



Light  
is our passion

## 100W 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.

### Product offering



### DUALdrive 1060/M

|                     |                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------|
| Part number P/N     | DL1060M1                                                                                              |
| Product description | DUALdrive AC, 100W, DALI, 2 control channels, constant current, 4x 57V outputs, long metal, side feed |

### Features & benefits

|                      |                                                                                                                                     |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Natural dimming      | Dim to dark, 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                                           |
| 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                                       |

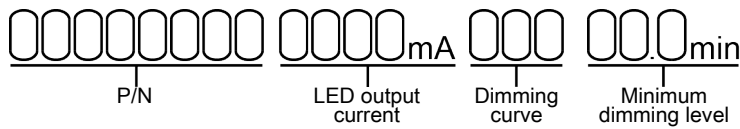
### Programming tools

|                                     |                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------|
| Programming interface               | <a href="#">TOOLbox pro (TLU20504)</a>                                        |
| Programming cable set               | <a href="#">TOOLbox pro to LED driver, programming cable, 5pcs (TLC03051)</a> |
| Programming Hand-held, Touch-and-Go | <a href="#">PJ0035HH1</a>                                                     |
| Programming software                | <a href="#">FluxTool</a>                                                      |

### Warranty

|                 |                                              |
|-----------------|----------------------------------------------|
| Warranty period | <a href="#">General Terms and Conditions</a> |
|-----------------|----------------------------------------------|

### Order number configurator



|                       |                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------|
| P/N                   | LED driver part number.                                                                                   |
| LED output current    | Enter value in 1mA increments, e.g. "811" for 811mA                                                       |
| Dimming curve         | "LOG" for logarithmic (default)<br>"LIN" for linear                                                       |
| 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%. |

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## 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        |
|                                | 0.5A @ 230V / 50Hz         |
|                                | 0.45A @ 277V / 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    |
|                                | 67A 240µs @ 230V / 50Hz    |
|                                | 75A 240µs @ 277V / 60Hz    |
| Surge protection               | 3kV differential mode (DM) |
|                                | 4kV common mode (CM)       |
| Maximum standby power          | < 0.5W                     |

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## Output characteristics

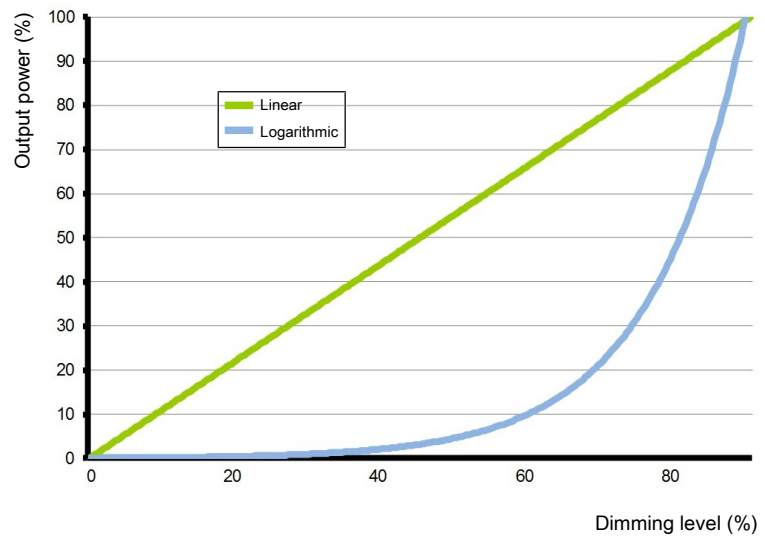
|                                       |                                                               |
|---------------------------------------|---------------------------------------------------------------|
| Maximum LED output power              | 100W                                                          |
| Number of LED outputs                 | 4 (UL Class 2)                                                |
| Programmable LED output current range | 200 - 1,050mA                                                 |
| 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 - 57V                                                       |

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### Control characteristics

|                       |                                 |
|-----------------------|---------------------------------|
| Control channels      | 2                               |
| Control protocol      | DALI                            |
| Dimming range         | 100% - 0.1%                     |
| Dimming curve options | Logarithmic (default)<br>Linear |
| Dimming method        | Hybrid HydraDrive               |

### Dimming curves



### Environmental conditions

|                                             |                  |
|---------------------------------------------|------------------|
| Operating ambient temperature (Ta) range    | -40 °C to +50 °C |
| Maximum operating case temperature (Tc max) | 85 °C            |

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## LED driver protection

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|                          |                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                             |

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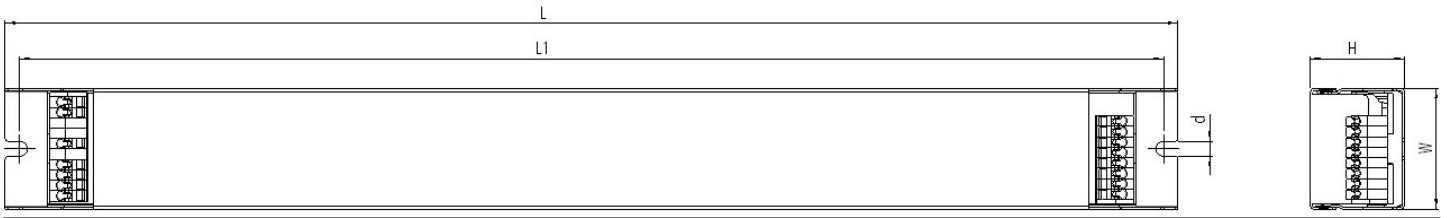
## LED protection

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|                        |                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>screw: Vishay, P/N NTCASCWE3473J                                                                                                                                                                                                                                                                                            |

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**LED driver mechanical details**



Length (L) typical: 370 mm / 14.57 in

Width (W) typical: 41 mm / 1.61 in

Height (H) typical: 30 mm / 1.18 in

3D files available on product web page IGS

Weight 846 g

**Packaging**

Products per box 20 pcs

**Connector layout**



## Wiring specifications

|                                              |                                                                                                                                                                                                                                                    |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wire type                                    | solid or stranded copper                                                                                                                                                                                                                           |
| Wire core cross section                      | 0.5 - 1.5 mm <sup>2</sup><br>AWG 20 – 16                                                                                                                                                                                                           |
| Wire strip length                            | 9.0 mm / 0.35 inch                                                                                                                                                                                                                                 |
| Maximum remote mounting distance of LED load | AWG 20 (0.52 mm <sup>2</sup> ) - 14 m / 46 ft<br>AWG 19 (0.65 mm <sup>2</sup> ) - 18 m / 59 ft<br>AWG 18 (0.82 mm <sup>2</sup> ) - 22 m / 72 ft<br>AWG 17 (1.04 mm <sup>2</sup> ) - 28 m / 92 ft<br>AWG 16 (1.31 mm <sup>2</sup> ) - 36 m / 118 ft |

## Automatic circuit breakers (ACB)

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

## Standards and compliance

|                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| ENEC safety                         | EN 61347-1<br>EN 61347-2-13 (Emergency lighting) |
| ENEC performance                    | EN 62384                                         |
| DALI                                | EN 62386-101/102/207                             |
| Conducted emissions                 | EN 55015                                         |
| Radiated emissions                  | EN 55015                                         |
| Radio disturbance characteristics   | EN 55022                                         |
| Harmonic current emissions          | EN 61000-3-2                                     |
| Electromagnetic immunity            | EN 61547                                         |
| Restriction of hazardous substances | RoHS2                                            |
| UL, recognized component            | UL 1310<br>UL 8750<br>(Class 2 output)           |
| FCC                                 | 47 CFR Part 15 class B                           |

### 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.<br><br>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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