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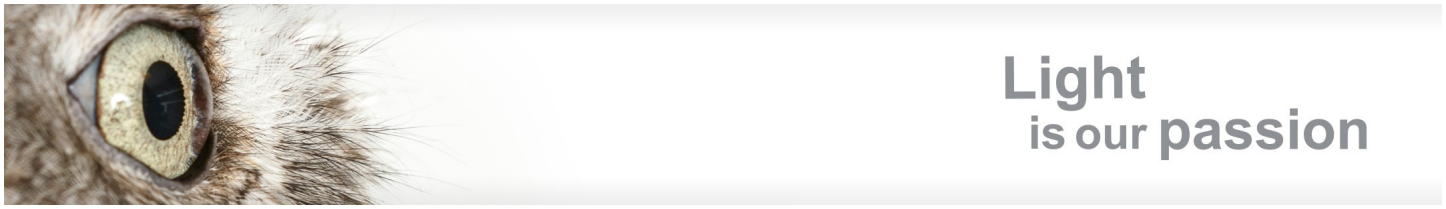
Datasheet

ECOdrive 50U-M1A0Z



50W LEDcode2 LED Driver with Smooth Dimming to 1%

ECOdrive

Programmable digital ECOdrive LED driver providing standard LED fixtures with the smoothest flicker-free dimming to 1% light output, delivering value to any application. The LED driver works seamlessly together with LED modules, controls and intelligent luminaire elements.

Product offering

ECOdrive 50U-M1A0Z

Part number (P/N)	EC50U-M1A0Z1
Product description	ECOdrive, 50W, LEDcode2 + AUX, 1 control channel, constant current, 1x 55V output, side feed, long metal

Features & benefits

Natural dimming	Dim to 1%, smooth brightness changes, excellent flicker performance, adaptable dimming curves, configurable minimum dimming level
Symbiosis	Seamless interoperability with LED modules, controls and in-luminaire intelligent devices
LEDcode	LEDcode2 connects to integrated digital accessories, supports location-based IoT applications and enables wired and wireless lighting control through LEDcode peripheral 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

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More product documentation and eldoLED's warranty and terms and conditions are available at www.eldoLED.com.

AcuityBrands.

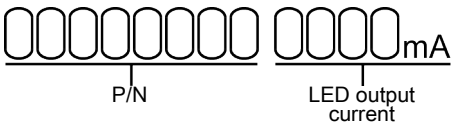
Programming tools

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	PJ0500U1
Programming software	FluxTool

Warranty

Warranty period	General Terms and Conditions

Order number configurator

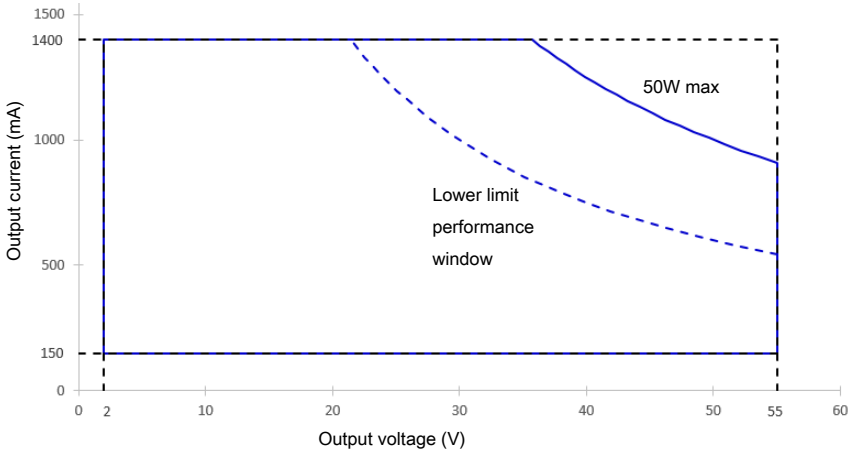


P/N	LED driver part number.
LED output current	Enter value in 1mA increments, e.g. “811” for 811mA

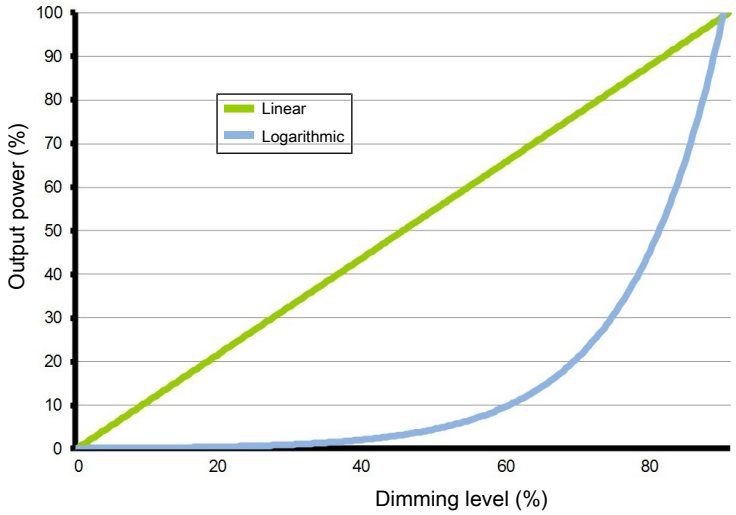
Input characteristics

Nominal input voltage range AC	120 - 277V (UL)
Maximum input current	0.65A @ 120V / 60Hz
Input frequency range	50 - 60Hz
Efficiency at full load	86%
Power factor at full load	> 0.9
THD at full load	< 20%
Maximum inrush current	< 200mA²s @ 120V / 60Hz
Surge protection	2kV differential mode (DM) 2kV common mode (CM)
Maximum standby power	< 0.5W If no load connected to the AUX output

Output characteristics

Maximum LED output power	50W
Number of LED outputs	1 (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
Auxiliary output	15.5 - 25V DC, 18mA max
Operating window	

Control characteristics

Control channels	1
Control protocol	LEDcode2
Dimming range	100% - 1%
Dimming curve options	Logarithmic (default) Linear
Dimming method	Hybrid HydraDrive
Dimming curves	

Environmental conditions

Operating ambient temperature (Ta) range	-20 ºC to +50 ºC
Maximum operating case temperature (Tc max)	80 ºC
Lifetime	50000 hours at a maximum case temperature (Tc) of 80 ºC

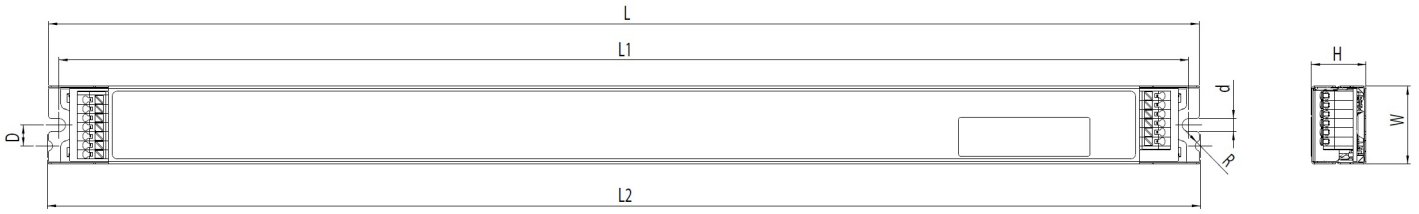
LED driver protection

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: 444 mm / 17.48 in
Width (W)	typical: 29.9 mm / 1.17 in
Height (H)	typical: 21 mm / 0.82 in
3D files available on product web page	IGS
Weight	359 g
Mounting torque	Not to exceed 0.5Nm

Connector layout

Input wiring specifications

Connector type	push-in terminals
Connector supplier and series	Wago 250 series
Wire type	solid conductor only
Wire core cross section	0.5 - 1.5 mm² AWG 20 – 16
Wire strip length	9.0 mm

Output wiring specifications

Connector type	push-in terminals
Connector supplier and series	Wago 250 series
Wire type	solid conductor only
Wire core cross section	0.5 - 1.5 mm² AWG 20 – 16
Wire strip length	9.0 mm
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

Automatic circuit breakers (MCB)

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

Standards and compliance

UL Listed, Class P	UL 1310 UL 8750 (Class 2 output)
Conducted emissions	EN 55015
Radiated emissions	EN 55015
Radio disturbance characteristics	EN 55022
Harmonic current emissions	EN 61000-3-2
Electromagnetic immunity	EN 61547
FCC	47 CFR Part 15 class B
Restriction of hazardous substances	RoHS3 (Directives 2011/65/EU-2015/863/EU)

Certifications

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E333135

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.

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