100W DMX/RDM/DALI Full-Colour (RGBW) Dimmable LED Driver

POWERdrive

POWERdrive's dynamic response can be tuned to fit any content - from exceptionally smooth fades in architecture to fast-paced video in entertainment. This constant current LED driver is DMX/RDM/DALI compatible, and allows you to create your colour or dynamic show without an external controller. Symbiosis ensures the LED driver works seamlessly together with LED modules, controls and intelligent luminaire elements.

Product offering

POWERdrive 106/S

Part number P/N	PWR106S1
Product description	POWERdrive AC, 100W, DMX/RDM/DALI, 4 control channels, constant current, 4x 57V outputs, square metal

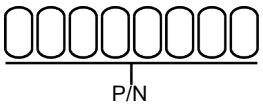
Programming tools

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

Order number configurator



P/N	LED driver part number.

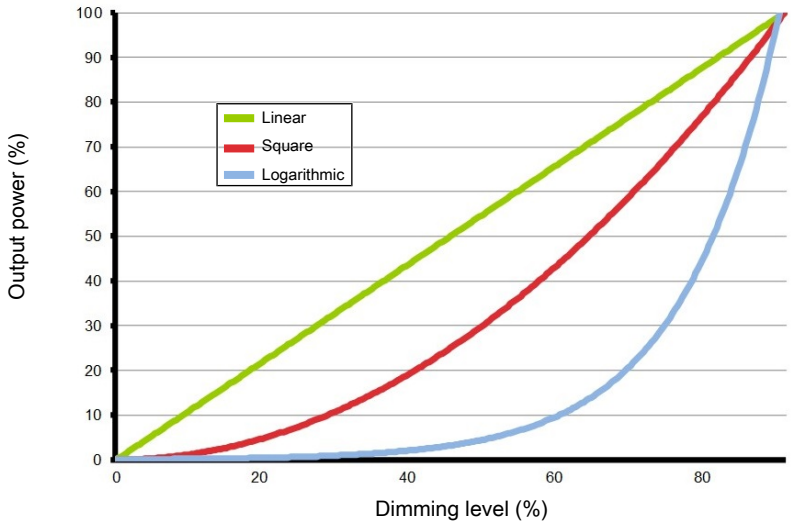
Input characteristics

Nominal input voltage range AC	120 - 250V (ENEC), 120 - 277V (UL)
Nominal input voltage range DC	120 - 275V
Maximum input current	1.05A @ 120V / 60Hz
Input frequency range	50 - 60Hz
Efficiency at full load	90%
Power factor at full load	>0.94
THD at full load	<10%
Maximum inrush current	35A 240µs @ 120V / 60Hz
Surge protection	3kV differential mode (DM) 4kV common mode (CM)
Maximum standby power	<0.5W

Output characteristics

Maximum LED output power	100W
Number of LED outputs	4 (UL Class 2)
Programmable LED output current range	200 - 1050mA
LED output type	programmable in 50mA steps via user interface on driver programmable in 10mA steps via DMX terminal and FluxTool
LED output current tolerance	+/- 5% at programmed LED output current
LED output voltage range	2 - 57V

Control characteristics

Control channels	4
Control protocol	DMX/RDM/DALI
Dimming range	100% - 0.1%
Dimming curve options	Logarithmic (default) Linear Square
Dimming method	Hybrid HydraDrive
Dimming curves	

Environmental conditions

Operating ambient temperature (Ta) range	-40 ºC to +50 ºC
Maximum operating case temperature (Tc max)	83 ºC

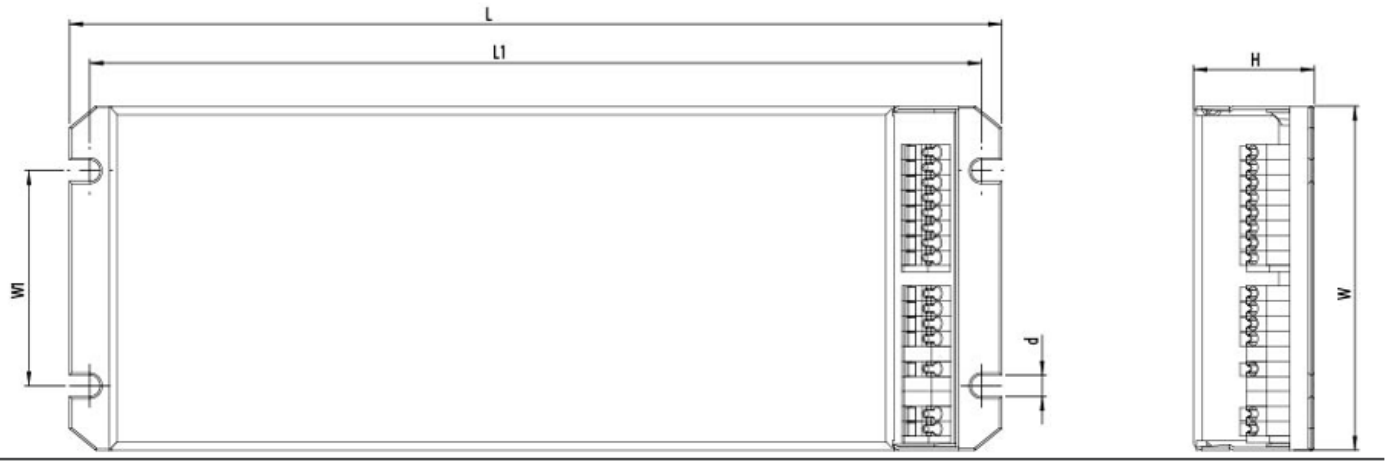
LED driver protection

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

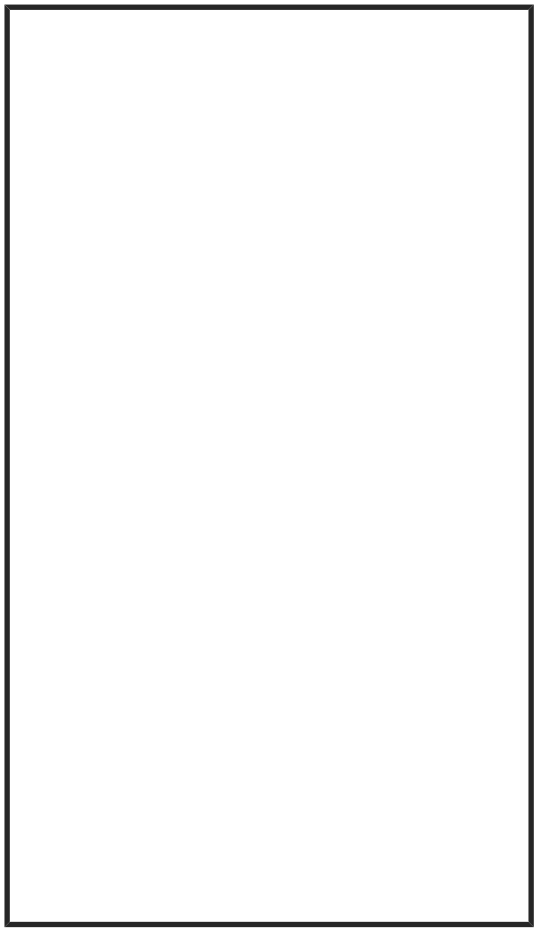


Length (L)	typical: 230 mm / 9.06 in
Width (W)	typical: 80 mm / 3.15 in
Height (H)	typical: 30 mm / 1.18 in
Weight	933.5 g

Packaging

Products per box	20 pcs

Connector layout



- DMX in +
- DMX in -
- DMX in shield
- DMX out +
- DMX out -
- DMX out shield
- Ext in +
- Ext in -
- LED output 1 +
- LED output 1 -
- LED output 2 +
- LED output 2 -
- LED output 3 +
- LED output 3 -
- LED output 4 +
- LED output 4 -
- LEDcode/NTC +
- LEDcode/NTC -
- DALI -
- DALI +
- DALI -
- DALI +
- L
- N

Wiring Specifications

Wire Type	AWG 20-16, 0.5-1.5mm² solid or stranded copper
Wire strip length	9mm / 0.35in

Automatic circuit breakers (MCB)

Maximum loading	MCB type	B10	B13	B16	C10	C13	C16
	Number of LED drivers	5	6	8	8	10	13

Calibrated start-up procedure

For optimized DMX dimming performance.	While switching the mains input voltage, the DMX signal to the LED driver needs to be at 100% (255). Unused or open LED outputs of the driver need to be disabled. This can be achieved by programming the driver with the eldoLED Fluxtool software. In the “Setup – Control menu”, select “Group scaling” for each unused or open LED output and change the actual value to ‘0’, and write into the driver. For all LED outputs in use, change the value to ‘255’.

Standards and compliance

UL, recognized component	UL 1310 UL 8750 (Class 2 output)
ENEC safety	EN 61347-1 EN 61347-2-13 (Emergency lighting)
ENEC performance	EN 62384
Conducted emissions	EN 55015
Radiated emissions	EN 55015
Radio disturbance characteristics	EN 55022
Harmonic current emissions	EN 61000-3-2
Electromagnetic immunity	EN 61547
DALI	EN 62386-101/102/207
DMX	E1.11 – 2008, USITT DMX512-A ANSI E1.20
RCM	AS/NZS 61347.1, AS/NZS 61347.2.13
Restriction of hazardous substances	RoHS3 (Directives 2011/65/EU-2015/863/EU)

Certifications

E333135

Safety

	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.
	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.

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