



The eldoLED linear built-in L-range is designed for indoor commercial lighting applications. The linear metal housing is designed to meet the UL, ENEC and RCM¹ standards in North America, Europe, Australia and New Zealand. The range includes 30W, 50W, 75W and 94W products.

This 0-10V and DALI-2 dimmable family includes ECOdrive versions (dimming to 1%), SOLOdrive versions (dimming to 0.1%, as well as a Dim to Warm version), and DUALdrive versions (Tunable White with 2 versions of DALI-2 control, DT6 and DT8).

All products also have a LEDcode2 interface for programming and connecting control devices (e.g. a Casambi radio). The range also includes an AUX for providing additional power to the peripheral devices (e.g. nLight radios).

¹ RCM certification only for 50W, 75W and 94W.

Applications

- Commercial (office, education, healthcare)

Key Features & Benefits

- Natural and flicker-safe dimming: Dim with smooth brightness changes, excellent flicker performance, configurable minimum dim level and adaptable dim curves. Hybrid HydraDrive technology is proven to work in TV studios and security camera environments.
- Programmable: Fine tune your LED driver for any application across a wide operating window using FluxTool with LightShape. Programmable features vary per model and include:
 - Dimming level
 - Output current (1mA resolution)
 - Dimming curve
 - Dim to Warm using LightShape
 - Tunable White
- Control: supported control protocols include 0-10V, DALI-2 and LEDcode2 devices.
- Performance: constant current SELV output to LEDs.
- European mains input (120-277VAC, 120-250VDC), low inrush current and low total harmonic distortion. Can be used up to 50°C ambient temperature.
- Dimensions:
 - Width: 30mm (all drivers)
 - Height: 26mm (all drivers)
 - Length: 320mm (30W and 50W); 424mm (75W and 94W)

Specifications and Certifications



Linear Built-in L-Family, European Selection - Datasheet

Products

Max Power	Number of LED Outputs	Programmable Current Range	Output Voltage Range	Control Protocol	eldoLED Casambi Radio Compatible (LEDcode 2.1)	Dimming per Channel	AUX	Order Number
ECOdrive: Dim to 1% with 1 DALI Short Address (for DALI Drivers)								
30W	1	150-1400mA	2-55V	DALI-2	Yes	1 DALI address	0.5W (25V)	EC365L
75W	1	700-2100mA	2-55V	DALI-2	Yes	1 DALI address	2.4W (24V)	EC75L-M1MOD
75W	1	700-2100mA	2-55V	0-10V	—	—	2.4W (24V)	EC75L-M1M0A
SOLOdrive: Dim to 0.1% with 1 DALI Short Address (for DALI Drivers)								
30W	1	150-1400mA	2-55V	DALI-2	Yes	1 DALI address	0.5W (25V)	SL365L
50W	2	150-1400mA	2-55V	DALI-2	Yes	1 DALI address	—	SL50L-M2Z0D
50W	2	150-1400mA	2-55V	0-10V	—	—	—	SL50L-M2Z0A
75W	1	700-2100mA	2-55V	DALI-2	Yes	1 DALI address	2.4W (24V)	SL75L-M1M0D
75W	1	700-2100mA	2-55V	0-10V	—	—	2.4W (24V)	SL75L-M1M0A
75W	2	150-1400mA	2-55V	DALI-2	Yes	1 DALI address	0.5W (25V)	SL75L-M2A0D
75W	2	150-1400mA	2-55V	0-10V	—	—	0.5W (25V)	SL75L-M2A0A
94W	2	250-2100mA	33-55V	DALI-2	Yes	1 DALI address	0.5W (25V)	SL94L-M2A0D
DUALdrive: 2 Channels Dimming Down to 0.1% with 1 (DT8) or 2 (DT6) DALI Short Addresses. DT8 is specifically for Tunable White.								
50W	2	150-1400mA	2-55V	DALI-2	Yes	2 DALI addresses (DT6)	—	DL50L-M2Z0D
50W	2	150-1400mA	2-55V	DALI-2	—	1 DALI address (DT8)	—	DL50L-M2Z0C
75W	2	150-1400mA	2-55V	DALI-2	Yes	2 DALI addresses (DT6)	0.5W (25V)	DL75L-M2A0D
75W	2	150-1400mA	2-55V	DALI-2	—	1 DALI address (DT8)	0.5W (25V)	DL75L-M2A0C
94W	2	250-2100mA	33-55V	DALI-2	Yes	2 DALI addresses (DT6)	0.5W (25V)	DL94L-M2A0D
94W	2	250-2100mA	33-55V	DALI-2	—	1 DALI address (DT8)	0.5W (25V)	DL94L-M2A0C

Electrical Specifications

Max Output Power	Nominal Input Voltage (VAC/VDC)	Maximum Input Current	Typ. Power Factor at Full Load	Typ. THD at Full Load	Typ. Max Standby Power	Inrush, Max on Circuit Breaker	Surge Protection	Typ. Efficiency at Full Load	Typ. Max Tc
30W	120-277VAC 120-250VDC	0.38A @ 120VAC 0.20A @ 230VAC 0.16A @ 277VAC	>0.95	<15%	<0.5W (Disabled AUX)	53 on B16 53 on C16	2kV (differential) 2kV (common)	85%	75°C
50W	120-277VAC 120-250VDC	0.58A @ 120VAC 0.30A @ 230VAC 0.25A @ 277VAC	>0.95	<20%	<0.5W (Disabled AUX)	22 on B16 22 on C16	2kV (differential) 2kV (common)	85%	80°C
75W	120-277VAC 120-250VDC	0.78A @ 120VAC 0.41A @ 230VAC 0.34A @ 277VAC	>0.95	<20%	<0.5W (Disabled AUX)	20 on B16 20 on C16	2kV (differential) 2kV (common)	87%	85°C
94W	120-277VAC 120-250VDC	0.92A @ 120VAC 0.48A @ 230VAC 0.40A @ 277VAC	>0.95	<20%	<0.5W (Disabled AUX)	17 on B16 17 on C16	2kV (differential) 2kV (common)	87%	76°C

Note: Table contains indicated typical values at full load and refer to an ambient temperature of 25°C. Start-up time is <500ms (see Design Guide).

Ordering Information

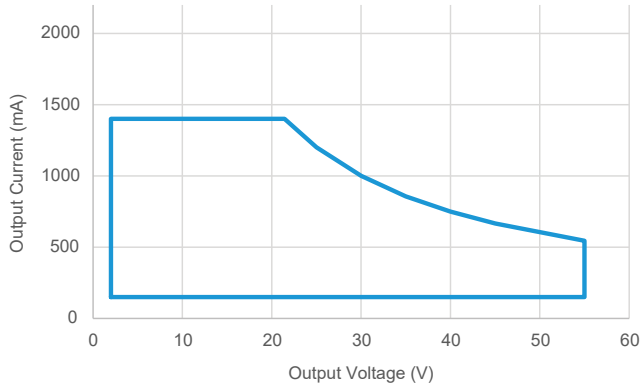
EC	50	L	M	1	Z0	D
Family	Output Wattage	Housing	Input Voltage	Output Channels	AUX Voltage	Control
EC = ECOdrive	20W	L - Linear	M - 120-277VAC	1 = 1 Output	Z0 - No AUX Output	D = DALI DT6
SL = SOLOdrive	50W			2 = 2 Outputs	A0 = Fixed AUX (0.5W)	C = DALI DT8
DL - DUALdrive	75W 94W				M0 = Mid Power AUX (2.4W)	A = 0-10V

For specific configuration settings (LightShape, dimming curves, current settings), please contact your Sales representative.

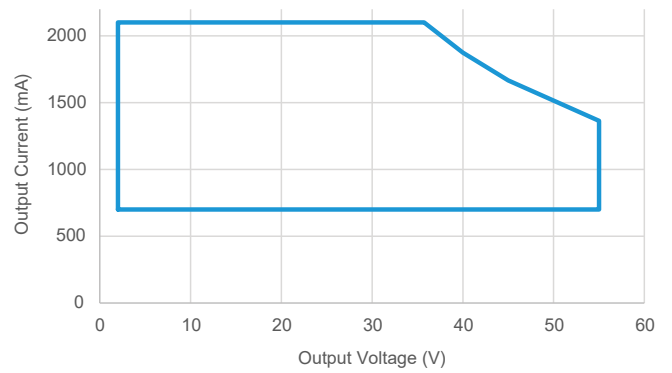
Operating Window

1 Channel Driver (1 LED Output)

30W (EC/SL 365L)

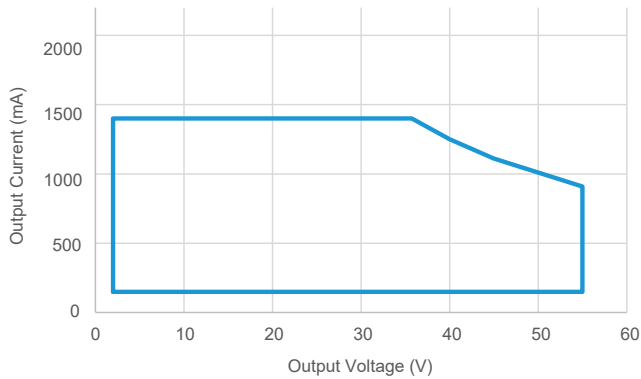


75W (EC/SL 75L - M1M0D / M1M0A)

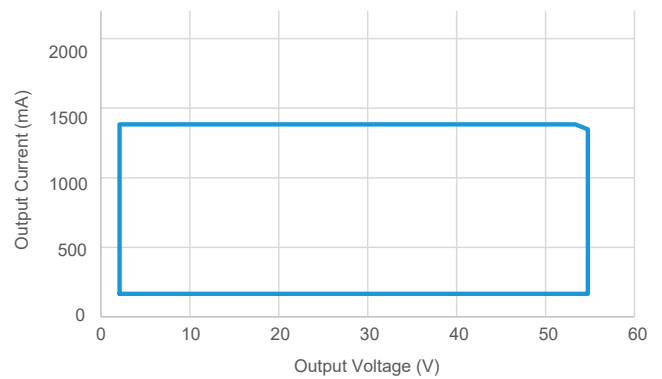


2 Channel Driver (2 LED Outputs)

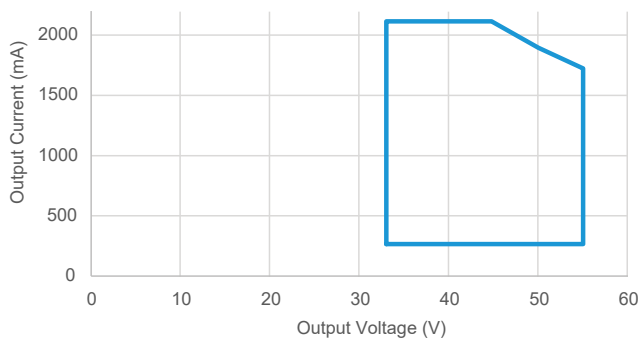
50W (SL/DL 50L - M2Z0D / M2Z0A / M2Z0C)



75W (SL/DL 75L - M2A0D / M2A0A / M2A0C)



94W (SL/DL 94L - M2A0D / M2A0C)



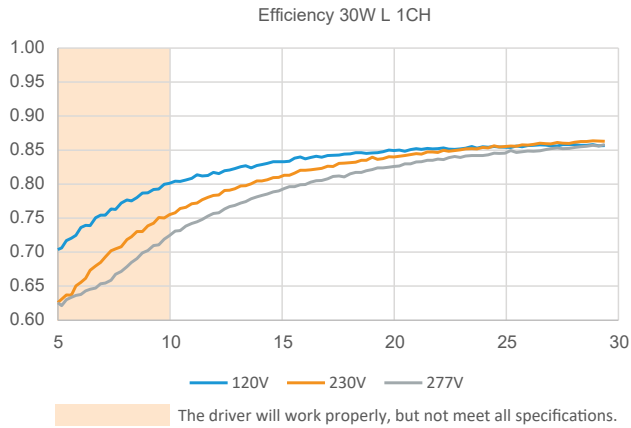
Note: In the case of 2 LED output drivers, the output current can be set for each channel separately.

The operating window shown is based on the sum of the 2 output currents, which should not exceed 1400mA (for 50W and 75W drivers) or 2100mA (for 94W drivers).

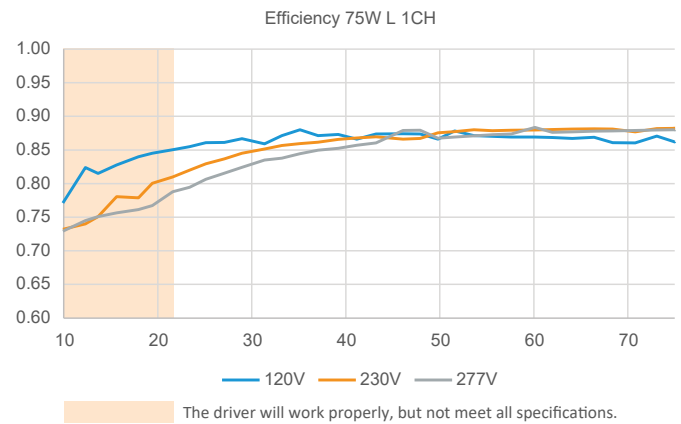
Typical Efficiency vs. Load

1 Channel Driver (1 LED Output)

30W (EC/SL 365L)



75W (EC/SL 75L - M1M0D / M1M0A)

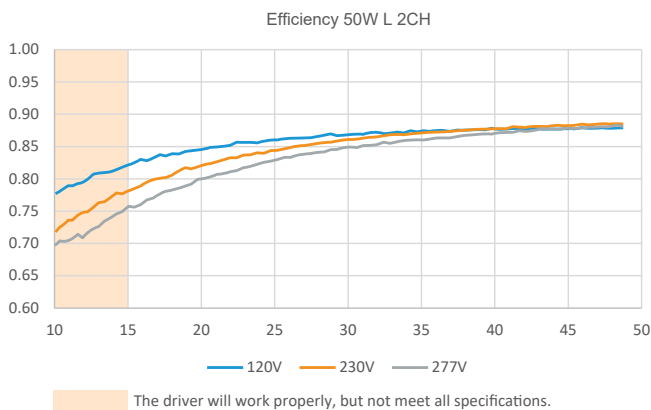


Note: The measurements at lower power were performed by dimming the driver.

Tested with a load of 12 LEDs in series, programmed for 850mA (30W driver) or 2000mA (75W driver) at 25°C ambient temperature.

2 Channel Driver (2 LED Outputs)

50W (SL/DL 50L - M2Z0D / M2Z0A / M2Z0C)



75W (SL/DL 75L - M2A0D / M2A0A / M2A0C)



94W (SL/DLL 94L - M2A0D / M2A0C)



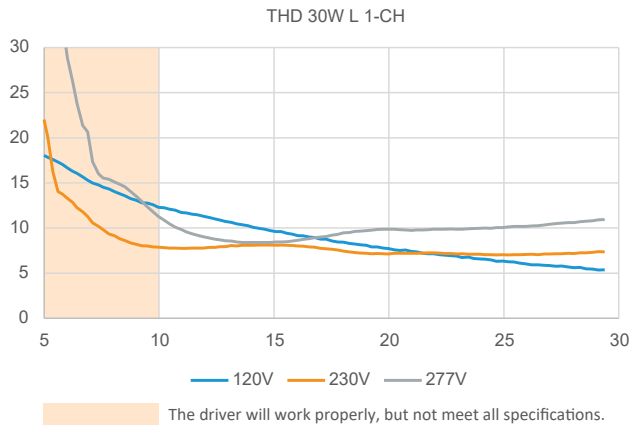
Note: The measurements at lower power were performed by dimming the driver.

Tested with a load of 15 LEDs in series, programmed for 2x 550mA (50W driver) or 2x850mA (75W driver) or 2x1050mA (94W driver) at 25°C ambient temperature.

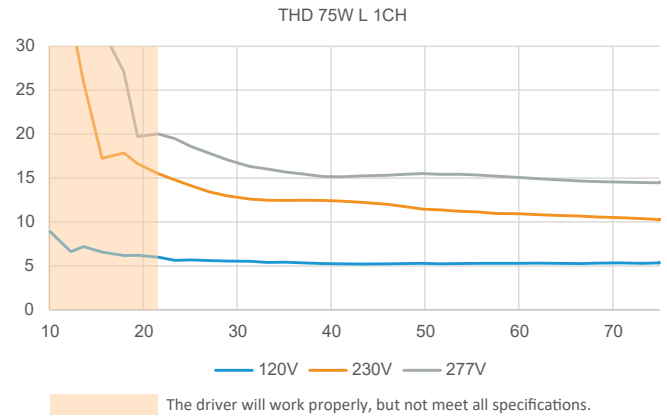
Typical THD vs. Load

1 Channel Driver (1 LED Output)

30W (EC/SL 365L)



75W EC/SL 75L - M1M0D / M1M0A)

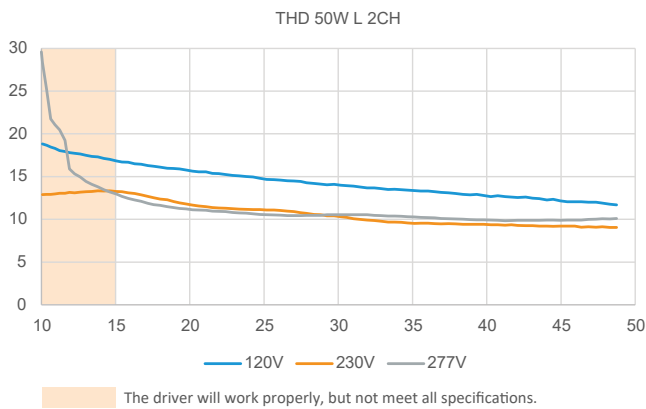


Note: The measurements at lower power were performed by dimming the driver.

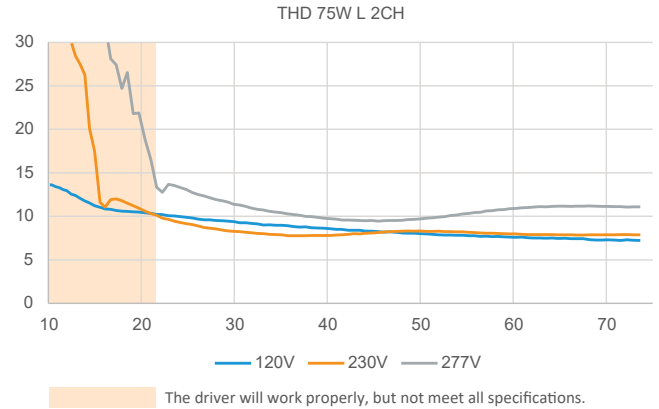
Tested with a load of 12 LEDs in series, programmed for 850mA (30W driver) or 2000mA (75W driver) at 25°C ambient temperature.

2 Channel Driver (2 LED Outputs)

50W (SL/DL 50L - M2Z0D / M2Z0A / M2Z0C)



75W (SL/DL 75L - M2A0D / M2A0A / M2A0C)



94W (SL/DL 94L - M2A0D / M2A0C)



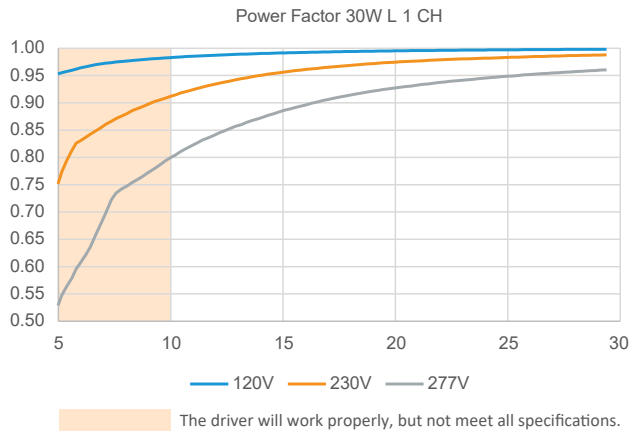
Note: The measurements at lower power were performed by dimming the driver.

Tested with a load of 15 LEDs in series, programmed for 2x 550mA (50W driver) or 2x850mA (75W driver) or 2x1050mA (94W driver) at 25°C ambient temperature.

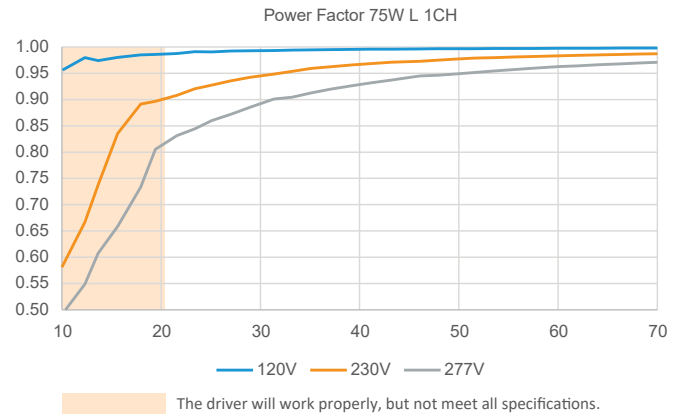
Power Factor

1 Channel Driver (1 LED Output)

30W (EC/SL 365L)



75W (EC/SL 75L - M1M0D / M1M0A)

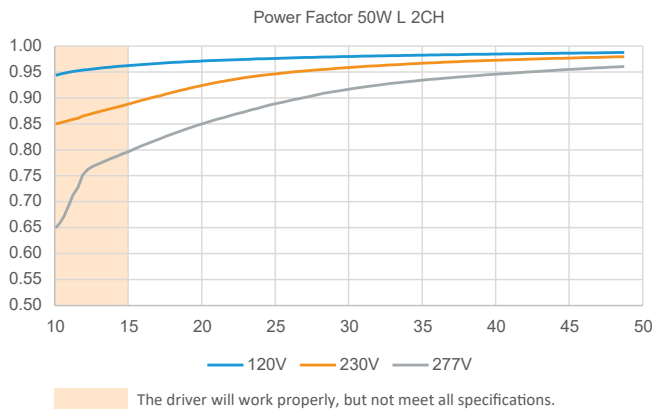


Note: The measurements at lower power were performed by dimming the driver.

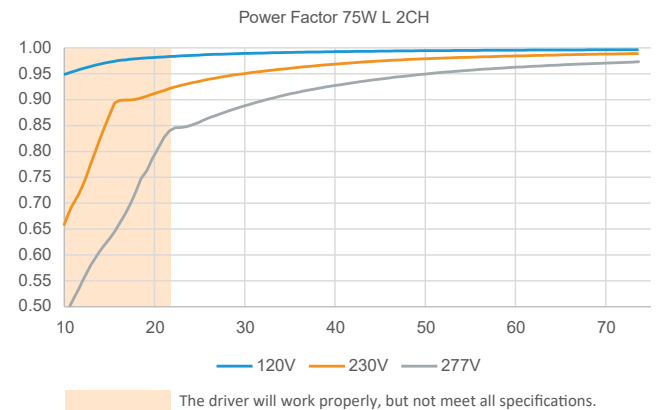
Tested with a load of 12 LEDs in series, programmed for 850mA (30W driver) or 2000mA (75W driver) at 25°C ambient temperature.

2 Channel Driver (2 LED Outputs)

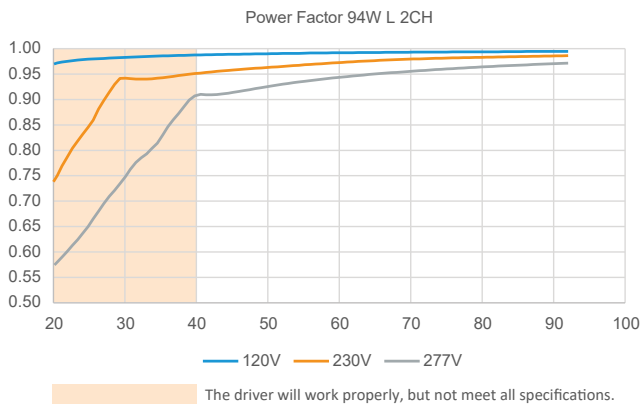
50W (SL/DL 50L - M2Z0D / M2Z0A / M2Z0C)



75W (SL/DL 75L - M2A0D / M2A0A / M2A0C)



94W (SL/DL 94L - M2A0D / M2A0C)



Note: The measurements at lower power were performed by dimming the driver.

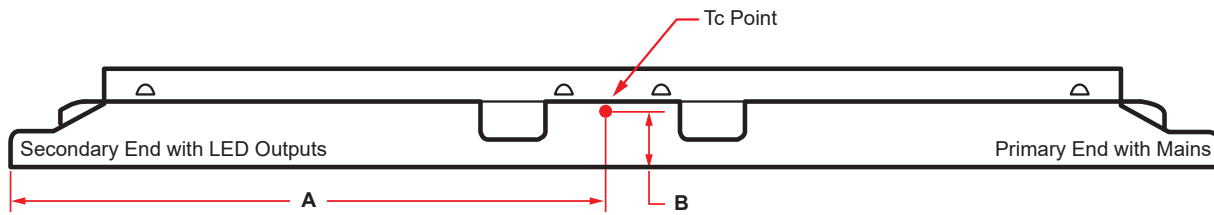
Tested with a load of 15 LEDs in series, programmed for 2x 550mA (50W driver) or 2x850mA (75W driver) or 2x1050mA (94W driver) at 25°C ambient temperature.

Minimum and Maximum Ratings

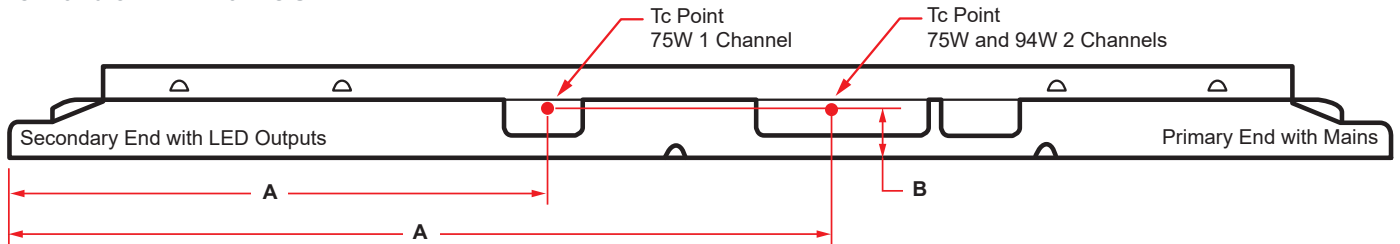
Parameter	Values
Input Voltage Range	108-305VAC and 120-250VDC
Ambient Operating Temperature	-20°C to 50°C for 30/50/75W. For 94W: -20°C to 40°C
Lifetime	50,000 hours at maximum case temperature (Tc) Lifetime doubles per 10°C below Tc
Acoustic Noise	<24dBA (class A)

Tc Point Location

30W and 50W 1 Channel



75W 1 Channel 75W and 94W 2 Channels



Tc Point Location

	30W and 50W 1 Channel	75W 1 Channel	75W and 94W 2 Channels
A (=distance left side of driver to Tc point)	155mm (6.1in)	170mm (6.7in)	255mm (10in)
B (=distance from the bottom of the driver to Tc point)	20mm (0.8in)	15mm (0.6in)	15mm (0.6in)

Linear Built-in L-Family, European Selection - Datasheet

Programming Tools

Programming Software	FluxTool 4.6.10 or higher
Programming Interface: TOOLbox pro TOOLbox adapter	TLU20504 (rev. 4.2 – order code *26037Y) TLA20502 (rev. 3 – order code *277HWF)
Programming Cable	TLC03051
Handheld Programming Tool	PJ0035HH1
Programming Jig	PJ0500L1 (50W driver); PJ0750L1 (75W and 94W driver)

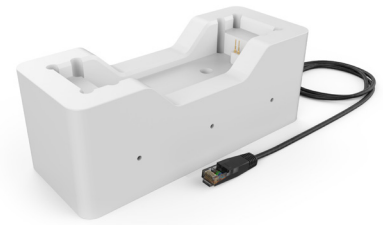
Programming Interface



Handheld Tool



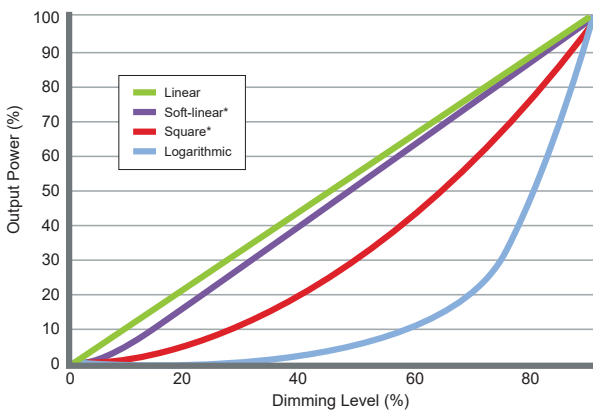
Typical Jig



Programming Parameters

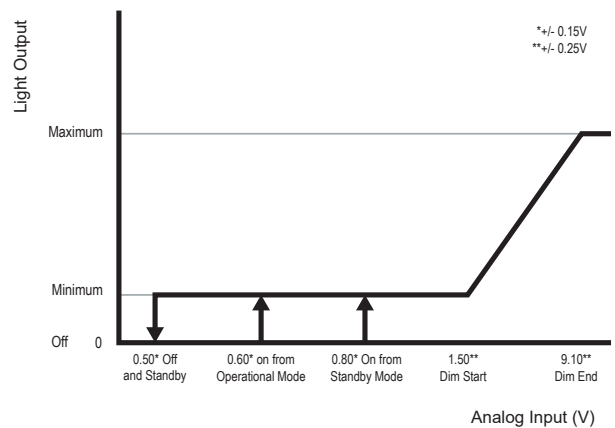
LED Output Current	1 mA resolution
Dimming Curve	LOG - Logarithmic (default) LIN - Linear SLN - Soft-linear (0-10V model only) SQU - Square (0-10V model only)
Minimum Dim Level	Settable in 0.1% increments down to 1% (ECOdrive) or 0.1% (DUALdrive, SOLOdrive)
LightShape	2 LED output products in SOLOdrive and DUALdrive can be configured using LightShape (with FluxTool)

Dimming Curve



*Soft-linear and Square dimming curve are only available for 0-10V driver versions.

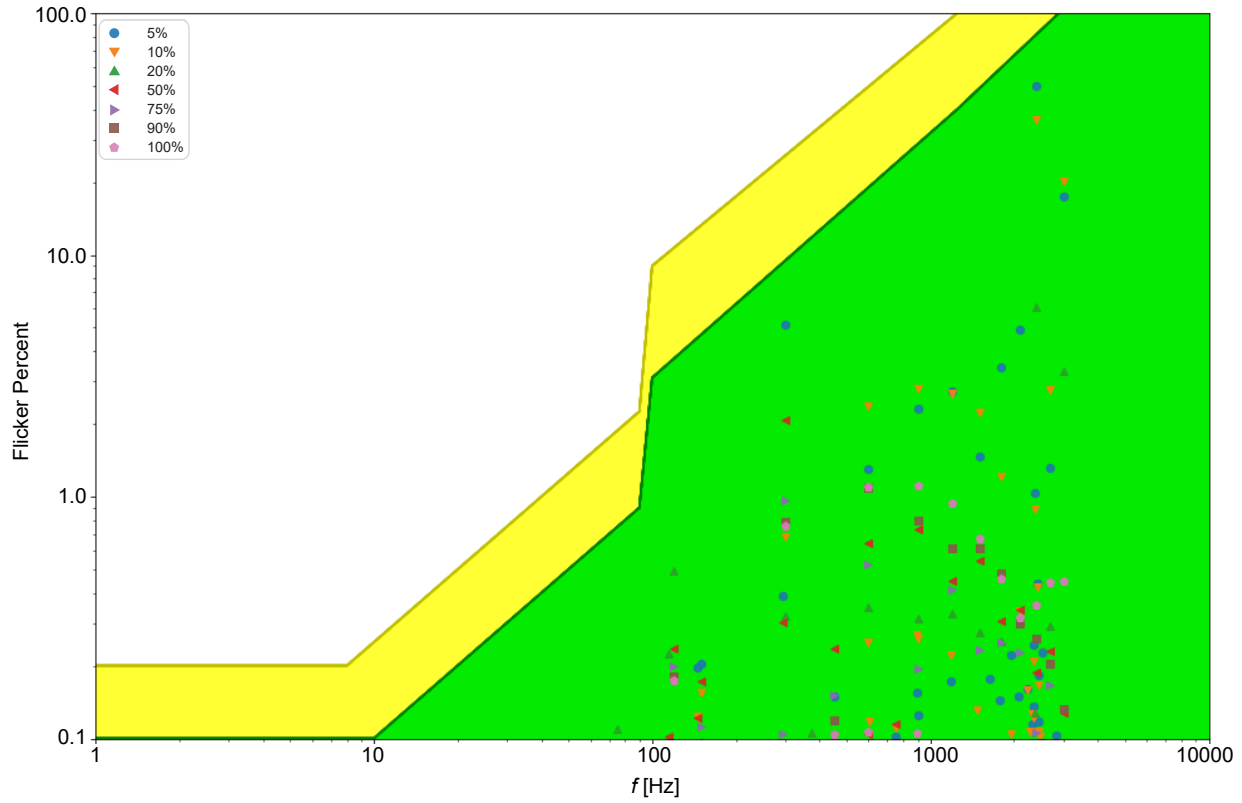
0-10V Dimming Response



*+/- 0.15V
**+/- 0.25V

Flicker Performance

Flicker Risk 15 LEDs, 750mA



Typical flicker percent as a function of frequency, measured across the dimming range. The results are overlaid with the low-risk (yellow) and no observable effect (green) levels as defined in IEEE P1789. 0.1% data are not applicable for ECOdrive range.

Wiring and Connector Layout

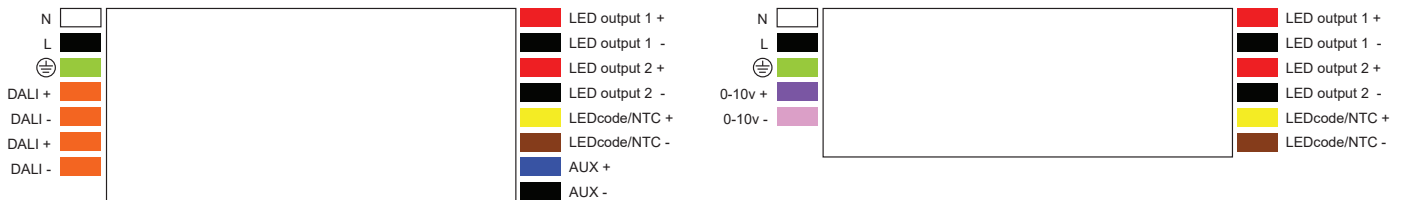
	Input (Mains and Control Input)	Output (LED Output)
Connector Type	Push-in Terminal Wago 250 or Equivalent	Push-in Terminal Wago 250 or Equivalent
Wire Type	Solid or Stranded Copper	Solid or Stranded Copper
Wire Dimensions	0.5-1.5mm ² / AWG 20-16 (Mains)	0.5-1.5mm ² / AWG 20-16 (LED Output, LEDcode)
Wire Strip Length	9.0mm	9.0mm
Mounting torque	Not to Exceed 0.5Nm	

Connector Layout

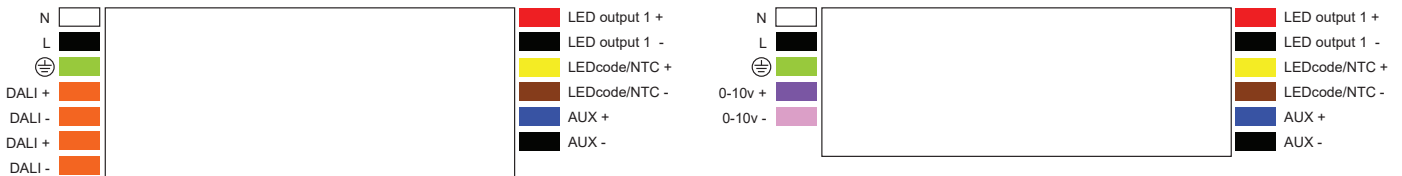
30W, 1 Channel. DALI connectors are double to simplify loop through.



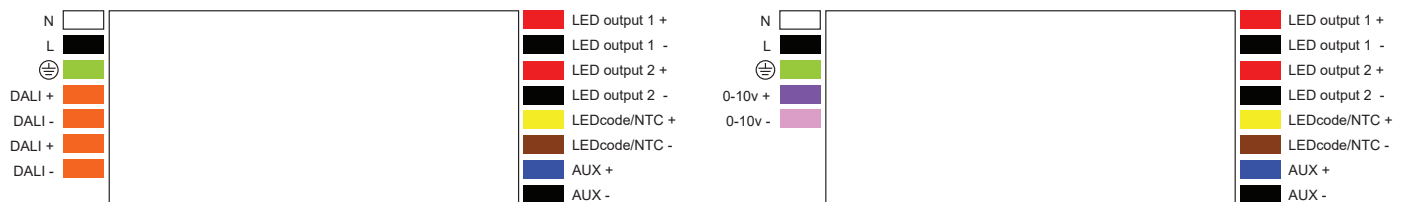
50W, 2 Channels. DALI connectors are double to simplify loop through.



75W, 1 Channel. DALI connectors are double to simplify loop through.

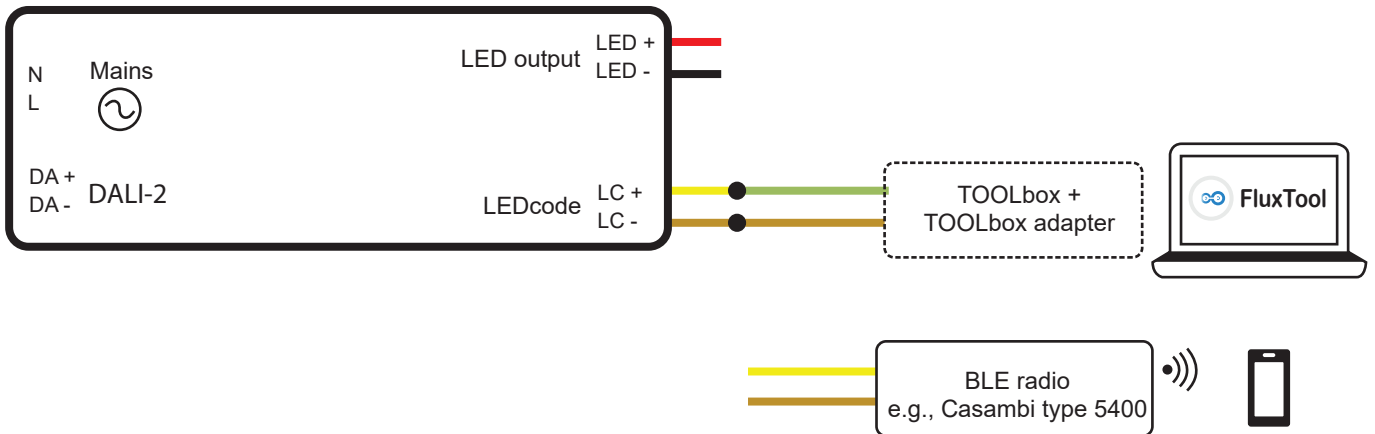


75W and 94W, 2 Channels. DALI connectors are double to simplify loop through.

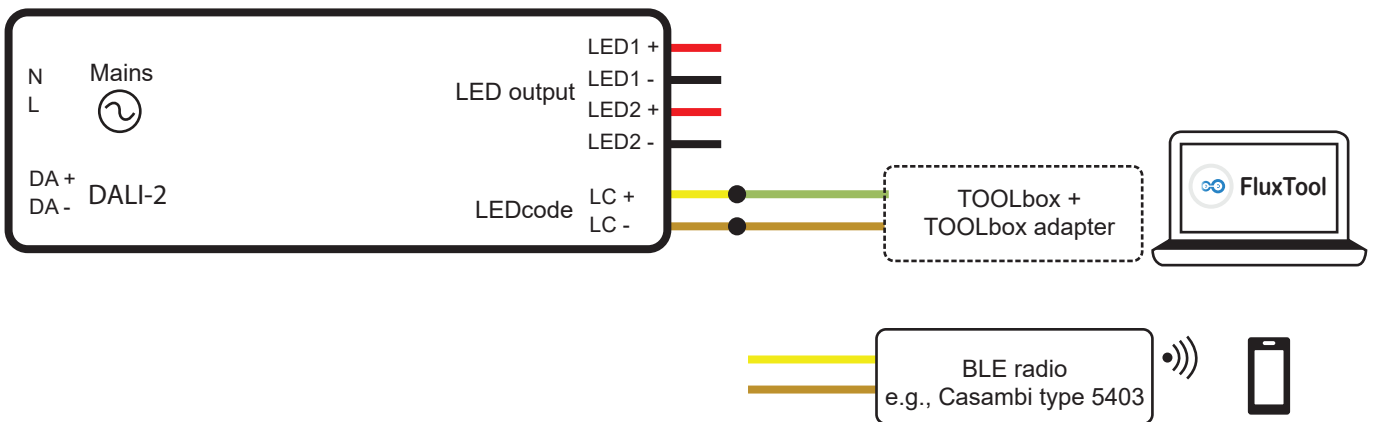


Wiring Diagram

ECOdrive, SOLOdrive 1 Channel



DUALdrive, SOLOdrive 2 Channels



Note: BLE radios (like Casambi radio) using LEDcode only work for eldoLED DALI DT6 controllable drivers (in ECOdrive, SOLOdrive and DUALdrive). BLE radios do not work with eldoLED 0-10V or DALI DT8 controllable drivers.

In case of DUALdrive with LightShape:

LED1 = warm white channel

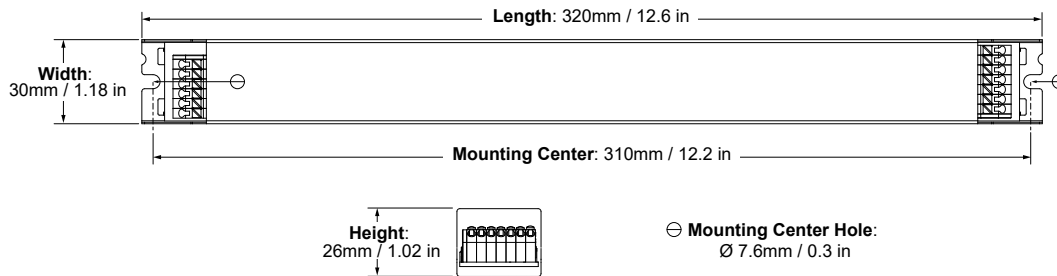
LED2 = cold white channel

Linear Built-in L-Family, European Selection - Datasheet

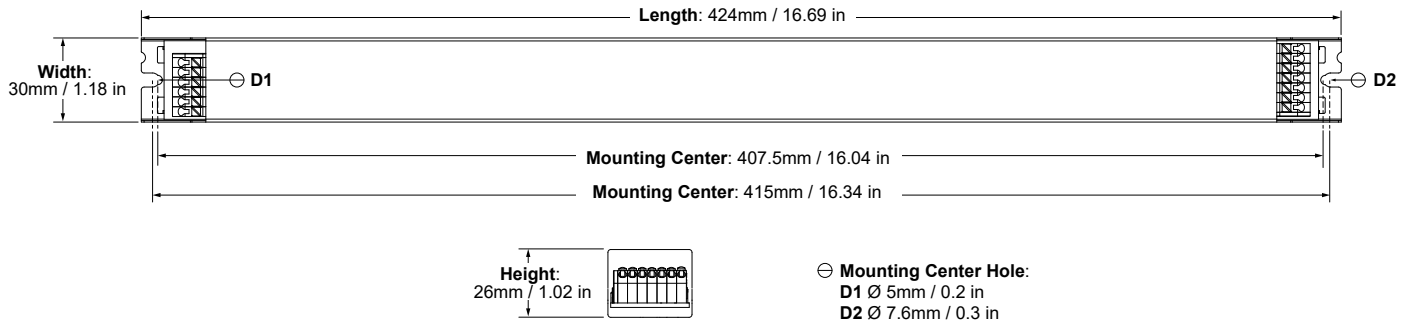
Mechanical Details

	30W	50W	75W	94W
Weight of Individual Product	260g	290g	420g	650g
Packaging	50 pcs per box	50 pcs per box	50 pcs per box	30 pcs per box
Box Weight	14kg	15.5kg	22kg	22kg
Box Dimensions	370 x 360 x 180mm (15 x 14 x 7 inches)	370 x 360 x 180mm (15 x 14 x 7 inches)	390 x 360 x 170mm (15 x 14 x 7 inches)	390 x 360 x 170mm (15 x 14 x 7 inches)

30W, 50W



75W, 94W



LED Driver Protection

Thermal	The LED output current automatically decreases whenever the internal driver temperature exceeds a factory preset temperature. The LED output current increases once the internal driver temperature drops below the preset temperature threshold. If the internal driver temperature continues to increase, despite a decrease in output current, the LED driver will eventually shut down.
LED Output Short Circuit	The LED output current cuts off whenever the LED driver detects a short-circuit. The LED driver attempts a restart every 400ms after a short circuit is detected.
LED Output Open Circuit	The LED output turns off whenever the LED driver detects an open circuit. The LED driver attempts a restart every 400ms after an open circuit is detected.
LED Output Overload	The driver monitors the LED output load. Whenever the output load exceeds the maximum output power rating of the LED driver, the output current is sequentially scaled down until the cumulative load drops below the maximum output power rating of the LED driver.
Reverse Polarity	The LED driver will not yield any current if the polarity of the load on the LED output is reversed. This situation will not damage the LED driver but may damage the LED load.

Linear Built-in L-Family, European Selection - Datasheet

LED Protection

Thermal Protection LED	An external NTC thermistor, which is placed on a PCB near the LEDs, connects to the driver via the LEDcode/NTC terminals. The output current to the LEDs then decreases by 75% whenever the NTC exceeds a maximum allowable temperature, which is specified by the user in the FluxTool software. The default NTC temperature limit is set to 70°C.
Thermistor Value	47kΩ
Suitable Thermistors (example)	leaded: Vishay, P/N 238164063473 screw: Vishay, P/N NTCASCWE3473J

Standards and Compliances

ENEC safety	EN 61347-1 EN 61347-2-13 (Emergency lighting)
ENEC performance	EN 62384
RCM	AS/NZS 61347.1, AS/NZS 61347.1.13
Conducted emissions	EN 55015
Radiated emissions	EN 55015
Radio disturbance characteristics	EN 66022
Harmonic current emissions	EN 61000-3-2
Electrostatic discharge	EN 61000-4-2
RFE field susceptibility	EN 61000-4-3
Electrical fast transient	EN 61000-4-4
Surge immunity	EN 61000-4-5
Conducted radio frequency	EN 61000-4-6
Voltage dips	EN61000-4-11
Electromagnetic immunity	EN 61547
ECODESIGN 2019/2020	Flicker for LED: Pst LM ≤ 1.0 at full load Stroboscopic effect for LED: SVM ≤ 0.4 at full load
DALI-2	IEC 62386-101 Edition 2.0, IEC 62386-102 Edition 2.0, IEC 62386-207 Edition 1
0-10V	IEC/EN 60929 annex E NOTE: From 0.6V to 10V eldoLED LED drivers comply with IEC/EN 30929 annex E. Below 0.6V eldoLED LED drivers comply with ABL 0-10V Design Spec v1.2 enabling standby mode. For detailed dimming characteristics see 0-10V response chart in Control Characteristics.
Surge protection	IEC 61000-4-5 level3: 2kV DM, 2kV CM @ 2 Ohm
Restriction of hazardous substance	RoHS3 (Directives 2011/65/EU-2015/863/EU)
SVHC-list substances	REACH Art 33

Linear Built-in L-Family, European Selection - Datasheet

Safety



Risk of electrical shock. May result in serious injury or death. Disconnect power before servicing or installing.



FELV control terminals marked "Risk of electric shock" are not safe to touch. Dimming connected to FELV control terminal shall be insulated for Low Voltage supply of the control gear. Any terminals connected to the FELV circuit shall be protected against accidental contact.



The LED driver may only be connected and installed by a qualified electrician. All applicable regulations, legislation, and building codes must be observed. Incorrect installation of the LED driver can cause irreparable damage to the LED driver and the connected LEDs. Pay attention when connecting the LEDs: polarity reversal results in no light output and often damages the LEDs.



LED drivers are designed and intended to operate LED loads only. Powering non-LED loads may push the LED driver outside its specified design limits and is, therefore, not covered by any warranty.



eldoLED products are designed to meet the performance specifications as outlined at certain operating conditions in the data sheet. It is the responsibility of the fixture manufacturer to test and validate the design and operation of the system under expected and potential use cases, including faults.



Please observe voltage drop over long cable lengths. Longer cable lengths increase EMI susceptibility.



Product renderings and dimensional drawings are generic for the housing type. Product label, connector type and quantity may vary.

Warranty

eldoLED Products are covered by a 5-year limited warranty. Complete warranty terms can be found at:

<https://www.eldoled.com/legal/terms-and-conditions>

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www.eldoLED.com

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