2, X = Version X
									<b>Enclosure Designation</b>
									<b>Features:</b> P = Programming N = Non-Programming
									<b>Fixed or Dimming:</b> F = Fixed D = Dimming (0-10V) isolated with AOC+NTC C = Dimming (0-10V) isolated without AOC+NTC A = AOC Only, no dimming, no NTC N = Dimming (0-10V) Non Isolated M = 0-10, DALI, PLS (Programmable LumiStep)
									T = Trailing Edge (Triac) X = TE (Trailing Edge) & 0-10V Y = TE (Trailing Edge), Touch & DALI Z = TE (Trailing Edge) & DALI R = TE (Trailing Edge) & LE (Leading Edge) L = DALI (TD) only
									<b>Max Voltage:</b> <b>Examples:</b> 012 = 12V, 054 = 54V, 280 = 280V
									<b>Max Current:</b> <b>Examples:</b> 035 = 350mA, 070 = 700mA, 053 = 530mA, 105 = 1.05A
									<b>Max Power:</b> <b>Examples:</b> 025 = 25W, 060 = 60W, 300 = 300W
									<b>Input Voltage:</b> I = 120-277 (UL, CSA)    G = 120-200-230-277 (UL, CE, ENEC, CQC) R = 120V (UL, CSA)      E = 220-240V (CE, ENEC) Europe & APR V = 277V (UL, CSA)      J = 100-242V (PSE) Japan U = 120-240V              K = 200-242V (PSE) Japan H = 347-480V (UL, CSA)   A = 220-240V (CQC, CE)
<b>General:</b> X= Xitanium LED									

## 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, which 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

F210457I

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



# Philips Advance Xitanium Outdoor LED Drivers



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

## Fixed Output

These drivers perform the basic necessary function for outdoor application, setting the standard for reliability and performance needed for outdoor lighting.

## Dimming

These drivers include 0-10V dimming as well as adjustable Output Current (AOC) and Module Temperature Protection (MTP), typically. These features help address the growing demand for controllability and flexibility. 0-10V dimming allows the lighting system to be used with various controls for maximizing energy savings. AOC enables the OEM to maximize performance of the fixture and provides flexibility for use in multiple fixtures. MTP further enhances life and reliability in the event of misapplication.

## Programmable

These drivers offer unparalleled flexibility with the ultimate 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.

These drivers are available in wattages of 40W to 150W 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.

## Specific features of this series are:

- Standard drive currents 350, 530, 700, 1050 and 1500mA
- UL Class 1 or Class 2
- Input voltage ranges of 120-277V or 347-480V
- Surge protection
- High efficiency for maximum payback
- High reliability for low maintenance costs

## Xitanium LED Drivers for outdoor applications designed for use in:

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



## Outdoor Drivers Fixed

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others		
LED120A0350C28FO	10	2.8 - 28	0.35	120	•											V-Can/I	90
LED120A0012V10F	12	12	1	120	•											V-Can/I	90
LED120A0700C24FO	17	2.8 - 24	0.7	120	•											V-Can/I	90
LED120A0700C28FO	20	2.8 - 28	0.7	120	•											V-Can/I	90
LED277A0700C28FO	20	2.8 - 28	0.7	277	•											V-Can/I	90
LED120A0024V14FO	34	2.8 - 24	1.4	120	•											J-Box/I	90
LED120A0024V18FO	40	2.8 - 24	1.75	120	•											J-Box/I	90
LEDINTA0024V20FLO	48	24	0.10 - 2.0	120 - 277	•											F-Can Bump/I	85
LEDINTA0024V22FO	53	24	2.2	120 - 277	•											S-Can/I	90
LEDINTA1600C36FO	58	9 - 36	1.6	120 - 277	•											S-Can/I	90
LED120A0012V50F	60	12	0.8 - 5.0	120	•											S-Can/I	90
LEDINTA0012V50FO	60	12	0.10 - 5.0	120 - 277	•											S-Can/I	90
LEDINTA0024V28FO	67	24	0.10 - 2.8	120 - 277	•											S-Can/I	90
LEDINTA0024V30FLO	72	24	0.10 - 3.0	120 - 277	•											F-Can Bump/I	85
LEDINTA0024V32FO	77	24	3.2	120 - 277	•											S-Can/I	90
LED120A0024V33F	80	24	0.8 - 3.3	120	•											S-Can/I	90
LEDHCNA0024V41FLO	100	3.5 - 24	0.10 - 4.16	347 - 480	•											F-Can Bump/I	85
LEDINTA0024V41FLO	100	3.5 - 24	0.10 - 4.16	120 - 277	•											F-Can Bump/I	85
LEDINTA0024V41FO	100	3.5 - 24	0.10 - 4.16	120 - 277	•											S-Can/I	90
LEDINTA700C140F3O	100	60 - 140	0.35/0.53/0.70	120 - 277	•											F-Can Bump/6	80
LEDHCNA0350C425FO	150	120 - 425	0.35	347 - 480	•											F-Can Bump/I	80
LEDINTA0350C425FO	150	120 - 425	0.35	120 - 277	•											F-Can Bump/I	80
LEDHCNA0700C210FO	150	60 - 210	0.7	347 - 480	•											F-Can Bump/I	80
LEDINTA0700C210FO	150	60 - 210	0.7	120 - 277	•											F-Can Bump/I	90

## Outdoor Drivers Dimmable

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others		
LED120A0700C28DO	20	10 - 28	0.7	120	•	•										V-Can/2	90
LED277A0700C30DO	21	15 - 30	0.7	277	•	•										V-Can/2	80
XI040C070V056CNJ1	40	12 - 54	0.7	120 - 277	•	•										J-Can/2	80
XI040C120V035CNJ1	40	12 - 36	1.2	120 - 277	•	•										J-Can/2	80
LEDINTA0024V20DLO	48	24	2	120 - 277	•	•										F-Can Bump/2	85
XI050C150V038CNH1	50	19 - 38	1.5	120 - 277	•	•										H-Can/2	80
LEDINTA0024V30DLO	72	24	3	120 - 277	•	•										F-Can Bump/2	85
XI075C053V140CNY1	75	71 - 143	0.53	120 - 277	•	•										Y-Can/2	80
XI075C053V140DNY1	75	71 - 143	0.10 - 0.53	120 - 277	•	•				•						Y-Can/3	80
XI075C070V105CNY1	75	54 - 107	0.7	120 - 277	•	•										Y-Can/2	80

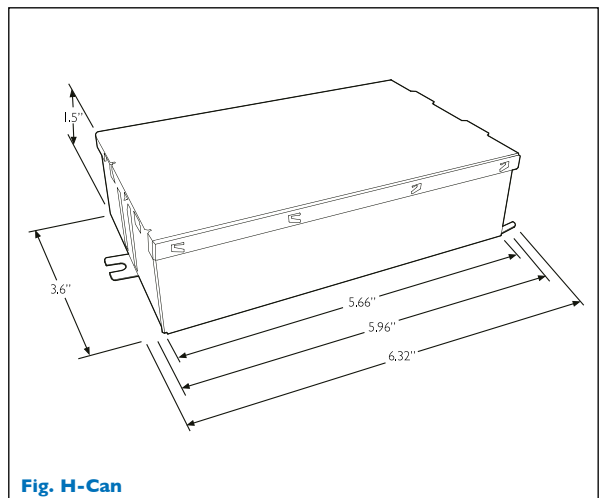
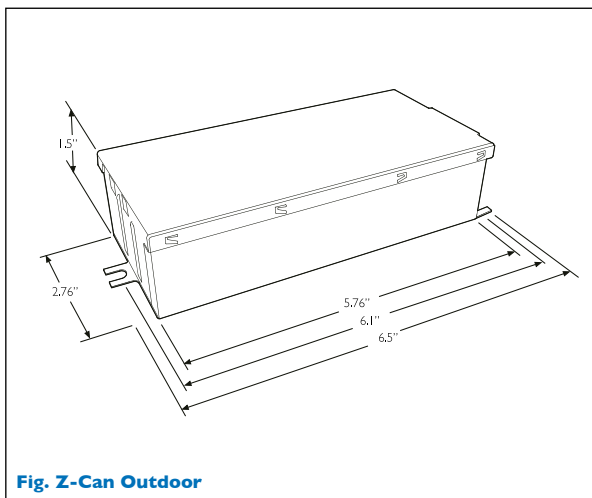
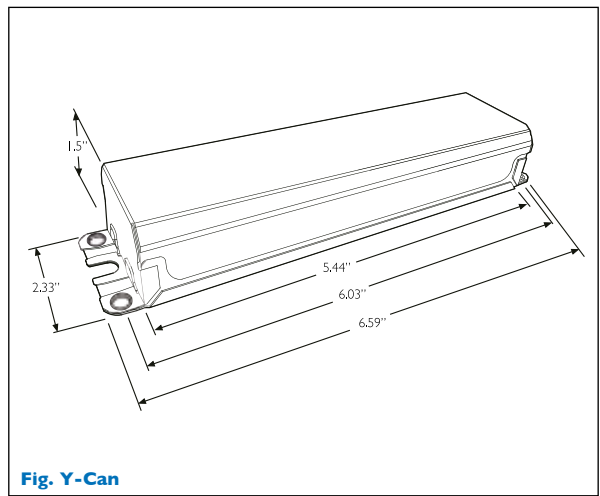
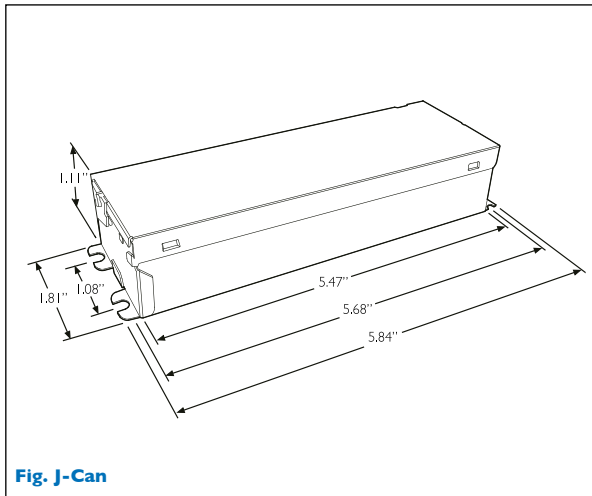
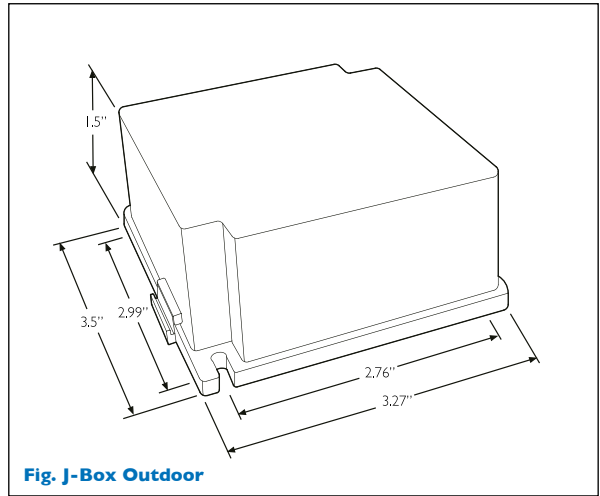
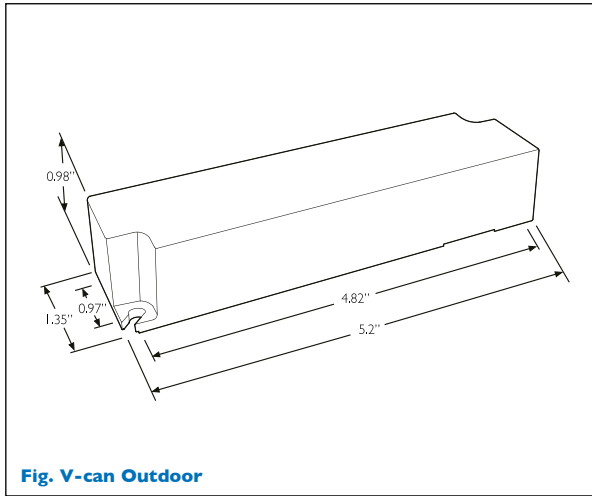
## Outdoor Drivers Dimmable

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others		
XI075C070V105DNY1	75	54 - 107	0.10 - 0.70	120 - 277		•					•					Y-Can/3	80
929000708003	75	54 - 107	0.10 - 0.70	120 - 277		•					•					Y-Can/3	80
XI075C105V070CNY1	75	36 - 72	1.05	120 - 277		•										Y-Can/2	80
XI100C150V038CNH1	100 (2x50)	19 - 38	1.5	120 - 277	•	•									•	H-Can/4	80
LEDINTA0024V41DLO	100	15 - 24	4.1	120 - 277	•	•										F-Can Bump/2	85
LEDHCNA0024V41DLO	100	15 - 24	4.1	347 - 480	•	•										F-Can Bump/2	85
LEDINTA0350C425DO	150	120 - 425	0.35	120 - 277		•										F-Can Bump/2	80
LEDHCNA0350C425DN	150	120 - 425	0.35	347 - 480		•										F-Can Bump/2	80
LEDINTA0530C280DO	150	120 - 280	0.53	120 - 277		•										F-Can Bump/2	80
LEDHCNA0530C280DN	150	120 - 280	0.53	347 - 480		•										F-Can Bump/2	80
LEDINTA0700C210DO	150	60 - 210	0.7	120 - 277		•										F-Can Bump/2	90
LEDHCNA0700C210DN	150	60 - 210	0.7	347 - 480		•										F-Can Bump/2	80
LEDINTA1050C140DO	150	40 - 140	1.05	120 - 277		•										F-Can Bump/2	80
LEDINTA1500C100DO	150	30 - 100	1.5	120 - 277		•										F-Can Bump/2	80

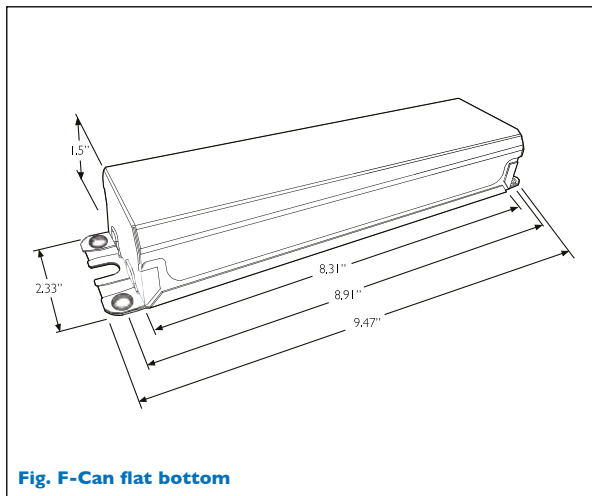
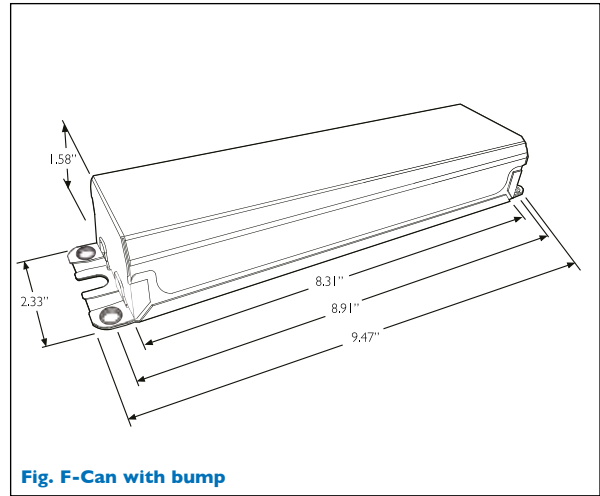
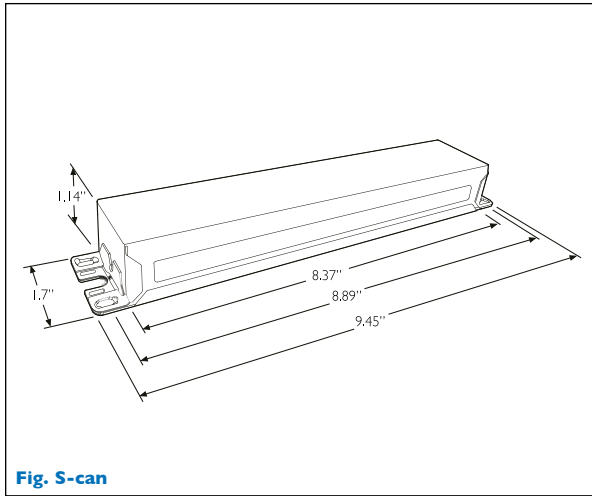
## Outdoor Drivers Programmable

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others		
929000708803	40	29 - 57	0.10 - 0.70	120 - 277		•				•	•	•	•	•	•	J-Can/5	80
929000710303	40	38 - 76	0.10 - 0.53	120 - 277		•				•	•	•	•	•	•	J-Can/5	80
929000702302	75	80 - 152	0.35 - 0.70	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80
929000704913	75	80 - 152	0.35 - 0.70	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80
929000710103	75	54 - 107	0.10 - 0.70	120 - 277		•				•	•	•	•	•	•	Z-Can/5	80
929000708903	75	36 - 75	0.10 - 1.05	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80
929000710403	100	94 - 189	0.10 - 0.53	120 - 277		•				•	•	•	•	•	•	Z-Can/5	80
929000708703	100	71 - 143	0.10 - 0.70	120 - 277		•				•	•	•	•	•	•	Z-Can/5	80
XI150C035V425MPH1	150	212 - 425	0.2 - 0.35	120 - 277		•				•	•	•	•	•	•	H-Can/5	80
929000702202	150	125 - 280	0.35 - 0.70	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80
929000705113	150	125 - 280	0.35 - 0.70	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80
929000709003	150	70 - 148	0.10 - 1.05	120 - 277		•				•	•	•	•	•	•	F-Can Flat/5	80

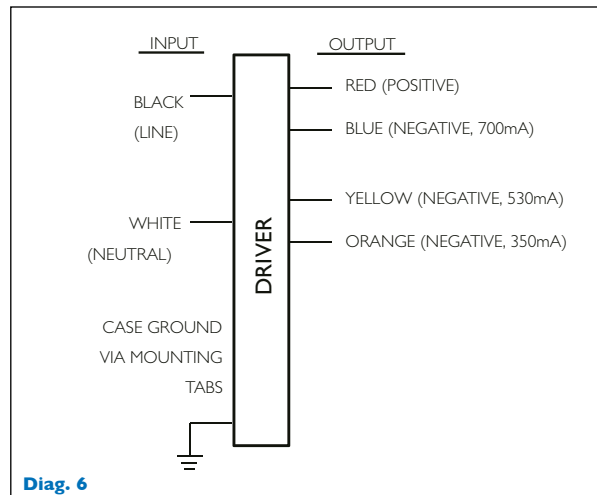
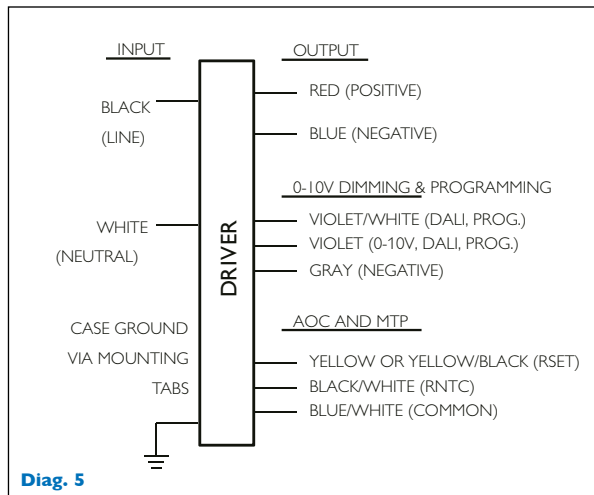
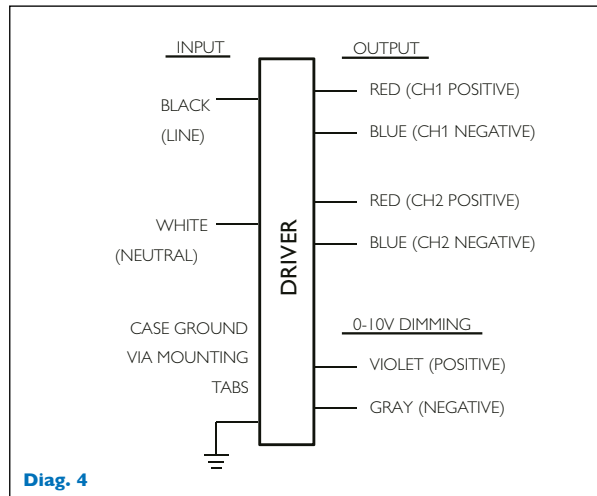
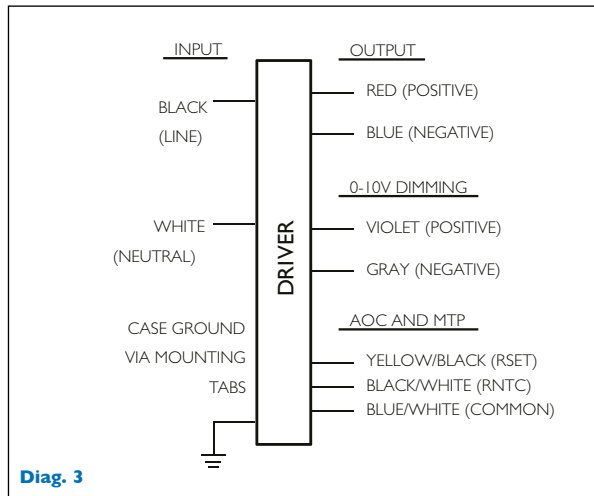
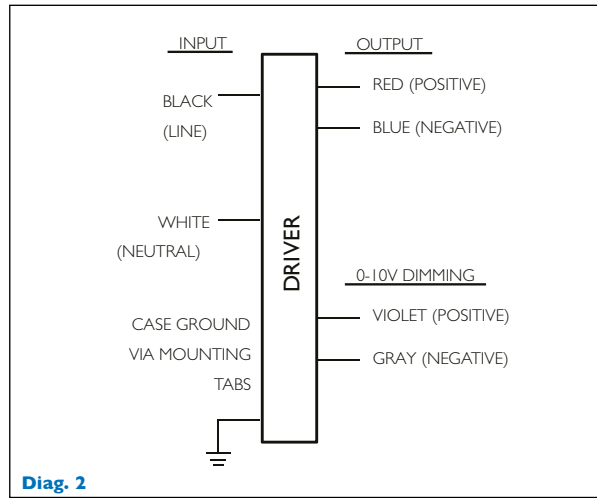
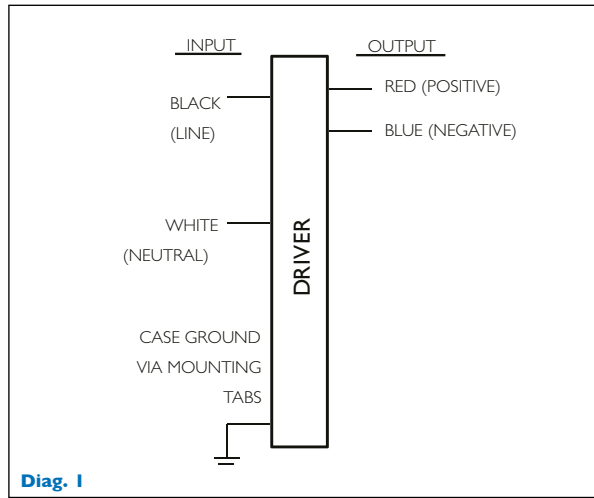
## Outdoor Drivers Dimensions



## Outdoor Drivers Dimensions



## Outdoor Drivers Wiring Diagrams







2B

2B

2B

2B

2B

# Indoor Downlight and Track Drivers



Xitanium LED Drivers for linear applications are available in three types:

## Fixed Output

These drivers perform the basic necessary function for the application, setting the standard for reliability and performance expected for commercial lighting.

## Dimming

These drivers include 0-10V or leading/ trailing-edge dimming to integrate into common dimming systems used in commercial applications. Dimming enables maximum energy savings and facilitates worker comfort.

## Programmable

These drivers offer unparalleled flexibility with the ultimate 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 of SKUs to reduce complexity and simplify logistics.

These drivers are available in wattages of 4W to 50W for hard-wired integration into recessed downlights and track light fixtures. The available form factors are ideally suited for these applications: The familiar Smart-Mate housing for junction-box mounting in downlights and slim housings for incorporation into track housings.

## Specific features of this series are:

- Adjustable output current to set output current to desired level
- Wide operating windows
- UL Class 1 or Class 2
- Input voltage range of 120-277V
- High efficiency for maximum payback
- High reliability for low maintenance costs

Xitanium LED Drivers for downlight and track applications are specifically designed for use in:

- Office
- Retail
- Hospitality
- Meeting rooms



## Downlight/Track Drivers - Fixed

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)	
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others			
LEDUNIA0350C12F	4	2.8 - 12	0.35	120 - 230	•												8W/I	69
LEDUNIA0700C12F	8	2.4 - 12	0.7	120 - 230	•												8W/I	69
LED120A0024V07F	17	24	0.10 - 0.70	120	•												V-Can Indoor/13	80
LED120A0700C24F	17	2.8 - 24	0.7	120	•												V-Can Indoor/13	85
LED120A1400C24F	34	2.8 - 24	1.4	120	•												J-Box Indoor/21	85

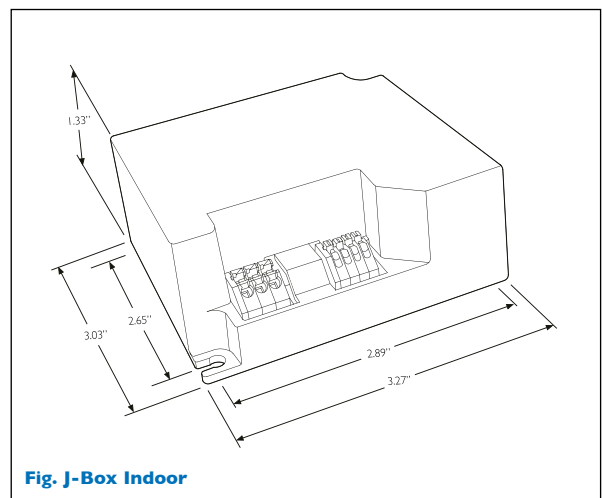
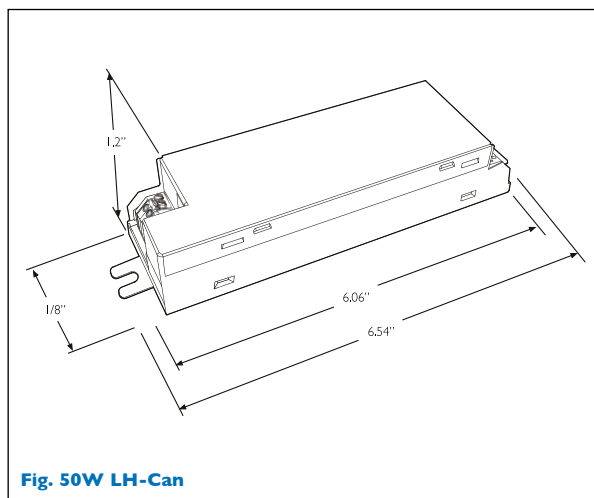
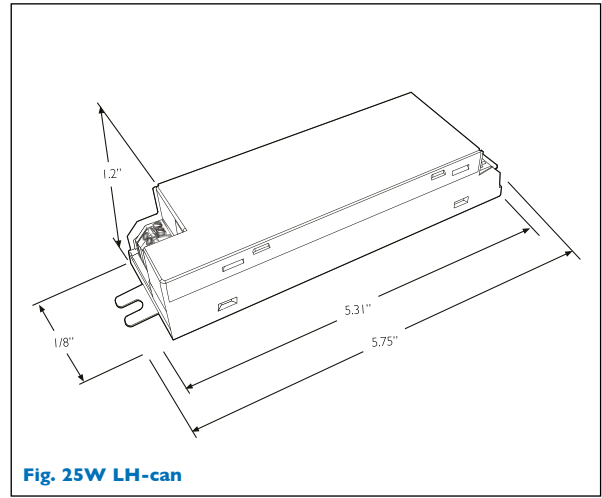
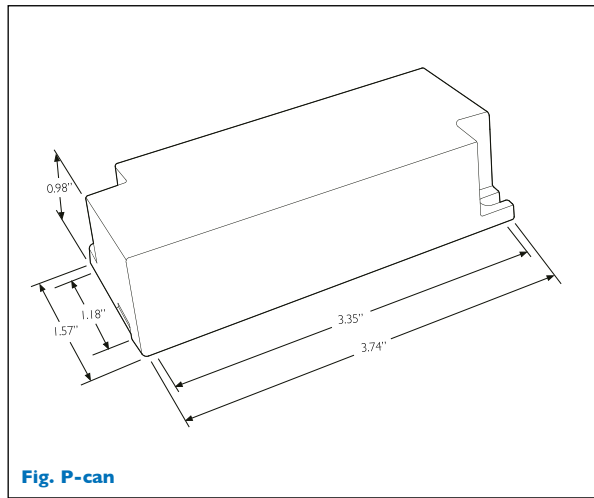
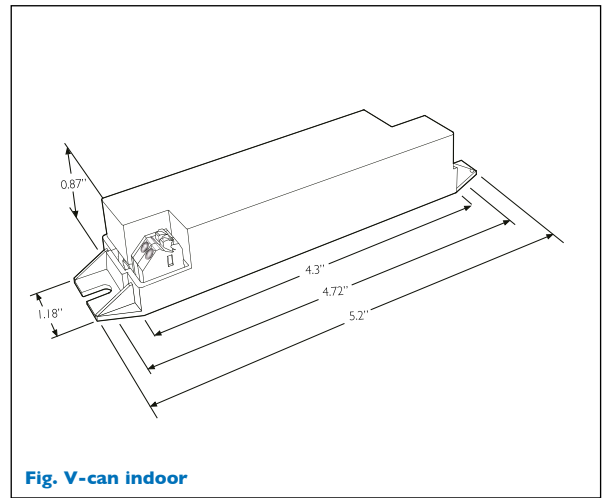
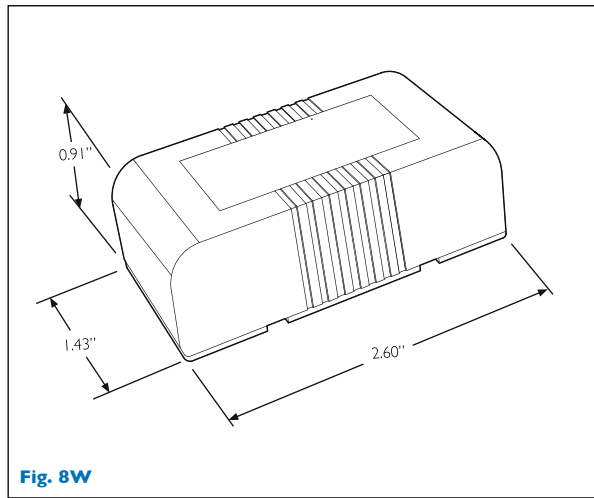
## Downlight/Track Drivers - Dimmable

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)	
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others			
XI020V070V030RNP1	20	15 - 30	0.4/0.5/0.6/0.7	120 - 277	•		•	•			•						P-Can/13	80
XI025C070V036DNM1	25	18 - 36	0.2 - 0.7	120 - 277	•	•					•	•					M5-Can/17	90
XI025C100V036DNM1	25	18 - 36	0.3 - 1.0	120 - 277	•	•					•	•					M1-Can/15	90
LEDINTA0520C60DB	30	25 - 56	0.35 - 0.52	120 - 277	•	•					•	•					M5-Can/17	77
913701213402	39	20 - 56	0.20 - 0.70	120 - 277	•	•					•	•		•			M5-Can/16	90
LEDINTA0520C80DB	40	40 - 77	0.35 - 0.52	120 - 277	•	•					•	•					M5-Can/17	74
XI050C100V054DNM1	50	27 - 54	0.3 - 1.0	120 - 277	•	•					•	•		•			M2-Can/14	75
LEDINTA1000C60DB	50	25 - 48	0.7 - 1.05	120 - 277	•	•					•	•					M5-Can/17	86
XI050C105V052DNM1	50	25 - 52	0.7 - 1.05	120 - 277	•	•					•	•					M5-Can/17	86

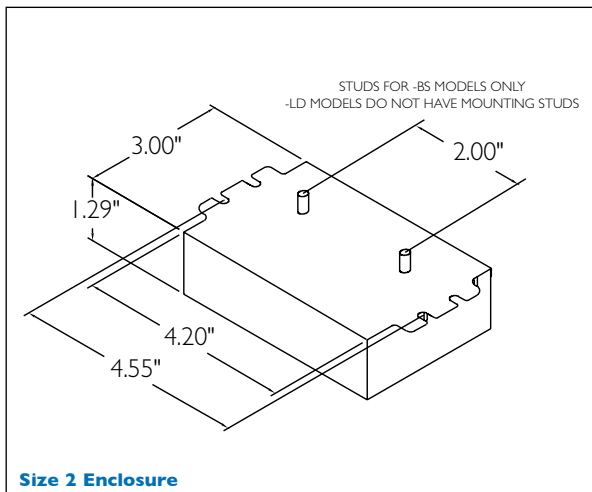
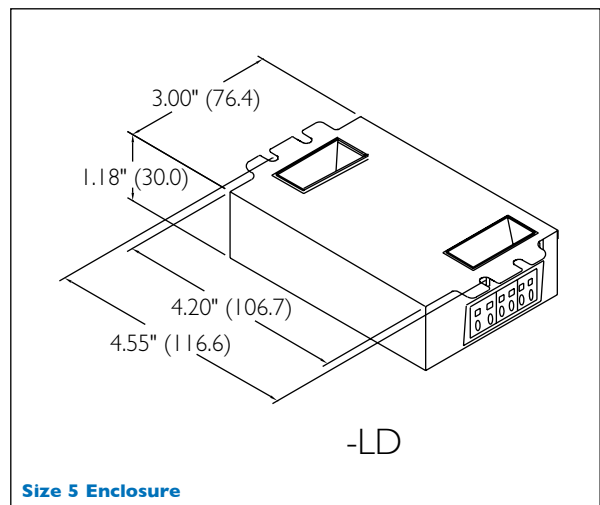
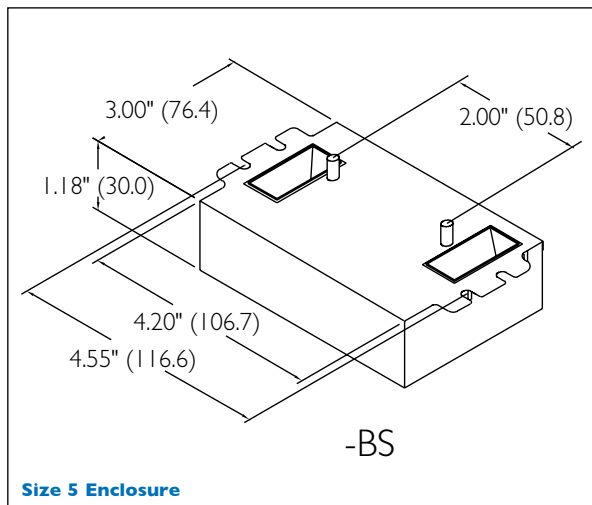
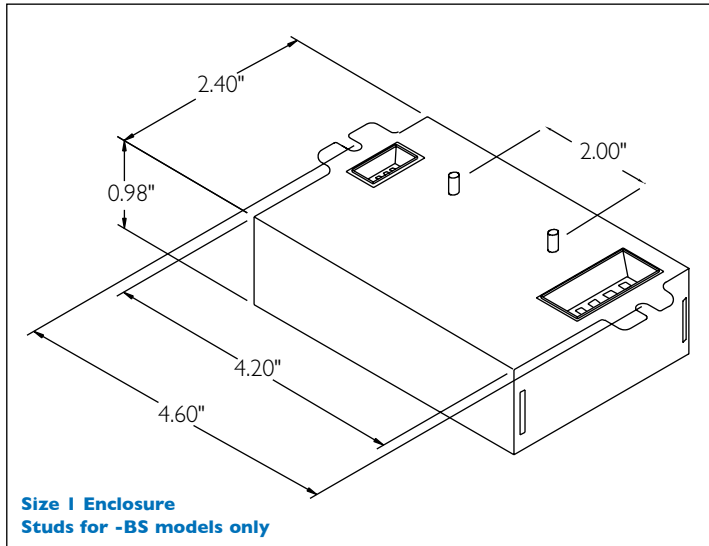
## Downlight/Track Drivers - Programmable

Catalog	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)	
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others			
XV025C100V036DPM1	25	18 - 36	0.3 - 1.0	277	•	•					•	•	•	•			M2-Can/18	75
XR025C100V036XPM1	25	18 - 36	0.3 - 1.0	120	•	•	•				•	•	•	•			M2-Can/18	75
XR025C100V036LPM1	25	18 - 36	0.3 - 1.0	120	•					•	•	•	•	•			M2-Can/19	75
XI025C100V036XPL1	25	18 - 36	0.3 - 1.0	120 - 277	•	•	•				•	•	•	•			25W LH-Can/20	75
XV050C100V054DPM1	50	27 - 54	0.3 - 1.0	277	•	•					•	•	•	•			M2-Can/18	75
XR050C100V054XPM1	50	27 - 54	0.3 - 1.0	120	•	•	•				•	•	•	•			M2-Can/18	75
XI050C100V054XPL1	50	27 - 54	0.3 - 1.0	120 - 277	•	•	•				•	•	•	•			50W LH-Can/20	75

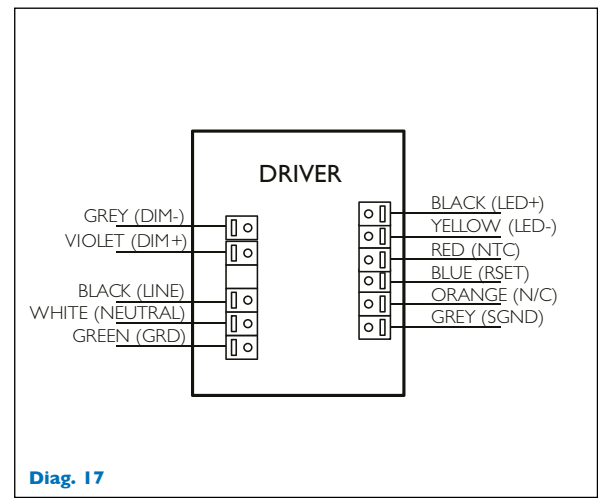
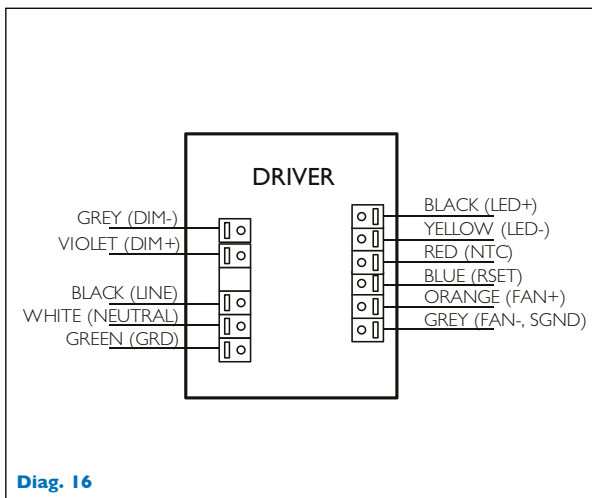
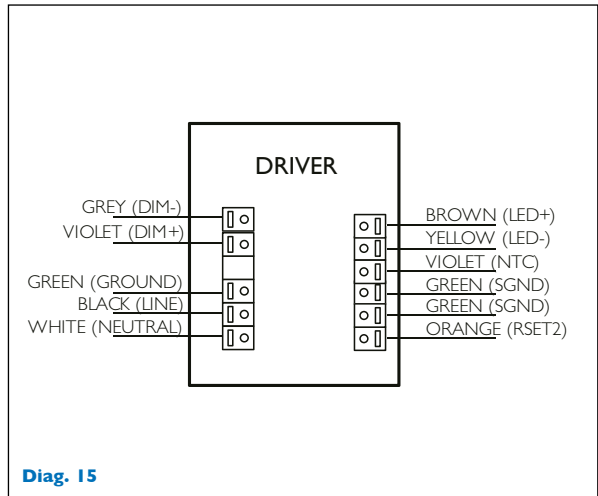
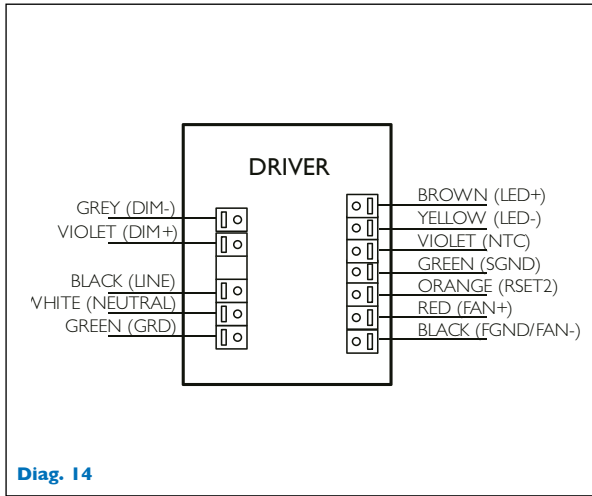
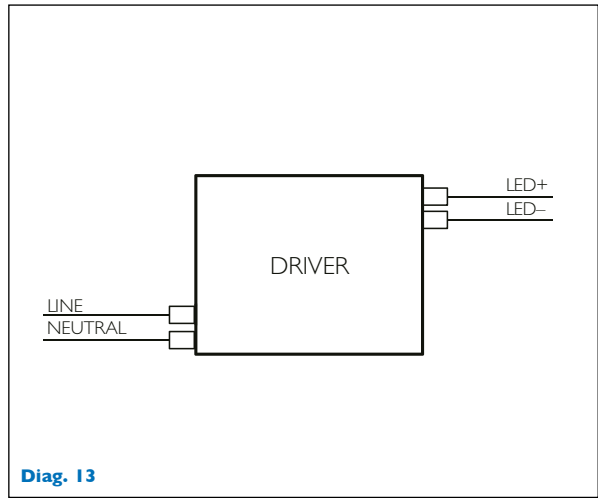
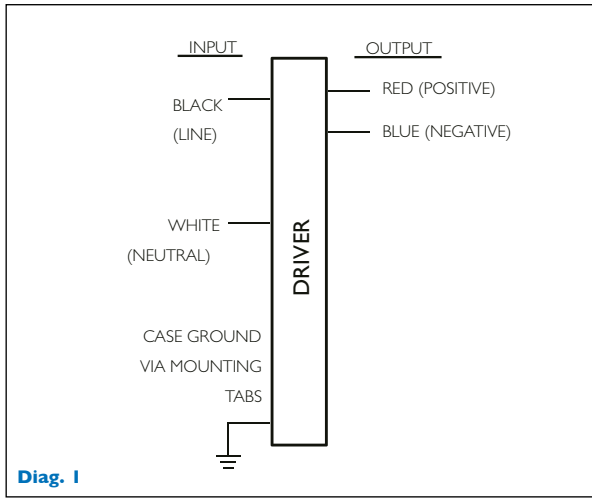
## Downlight/Track Drivers Dimension



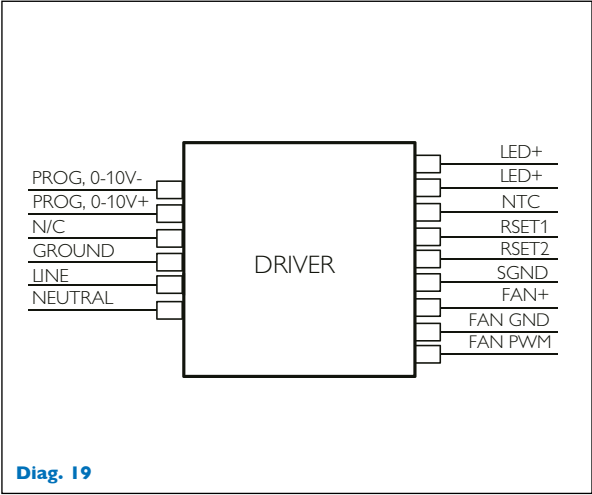
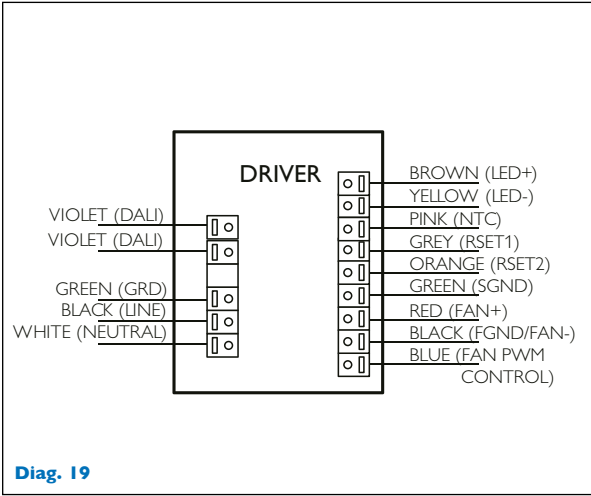
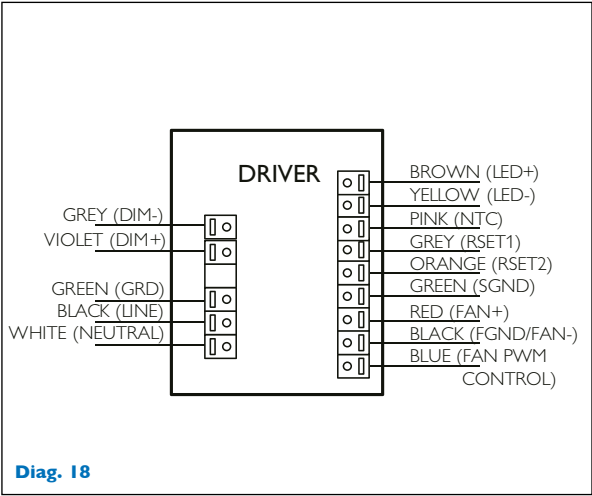
## Downlight/Track Drivers Dimension



## Downlight/Track Drivers Wiring Diagrams



**Downlight/Track Drivers Wiring Diagrams**



# Indoor Linear LED Drivers



Xitanium LED Drivers for linear applications are available in three types:

## Fixed Output

These drivers perform the basic necessary function for the application, setting the standard for reliability and performance expected for commercial lighting.

## Dimming

These drivers include 0-10V or leading-edge dimming to integrate into common dimming systems used in commercial applications. Dimming enables maximum energy savings and facilitates worker comfort.

## Programmable

These drivers offer unparalleled flexibility with the ultimate 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 of SKUs to reduce complexity and simplify logistics.

These drivers are available in wattages of 48W to 75W or 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.

## Specific features of this series are:

- Adjustable output current to set output current to desired level
- Wide operating windows
- UL Class Class 2
- Input voltage range of 120-277V
- High efficiency for maximum payback
- High reliability for low maintenance costs

## Xitanium LED Drivers for linear applications are specifically designed for use in:

- Office
- Retail
- Hospitality
- Meeting rooms





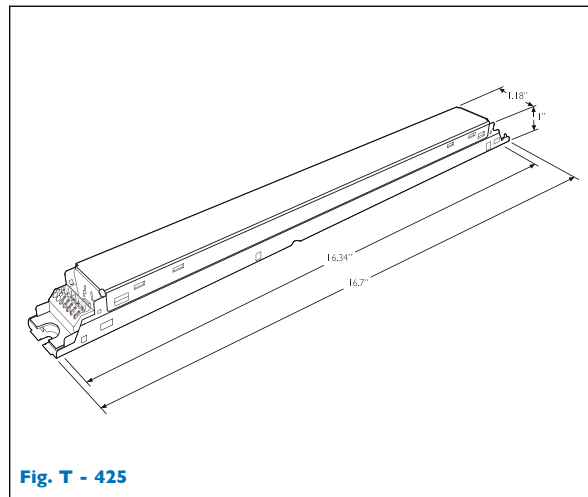
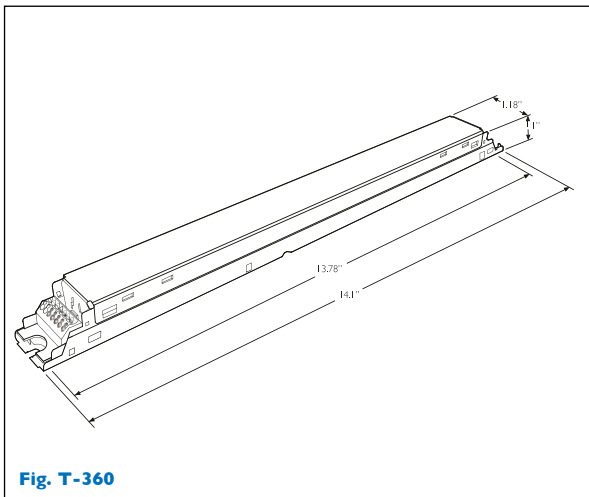
## Linear Drivers Dinnable

Catalog #	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)	
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others			
LEDINTA2000C24DO	48	12 - 24	1.0 - 2.0	120 - 277	•	•					•						T-425	80
XI054C150V054DNT1	54	27 - 54	0.7 - 1.5	120 - 277	•	•					•	•					T-360/8	85
XI054C150V054SNT1	54	27 - 54	0.7 - 1.5	120 - 277	•			•			•	•					T-360/9	85
XR054C150V054RNT1	54	27 - 54	0.7 - 1.5	120	•						•	•					T-360/10	85
XV054C150V054RNT1	54	27 - 54	0.7 - 1.5	277	•						•	•					T-360/10	85

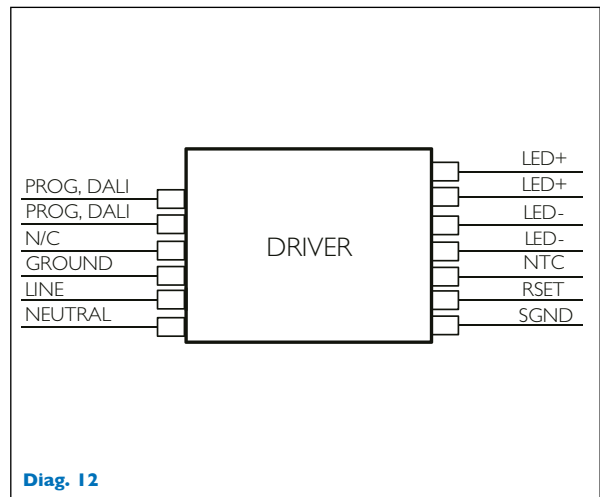
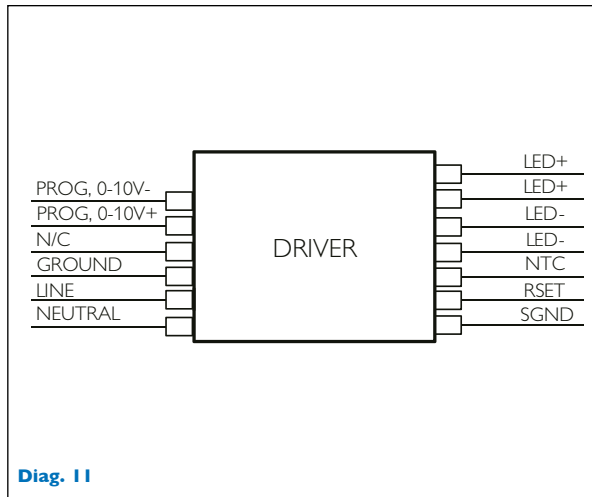
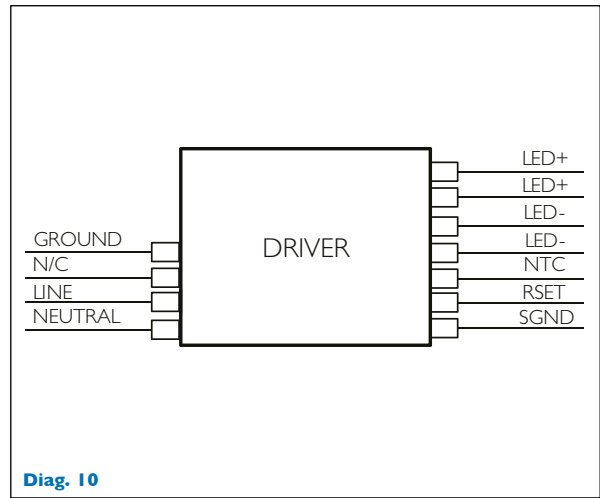
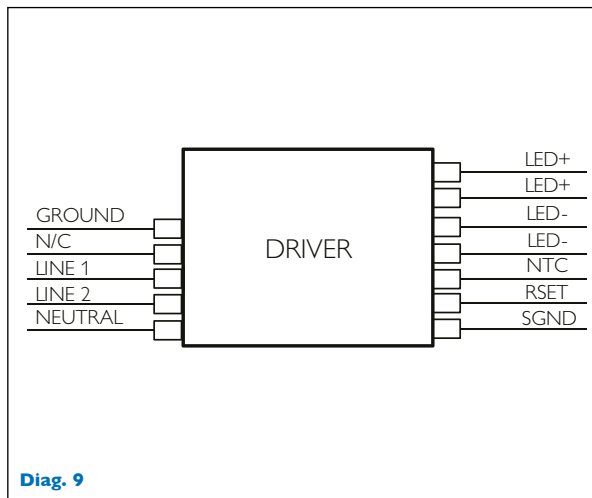
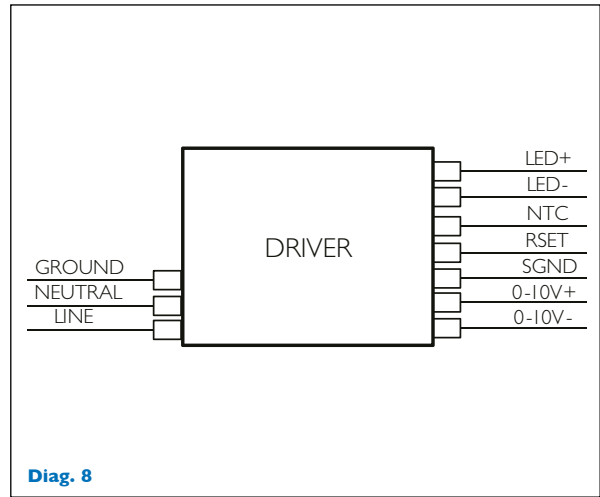
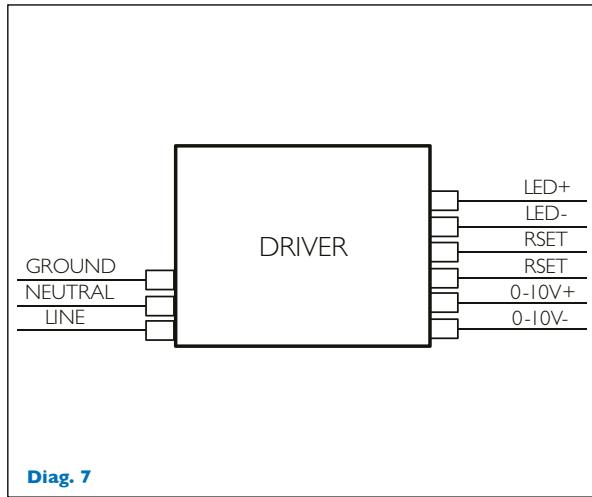
## Linear Drivers Programmable

Catalog #	Max Output Power (W)	Output Voltage (V)	Output Current (Amps)	Input Volts	UL/ CSA Class 2	Dimming					Features					Dim./ Wiring Dia.	Max Tcase (°C)	
						0-10V	TE	LE	Step Dim	DALI	AOC	MTP	CLO	Fan	Others			
XI075C200V054XPT1	75	27 - 54	0.7 - 2.0	120 - 277	•	•					•	•	•				T-425/11	75
XI075C200V054YPT1	75	27 - 54	0.7 - 2.0	120 - 277	•					•	•	•	•				T-425/12	75

## Linear Drivers Dimension



## Linear Drivers Wiring Diagrams



# Accessories

## Surge Protection Devices

Rapidly increasing acceptance of LED-based light sources for outdoor applications brings with it new challenges on system durability. In order to ensure the lifetime of the solution, it is vital to protect the light engine against surges on the mains line. Even the most robust LED drivers offer a limited level of surge protection, not enough to defend against high surges, e.g. (indirect) lightning strikes. Applications such as road lighting and parking lots are especially susceptible. The Surge Protection Devices from Philips offer a reliable solution for protecting all outdoor power supplies from excessive surge voltages.

## Why not make a LED driver with built-in surge protection?

In theory it is possible to design a driver with sufficient spacings internally to survive a 10 kV surge voltage from lines to case (ground) without clamping the voltage so that hi-pot testing is not affected. This concept was implemented on some electronic HID control gear (Xtreme range). However, in a typical LED system, the LEDs are mounted to a heat sink which is connected to earth ground for thermal reasons. A common mode surge voltage of 10 kV would break over the insulation between the LEDs and the heat sink in most installations and, therefore, voltage clamping is required. The typical breakdown of the LEDs to the heat sink is in the order of 2 kV, so clamping below this level is necessary even if the driver is designed to handle the higher voltages. This is why a driver design that can handle 10 kV surges does not help the system pass 10 kV. The voltages must be clamped to a level that the LED-to-heat sink insulation can safely withstand to prevent LED failure. Also, not clamping the common mode surges would put a large burden on the wiring inside the fixture as everything would need to be designed to withstand 10 kV (wires, connectors, wire nuts, etc.). An external surge protection device provides the necessary clamping eliminating the need for high voltage surge protection within the driver and at the same time protects the LEDs from common voltage surges.



# Philips 277V Surge Protection Device



The Philips Surge Protection Device (SPD) 277V is the ideal solution to the challenge of using LEDs in Outdoor lighting. The SPD clamps the voltage at the terminals of the luminaire, protecting the complete system against multiple nominal surges of up to 10 kV / 5 kA. For maximum-level of protection, the SPD can withstand a single hit of 10 kV / 10 kA. The device also eliminates the need for all luminaire internal 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.

## Benefits

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

## Features

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

## 277V Surge Protection Device

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 I <sub>MAX</sub> (kA)	Number of surges, maximum current	Isolation classification	Lifetime @ T <sub>c</sub> life, 90% survivals (hrs)	Suitable for Outdoor use?
Surge Protection Device 277V	10	Comm. mode: I Diff. mode: I	Suitable for Class I & Class II	100,000	Yes

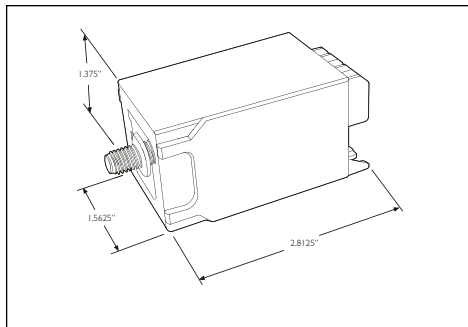
## General product characteristics

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

## Compliances and approvals

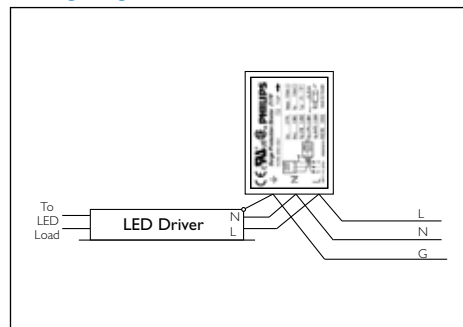
ANSI/UL 1449

## Dimensions



Mounting screw type: M8

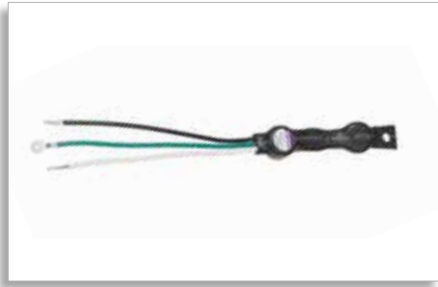
## Wiring Diagram



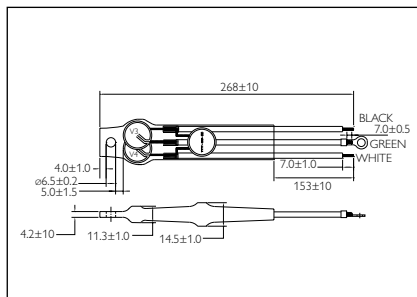
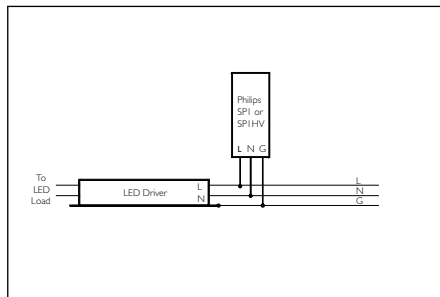
## Ordering & packing data

Type	Surge Protection Device 277V
I2NC	9290 006 65202
EOC	8718291 161806 00
Minimum order quantity	10

# SPI Surge Protection Device



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

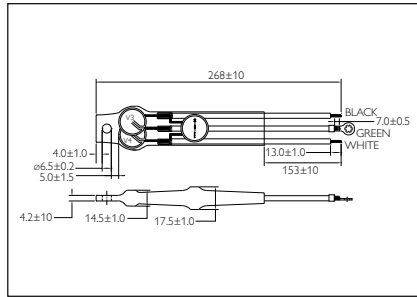
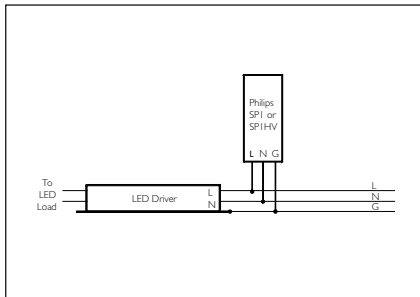


Catalog	SPI
Voltage Input	120V-277V (+/- 10%)
Frequency:	50Hz-60Hz
Maximum Continuous	
RMS Voltage AC	320V
Maximum Energy	430 Joules
Maximum Peak Current:	10kA (8/20 $\mu$ s standard wave)
Wiring	14 Gauges stranded wires, 105°C, 600V
Wire Connections:	Black and white: 12mm skinned and thin plated Green: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

# SPIHV Surge Protection Device



Adapted to SSL outdoor lighting, the Philips SPIHV surge protection device provides all phases protection for line/neutral, line/ground and neutral/ground in accordance with IEEE C62.41.2-2002 C High. The SPIHV small size corresponds to the current design requirements for the new technology luminaires, like a LED light engine in outdoor lighting.



Catalog	SPIHV
Voltage Input	347V-480V (+/- 10%)
Frequency	50Hz-60Hz
Maximum Continuous	
RMS Voltage AC	520V
Maximum Clamping	
Voltage (8/20 $\mu$ s)	1500V
Maximum Energy	570 Joules
Maximum Peak Current	10kA (8/20 $\mu$ s standard wave)
Wiring	14 Gauges stranded wires, 105°C, 600V
Wire Connections	Black and white: 12mm skinned and thin plated 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).

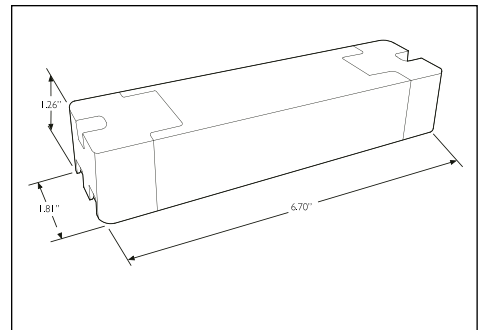
# MultiOne Configurator

A single intuitive system that configures the different functions in multiple lighting solutions



Today's customer demands more flexibility and customization possibilities than "physical configurations" can offer.

Programmable drivers from Philips offer a full range of controls, enabling customizable luminaire design and performance. It is possible to control light output levels, preset dimming protocols and set system specifications in the factory and even in the completed installations. The MultiOne configurator is the unique, intuitive tool that unlocks the full potential of all programmable drivers from Philips, ensuring driver performance matches the lighting solution needs.



## Key benefits:

1. One tool for all the Philips DALI products (see supported product list)
2. Future proof platform for new feature deployment
3. Unique-in-the-market proposition of configuration and debugging tool
4. Offers unprecedented flexibility, before, during and after the product installation

Supporting software can be downloaded from: [www.philips.com/multione](http://www.philips.com/multione)

## Footnotes:

1. See [www.philips.com/ledmodulesna](http://www.philips.com/ledmodulesna) and click on the appropriate product for complete warranty details
2. 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
3. Minimum 90% survivals based on MTBF modeling
4. 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.



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