eldoLED Programmable Small Form Factor (SFF) LED Drivers feature a compact design for downlight commercial and residential fixture applications. With multiple form factors available, a minimum dimming level of 5%, 1% or 0.1% (depending on model), and a programmable output current and minimum dimming range, this LED driver family can enable a wide range of compact luminaire applications. Supported control protocols include 0-10V, Phase Cut dimming, DALI-2, and LEDcode2 peripheral devices.

Applications

— Downlight
— Commercial (hospitality, office, healthcare)
— Residential

Key Features and Benefits

— Natural Dimming: Dim with smooth brightness changes, excellent flicker performance, configurable minimum dimming level, and adaptable dimming curves to suit your application. Dim to: 1% or 5% (OPTOTRONIC®), 1% (ECOdrive or Optotronic), or 0.1% (SOLOdrive)

— Programmable: Fine tune your driver for any application across a wide operating window. Programmable features include:
 – Dimming level
 – Output current (1mA resolution)
 – Dimming Curve (ECOdrive and SOLOdrive models only)

— Supported control protocols include 0-10V, Phase-Cut Dimming, DALI-2, and LEDcode2 peripheral devices

— Performance: Universal input voltage (120-277 VAC, 50/60Hz), low inrush current and total harmonic distortion (THD), high power factor and efficiency

— Multiple form factors available, for built-in usage only, Models for independent use (including a strain relief) are not part of the Small Form Factor series.

— Hybrid HydraDrive technology (ECOdrive and SOLOdrive models only) is proven to work in TV studios and security camera environments.

Specifications and Certifications

c(UL)us LISTED Class P   CSA   RoHS compliant   CE   ENEC 05

* 0-10V & DALI Models only (refer ordering Information table for item number)

DALI 2   LEDcode2   0-10V

Compliant to 47 CFR, Part 15 Class A (OPTOTRONIC models only)
Compliant to 47 CFR, Part 15 Class B
Meets CA Title 24/JA8 Start-up Requirements (ECOdrive and SOLOdrive models only)

Products

Family	Max Power	Housing Type	Min. Dimming Level	Output Current Range	Output Voltage Range (VDC)
OPTOTRONIC	12W	F-Type (side feed w/ flanges)	1%	100-300mA	26-42V
OPTOTRONIC	12W	J-Type (bottom feed w/ studs)	1%	100-300mA	26-42V
OPTOTRONIC	20W	F-Type (side feed w/ flanges)	1%	250-500mA	26-42V
OPTOTRONIC	20W	J-Type (bottom feed w/ studs)	1%	250-500mA	26-42V
OPTOTRONIC	12W	F-Type (side feed w/ flanges)	5%	100-300mA	26-42V
OPTOTRONIC	12W	J-Type (bottom feed w/ studs)	5%	100-300mA	26-42V
OPTOTRONIC	20W	F-Type (side feed w/ flanges)	5%	250-500mA	26-42V
OPTOTRONIC	20W	J-Type (bottom feed w/ studs)	5%	250-500mA	26-42V
ECOdrive	12W	B (bottom feed)	1%	150-950mA	2-42V
ECOdrive	12W	S (side feed no flanges)	1%	150-950mA	2-42V
ECOdrive	22W	B (bottom feed)	1%	150-950mA	2-42V
ECOdrive	22W	S (side feed w/ flanges)	1%	150-950mA	2-42V
ECOdrive	22W	S (side feed no flanges)	1%	150-950mA	2-42V
SOLOdrive	12W	B (bottom feed)	0.1%	150-950mA	2-42V
SOLOdrive	12W	S (side feed no flanges)	0.1%	150-950mA	2-42V
SOLOdrive	22W	B (bottom feed)	0.1%	150-950mA	2-42V
SOLOdrive	22W	S (side feed w/ flanges)	0.1%	150-950mA	2-42V
SOLOdrive	22W	S (side feed no flanges)	0.1%	150-950mA	2-42V

Small Form Factor Drivers - Datasheet

Electrical Specifications

Max Output Power	Nominal Input Voltage	Nominal Input Voltage	Max Input Current	Power Factor	THD	Line Transient	Efficiency	Environmental Rating	Ceritifications
(OPTO) 12W	0-10V / Phase Dim	120-277VAC	0.18 A @ 120V 0.05 A @ 277V	>0.90	<20%	ANSI C82.77 Low Bay 2.5kV	83%	Damp and Dry	UL File # E333135
(OPTO) 20W	0-10V / Phase Dim	120-277VAC	0.30 A @ 120V 0.09 A @ 277V	>0.90	<20%	ANSI C82.77 Low Bay 2.5kV	83%	Damp and Dry	UL File # E333135
(ECO/SOLO) 12W	LEDcode 2.1	120-277VAC	0.12 A @ 120V 0.05 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	82%	Damp and Dry	UL File # E333135
(ECO/SOLO) 22W	LEDcode 2.1	120-277VAC	0.22 A @ 120V 0.10 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	83%	Damp and Dry	UL File # E333135
(ECO/SOLO) 12W	0-10V	120-277VAC (UL) 220-250VAC 50Hz (ENEC)	0.12 A @ 120V 0.05 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	82%	Damp and Dry	UL File # E333135, ENEC, CE
(ECO/SOLO) 22W	0-10V	120-277VAC (UL) 220-250VAC 50Hz (ENEC)	0.22 A @ 120V 0.10 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	83%	Damp and Dry	UL File # E333135, ENEC, CE
(ECO/SOLO) 12W	DALI -2 and LEDcode 2.1	120-277VAC (UL) 220-250VAC 50Hz (ENEC)	0.12 A @ 120V 0.05 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	82%	Damp and Dry	UL File # E333135, ENEC, CE
(ECO/SOLO) 22W	DALI -2 and LEDcode 2.1	120-277VAC (UL) 220-250VAC 50Hz (ENEC)	0.22 A @ 120V 0.10 A @ 277V	>0.95	<20%	2.5kV differential mode (DM) 2.5kV common mode (CM) <30V	83%	Damp and Dry	UL File # E333135, ENEC, CE

Minimum and Maximum Ratings

Parameter	OPTOTRONIC Models	ECOdrive and SOLOdrive Models
Input Voltage Range	120-277VAC (+/- 10%)	108-305VAC
Maximum Case Temperature (Tc point)	OTi20W: 90°C (194°F), OTi12W 80°C (176°F) for 5-year life and warranty	75°C (167°F)
Ambient Operating Temperature	-30°C to 50°C (-22°F to 122°F) (reference)	-20°C to 50°C (-4°F to 122°F) (performance temperature range) -40°C to 50°C (-40°F to 122°F) (functional temperature range)
Storage Temperature	75°C (167°F)	
Maximum Relitive Humidity	85% non-condensing	
Lifetime	5 Years	50K hours at maximum case temperature (Tc) of 75°C (167°F)

Ordering Guide

OPTOTRONIC Models

OT	12W	UNV	0A3	DUALDIM	DIM-5	F-HOUSING	J25
Family	Output Wattage	Universal Voltage	Max. Output Current	Dimming	Min. Dimming	Housing	Case Qty
OPTOTRONIC	12W 20W	UNV = 120-277 V	0A3 = 300mA 0A5 = 500mA	0-10V / Phase Cut	5% Dimmable	F-Style Housing J-Style Housing	J25 = Job Pack 25 Qty.

ECOdrive and SOLOdrive Models

EC	22	B	M1	M	0	A	1
Family	Output Wattage	Housing	Output	Aux Output	Flanges	Control	Product Version
EC = ECOdrive SL = SOLOdrive	12 = 12W 22 =22W	B = Bottom Feed S = Side Feed	M1 = 120-277, 1-LED output	M = Medium power AUX Z = No AUX	Side-feed models only 0 = with flanges 1 = no flanges	A = 0-10V D = DALI-2 + LEDcode Z = LEDcode only	

Small Form Factor Drivers - Datasheet

Ordering Information

Family	Item Number	Model Name	Output Power	Min. Dim Level	Housing Type	Control Protocol	Aux Output
OPTOTRONIC	*2845RT	OT 12W UNV 0A3 DUALDIM DIM-1 F-HOUSING J25	12W	1%	F-Type	0-10V / Phase Cut	No
	*2845RS	OT 12W UNV 0A3 DUALDIM DIM-1 J-HOUSING J25	12W	1%	J-Type	0-10V / Phase Cut	No
	*28437A	OT 20W UNV 0A5 DUALDIM DIM-1 F-HOUSING J25	20W	1%	F-Type	0-10V / Phase Cut	No
	*284378	OT 20W UNV 0A5 DUALDIM DIM-1 J-HOUSING J25	20W	1%	J-Type	0-10V / Phase Cut	No
OPTOTRONIC	*276PEK	OT 12W UNV 0A3 DUALDIM DIM-5 F-HOUSING J25	12W	5%	F-Type	0-10V / Phase Cut	No
	*276PF0	OT 12W UNV 0A3 DUALDIM DIM-5 J-HOUSING J25	12W	5%	J-Type	0-10V / Phase Cut	No
	*276PF7	OT 20W UNV 0A5 DUALDIM DIM-5 F-HOUSING J25	20W	5%	F-Type	0-10V / Phase Cut	No
	*276PFF	OT 20W UNV 0A5 DUALDIM DIM-5 J-HOUSING J25	20W	5%	J-Type	0-10V / Phase Cut	No
ECOdrive	*280K9G	EC12B-M1Z0A1	12W	1%	B (bottom feed)	0-10V	No
	*280K9J	EC12B-M1Z0D1	12W	1%	B (bottom feed)	DALI-2 and LEDcode2.1	No
	*280K9K	EC12B-M1M0Z1	12W	1%	B (bottom feed)	LEDcode2.1	Yes
	*280K9S	EC12S-M1Z0A1	12W	1%	S (side feed w/ flanges)	0-10V	No
	*280K9T	EC12S-M1Z0D1	12W	1%	S (side feed w/ flanges)	DALI-2 and LEDcode2.1	No
	*280K9U	EC12S-M1M0Z1	12W	1%	S (side feed w/ flanges)	LEDcode2.1	Yes
	*280KA0	EC12S-M1Z1A1	12W	1%	S (side feed no flanges)	0-10V	No
	*280KA2	EC12S-M1Z1D1	12W	1%	S (side feed no flanges)	DALI-2 and LEDcode2.1	No
	*280KA3	EC12S-M1M1Z1	12W	1%	S (side feed no flanges)	LEDcode2.1	Yes
	*2709HX	EC22B-M1Z0A1	22W	1%	B (bottom feed)	0-10V	No
	*269KHW	EC22B-M1Z0D1	22W	1%	B (bottom feed)	DALI-2 and LEDcode2.1	No
	*269KHV	EC22B-M1M0Z1	22W	1%	B (bottom feed)	LEDcode2.1	Yes
	*2709J3	EC22S-M1Z0A1	22W	1%	S (side feed w/ flanges)	0-10V	No
	*269KJ9	EC22S-M1Z0D1	22W	1%	S (side feed w/ flanges)	DALI-2 and LEDcode2.1	No
	*269KJ3	EC22S-M1M0Z1	22W	1%	S (side feed w/ flanges)	LEDcode2.1	Yes
	*271SRT	EC22S-M1Z1A1	22W	1%	S (side feed no flanges)	0-10V	No
	*271SRU	EC22S-M1Z1D1	22W	1%	S (side feed no flanges)	DALI-2 and LEDcode2.1	No
	*271SRV	EC22S-M1M1Z1	22W	1%	S (side feed no flanges)	LEDcode2.1	Yes
SOLOdrive	*280K9M	SL12B-M1Z0A1	12W	0.1%	B (bottom feed)	0-10V	No
	*280K9N	SL12B-M1Z0D1	12W	0.1%	B (bottom feed)	DALI-2 and LEDcode2.1	No
	*280K9P	SL12B-M1M0Z1	12W	0.1%	B (bottom feed)	LEDcode2.1	Yes
	*280GXX	SL12S-M1M1Z1	12W	0.1%	S (side feed no flanges)	LEDcode2.1	Yes
	*280J85	SL12S-M1Z1A1	12W	0.1%	S (side feed no flanges)	0-10V	No
	*280K9E	SL12S-M1Z1D1	12W	0.1%	S (side feed no flanges)	DALI-2 and LEDcode2.1	No
	*280K9V	SL12S-M1Z0A1	12W	0.1%	S (side feed w/ flanges)	0-10V	No
	*280K9X	SL12S-M1Z0D1	12W	0.1%	S (side feed w/ flanges)	DALI-2 and LEDcode2.1	No
	*280K9Y	SL12S-M1M0Z1	12W	0.1%	S (side feed w/ flanges)	LEDcode2.1	Yes
	*2709J1	SL22B-M1Z0A1	22W	0.1%	B (bottom feed)	0-10V	No
	*269KJ8	SL22B-M1Z0D1	22W	0.1%	B (bottom feed)	DALI-2 and LEDcode2.1	No
	*269KHX	SL22B-M1M0Z1	22W	0.1%	B (bottom feed)	LEDcode2.1	Yes
	*2709J4	SL22S-M1Z0A1	22W	0.1%	S (side feed w/ flanges)	0-10V	No
	*269KJJ	SL22S-M1Z0D1	22W	0.1%	S (side feed w/ flanges)	DALI-2 and LEDcode2.1	No
	*269KJ7	SL22S-M1M0Z1	22W	0.1%	S (side feed w/ flanges)	LEDcode2.1	Yes
	*271SRX	SL22S-M1Z1A1	22W	0.1%	S (side feed no flanges)	0-10V	No
	*271SRY	SL22S-M1Z1D1	22W	0.1%	S (side feed no flanges)	DALI-2 and LEDcode2.1	No
	*271SS1	SL22S-M1M1Z1	22W	0.1%	S (side feed no flanges)	LEDcode2.1	Yes

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Programming Accessories - OPTOTRONIC Models

Programming Tools	Item Number
OT Programmer	*274A17
OT Programming Tool	*2743V2

Programmable Parameters - OPTOTRONIC Models

LED Output Current	1mA Resolution
Dimming Level	Minimum dimming level 5%

Programming Accessories - ECOdrive and SOLOdrive Models

Programming Tools	Item Number
TOOLbox pro for Programming	TLU20505 (*277HWN)
TOOLbox adapter for Programming Without Mains (optional)	TLA20502 (*277HWF)
Programming Hand-held Tool	*2797N3 (for B - bottom feed models) *2797N6 (for S - side feed models)
Programming Software	FluxTool 4.6.x or higher

Programmable Parameters - ECOdrive and SOLOdrive Models

Programming Tools	Item Number
LED Output Current	1mA Resolution
Dimming Curve	LOG = logarithmic (default) LIN = linear SQU = square (0-10V models only) SLN = soft-linear (0-10V models only)
Minimum Dimming Level	Settable in 0.1% increments down to: 1% (ECOdrive) or 0.1% (SOLOdrive)
AUX Voltage	AUX models only. 18V default. Settable in 1V increments between 4V and 16V and 2V increments between 16V and 24V.
AUX Standby	AUX models only. "ON" default. ON = The AUX is on in standby mode for when a peripheral device depends on AUX for normal operation. OFF = The AUX is not used to power a peripheral device and may be off during standby (ensures total driver standby power is < 0.5W).

Auxillary Output Characteristics (LEDcode configuration only)

AUX Output Voltage Range	Settable in range 4-24VDC
AUX Output Current	100mA (maximum)
AUX Voltage Resolution	1V (if VAUX <16) and 2V (if VAUX is ≥ 16V)

Mechanical Details

Parameter	F-Style	J-Style	B-Style	S (With Flanges)	S (Without Flanges)
Length	3.98 in (101.3mm)	3.56 in (90.4mm)	3.86 (98mm)	4.43 in (112.5mm)	3.86 (98mm)
Width	1.22 in (31.1mm)	1.31 in (33.3mm)	1.26 in (32mm)	1.26 in (32mm)	1.26 in (32mm)
Height	1 in (25.4mm)	1 in (25.4mm)	0.98 in (25mm)	0.98 in (25mm)	0.98 in (25mm)
Weight	0.25 lbs (113g)	0.25 lbs (113g)	0.33 lbs (150g)	0.33 lbs (150g)	0.33 lbs (150g)
Wire Length	AC In: 5.9 in (150mm) LED Out: 5.9 in (150mm) Dim/Prog: 6.7 in (170mm)	AC In: 5.9 in (150mm) LED Out: 5.9 in (150mm) Dim/Prog: 6.7 in (170mm)	AC In: 6.3 in (160mm) LED Out: 6.3 in (160mm)	AC In: 6.3 in (160mm) LED Out: 6.3 in (160mm)	AC In: 6.3 in (160mm) LED Out: 6.3 in (160mm)
Wire Strip Length	0.4 in (10mm)	0.4 in (10mm)	0.35 in (9mm)	0.35 in (9mm)	0.35 in (9mm)

F-Style (side feed)
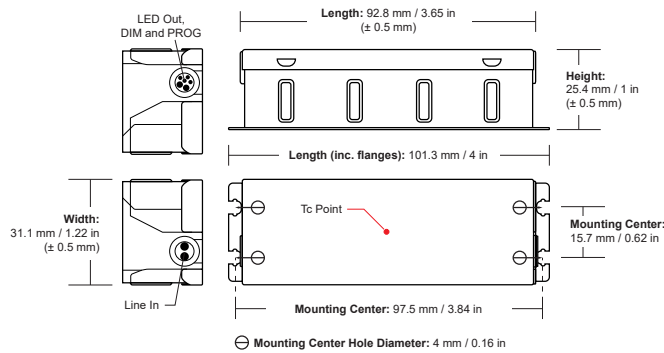
J-Style (bottom feed)
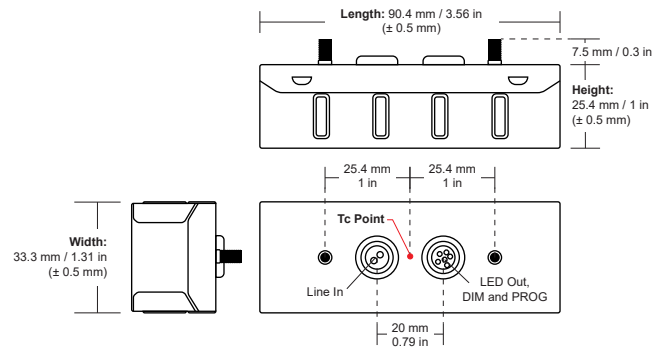
B-Style (bottom feed with studs)
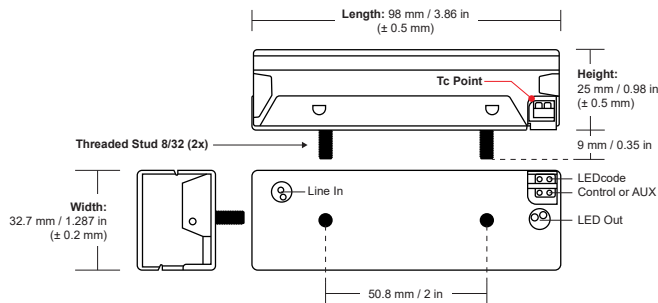
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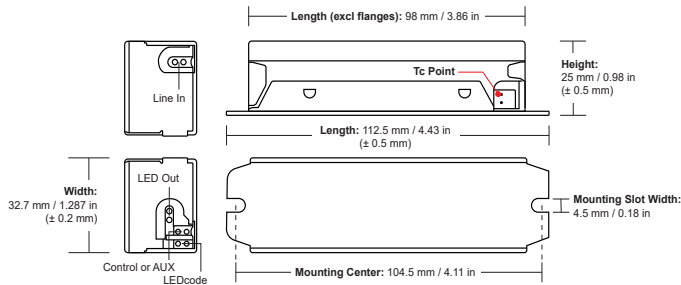
S-Style (side feed without flanges)
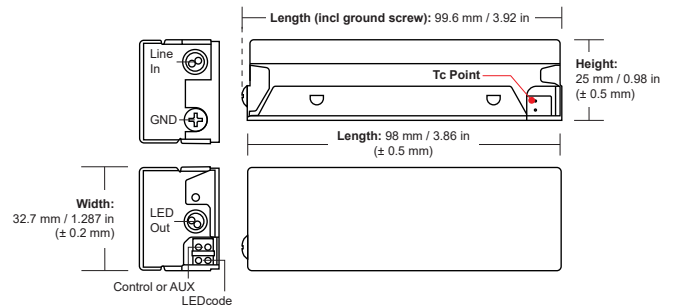
Wiring Diagram - OPTOTRONIC Models
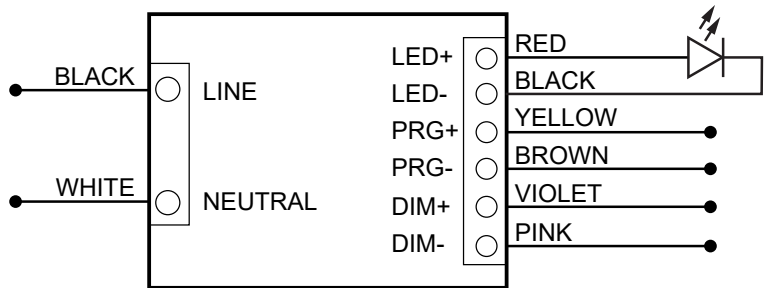
Note: case must be properly grounded

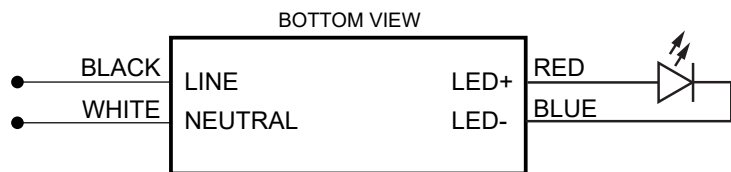## Wiring Diagram - ECOdrive and SOLOdrive Models

SIDE FEED (S) MODEL

TOP VIEW
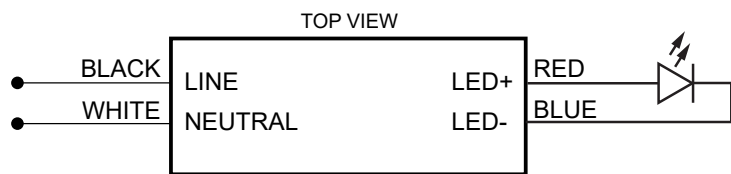
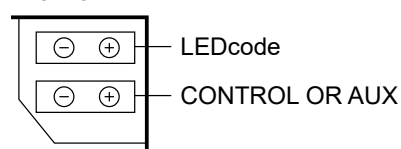Note: Case must be properly grounded via flanges or dedicated ground screw

TERMINAL BLOCK
SIDE VIEW

CONTROL OR AUX

LEDcode
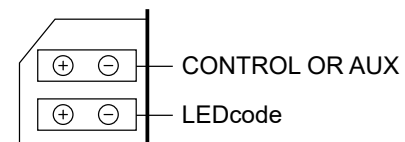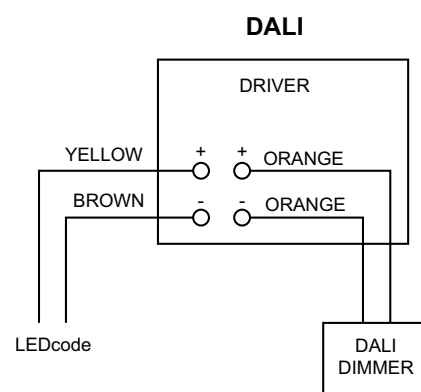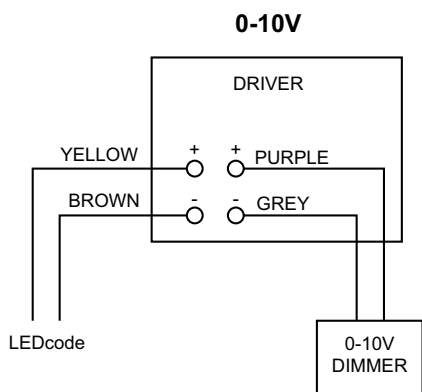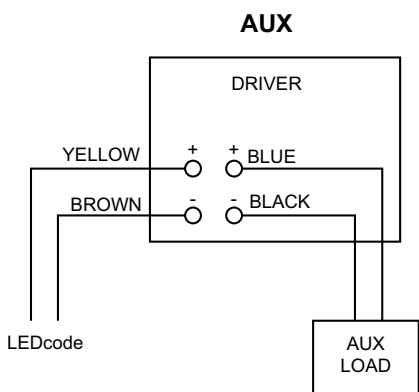
BOTTOM FEED (B) MODEL

BOTTOM VIEW

Note: Case must be properly grounded via studs (not shown)

TERMINAL BLOCK
BOTTOM VIEW

LEDcode

CONTROL OR AUX

Dimmer Schematics

AUX

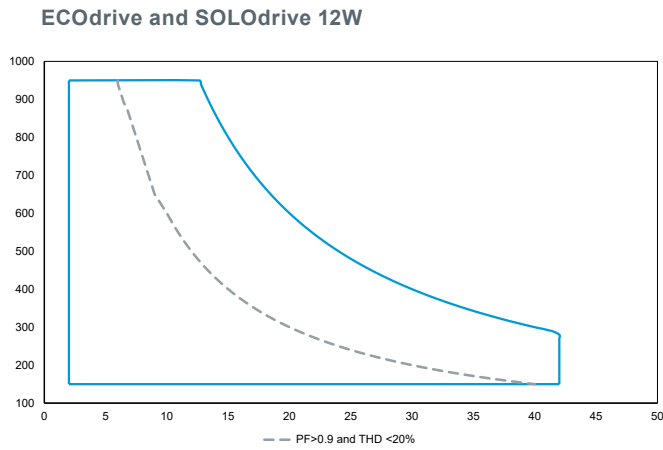
0-10V

DALI

Operating Range - OPTOTRONIC Models

OPTOTRONIC 12W
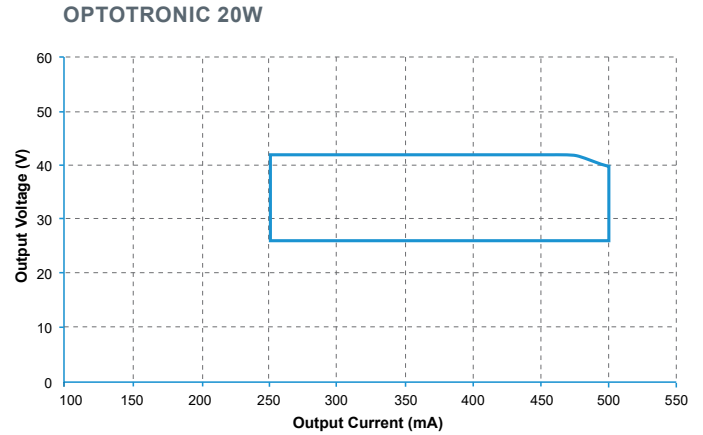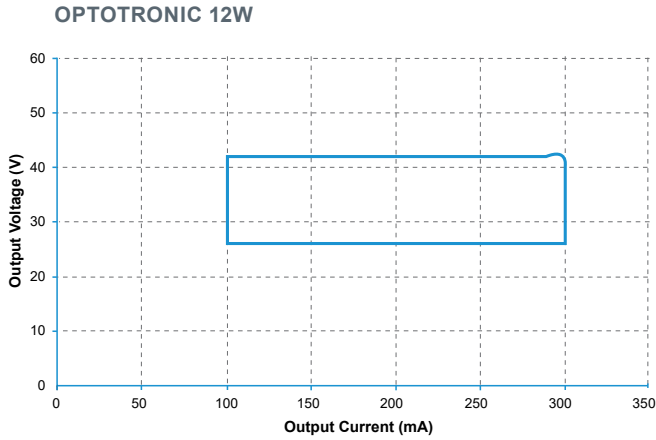
OPTOTRONIC 20W

Operating Range - ECOdrive and SOLOdrive

ECOdrive and SOLOdrive 12W

ECOdrive and SOLOdrive 22W
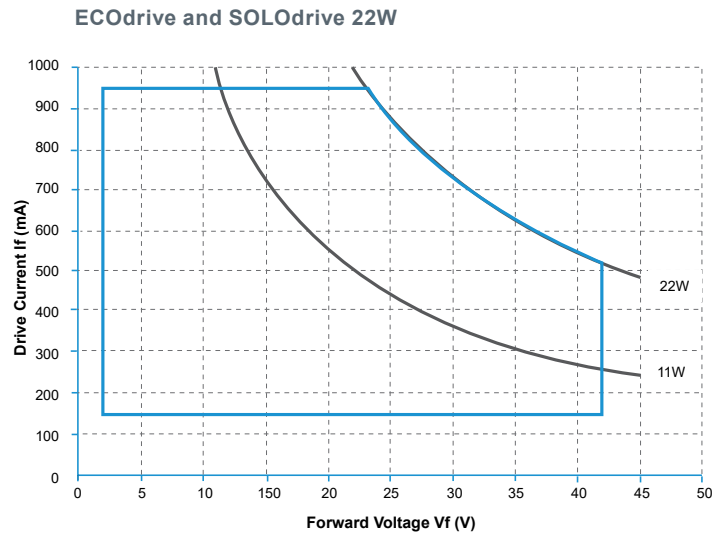
Packaging

OPTOTRONIC Models	ECOdrive and SOLOdrive Models	
12W and 20W	**12W**	**22W**
Case Quantity: 25 pieces	Case Quantity: 25 pieces	Case Quantity: 25 pieces
Weight: 0.25 lbs (0.11kg) each 6.25 lbs. (2.8kg) per case (approx)	Weight: 0.25 lbs (0.11kg) each 6.25 lbs (2.8kg) per case (approx)	Weight: 0.25 lbs (0.11kg) each 6.25 lbs (2.8kg) per case (approx)

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DS2010025-003-00

Warranty
eldoLED Products are covered by a 5-year limited warranty.This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed.
Complete warranty terms can be found at: www.eldoled.com/legal/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.