



The LS393LED is a compact inground option featuring a 6W LED module with output similar to a 50W MR16. With options for line voltage input and dimming via Lumascope d5 driver technology, this inherently protected, compact luminaire is suitable for use in many locations where MR16-based luminaires cannot be used due to heat. Internal rotation and tilt adjustability ensure the most efficient light delivery can be set according to the site conditions.

Performance

Static White & Colour	Lumen Output (lm)	Efficacy (lm/W)	Peak Intensity (cd)
● 3,000 K (80 CRI)	495	63	6,944
● 4,000 K (80 CRI)	552	69	6,607
● Blue (470nm)	-	-	-

Static white lumen output values are based on a 6W luminaire with 14° lens.

Dynamic Colour	Lumen Output (lm)	Efficacy (lm/W)	Peak Intensity (cd)
● RGB	-	-	-

Dynamic Colour lumen output values are based on a 6W luminaire with 30° lens.

Beam Angles	14° ⁽¹⁾ , 30°, 40°, 40° x 20° (1) Not available for RGB
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Electrical

LED Power	3W, 6W
Consumption	7.9W (nominal for 6W)
Lifetime (L70)	>60,000hrs (B10, L70, TM21)
Input Voltage	Mains Voltage 100-277V AC, 50/60Hz Low Voltage 24V DC (International Market) 12-15V AC, 12-24V DC (North American Market)

Control

Protocols	PWM (0-10V to PWM, DMX to PWM and DALI to PWM converters available)
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Physical

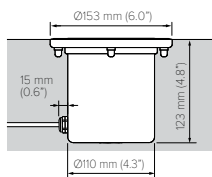
Housing	316 Marine Grade Stainless Steel
Installation	Pre-Installation Blockout - concrete pour, drive-over & general use Mounting Collar - decks and grates (Not available in North America) Direct burial - landscape, planters and special applications
Drive-over	With OptiClear™ lens and pre-installation blockout - LS647-K
Ambient Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Surface Temperature	≤65°C (≤149°F) HumanTouch™ Compliant

Certification & Compliance

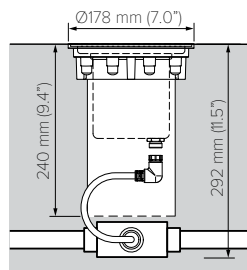
IP Rating	IP68
IK Rating	IK9 with OptiClear™ lens
Static Load Rating	3,750 kg (8,267 lb) with OptiClear™ lens and pre-installation blockout ⁽¹⁾ (1) Load applied to the center of glass across a 50mm (2") diameter area
Environment	Dry, Damp, Wet locations
Certifications	CE, ETL

Luminaire Dimensions

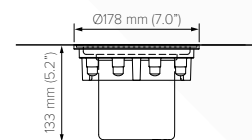
Direct Burial



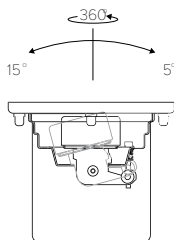
Pre-Installation

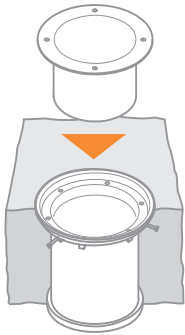


Mounting Collar



Luminaire Tilt



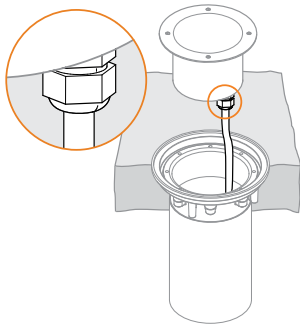


Pre-Installation Blockout

This type of installation requires the LS647-K Pre-Installation Kit (order separately) which acts as a concrete blockout and is intended for installation before the luminaire. This method ensures the luminaire itself is not damaged during concreting or other site works.

- | | |
|---------------------|--|
| Use for | <input type="checkbox"/> Drive over applications
<input type="checkbox"/> General use applications
<input type="checkbox"/> Concrete pour applications where luminaire is to be installed after site work has been completed |
| Benefits | <input type="checkbox"/> Easy removal for servicing |
| Restrictions | <input type="checkbox"/> Connection Type 82 only available for North American market |
| Accessories | <input type="checkbox"/> LS647-K Pre-Installation Blockout |

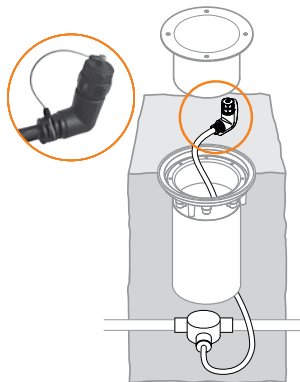
Connection type '84'



Flexible Cable

For connections to the branch circuit via junction box (by others) or other approved method. 3m (9.8') length. For other length options, consult factory.

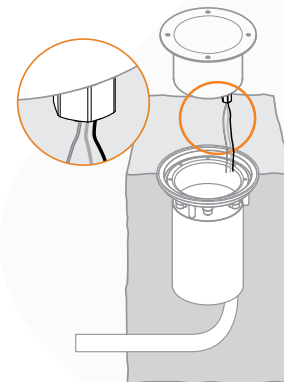
Connection type '87'



IP68 Connector & Junction Box

The luminaire is fitted with an IP68 connector, which attaches directly to the cable supplied with LS647-K without the use of any tools. The cable is 1 m (3') in length and is factory assembled with a j-box.

Connection type '82'
North American market only



1/2" NPT Adapter

The luminaire is factory-fitted with 6.5' (2.0m) hookup wire. Ensure terminations can be made within this length. For other length options, consult factory.

Specification

Use the table below to specify your Pre-Installation Blockout.

LS647-K

Connection Type	Code
Flexible cable, single entry, for hard wired installations	84
Flexible cable, single entry, for connectorised installations	87
Hookup wire and 1/2" NPT, single entry, for hard wired installations	82 ⁽¹⁾

(1) North American market only
For other cable entry options contact factory.

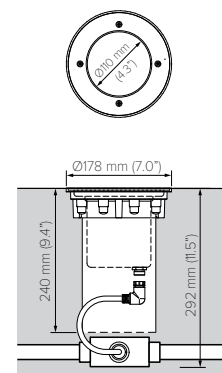
Flush Cover Options

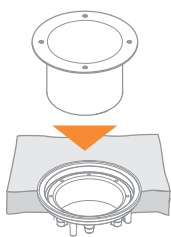
Flush covers for pre-installation use special seals and support bushes to ensure static loads up to 3,750 kg (8,267 lb) are properly supported. In order to achieve this drive-over rating, OptiClear™ or GripGlass™ must be used.



Pre-Installation Blockout Round Flush Cover

- SS316: Polished
- SS316: Brushed



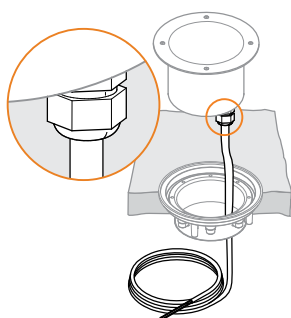


Mounting Collar for Deck and Grates

This type of installation requires the LS647-2 Mounting Collar (order separately) which supports the installation in decks, grates and hollow floors with sufficient ventilation.

- | | |
|---------------------|---|
| Use for | <input type="checkbox"/> Decks and grates |
| | <input type="checkbox"/> Hollow floors with sufficient ventilation |
| Benefits | <input type="checkbox"/> Easy installation in decks, grates and hollow floors |
| Restrictions | <input type="checkbox"/> Only available with Connection Type 84 |
| Accessories | <input type="checkbox"/> LS647-2 Mounting Collar |

Connection type '84'



Flexible Cable

For connections to the branch circuit via junction box (by others) or other approved method. 3m (9.8') length. For other length options, consult factory.

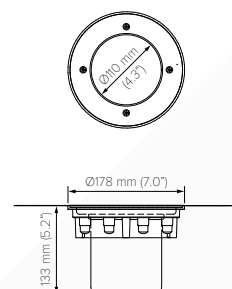
Flush Cover Options

Flush covers for mounting collar use special seals and support bushes.



Mounting Collar Round Flush Cover

- SS316: Polished
- SS316: Brushed



Specification

Use the table below to specify the Mounting Collar for Decks & Grates.

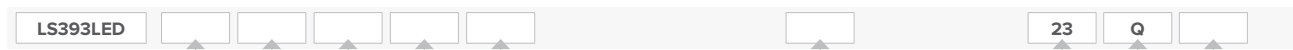
LS647-2

Connection Type

Flexible cable, single entry, for hard wired installations

For other cable entry options contact factory.

Pre Installation Specification



Power	Code
3 W	3
6 W	6

Static White & Colour	Code
4,000 K (80 CRI)	W4
3,000 K (80 CRI)	H6
Blue	B4

Dynamic Colour	Code
RGB	M4

Lens	Code
OptiClear™	A ⁽¹⁾
GripGlass™	G ⁽¹⁾

(1) Suitable for drive-over.

Cover	Code
Stainless steel, polished	M
Stainless steel, brushed	N

Housing Depth	Code
Pre-Install Blockout 240 mm (9.4")	23
Mounting Collar 133 mm (5.2")	23

Cable Entry	Code
Bottom	Q

Beam	Code
Narrow	14° NR ⁽¹⁾
Narrow Medium	20° NM
Medium	25° ME ⁽²⁾
Wide	40° WD
Linear Horizontal	40° x 10° LH ⁽³⁾
Linear Vertical	10° x 40° LV ⁽³⁾

- (1) Not available for RGB.
- (2) Recommended for best RGB colour mixing.
- (3) Refer to beam orientation diagram.

Input Voltage (International)	Code
100-240V AC, 50/60 Hz	01 ⁽¹⁾
24V DC	07 ⁽¹⁾⁽²⁾
PWM Dimmable Driver, 24V DC	27 ⁽²⁾

- (1) Not available for RGB.
- (2) Requires appropriate power supply.

Input Voltage (North America)	Code
120-277V AC, 50/60 Hz	09 ⁽¹⁾
12-15V, 60 Hz	13 ⁽¹⁾⁽²⁾
PWM Dimmable Driver, 24V DC	23 ⁽²⁾

- (1) Not available for RGB.
- (2) Requires appropriate power supply.

Connection Type (International)	Code
Flexible cable, single entry, for connectorised installations	87 ⁽¹⁾
Flexible cable, single entry, for hard wired installations	84 ⁽²⁾

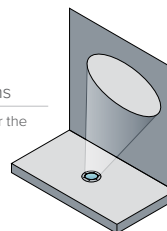
- (1) Not suitable for colour changing or dimmable applications. LS647-K required - order separately.
- (2) LS647-K or LS647-2 collar required - order separately. For all applications requiring LS647-2 collar, consult factory.

Connection Type (North America)	Code
Flexible cable, single entry, for connectorised installations	87 ⁽¹⁾
Flexible cable, single entry, for hard wired installations	84 ⁽²⁾
Hookup wire and 1/2" NPT, single entry, for hard wired installations	82 ⁽²⁾

- (1) Not suitable for colour changing or dimmable applications. LS647-K required - order separately.
- (2) LS647-K-84 required - order separately.

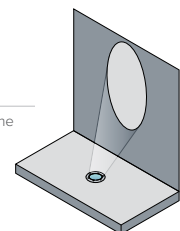
Beam Orientations

Beam Orientations for the 'LH' optical system.



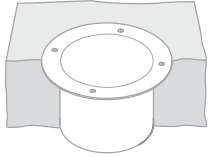
Beam Orientations

Beam Orientations for the 'LV' (Linear Vertical) optical system.



Direct Burial

Luminaire is put directly into soil or concrete.



Use for

- Landscaping areas
- Applications where depth is restricted
- Rated for use in concrete pour applications
- Economical option

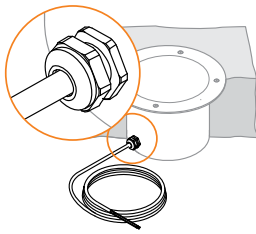
Benefits

- Allows for maximum heat dissipation

Restrictions

- Not as easy to remove for service as pre-install version
- Not suitable for drive-over (Requires Pre-Installation)
- Not available with Connection Type 87 (Requires Pre-Installation)
- Connection Type 82 only available for North American market

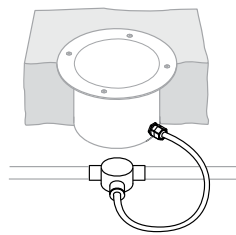
Connection type '84'



Flexible Cable

For connections to the branch circuit via junction box (by others) or other approved method. 3m (9.8') length. For other length options, consult factory.

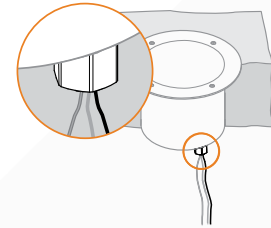
Connection type '81'



Armored Cable & Junction Box

The luminaire is factory-fitted with a 0.6m (2') armored cable. Ensure terminations can be made within this length. For other length options, consult factory.

Connection type '82'
North American market only

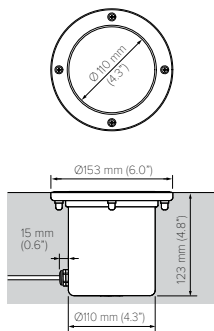


1/2" NPT Adapter

The luminaire is factory-fitted with 6.5' (2.0m) hookup wire. Ensure terminations can be made within this length. For other length options, consult factory.

Recessed Cover Options

Use recessed cover for installation in soil, grass, pavers and other uneven surfaces where no cover overhang is desired.

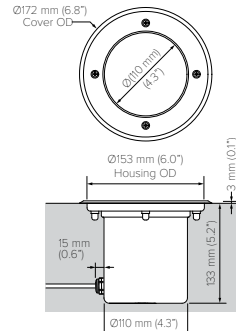


Recessed Cover

- SS316: Polished
- SS316: Brushed

Flush Cover Options

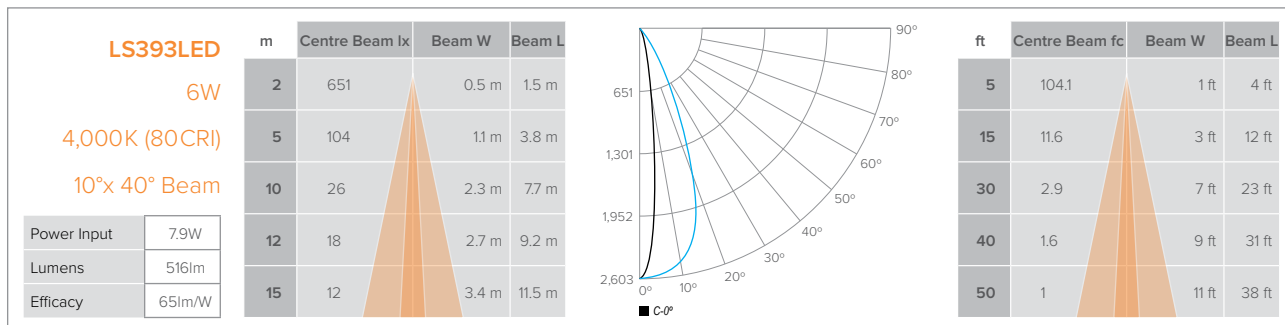
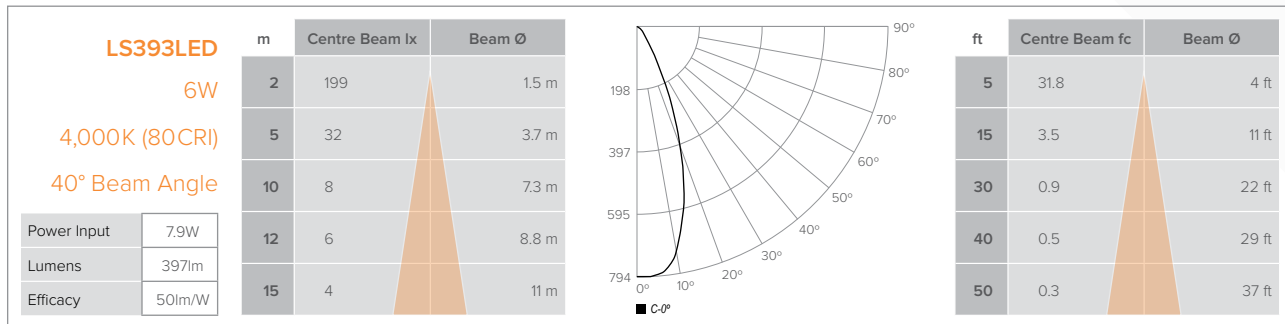
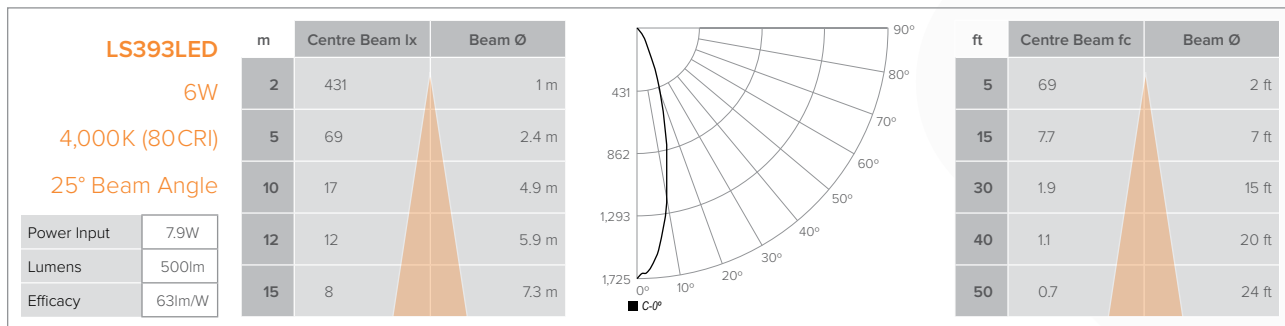
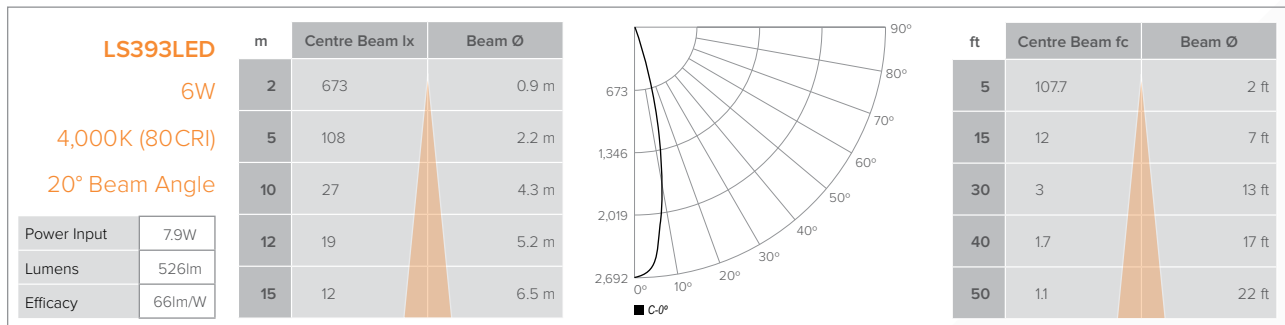
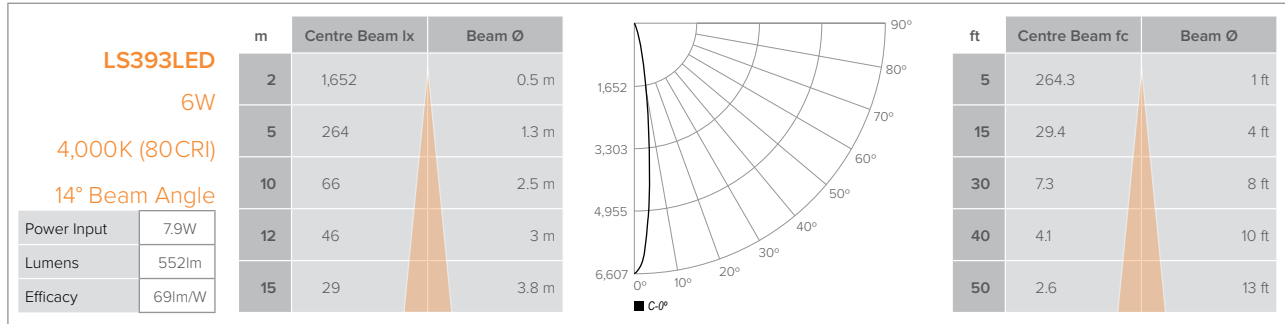
Use flush covers for installation in fine finished surfaces such as granite and marble. They can also be used in some suspended applications. The flush cover will conceal gaps between the luminaire and the surrounding surface.



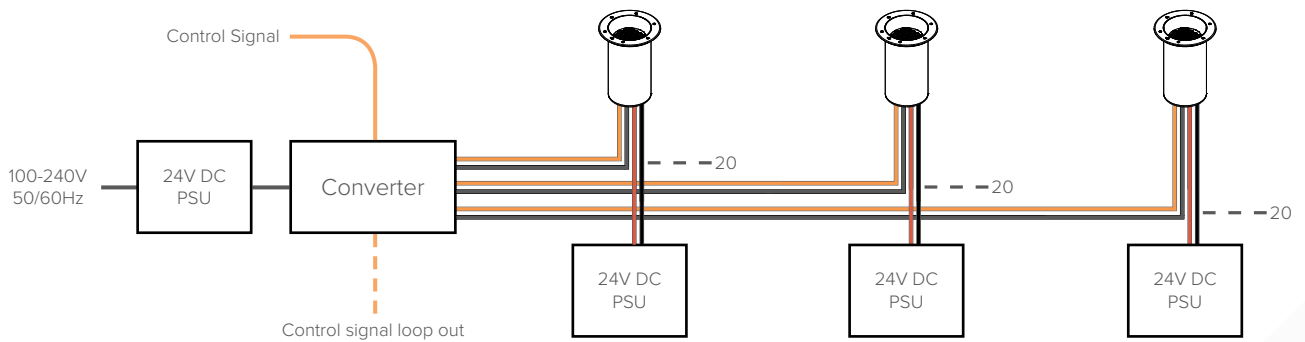
Round Flush Cover

- SS316: Polished
- SS316: Brushed

Photometric data is based on test results from a NIST traceable testing lab. IES data is available at www.lumascope.com
 Note: No depreciation factor is applied to the data shown.



Wiring Diagram - Static Colour (DMX / DALI)



Control Protocols

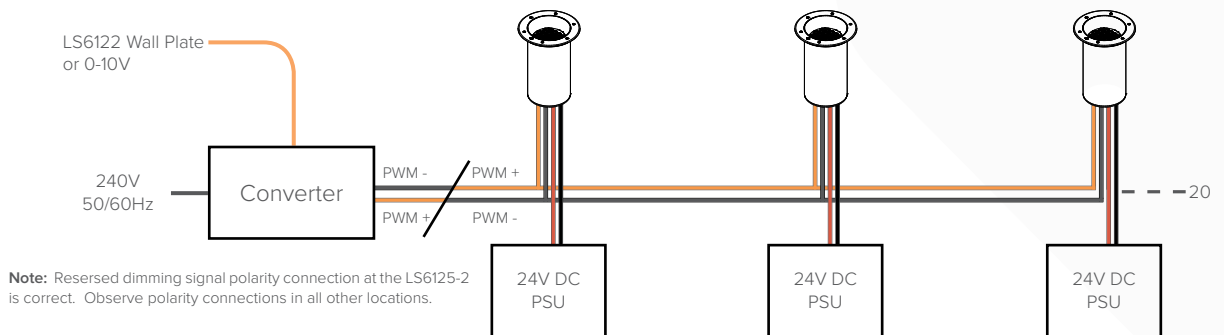
- DMX**
- DALI**

For DMX control signal, use LS67100 DMX to PWM converter
 For DALI control signal, use LSLED-RGBDIM-DALI converter

Up to 20 luminaires per run under the following conditions:

- Up to three (3) individually addressed dimmable channels
- Up to 20 luminaires per dimmable channel
- Luminaires driven by integral LED drivers
- Luminaires powered through individual power supplies or
- Luminaires powered through LS67100 PWM controller only (up to 100W total)
- Refer to 'Maximum Circuit Load' table for circuit limitations
- Always observe local electrical codes for branch circuit current limitations

Wiring Diagram - Static Colour (0-10V)



Control Protocols

- 0-10V**

For 0-10V control signal, use LS6125-2 0-10V to PWM converter

Up to 20 luminaires per run under the following conditions:

- Stand alone static colour dimming solution
- Up to 20 luminaires dimmed together
- Luminaires driven by integral LED drivers using LS6122 wall plate dimmer
- Luminaires powered through individual or shared power supplies
- Refer to 'Maximum Circuit Load' table for circuit limitations
- Always observe local electrical codes for branch circuit current limitations

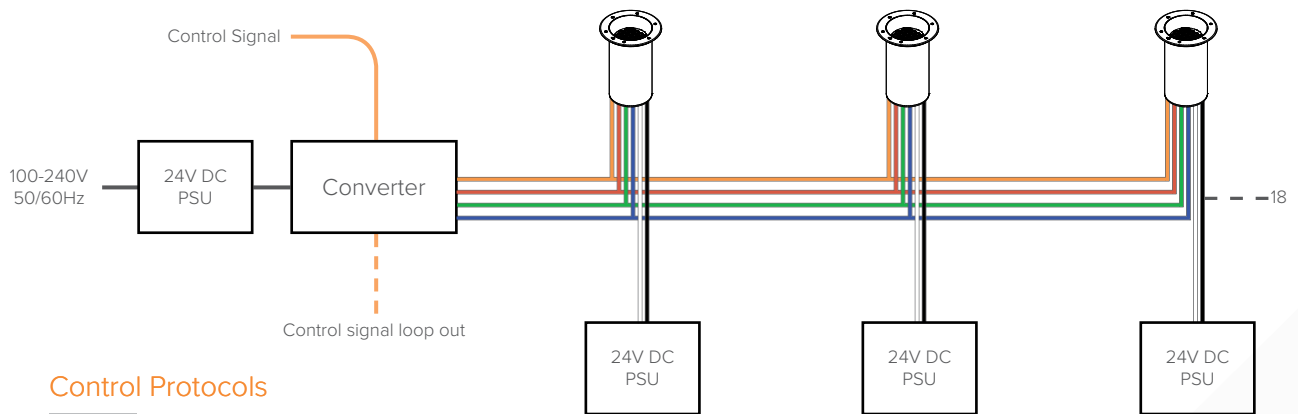
Maximum Circuit Load

Compatibility with each driver is indicated by the value shown in the table, representing the maximum number of luminaires that may be powered from each driver based on a maximum cable run of 100m (328ft) and a trunk cable size of 3.3mm². Please note, this does not take into consideration voltage drop beyond a distance of 100m or ampacity limits of the branch circuit. For assistance, please consult factory.

LSLED-24V Power Supplies			
Input Voltage	100-240V, 50/60Hz		
Output Voltage	24V DC		
Wattage	40W	100W	150W
LS393LED, 3W	5	18	23
LS393LED, 6W	3	10	14

NOTE: The above diagrams are intended to show electrical pathways between luminaires and ancillary device. These diagrams are not intended to show type or colour of cord / wire, luminaire input voltage rating, wire gauge or approved use of the cord / wire supplied with luminaires.

Wiring Diagram - Dynamic Colour (DMX / DALI)



Control Protocols

- DMX** For DMX control signal, use LS67100 DMX to PWM converter
- DALI** For DALI control signal, use LSLED-RGBDIM-DALI converter

Up to 18 luminaires per run under the following conditions:

- Up to 18 luminaires addressed and controlled together
- Luminaires driven by integral LED drivers
- Luminaires powered through individual power supplies or
- Single luminaire powered through LS67100 PWM controller
- Refer to 'Maximum Circuit Load' table for circuit limitations
- Always observe local electrical codes for branch circuit current limitations

Maximum Circuit Load

Compatibility with each driver is indicated by the value shown in the table, representing the maximum number of luminaires that may be powered from each driver based on a maximum cable run of 100m (328ft) and a trunk cable size of 3.3mm². Please note, this does not take into consideration voltage drop beyond a distance of 100m or ampacity limits of the branch circuit. For assistance, please consult factory.

LSLED-24V Power Supplies			
Input Voltage	100-240V, 50/60Hz		
Output Voltage	24V DC		
Wattage	40W	100W	150W
LS393LED, 3W	5	18	23
LS393LED, 6W	3	10	14

Power Supply Specifications

DC Power Supplies

LSLED-24V100W240

24V DC Ripple Free Power Supply

Input	170-250V AC, 50/60Hz
Output	100W, 24V DC, 4.2A
Ambient Temperature Rating	-10°C to 50°C
Compliance	IEC61347-2-13, CE
IP Rating	IP66
Short Circuit Protection	Yes
Open Circuit Protection	Yes
Protection Class	Class II CE

LSLED-24V150W240

24V DC Ripple Free Power Supply

Input	90-305V AC, 50/60Hz
Output	150W, 24V DC, 6.3A
Ambient Temperature Rating	-10°C to 50°C
Compliance	IEC61347-2-13, CE
IP Rating	IP66
Short Circuit Protection	Yes
Open Circuit Protection	Yes
Protection Class	Class II CE

LSLED-24V40W240

Electronic DC Power Supply - wall mounted

Input	100-240V AC, 50/60Hz
Rating	40W / 1.67A
Output	24V
Ambient Temperature Rating	-25°C to 60°C (-13°F to 140°F)
Output Circuits	1
Approvals	CE, EN60950-1, EN61347-2-13
IP Rating	IP65/67
Dimensions	H 171mm W 62mm L 37mm (H 6.7" / W 2.4" / L 1.5")
Weight	0.7kg (1.6lb)

Control Related Equipment

LS6125-2

0-10V to PWM translator - wall mounted

Input	100-240V AC, 50/60Hz
Rating	20W / 0.83A
Output	24V
Ambient Temperature Rating	-10°C to 50°C
Open Circuits	1
Control Protocol	0-10V
Approvals	CE
IP Rating	IP65/67
Dimensions	H 204mm W 166mm L 91mm (H 8.0" / W 6.5" / L 3.6")
Weight	0.5kg (1.1lb)

LS67100

DMX to PWM translator

Input	24V DC
Rating	4 x 60W max
Output	4 x 2.5A max
Open Circuits	4
Approvals	CE, UL
IP Rating	IP65
Dimensions	H 286mm W 117mm L 82mm (H 11.25" / W 4.6" / L 3.2")
Weight	0.2kg (0.5lb)

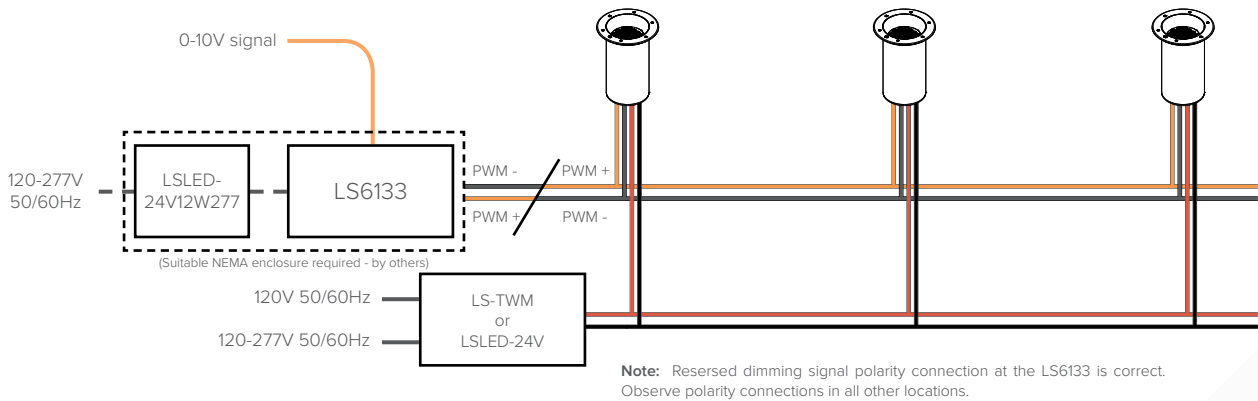
Control Related Equipment cont...

LSLED-RGBDIMDALI

DALI converter

Input	24V DC
Rating	30W max
Output	24V DC PWM (Inverted)
Ambient Temperature Rating	50°C
Output Channels	3
Control Protocol	DMX512A, DALI, DSI, RDM
Approvals	CE Ctick EN6137-1 , EN61347-2-13, IEC 62384
IP Rating	IP67
Weight	0.75kg

Wiring Diagram - Static Colour (0-10V)

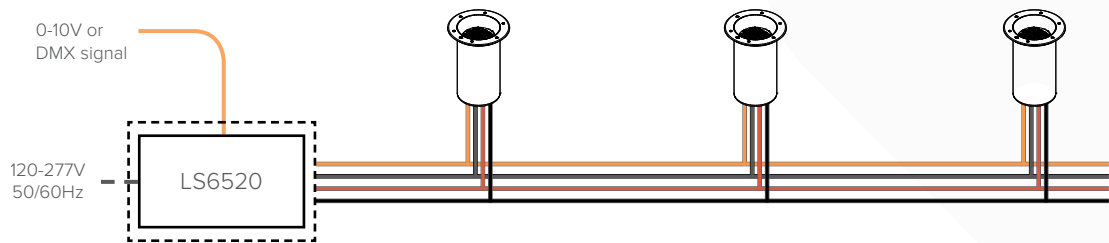


Control Protocols

0-10V For 0-10V control signal, use LS6133 0-10V to PWM converter

Wiring Diagram - Static Colour

Please note: The use of a GFCI may be required. Consult local wiring rules.



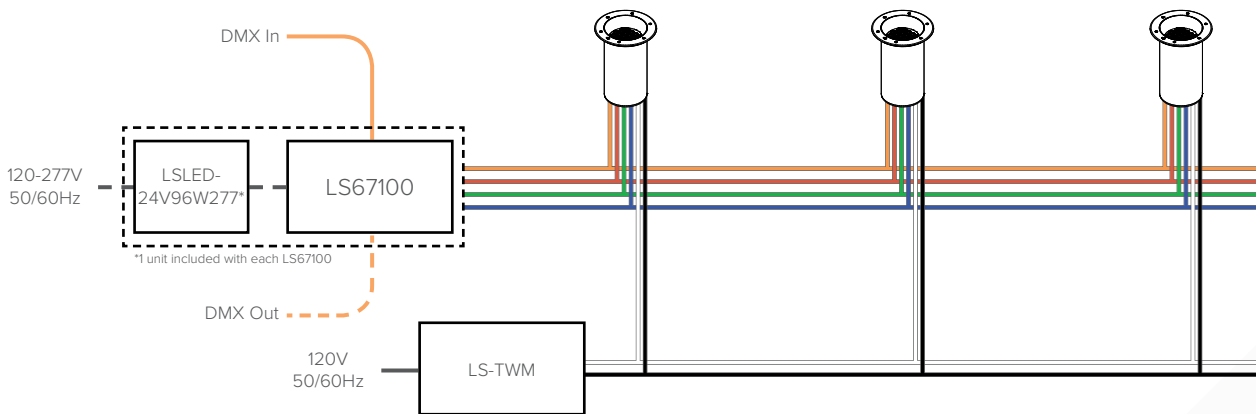
Maximum Circuit Load

Compatibility with each transformer or power supply is indicated by the value shown in the table, representing the maximum number of luminaires that may be powered from each transformer or power supply. Please note, this does not take into consideration voltage drop or ampacity limits of the branch circuit. In addition, dimming circuit total wire length must be kept under 328' (100m). For assistance, please consult factory.

	Transformer / Power Supplies								
	LS-TWM-1-300	LSLED-24V75W277	LSLED-24V96WD277	LSLED-24V 120 / 240 / 320 P09			LS6520		
Input Voltage	120V, 60Hz	120-277V 50/60Hz	120-277V 50/60Hz	120-277V 50/60Hz			100-277V, 50/60Hz		
Output Voltage	12/13/14V, 60Hz	24V DC	24V DC	24V DC			24V DC		
Wattage	1 x 300W circuit	75W	96W	120W	240W	320W	120W	240W	320W
LS393LED, 3W	42	13	21	25	52	70	25	52	70
LS393LED, 6W	23	6	12	14	29	39	14	29	39

NOTE: The above diagrams are intended to show electrical pathways between luminaires and ancillary device. These diagrams are not intended to show type or colour of cord / wire, luminaire input voltage rating, wire gauge or approved use of the cord / wire supplied with luminaires.

Wiring Diagram - Dynamic Colour (DMX) for 12-15V AC Circuit

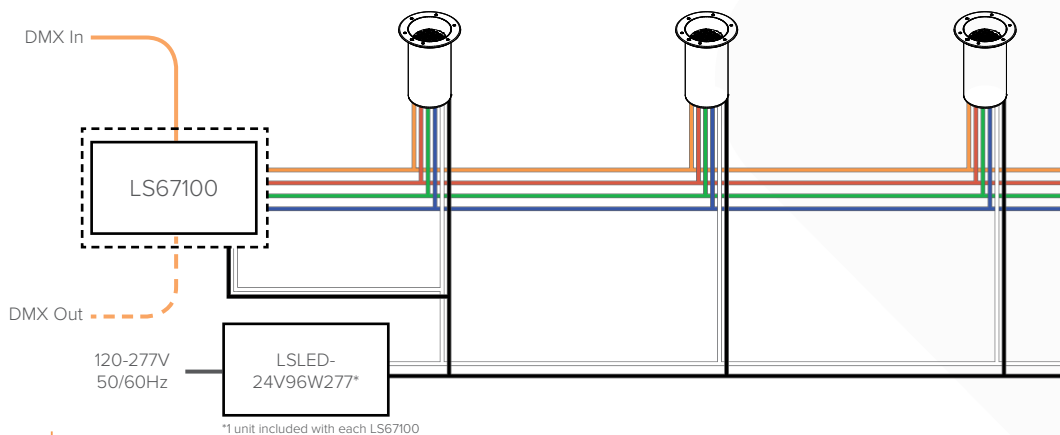


Control Protocols



For DMX control signal, use LS67100
DMX to PWM converter

Wiring Diagram - Dynamic Colour (DMX) for 24V DC Circuit



Control Protocols



For DMX control signal, use LS67100
DMX to PWM converter

Maximum Circuit Load

Compatibility with each transformer or power supply is indicated by the value shown in the table, representing the maximum number of luminaires that may be powered from each transformer or power supply. Please note, this does not take into consideration voltage drop or ampacity limits of the branch circuit. In addition, dimming circuit total wire length must be kept under 328' (100m). For assistance, please consult factory.

	Transformer / Power Supplies								
	LS-TWM-1-300	LSLED-24V75W277	LSLED-24V96WD277	LSLED-24V 120 / 240 / 320 P09			LS6520		
Input Voltage	120V, 60Hz	120-277V 50/60Hz	120-277V 50/60Hz	120-277V 50/60Hz			100-277V, 50/60Hz		
Output Voltage	12/13/14V, 60Hz	24V DC	24V DC	24V DC			24V DC		
Wattage	1 x 300W circuit	75W	96W	120W	240W	320W	120W	240W	320W
LS393LED, 3W	42	13	21	25	52	70	25	52	70
LS393LED, 6W	23	6	12	14	29	39	14	29	39

NOTE: The above diagrams are intended to show electrical pathways between luminaires and ancillary device. These diagrams are not intended to show type or colour of cord / wire, luminaire input voltage rating, wire gauge or approved use of the cord / wire supplied with luminaires.

Transformer / Power Supply Specifications

Class 2 LED Power Supplies

LSLED-24V96WD277

Electronic DC Power Supply - wall mounted

Input	120-277V, 50/60Hz
Output	24V DC, 4A max
Efficiency	86% typ.
Ambient Temperature Rating	-22°F to 140°F (-30°C to 60°C)
Connections	6 x 1/2" entries (3 in / 3 out)
UL Classification	UL 8750
Location	Dry / Damp location only
IP Rating	IP66 (NEMA 3)
Dimensions	H 1.3" W 3.0" L 11.46" (H 33mm / W 76mm / L 291mm)

LSLED-24V75W277

Electronic DC Power Supply - wall mounted

Input	120-277V, 50/60Hz
Output	24V DC, 3.13A, (0.05A min)
Efficiency	
Ambient Temperature Rating	-40°F to 140°F (-40°C to 60°C)
Connections	2 x 1/2" entries (in / out)
UL Classification	Class 2, UL1012 / 1585, UL1310
Location	Dry / Damp / Wet locations
IP Rating	IP66 (NEMA 3)
Dimensions	H 1.67" W 2.95" L 11.22" (H 42mm / W 75mm / L 285mm)

Low Voltage DC Power Supplies

LS6520

Power Unit for Wet Locations

Input	100-277V, 50/60Hz
Output	24 or 30V DC
Output Circuits	1
Approvals	UL2108, CSA C22.2 No. 250.0
IP Rating	IP65, suitable for wet locations
Dimensions	H 5.3" W 13.4" D 9.3" (H 134mm / W 341mm / D 236mm)
Weight	13.2lb (6.0kg)

LSLED-24V120WP09

Electronic DC Power Supply - wall mounted

Input	120-277V, 50/60Hz
Rating	120W
Output	24V or 30V
Ambient Temperature Rating	-40°F to 122°F (-40°C to 50°C)
Connections	2 x 3/4" entries (power in / out) 2 x 3/4" entries (low voltage out)
UL Classification	ANSI / UL2018, CSA C22.2 No. 250.0 - Listed Power Unit
Location	Dry / Damp / Wet locations
IP / NEMA Rating	1, 3R, 4X, 6P, 12
Dimensions	H 4.47" W 11.35" D 9.41" (H 120mm / W 288mm / D 293mm)
Weight	7.5lb (3.4kg)

LSLED-24V240WP09

Electronic DC Power Supply - wall mounted

Input	120-277V, 50/60Hz
Rating	240W
Output	24V or 30V
Ambient Temperature Rating	-40°F to 122°F (-40°C to 50°C)
Connections	2 x 3/4" entries (power in / out) 2 x 3/4" entries (low voltage out)
UL Classification	ANSI / UL2108 Wet Location Listed
Location	Dry / Damp / Wet locations
IP / NEMA Rating	1, 3R, 4X, 6P, 12
Dimensions	H 5.22" W 13.41" D 11.43" (H 133mm / W 341mm / D 290mm)
Weight	10.9lb (5.0kg)

LSLED-24V320WP09

Electronic DC Power Supply - wall mounted

Input	120-277V, 50/60Hz
Rating	320W
Output	24V or 30V
Ambient Temperature Rating	-40°F to 104°F (-40°C to 40°C)
Connections	2 x 3/4" entries (power in / out) 2 x 3/4" entries (low voltage out)
UL Classification	ANSI / UL2108 Wet Location Listed
Location	Dry / Damp / Wet locations
IP / NEMA Rating	1, 3R, 4X, 6P, 12
Dimensions	H 5.22" W 13.41" D 11.43" (H 133mm / W 341mm / D 290mm)
Weight	12.1lb (5.5kg)

Transformers for Landscape Lighting Applications

LS-TWM-1-300

Magnetic Transformer - wall mounted

Input	120V
Rating	300W
Output	12 / 13 / 14 / 15V
Output Circuits	1
Protection	Electrostatic shield, magnetic breaker
Approvals	UL, CUL
NEMA Rating	3R
Construction	Stainless steel
Dimensions	H 17.6" W 6.8" D 6.19" (H 447mm / W 173mm / D 157mm)
Weight	27lb (12.3kg)

Control Related Equipment

LS6133

0-10V to PWM translator - NEMA enclosure required (by others)

Input	24V DC
Rating	96W max
Output	4A max
Output Circuits	1
Approvals	UL, CUL Recognised, Class 2
IP Rating	IP66
Dimensions	H 5.2" W 1.3" D 1" (H 132mm / W 33mm / D 25mm)
Weight	0.2lb (0.1kg)

LSLED-24V12W277

Electronic DC Power Supply - NEMA enclosure required (by others)

Input	120-277V, 50/60Hz
Rating	12W / 0.5A
Output	24V DC
Output Circuits	1
Approvals	UL, CUL Recognized, Class 2
IP Rating	IP66
Location	Wet location
Dimensions	H 3.35" W 1.42" D 0.91" (H 85mm / W 36mm / D 23mm)
Weight	0.282lb (0.1kg)