

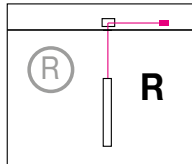
Mounting Instructions Fio / Tia / Fino Pendant

Content

Version R **2**

Dimming / Circuit Diagram **3**

Mounting version



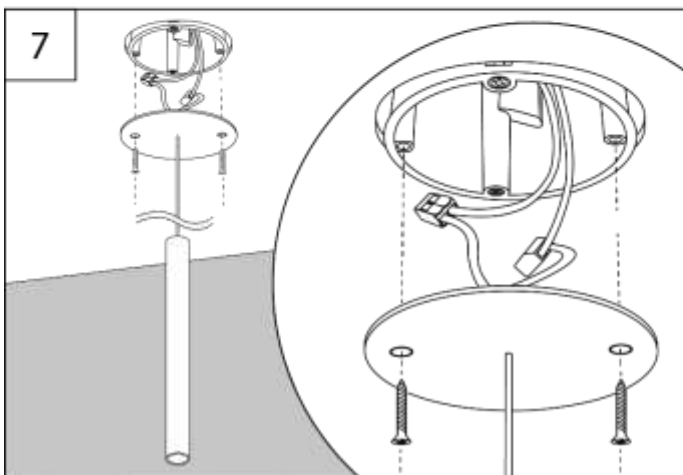
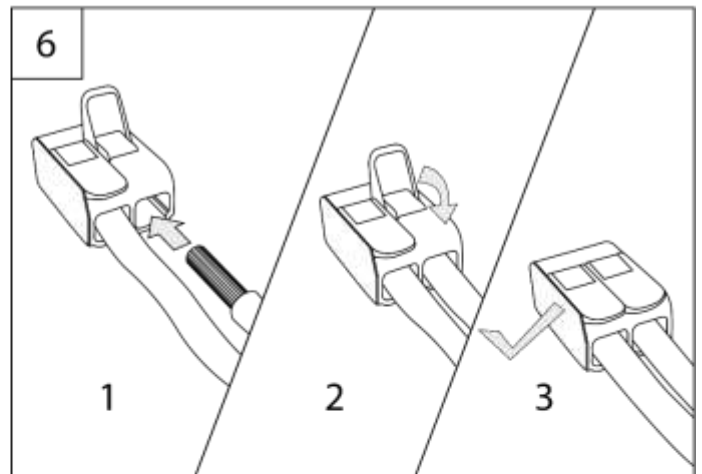
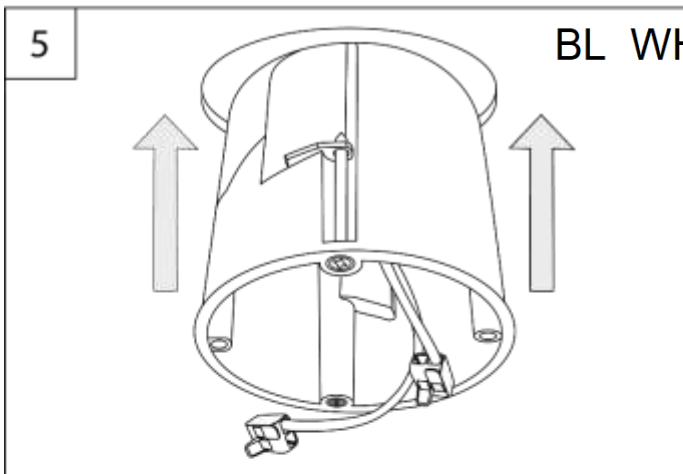
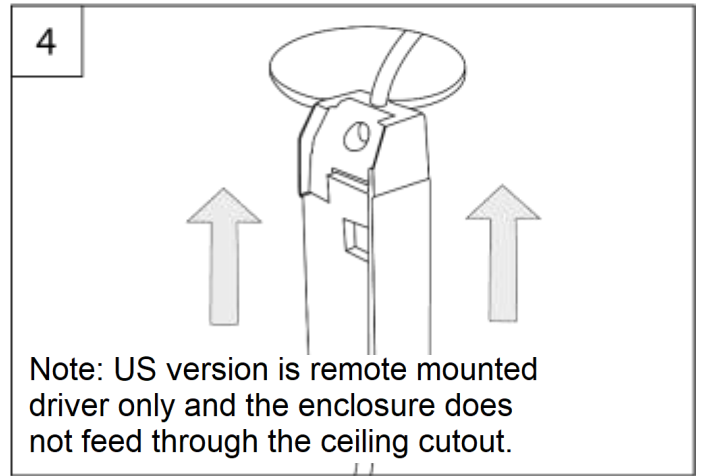
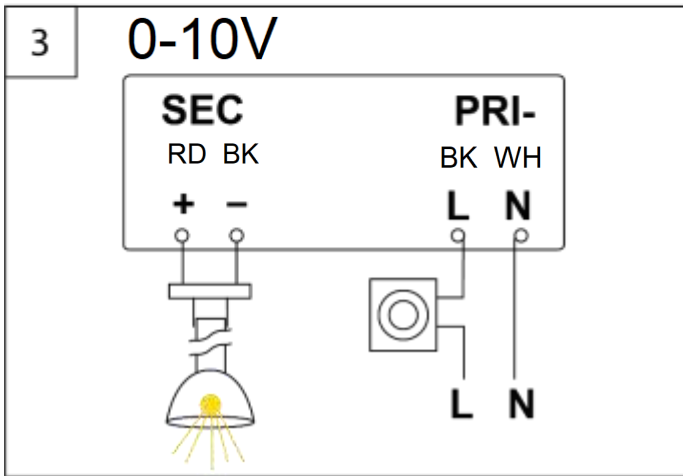
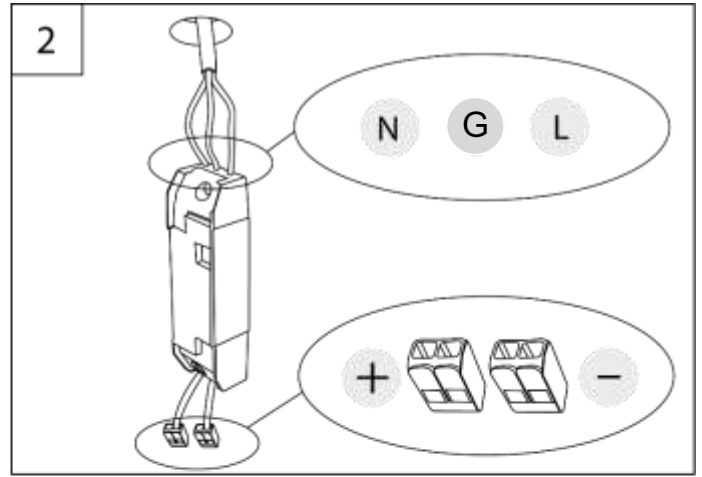
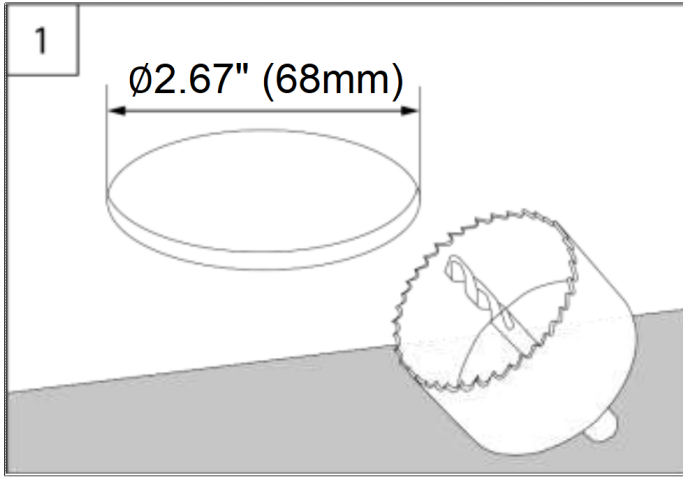
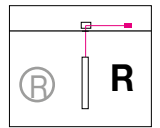
Standard:

DA80 canopy
Cover \varnothing 80mm / 3.1"
Ceiling cutout 68mm / 2.7"
Remote mounted drivers



Handcrafted in
Germany,
certified quality

Version R



Constant current fixtures are to be wired in SERIES and require a MINIMUM and MAXIMUM number of fixtures connected to a driver as indicated on the following page.

NOTE:

Powering or testing less than the minimum number of fixtures per driver

or

connecting fixtures with the driver powered (live wired)

or

wiring them in parallel will IMMEDIATELY and PERMANENTLY DESTROY the fixtures and void the warranty.

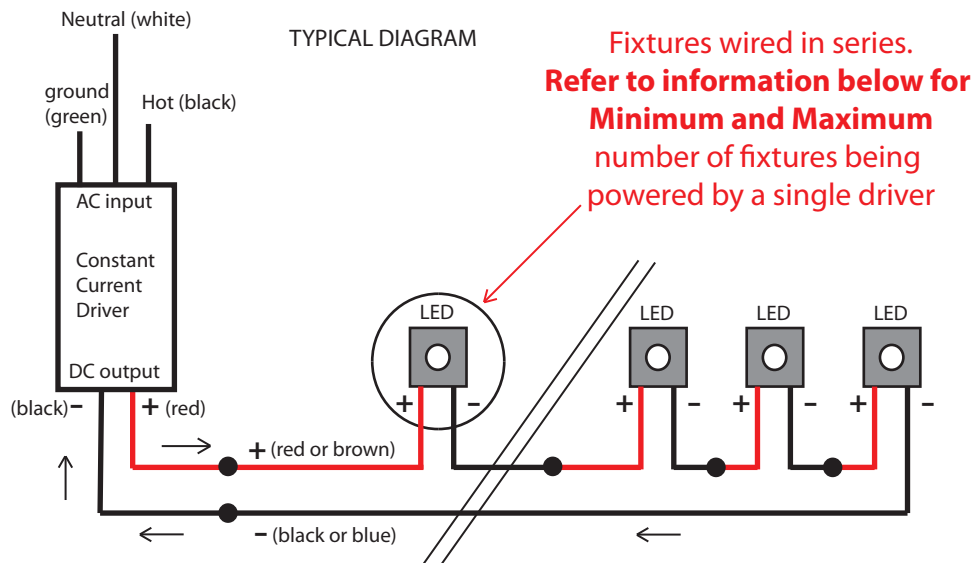
Carefully read instructions prior to installation and testing.

Constant Current drivers

Wiring Key Points

1. This product shall be installed by a qualified electrician.
2. Make sure the main power supply to the driver is turned off when wiring either the LEDs or driver.
3. LEDs shall be wired in series as shown in wiring diagram. CAUTION: parallel wiring will damage LEDs.
4. Wire shall be 18 awg stranded minimum. Large gauge wire shall be used to limit voltage drop in order to maintain the proper operating voltage. Take every precaution to avoid interference from other electrical circuits and equipment.
5. Dimming circuits are more sensitive to voltage drop and electrical interference from other electrical sources.
6. Isolating LED wiring by dedicated circuit for each control zone is recommended.
7. Contractor shall verify the fixture quantities connected to the driver are compatible with the driver's specifications prior to energizing the circuit.
8. All Class II power cable remote wiring by others.

LED's can be permanently damaged if these points are not followed



Driver options:

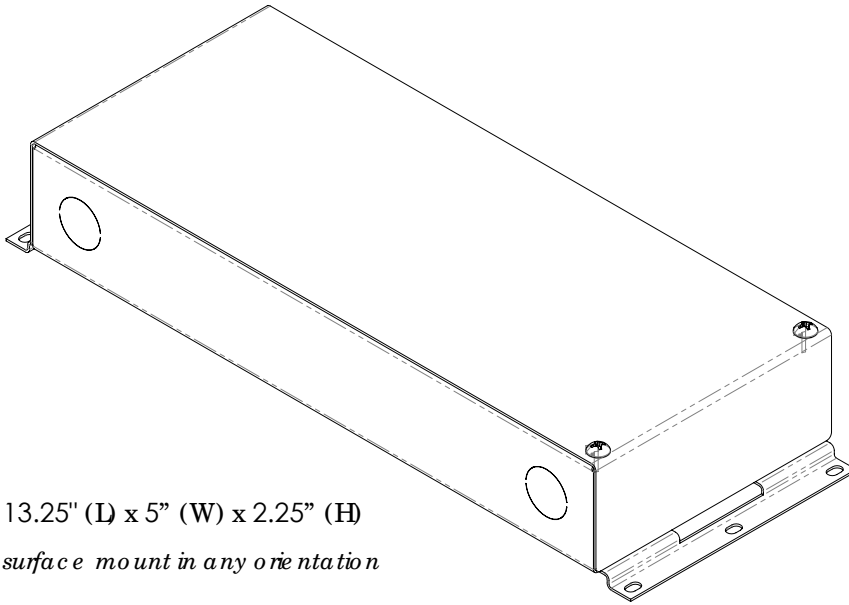
| Driver | AC Input | Dimming | Minimum number of fixtures | Maximum number of fixtures |
|----------------------|----------|---------|----------------------------|----------------------------|
| ECO361S1 (ECO30W-350 | 120/277V | 0-10V | 1 | 3 |

Please note: Dimming/control wiring not shown in the diagram above. A relay or Powerpack may be required. Running separate line side (line voltage) and controls (low voltage) leads may be required. Refer to the NEC, your local jurisdiction and the 0-10V dimmer or dimming system manufacturer you are planning on using for additional considerations on how to wire the 0-10V control leads.

inter•lux

| | | |
|------------------------------|----------|-------|
| Project: | Type: | Date: |
| Manufacturer: SATTLER | Fixture: | |

Dry Location Enclosure



13.25" (L) x 5" (W) x 2.25" (H)

surface mount in any orientation

Maximum Wiring Distance Guide*

| Wire Gauge | Maximum Lead Length |
|------------|---------------------|
| 18 | 72 ft (22 m) |
| 16 | 118 ft (36 m) |
| 14 | 150 ft (46 m) |
| 12 | 200 ft (61 m) |

*Actual distance must be calculated by installer.
Must comply with NEC code.

Our drivers are programmed to Linear dimming curve by default.

Compatible/Recommended dimmers and interfaces*:

- Lutron Diva DVSTV (Wallbox dimmer)
- Lutron Nova T NTSTV (Wallbox dimmer)
- Lutron Maestro MS-Z101/MS-Z101-V (Wallbox dimmer/sensor)
- Lutron PowPak 0-10V RMJ-5T-DV-B (Energi Tripak)
- Lutron GRX-TVI (0-10V interface for Grafik QS and some commercial dimming panels)
- Lutron TVI-LMF-2A (EcoSystem to 0-10V interface)
- Lutron QSN-4T16-S (Energi Savr Node 0-10V)
- Lutron TVM2 module (HomeWorks and commercial dimming panels)

**Consult factory for any dimmer not listed above or if programming to a logarithmic dimming curve is required before ordering the drivers.*



30W 0-10V 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 is compatible with the 0-10V lighting control protocol, and works seamlessly together with LED modules, controls and intelligent luminaire elements.

Product offering



ECOdrive 361/S

| | |
|---------------------|---|
| Part number (P/N) | EC0361S3 |
| Product description | ECOdrive, 30W, 0-10V, 1 control channel, constant current, 1x 55V output, side feed, metal square |

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 | 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 |

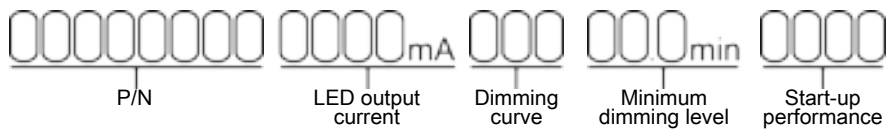
Programming tools

| | |
|-------------------------------------|---|
| Programming interface | TOOLbox pro (TLU20504) |
| Programming cable set | TOOLbox pro to LED driver, programming cable, 5pcs (TLC03051) |
| Programming Hand-held, Touch-and-Go | PJ0050HH1 |
| Programming jig | PJ0300S1 |
| 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 |
| 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 1.0%. Specify in 0.1% increments, e.g. "10.5" for 10.5%. |
| Start-up performance | Enter "CA24" for improved start-up performance to comply with ENERGY STAR Luminaires v2.0 and the latest CA Title 24 standard, effective January 2017. |

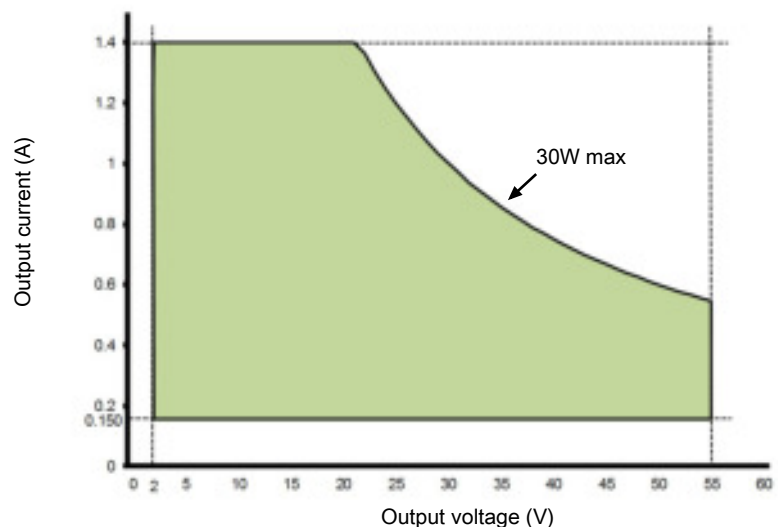
Input characteristics

| | |
|--------------------------------|--|
| Nominal input voltage range AC | 120 - 250V (ENEC), 120 - 277V (UL) |
| Nominal input voltage range DC | 120 - 250V |
| Maximum input current | 0.35A @ 120V / 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 | < 200mA ² s @ 120V / 60Hz |
| Surge protection | 2kV differential mode (DM) 2kV common mode (CM) |
| Maximum standby power | < 0.5W |

Output characteristics

| | |
|---------------------------------------|---|
| Maximum LED output power | 30W |
| 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 |

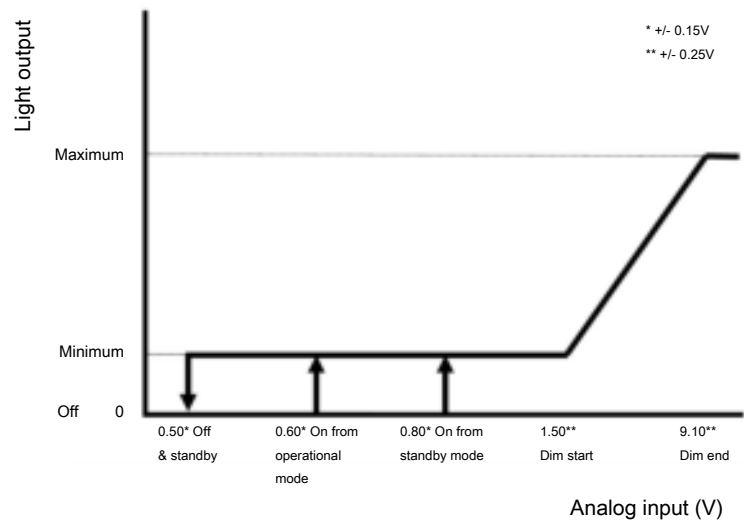
Operating window



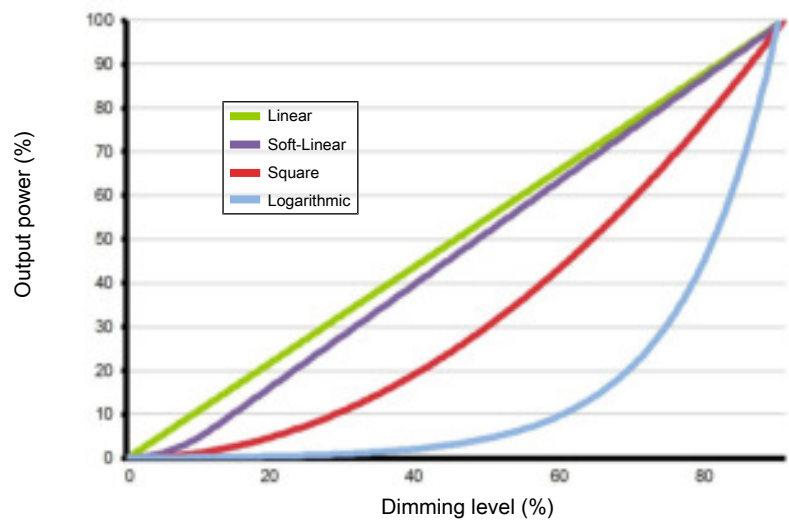
Control characteristics

| | |
|-----------------------|--|
| Control channels | 1 |
| Control protocol | 0-10V |
| | LEDcode |
| Dimming range | 100% - 1% |
| Dimming curve options | Logarithmic (default) Linear Soft-Linear Square |
| Dimming method | Hybrid HydraDrive |
| 0-10V current draw | <2mA |

0-10V dimming chart



Dimming curves



Environmental conditions

| | |
|---|---|
| Operating ambient temperature (Ta) range | -20 °C to +50 °C |
| Maximum operating case temperature (Tc max) | 80 °C |
| Lifetime | 50000 hours at a maximum case temperature (Tc) of 75 °C |
| UL Type TL | Measured Tref: 54 °C Maximum allowed Tref: 81 °C Measured at 1400mA |

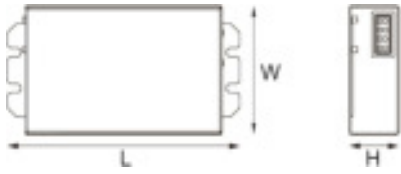
LED driver protection

| | |
|--------------------------|---|
| 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

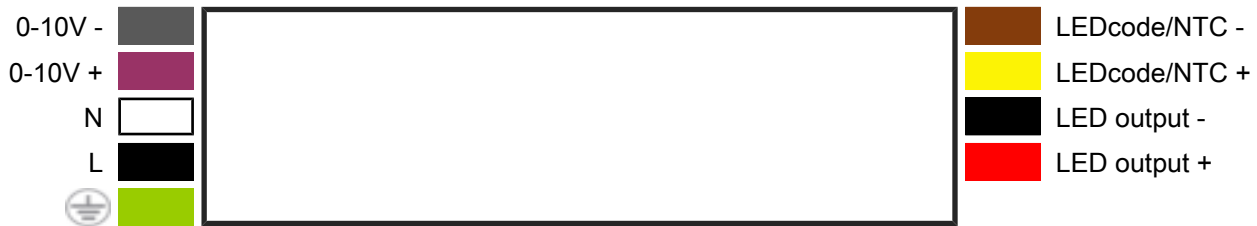
| | |
|------------------------|---|
| Thermal protection LED | An external NTC thermistor, which is placed on a PCB near the LEDs, can be connected to the driver via the LEDcode/NTC terminals. The output current to the LEDs is then decreased by 75% whenever the NTC exceeds a maximum allowable temperature, 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: 130 mm / 5.12 in |
| Width (W) | typical: 72 mm / 2.83 in |
| Height (H) | typical: 28 mm / 1.10 in |
| 3D files available on product web page | IGS |
| Weight | 285.5 g |
| Mounting torque | Not to exceed 0.5Nm |

Connector layout



Input wiring specifications

| | |
|-------------------------------|---------------------------------------|
| Connector type | push-in terminals |
| Connector supplier and series | Wago 253 series |
| Wire type | solid or stranded copper |
| Wire core cross section | 0.5 - 1.5 mm ² AWG 20 – 16 |
| Wire strip length | 9.0 mm |

Output wiring specifications

| | |
|--|--|
| Connector type | push-in terminals |
| Connector supplier and series | Wago 253 series |
| Wire type | solid or stranded copper |
| Wire core cross section | 0.5 - 1.5 mm ² AWG 20 – 16 |
| Wire strip length | 9.0 mm |
| 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 | 33 | 43 | 53 | 33 | 43 |

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 (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 |
| 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. |
| FCC | 47 CFR Part 15 class B |
| RCM | AS/NZS 61347.1, AS/NZS 61347.2.13 |
| Restriction of hazardous substances | RoHS3 (Directives 2011/65/EU-2015/863/EU) |

Certifications



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.

Europe, Rest of World

eldoLED B.V.
Science Park Eindhoven 5125
5692 ED Son
The Netherlands

E: info@eldoled.com
W: www.eldoled.com

North America

eldoLED America
One Lithonia Way
Conyers, GA 30012
USA

E: info@eldoled.com
W: www.eldoled.com
