

DO NOT CONNECT LIGHTGLASS UNIT DIRECTLY TO LINE VOLTAGE.
This will result in permanent damage and all warranty will be void.

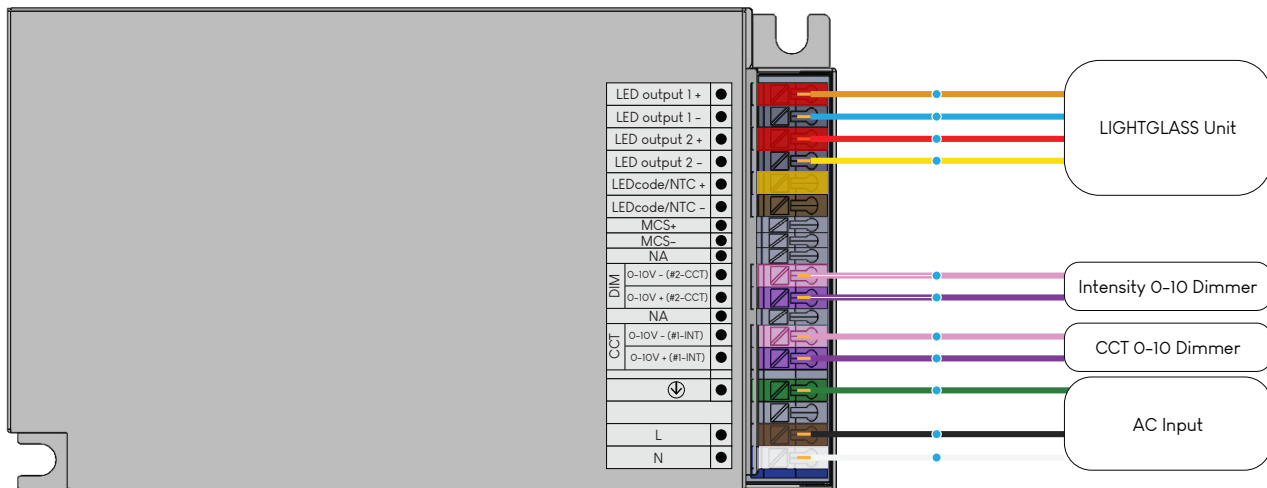
WIRE LEGEND

- White
- Black
- Red
- Blue
- Orange
- Yellow
- Pink
- Pink + White Stripe
- Purple
- Purple + White Stripe
- Green (Ground)
- Wire Junction

TYPE	US	EU
Line / Phases	Black	Brown
Neutral	White	Blue
Ground	Green	Green / Yellow

TYPE	Color
CH2-	Yellow
CH2+	Red
CH1-	Blue
CH1+	Orange

TYPE	Color
CCT -	Pink
CCT +	Purple
DIM -	Pink + White Stripe
DIM +	Purple + White Stripe



The eldoLED driver used by LIGHTGLASS has the ability to control both the intensity of light and color temperature of light (on certain models). This is accomplished VIA two 0-10 channels. One controls color temperature, one controls Intensity.



Light
is our passion

50W 2x 0-10V 'Dim to Dark' LED Driver

DUALdrive

DUALdrive is perfect for dynamic white lighting applications or for luminaires that combine task and ambient lighting. DUALdrive excels in configurability and low dimming - giving you every shade of white! Symbiosis ensures the LED driver works seamlessly together with LED modules, controls and intelligent luminaire elements.

Product offering



DUALdrive 561/S

Part number P/N	DL0561S1
Product description	DUALdrive, 50W, 2x 0-10V, 2 control channels, constant current, 2x 55V output, square metal, side feed

Features & benefits

Natural dimming	Dim to dark, smooth brightness changes, excellent flicker performance, adaptable dimming curves, configurable minimum dimming level
LightShape	Tunable White: colour temperature and intensity control
LEDcode	Configurable design to work with most constant current LED modules and arrays, while providing a connection point to integrated peripheral controls
Programmable	Fine-tune your driver for any application
Performance	Universal input voltage range, low inrush current and total harmonic distortion (THD), high power factor and efficiency
Camera compatibility	Hybrid HydraDrive technology is proven to work in TV studios and security camera environments

Programming tools

Programming interface	TOOLbox pro (TLU20504)
Programming cable set	TOOLbox pro to LED driver, programming cable, 5pcs (TLC03051)
Programming Hand-held, Touch-and-Go	PJ0035HH1
Programming jig	PJ0500S1
Programming software	FluxTool

Warranty

Warranty period	General Terms and Conditions
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Order number configurator

Standard	<p>DL0561S1 Part Number</p> <p><input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/> . <input type="text"/> min</p> <p>LED Output Current Dimming Curve Minimum Dimming Level</p>
Multi-Current	<p>DL0561S1 Part Number</p> <p>M C U R <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/> . <input type="text"/> min CH1 - <input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA</p> <p>LED Output Current Dimming Curve Minimum Dimming Level LED Output 1</p> <p>CH2 - <input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA</p> <p>LED Output 2</p>
LightShape	<p>DL0561S1 Part Number</p> <p><input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA T W H <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> K <input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> lm</p> <p>LED Output Current LightShape Control Type Dimming Curve Gamut CCT Gamut Lumen Output</p> <p><input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/> lm <input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> K</p> <p>CCT Control Curve Flux Opt. Method Max. Lum. Flux Path CCT</p>
LightShape Multi-Current	<p>DL0561S1 Part Number</p> <p>M C U R T W H <input type="text"/><input type="text"/><input type="text"/> CH1 - <input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA CH2 - <input type="text"/><input type="text"/><input type="text"/><input type="text"/> mA</p> <p>LED Output Current LightShape Control Type Dimming Curve LED Output 1 LED Output 2</p> <p><input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> K <input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> lm <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/><input type="text"/> <input type="text"/><input type="text"/> lm <input type="text"/><input type="text"/> - <input type="text"/><input type="text"/> K</p> <p>Gamut CCT Gamut Lumen Output CCT Control Curve Flux Opt. Method Max. Lum. Flux Path CCT</p>

Example: DL0561S1 MCUR TWH LOG CH1-300mA CH2-400mA 18-50K 10-12lm LOG MAX 12lm 18-50K

LED output current, Standard	For models where output current is identical for all outputs. Enter value in 1mA increments, e.g. "811" for 811mA.
LED output current, Multi-Current	Output current different per output? Enter "MCUR" in LED output current and specify the differing currents in LED outputs 1 and 2. Note that cumulative current is limited.
LightShape control type	"TWH" stands for Tunable White
Dimming curve	"LOG" for logarithmic (default) "LIN" for linear "SLN" for soft-linear "SQU" for square
Minimum dimming level	Leave blank for default minimum dimming level of 0.1%. Specify in 0.1% increments, e.g. "10.5" for 10.5%.
Gamut CCT	LightShape-specific option. Enter the LEDs' CCT as "XX-YY" where XX is LED output 1 and YY is LED output 2. Available options per output: 18, 20, 22, 25, 27, 30, 35, 40, 50, 57 and 65. E.g. "18-50" for 1800K on LED output 1 and 5000K on LED output 2. Default is 27-65
Gamut lumen output	Enter the lumen output range for LED output 1 and 2 as "XX-YY" where XX is LED output 1 and YY is LED output 2. Available range per output: from "01" for 100lm to "99" for 9900lm. E.g. "10-12" for 1000lm on LED output 1 and 1200lm on LED output 2.
CCT control curve	Enter the required CCT control curve: "LOG" for logarithmic, "LIN" for linear
Flux optimization method	Leave blank if a consistent luminous flux output over the full CCT range is required (default); enter "MAX" if the luminous flux must be limited to a maximum value for all outputs combined.
Maximum luminous flux	If Flux optimization method is set to "MAX", specify the required lumen output, e.g. "12" for 1200lm. If left blank it is constant (default).
Path CCT	Leave blank if Path CCT requires the same values as Gamut CCT. Or specify the Path CCT values as "XX-YY" where XX is LED output 1 and YY is LED output 2. Available options per output: 18, 20, 22, 25, 27, 30, 35, 40, 50, 57, 65. E.g. "18-50" for 1800K on LED output 1 and 5000K on LED output 2.

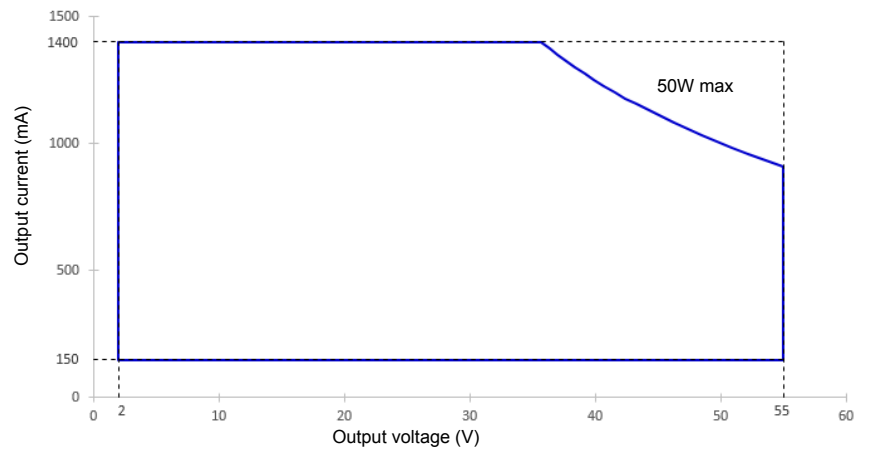
Input characteristics

Nominal input voltage range	120 - 277 VAC (UL), 120 - 250 VAC (CE)
Absolute input voltage range	108 - 305 VAC
Input frequency range	50 - 60 Hz
Maximum input current	0.5A @ 120 VAC 0.3A @ 230 VAC 0.3A @ 277 VAC
Efficiency at full load	87%
Power factor at full load	> 0.9
THD at full load	< 20%
Maximum inrush current	< 100mA ² s @ 120 VAC < 100mA ² s @ 230 VAC < 100mA ² s @ 277 VAC
Surge protection	2kV differential mode (DM) 2kV common mode (CM)
Maximum standby power	< 0.5W

Output characteristics

Maximum LED output power	50W
Number of LED outputs	2 (UL Class 2)
Programmable LED output current range	150 - 1400mA
LED output type	Programmable in 1mA increments within specified current range
LED output current tolerance	+/- 5% at programmed LED output current
LED output voltage range	2 - 55V

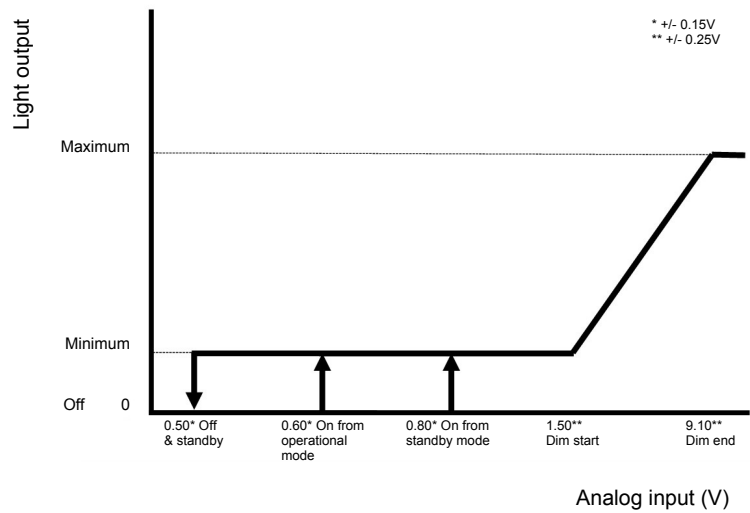
Operating window



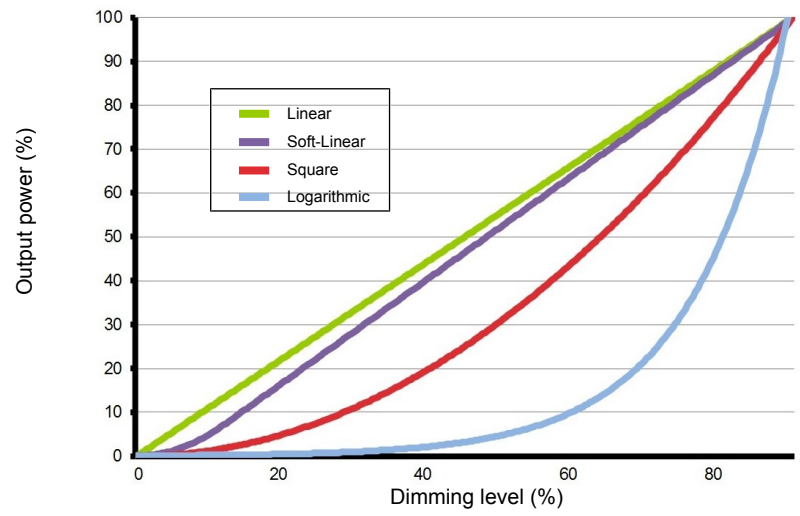
Control characteristics

Control channels	2
Control protocol	0-10V LEDcode
Dimming range	100% - 0.1%
Dimming curve options	Logarithmic (default) Linear Soft-Linear Square
LightShape	Tunable White, 2x pc-white
Dimming method	Hybrid HydraDrive
0-10V current draw	< 2mA
Time delay to standby	< 30s

0-10V dimming chart



Dimming curves

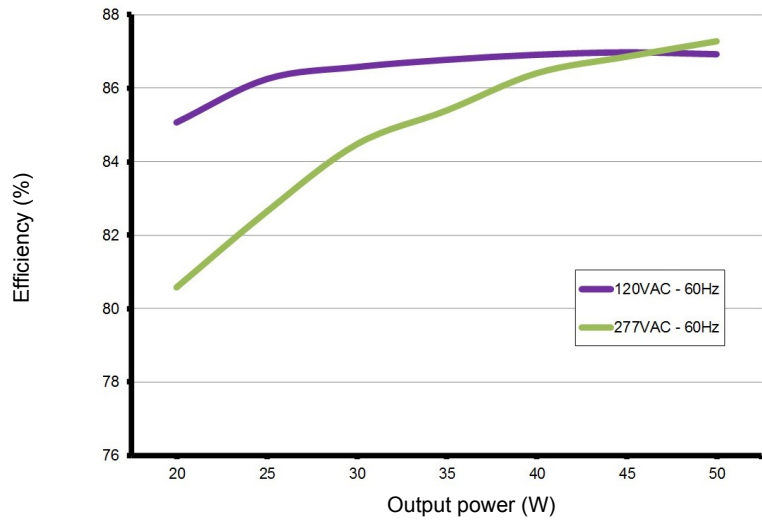


Performance

Typical efficiency vs load

Tested with a typical load on each LED output at 25 °C ambient temperature. The measurements below 50W were performed by dimming the light output.

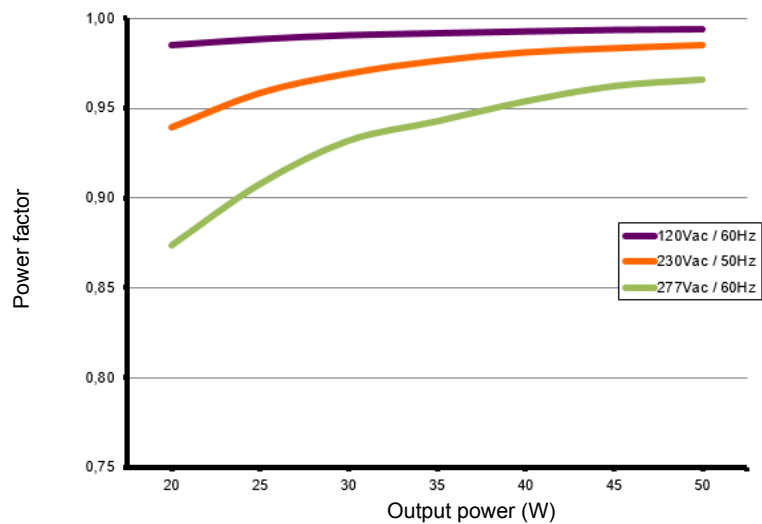
When LightShape is enabled: changing the CCT value has limited impact on the test data.



Typical power factor vs load

Tested with a typical load on each LED output at 25 °C ambient temperature. The measurements below 50W were performed by dimming the light output.

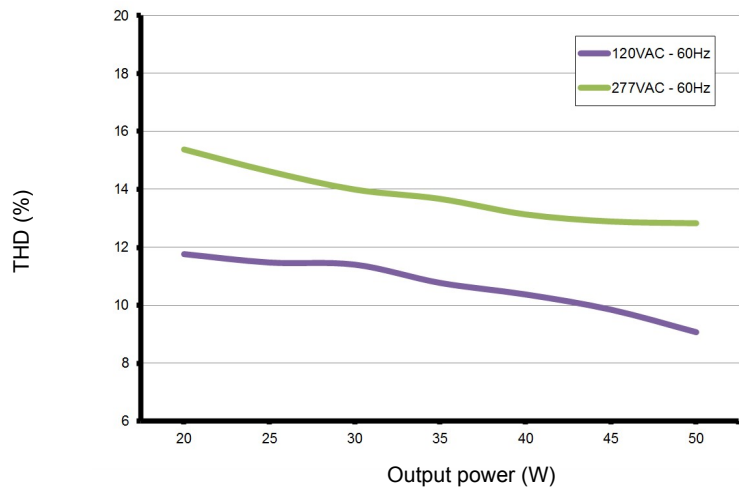
When LightShape is enabled: changing the CCT value has limited impact on the test data.



Typical THD vs load

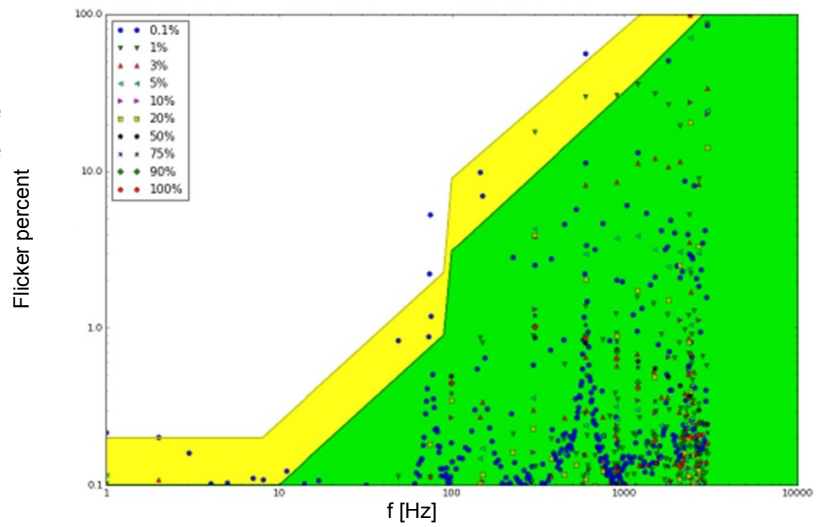
Tested with a typical load on each LED output at 25 °C ambient temperature. The measurements below 50W were performed by dimming the light output.

When LightShape is enabled: changing the CCT value has limited impact on the test data.



Typical flicker performance

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.



Environmental conditions

Operating ambient temperature (T_a) range -20 °C to +50 °C

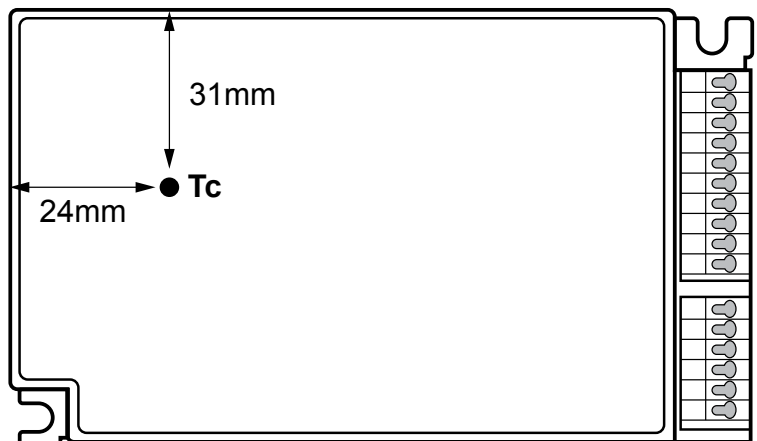
Maximum operating case temperature (T_c max) 76 °C

Acoustic noise – steady state <24dBA (Class A)

Lifetime 50,000 hours at a maximum case temperature (T_c) of 71 °C

UL Type TL
 Measured T_{ref} : 67 °C
 Maximum allowed T_{ref} : 76 °C
 Measured at 1400 mA

T_c point location



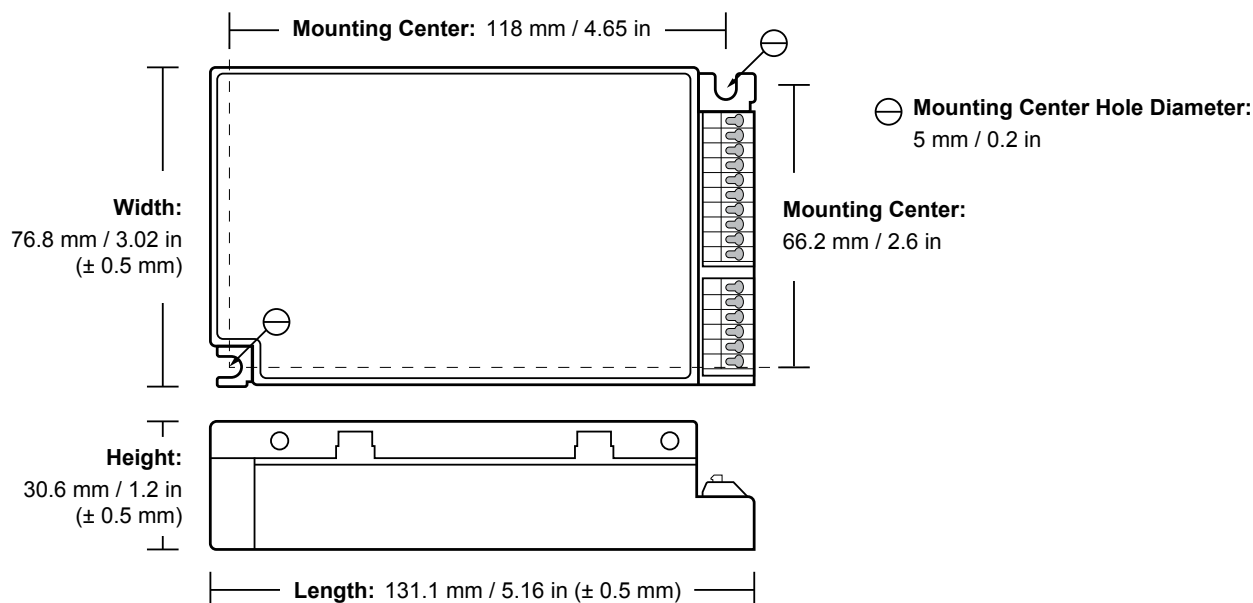
LED driver protection

Thermal	The LED output current is automatically decreased whenever the internal driver temperature exceeds a factory preset temperature. The LED output current is increased 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 is cut off whenever the LED driver detects a short-circuit. The LED driver will attempt a restart every 400ms after a short-circuit is detected.
LED output open circuit	All LED outputs are turned off whenever the LED driver detects an open circuit on any one of the LED outputs. The LED driver will automatically attempt a restart every 400ms after an open circuit is detected.
LED output overload	The driver monitors the cumulative load across all LED outputs. Whenever this cumulative load exceeds the maximum output power rating of the LED driver, the output current on all LED outputs 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.

LED protection

Thermal protection LED	An external NTC thermistor, which is placed on a PCB near the LEDs, can be connected to the driver via the LEDcode/NTC terminals. The output current to the LEDs is then decreased 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	Leaded: Vishay, P/N 238164063473 Screw: Vishay, P/N NTCASCWE3473J

LED driver mechanical details



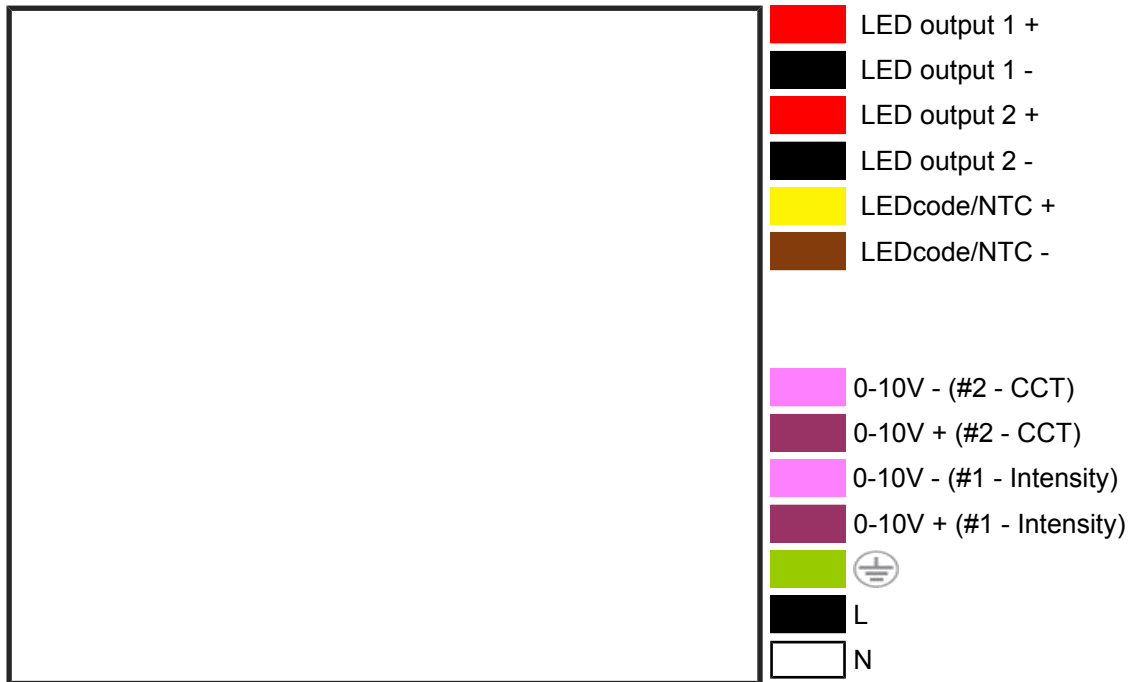
Weight	305 g
Mounting torque	Not to exceed 0.5Nm

3D Mechanical files for this product are available on the eldoLED website.

Packaging

Length x Width x Height	508 x 305 x 178 mm / 20 x 12 x 7 in
Weight (including products)	13.3 kg
Products per box	45 pcs

Connector layout



Input wiring specifications

Connector type	push-in terminals
Connector supplier and series	Wago 250 series
Wire type	solid or stranded copper
Wire core cross section	0.5 - 1.5mm ² / AWG 20 – 16
Wire strip length	9.0mm (11/32in)

Output wiring specifications

Connector type	push-in terminals
Connector supplier and series	Wago 250 series
Wire type	solid or stranded copper
Wire core cross section	0.5 - 1.5mm ² / AWG 20 – 16
Wire strip length	9.0mm (11/32in)
Maximum remote mounting distance of LED load	AWG 20 (0.52 mm ²) - 14 m / 46 ft AWG 19 (0.65 mm ²) - 18 m / 59 ft AWG 18 (0.82 mm ²) - 22 m / 72 ft AWG 17 (1.04 mm ²) - 28 m / 92 ft AWG 16 (1.31 mm ²) - 36 m / 118 ft

Automatic circuit breakers (MCB)

Maximum loading	MCB type	B10	B13	B16	C10	C13	C16
		Number of LED drivers	14	18	22	14	18

Standards and compliance

UL, recognized component	UL 1310 UL 8750 (Class 2 output). Type TL LED driver.
ENEC safety	EN 61347-1 EN 61347-2-13
ENEC performance	EN 62384
Conducted emissions	EN 55015 FCC title 47 CFR part 15 class B
Radiated emissions	EN 55015 FCC title 47 CFR part 15 class B
Radio disturbance characteristics	EN 55022
Harmonic current emissions	EN 61000-3-2
Electromagnetic immunity	EN 61547
ECodesign 2019/2020: Controlgear + luminaire	Flicker for LED: Pst LM ≤ 1.0 at full-load Stroboscopic effect for LED: SVM ≤ 0.4 at full load
0-10V	IEC/EN 60929 annex E NOTE: From 0.6V to 10V eldoLED LED drivers comply with IEC/EN 60929 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 level 3: 2kV DM, 2kV CM @ 2 Ohm
Surge protection	ANSI 62.41 1991 category B1: 2.5kV DM, 2.5kV CM @ 30 Ohm 0-10V input: 0.5 kV DM, 1 kV CM surge
Restriction of hazardous substances	RoHS3 (Directives 2011/65/EU-2015/863/EU)
SVHC-list substances	REACH Art.33

Certifications



Safety



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



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.

Europe, Rest of World

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