Light
is our **passion**

50W DALI '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.

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
Symbiosis	Seamless interoperability with LED modules, controls and in-luminaire intelligent devices
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 software	FluxTool

Warranty

Warranty period	General Terms and Conditions

Product offering

DUALdrive 560/L   **P/N: DL0560L2**
DUALdrive, 50W, DALI, 2 control channels, constant current, 2x 55V output, side feed, long metal

*Acuity*Brands®

eldoLED
your product | *our drive*

Order number configurator - Standard

`D L 0 5 6 0 L 2` `□□□□mA` `□□□` `□□.□min`

P/N   LED output current   Dimming curve   Minimum dimming level

P/N	LED driver part number
LED output current	In 1mA steps, e.g. "0258", "1011", etc.
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%.

Order number configurator - LightShape

`D L 0 5 6 0 L 2` `□□□□mA` `T W H` `□□□`

P/N   LED output current   LightShape control type   Dimming curve

`□□□□mA` `□□□□mA` `□□-□□K` `□□ □□lm`

LED output 1   LED output 2   Gamut CCT   Gamut lumen output

`□□□` `□□□` `□□lm` `□□-□□K`

CCT control curve   Flux optimization method   Maximum luminous flux   Path CCT

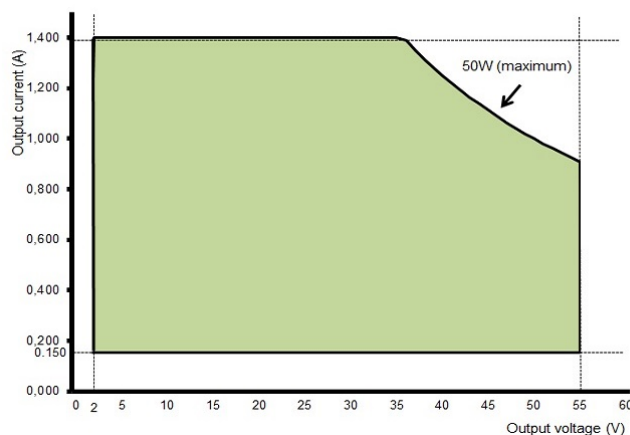|	
LED output current	**Output current identical for all outputs?** Enter value in 1mA increments, e.g. "725" for 725mA and leave the fields "LED output 1" and "LED output 2" blank. **Output current different per output?** Enter "MCUR" in the LED output current fields and specify the differing currents in the LED output 1 and 2 fields.
LightShape control type	"TWH" stands for Tunable White
Gamut CCT	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.
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 (default).

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 AC	120 - 250V (ENEC)
	120 - 277V (UL)
Absolute input voltage range AC	108 - 305V
Nominal input voltage range DC	120 - 250V
Maximum input current	0.7A at 120V / 60Hz
	0.35A at 230V / 50Hz
	0.30A at 277V / 60Hz
Input frequency range	50 - 60Hz
Efficiency at full load	85%
Power factor at full load	> 0.9
THD at full load	< 20%
Maximum inrush current	63mA²s
Surge protection	2kV differential mode (DM)
	2kV common mode (CM)
Maximum standby power	0.5W

Output characteristics

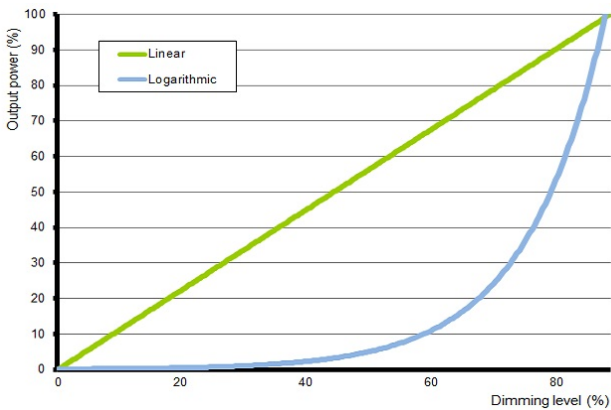|	
Maximum LED output power	50W
Number of LED outputs	2
LED output current range	150 - 1,400mA
LED output type	Programmable in 1mA increments within specified current range
LED output voltage range	2 - 55V
LED output tolerance	+/- 5%

Operating window

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.
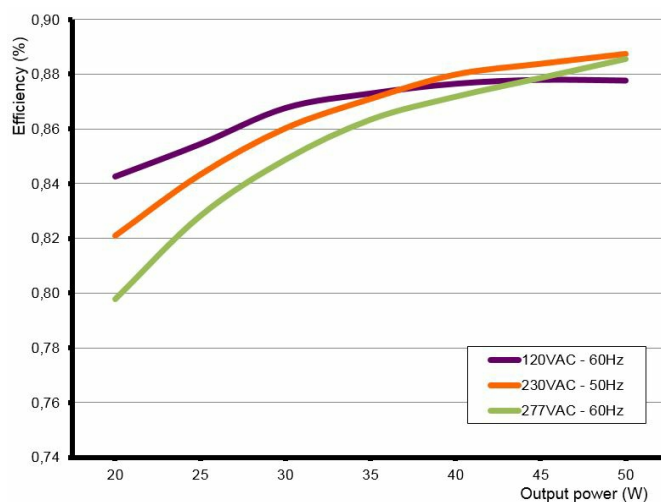
Control characteristics

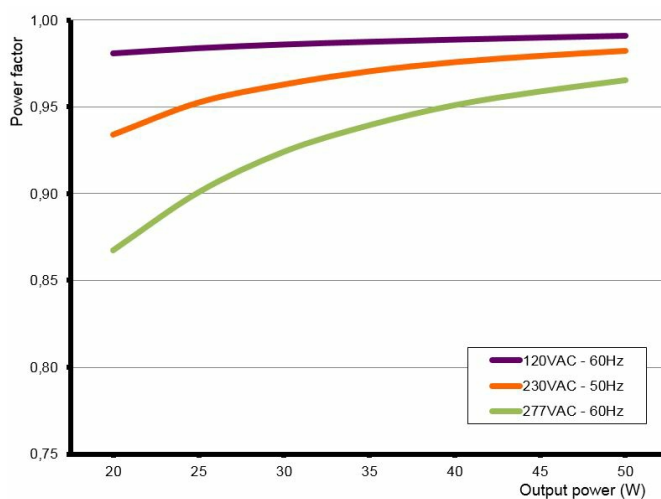|	
Control channels	2
Dimming protocol	DALI
Dimming range	100% - 0.1%
Dimming curve options	• Logarithmic (default) • Linear • LightShape
Required programming tools	TOOLbox pro and FluxTool
Dimming method	Hybrid HydraDrive

Typical efficiency vs load – 50W

Tested with connected LED load of 13 LEDs in series, programmed for 1,400mA and at 25 ºC ambient temperature. The measurements below 50W were performed by dimming the light output.
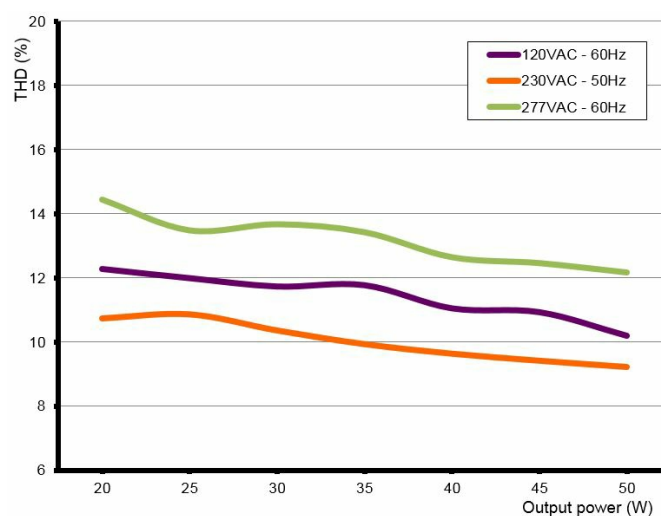

Typical power factor vs load – 50W

Tested with connected LED load of 13 LEDs in series, programmed for 1,400mA and at 25 ºC ambient temperature. The measurements below 50W were performed by dimming the light output.
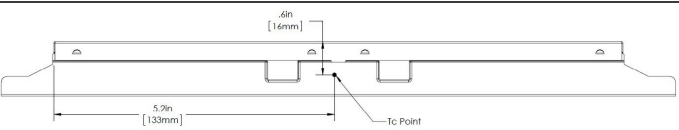

Typical THD vs load – 50W

Tested with connected LED load of 13 LEDs in series, programmed for 1,400mA and at 25 ºC ambient temperature. The measurements below 50W were performed by dimming the light output.

Environmental conditions

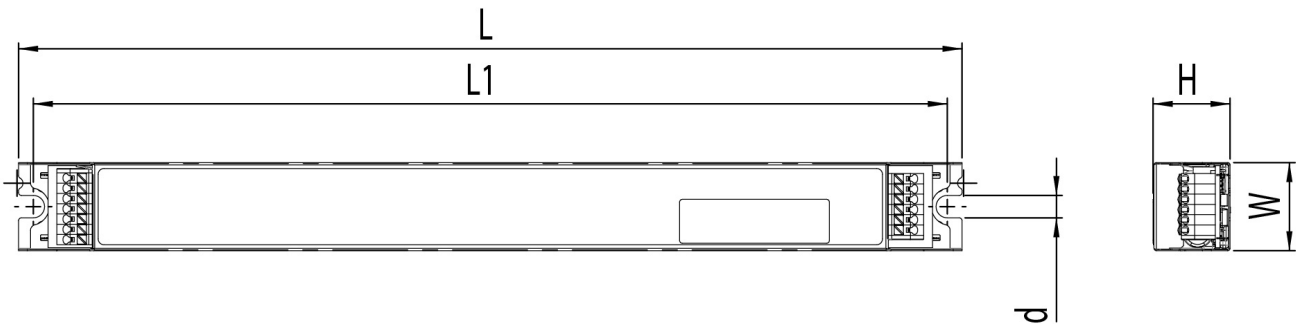|	
Operating ambient temperature (Ta) range	-20 °C to +50 °C
Maximum operating case temperature (Tc max)	80 ºC
Lifetime	50,000 hours at a maximum case temperature (Tc) of 79 ºC
UL Type TL	Measured Tref: 65 °C Maximum allowed Tref: 90 °C

Tc point location

LED driver protection

Thermal	The LED output current is decreased whenever the internal LED driver temperature exceeds factory preset temperature. The LED output current is increased again once the internal LED driver temperature drops below this internal temperature threshold. If the internal LED driver temperature continues to increase, despite a decrease in output current, the LED driver will 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 overload	The LED driver decreases the LED output current sequentially, until it reaches its maximum rated power, whenever a load that exceeds the LED driver's maximum rated power is connected to the LED output.
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

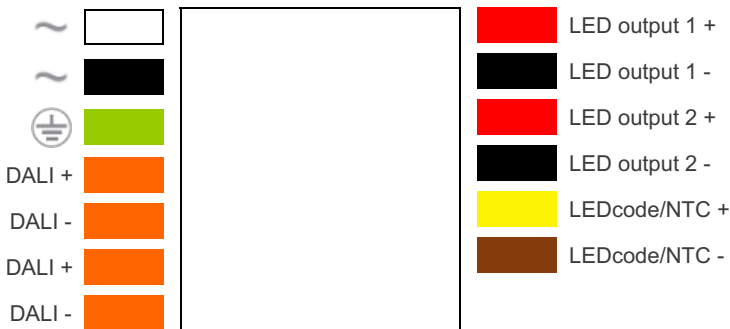|	
Thermal protection LED	An external NTC thermistor, which is placed on a PCB near the LEDs, can be connected to the driver via the LEDcode/NTC terminals. The output current to the LEDs is then decreased by 75% whenever the NTC exceeds a maximum allowable temperature, which is specified by the user 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

Length (L)	typical: 320.0 mm / 12.60 inch maximum: 320.5 mm / 12.62 inch
Width (W)	typical: 30.0 mm / 1.18 inch maximum: 30.5 mm / 1.20 inch
Height (H)	typical: 26.0 mm / 1.02 inch maximum: 28.5 mm / 1.12 inch
Center to center mounting hole distance (L1)	310.0 mm / 12.20 inch tolerance: 0.5 mm / 0.02 inch
Mounting hole diameter (d)	7.6 mm / 0.30 inch tolerance: 0.5 mm / 0.02 inch
3D files	IGS STEP
Weight	275 g
	Please note that the illustration is generic for the housing type and that the connector type and quantity may be different per model.

Packaging

Length x Width x Height	310 x 470 x 470 mm 12.2 x 18.5 x 18.5 inch
Weight	15.95 kg
Products per box	50 pcs

~	☐ white		LED output 1 + (red)
~	■ black		LED output 1 - (black)
⏚	▮ green		LED output 2 + (red)
DALI +	▮ orange		LED output 2 - (black)
DALI -	▮ orange		LEDcode/NTC + (yellow)
DALI +	▮ orange		LEDcode/NTC - (brown)
DALI -	▮ orange		

Wiring specifications

Connector type	push-in terminals
	Wago 250 series
Wire type	solid or stranded copper
Wire core cross section	0.5 - 1.5 mm²
	AWG 20 - 16
Wire strip length	9.0 mm / 0.35 inch
Maximum remote mounting distance of LED load	AWG 20 (0.52 mm²) - 14 m / 46 ft
	AWG 19 (0.65 mm²) - 18 m / 59 ft
	AWG 18 (0.82 mm²) - 22 m / 72 ft
	AWG 17 (1.04 mm²) - 28 m / 92 ft
	AWG 16 (1.31 mm²) - 36 m / 118 ft

⚡ 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.

Standards & compliance

UL, recognized component	UL 1310
	UL 8750
ENEC safety	EN 61347-1
	EN 61347-2-13
ENEC performance	EN 62384
Conducted emissions	EN 55015, Class B
	FCC Title 47 CFR part 15 Class B
Radiated emissions	EN 55015, Class B
	FCC Title 47 CFR part 15 Class B
Radio disturbance characteristics	EN 55022
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	EN 61000-4-11
Electromagnetic immunity	EN 61547
Emergency lighting	EN 61347-2-7
DALI	EN 62386-101/102/207
Restriction of hazardous substances	RoHS2
SVHC-list substances	REACH Art.33

Certifications