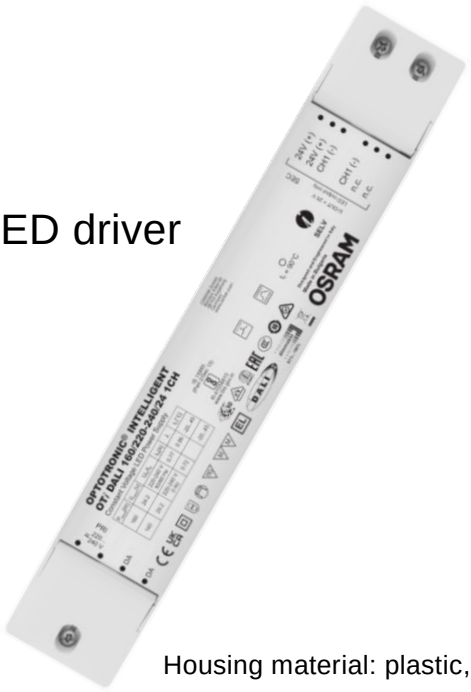
Light is OSRAM

OTi DALI 160/220-240/24 1CH



Housing material: plastic, white

* image for information purpose only

24 V Single-channel Constant Voltage LED driver Dimmable range 0/0,1% - 100%

Benefits

Long lasting and high reliability.
DALI-2 single channel.
High efficiency in slim form factor
Patent pending flicker-free dimming until 0,1%.

Applications

Hospitality, cove lighting, shops.
Suitable for indoor CLASS I and CLASS II luminaires.

L	300 mm	Total length
B	50 mm	Width
H	35 mm	Height

Approvals

When not printed on product label, they are under evaluation.

Product Features

- DALI-2 certified
- Single channel
- Lamp Failure detection
- CLASS II independent housing
- Smart Power Supply
- SELV, Vout: 24,2 V
- t_a range -20…+45°C
- Overload/Over temperature and Short circuit protection
- Dimmable via DALI interface
- Very low min dimming level: 0,1%
- Mains voltage: 220–240 V_{ac} / 176–276 V_{dc}
- 50’000 h lifetime at max t_C*
- 5 years guarantee*
- IP20 independent housing
- Output wire length up to 50 m
- Touch DIM compatibility
- Emergency lighting compatibility

*10% cumulated failure, 24 h = 14 h ON, 10 h Standby

Electrical specification

	Item	Value	Unit	Remarks
INPUT	Nominal line voltage	220 – 240	V	
	Mains line frequency	0 / 50 / 60	Hz	
	AC voltage range	198 – 264	V	Max 350 V for 2 h. Auto switch off >280 V_{ac}
	DC voltage range	176 – 276	V	
	Nominal current	0.77	A	Typical @ Full load, 230 Vac, 50 Hz
	Total Harmonic Distortion (THD)	< 5	%	Full load, 230 V_{ac}, 50 Hz, see graphs
	Power factor λ	0,99		Full load, 230 V_{ac}, 50 Hz, see graphs
	ECG Efficiency	93	%	Typical, steady state @ full load, 230 V_{ac}, 50 Hz, see graphs
	Power loss in stand-by mode	< 500	mW	230 V_{ac}, 50 Hz. Typical 350 mW
	Protection class	II		
	Suitable for fixtures with prot. Class	I / II		
	Inrush current	57	A_{pk}	Full Load, 230 V_{ac}, Cold Start Duration = 280 µs 50% / 50% I_{pk}
	Max. units per circuit breaker:			
	Max. ECG no. on circuit breaker 10 A (B)	4		B-Type is underusing thermal protection
	Max. ECG no. on circuit breaker 16 A (B)	7		
	Max. ECG no. on circuit breaker 25 A (B)	12		
	Max. ECG no. on circuit breaker 10 A (C)	8		C-Type is the preferable MCB choice
	Max. ECG no. on circuit breaker 16 A (C)	13		
	Max. ECG no. on circuit breaker 25 A (C)	20		
	Max. ECG no. on circuit breaker 10 A (D)	9		D-Type is underusing short-circuit protection
	Max. ECG no. on circuit breaker 16 A (D)	14		
OUTPUT	Nominal voltage	24,2	V	
	Voltage accuracy	± 3	%	
	Voltage ripple	< 1	V_{pp}	@ 100 Hz, full load. Typical < 500 mV_{pp}
	Nominal output power	0 - 160	W	Power factor, harmonics and EMI guaranteed between 60 – 160 W
	Device power loss	11	W	Full load, 230 Vac, 50 Hz, Typical
	Maximum power in AC	160	W	Smart Power to manage up to Pout_max + 25%
	Maximum power in DC	140	W	
	DC Output power (EL)	15	%	Pre-set value, adjustable via Tuner4Tronic
	Galvanic isolation	SELV		
DIMMING	Dimming interface	DALI 2.0		Proper DALI diagnostics with a min. load of 9% (15 W) and dimming > 3%
	Dimming range	0,1 – 100	%	Dali dimming steps (0 – 254)
	Dimming method	PWM		
	TLA (Flicker and strobe effects)	P_{ST} < 1 SVM < 0,4	-	For every dimming condition (n.a. < 1%) Extended SVM metrics (10 kHz).
	Galvanic Isolation	Basic / Double		Basic DALI to Primary / Double DALI to Secondary
ENVIRONMENTAL	Ambient temperature range	-20…+45	°C	
	Max. temperature at Tc test point	90	°C	Measured on t_c point indicated of the prod label, t_a not exceeded
	Max. case temperature in fault condition	115	°C	
	Storage temperature range	-25…+85	°C	
	Permitted rel. humidity during operation	5 – 85	%	Not condensing
	Surge capability (L vs N)	1	kV	L/N acc to. EN 61547
	Environmental rating	Indoor		
	IP protection class	IP 20		
	Mains switching cycles	> 200000	cycles	@ t_a = 25°C
	Expected ECG lifetime	50000	h	@ t_c 90°C – 0,2% / 1000 h failure rate
		50000	h	@ t_c 85°C – 0,1% / 1000 h failure rate

	Item	Value	Unit	Remarks
	No-load proof	Yes		Auto recovery
	Overheating protection	Yes		Auto recovery
	Overload protection	Yes		Auto recovery + Smart Power
	Short-circuit protection	Yes		Auto recovery
DIMENSIONS	Height	35	mm	
	Length	300	mm	Overall including fixing brackets
	Width	50	mm	
	Mounting holes interaxis	258	mm	
	Casing material	Plastic		White
	Type of connection	Screw terminals		0,5 – 1,5 mm²
	Wire preparation length	6	mm	Input and output terminals

Protection

Over temperature, Overload, Short-circuit, Input overvoltage, Output overvoltage. Reversible.

- Input wires cross section: 0,5 – 2,5 mm²
- Output wires cross section 0,5 – 2,5 mm²
- Wire peeling length: input 6 mm, output 6 mm

LED wire length

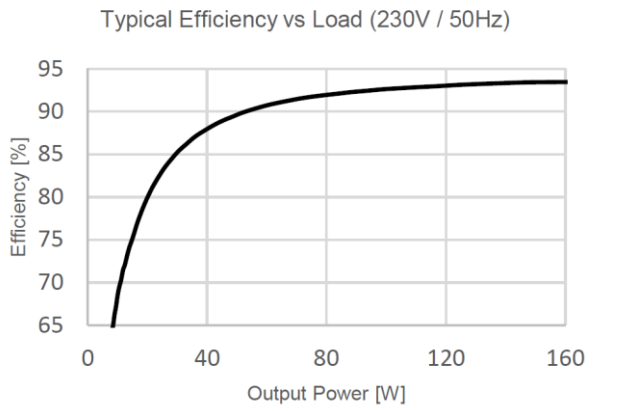
The wire length from the ECG to the LED module can reach 50 m with verified EMI.

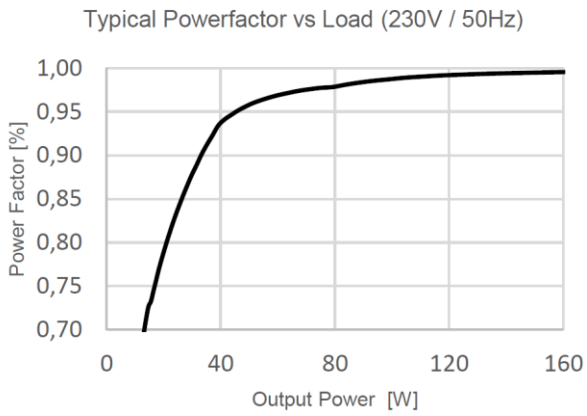
Below matrix shows the maximum LED load power according to cable length and section, at 25°C.

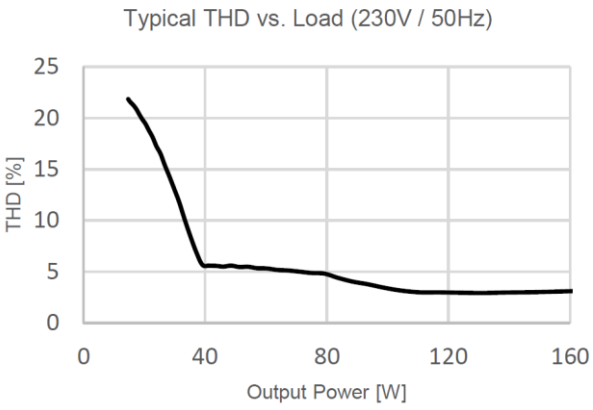
The proper wire section will ensure that the LED module input voltage is at least 23 V.

V_{out} 24,2V / nominal 160 W			Cable length [m]					
	AWG	mm²	**5**	**10**	**20**	**30**	**40**	**50**
Cable section	**17**	**1**	156	78	39	26	19	16
	16	**1.5**	160	116	58	39	29	23
	14	**2.5**	160	160	96	64	48	39
	12	**4**	160	160	154	103	77	62
	10	**6**	160	160	160	155	116	93
	8	**10**	160	160	160	160	160	154

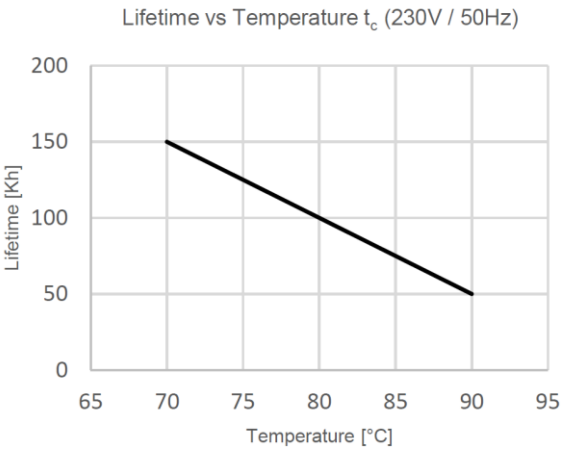
Values are indicative. Each connection may increase total voltage drop.

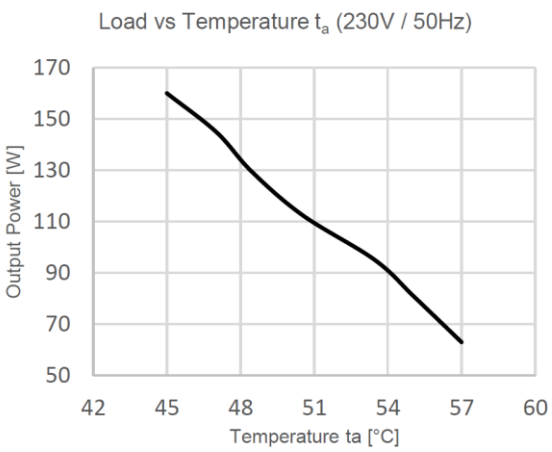






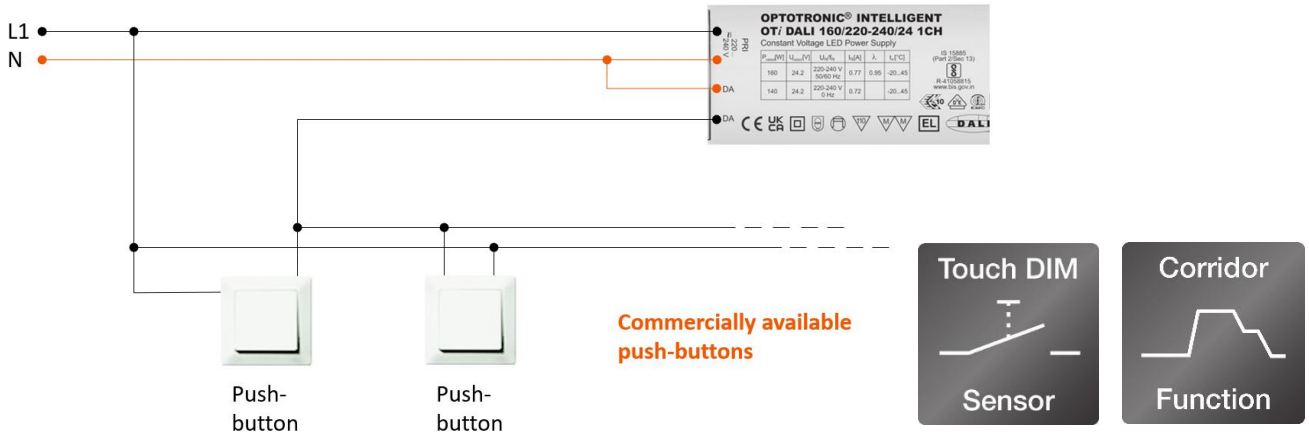
— OTi DALI 160/220-240/24 1CH





Touch DIM

This driver supports Touch DIM operation, which enables an easy control of light by means of a push-button and additional Presence Sensors and/or Light Sensor directly connected to the DALI terminals. No further programming is necessary, unless additional functions are to be implemented, like Corridor Function, fading time, dimming limit levels and so on. For these additional features, the Tuner for Tronic (T4T) is suggested as a convenient tool. For more information, please refer to OSRAM on-line documentation and catalogue.



ADDITIONAL INFORMATION

- The Touch DIM input voltage ranges from 10 Vac to 264 Vac and has single insulation from mains.
- DALI and Touch DIM must never be used at the same time: control is achieved either with DALI controller or with the Touch DIM function (self-recognized and kept at the first press following 5 s without DALI frames after last turn-on).
- Up to 20 ECGs can be controlled via direct push-button use. The number of push-buttons is limited by the sum of the overall cable length between switch(es) and the connected ECGs: max length should not exceed 25 m. In case of longer distances, a small 12 V transformer (AC buttons only) or a DALI repeater must be used to overcome line capacitance.

Touch DIM operation

The following item-list briefly describes the use of push-button for brightness control:

- Switching the lamp on/off: Short Press (< 0,5 s).
- Dimming: Long Press (> 0,5 s); the dimming direction is changed with each press.
- Store reference value: double-click (press twice within 0,4 s) while lamp is *On* → Switch to *Mode 2*.
- Delete reference value: double-click while lamp status is *Off* → Switch to *Mode 1*.
- Long Press while lamp status off: the lamp is switched on at the minimum dimmer setting and faded up until the push-button is released.

Operating Modes

- Mode 1: the switch-on value is always the last brightness/color before the lighting was switched off
- Mode 2: the switch-on value is the value stored by double clicking (default mode)

Re-synchronization

In case of many ECGs connected to the same Touch DIM buttons, there is a chance that an ECG will operate out of synchronism with the others (different on/off state or dimming level).
To have all of them back in synchronism, just apply a Long – Short – Long sequence, and in case apply a double-click afterwards to store a new common reference level.

Remarks

- **Product performances below minimal load condition**: the output power is still generated if the load is below the minimum output power of 60 W, without any safety risk, but performances regarding THD, EMI, etc. are not guaranteed. See typical operation window graph for details.
- **Output terminals**: The negative terminals are tied together, as well as the two positive ones are.
- **Output short circuit protection**: short circuit current is limited without damaging the unit. The short circuit protection is self-restoring.
- **Output overload protection**: in case of overload (< 125%), the device automatically dims down the output to keep the power within 160 W and let the LED load warm-up. When the overload exceeds the 125% of maximum nominal output power, the LED load will blink to manifest a fault condition, till the short circuit limit (> 200%).
- **Input over voltage protection**: driver is capable of having input of max 350 V for 2 hours. To prevent damages to the unit, driver performs auto switch off when input voltage is >280 V_{ac}, therefore driver operation in this abnormal condition is not guaranteed. The over voltage protection is self-restoring.
- **Lamp failure detection**: minimum load that doesn't trigger open circuit detection is 15 W.
- **No load operation**: do not put a switch between ECG and load.
- **Over temperature protection**: the driver is protected against temporary overheating, so it automatically dims down when T_c is exceeded, and eventually turns off. The protection is self-restoring.
- **Emergency lighting:** this LED power supply is suitable for emergency lighting fixtures acc. to EN 60598-2-22, with emergency output factor EOFI=0,15 (default value, programmable up to EOFI=1 with P_{max} 21 W) and related duration time of 10 h at least. Function in emergency is ensured up to t_a = 80°C and t_c = 110°C.
- **Recommendations on how to dispose of it at the end of its life in line with Directive 2012/19/EU:** separate control gear must be disposed of, in accordance with WEEE, at certified waste disposal companies. For this purpose, recycling centers and take-back systems (CRSO) collection points are available in the trade or at private disposal companies that accept separate control gears free of charge. In this way, raw materials are conserved, and materials are recycled.

Standards

EN 61347-1
EN 61347-2-13
EN 61547
EN 61000-3-2
EN 60598-2/22
EN 62384
EN 62386

Ordering information

Product name	EAN 10	EAN 40	Pieces / Box
OTi DALI 160/220-240/24 1CH	4062172178006	4062172178013	20

OSRAM GmbH
Head Office:
Marcel-Breuer-Strasse 6
80807 Munich, Germany
Phone +49 89 6213-0
www.osram.com