EM powerLED CLE CPS 12/15 W

LED Driver for AC and DC power supplies

Product description

- LED Driver for mains operation with integrated Simple CORRIDOR FUNCTION (CF)
- For use in central battery systems
- For luminaire installation
- For the use with CLE 1500lm EM
- 5 years guarantee

Properties

- Constant current LED Driver with 350 or 470 mA output current
- Simple CORRIDOR FUNCTION (CF) with 10 % light level
- Constant current mode
- Light output in DC operation (EoF_{DC}): 0.1 or 1
- SELV
- For emergency lighting systems as per EN 50172
- LED module and sensor available

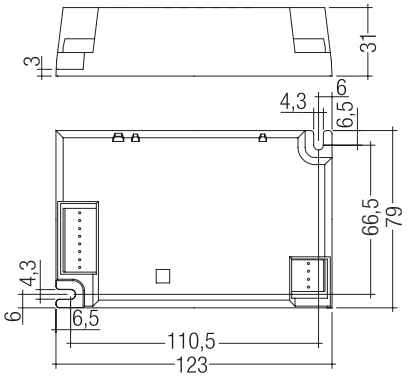
Standards, page 4

Wiring diagrams and installation examples, page 5

SELV EL RoHS

EM powerLED CLE CPS 12/15 W

LED Driver for AC and DC power supplies



Technical data

Rated supply voltage	220 – 240 V
Voltage range AC	198 – 264 V
Voltage range DC	176 – 280 V
Mains frequency	0 / 50 / 60 Hz
U-OUT	48 V
Overvoltage protection	320 V (for 1 h)
Max. permitted forward voltage LED	33 V
Turn on time (at 230 V, 50 Hz, full load)	100 ms
Changeover time between mains and emergency	< 380 ms
Changeover time between emergency and mains	< 100 ms
Ambient temperature ta	-25 … 55 °C
Max. casing temperature tc	75 °C
Dimensions LxBxH	123 x 79 x 31 mm
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee	5 years

Ordering data

Type[3]	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED 12W CLE CPS	**89800527**	10 pc(s).	560 pc(s).	0.1 kg
EM powerLED 15W CLE CPS	**89800177**	10 pc(s).	560 pc(s).	0.1 kg

Specific technical data

Type[3]	Output current	Output current tolerance	Min. output voltage[2]	Max. output voltage[2]	Typ. output power	Input power (at 230 V, 50 Hz, full load)	Input current (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz)	λ (at 230 V, 50 Hz, full load)	Ambient temperature ta[1]	tc/ta for ≥ 50.000 h[1]
Normal operation											
EM powerLED 12W CLE CPS	350 mA	5 %	22 V	33 V	10.61 W	13.6 W	75 mA	78 %	0.8c	-5 … 55 °C	85 / 55 °C
EM powerLED 15W CLE CPS	470 mA	5 %	22 V	33 V	14.25 W	17.0 W	100 mA	83 %	0.8c	-5 … 55 °C	85 / 55 °C
CF operation											
EM powerLED 12W CLE CPS	29 mA	15 %	22 V	33 V	0.75 W	1.7 W	15 mA	44 %	0.5c	–	–
EM powerLED 15W CLE CPS	43 mA	15 %	22 V	33 V	1.12 W	2.0 W	18 mA	49 %	0.5c	–	–
Emergency operation 100 %											
EM powerLED 12W CLE CPS	350 mA	5 %	22 V	33 V	10.61 W	13.6 W	75 mA	78 %	–	–	–
EM powerLED 15W CLE CPS	470 mA	5 %	22 V	33 V	14.25 W	17.0 W	100 mA	83 %	–	–	–
Emergency operation 10 %											
EM powerLED 12W CLE CPS	29 mA	15 %	22 V	33 V	0.75 W	1.7 W	15 mA	44 %	–	–	–
EM powerLED 15W CLE CPS	43 mA	15 %	22 V	33 V	1.12 W	2.0 W	18 mA	49 %	–	–	–

[1] Ambient temperature range ta defined in normal operation

[2] Output voltage range defined in normal operation. LED forward voltage will decrease in CF operation.

[3] EM = Emergency

ACCES-SORIES

smartSWITCH HF 5DP f

Automatic switching based on motion and light level

Product description

- Motion detector for luminaire installation
- Motion detection through glass and thin materials (except metal)
- For automatic on/off switching of electronic ballasts
- Bright-out function: luminaire is not switched on if there is adequate brightness
- Delay time, detection range and light value for the bright-out function can be set via 9 dip switches
- Max. installation height 5 m
- Two housing options allowing flexible installation
- Variable detection area (100 – 10 %)
- Zero cross switching supported
- 5 years guarantee

smartSWITCH HF 5DP f

smartSWITCH HF 5DP S f

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
smartSWITCH HF 5DP f	**28002214**	70 x 36.5 x 24.5 mm	5 pc(s).	0.040 kg
smartSWITCH HF 5DP S f	**28002235**	58 x 48.5 x 24.5 mm	5 pc(s).	0.040 kg

Standards
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 62384
- EN 61347-2-7
- according to EN 60598-2-22
- according to EN 50172

Mechanichal details
Case manufactured from polycarbonate.

Glow-wire test according to EN 61347-1 with increased temperature of 850 °C passed.

Short-circuit behaviour
In case of a short circuit on the secondary side (LED) the LED ouput is switched off. After elimination of the short circuit the nominal operation is restored automatically.

No-load operation
The LED Driver is not damaged in the no-load operation. The max. output voltage can be obtained during no-load operation.

Storage conditions
Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they are operated.

Expected lifetime

Type		ta = 45 °C	ta = 55 °C
EM powerLED 12W CLE CPS	tc	65 °C	75 °C
	Lifetime	100,000 h	50,000 h
EM powerLED 15W CLE CPS	tc	65 °C	75 °C
	Lifetime	100,000 h	50,000 h

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM powerLED 12W CLE CPS	90	130	130	130	10 A	120 µs
EM powerLED 15W CLE CPS	90	130	130	130	10 A	120 µs

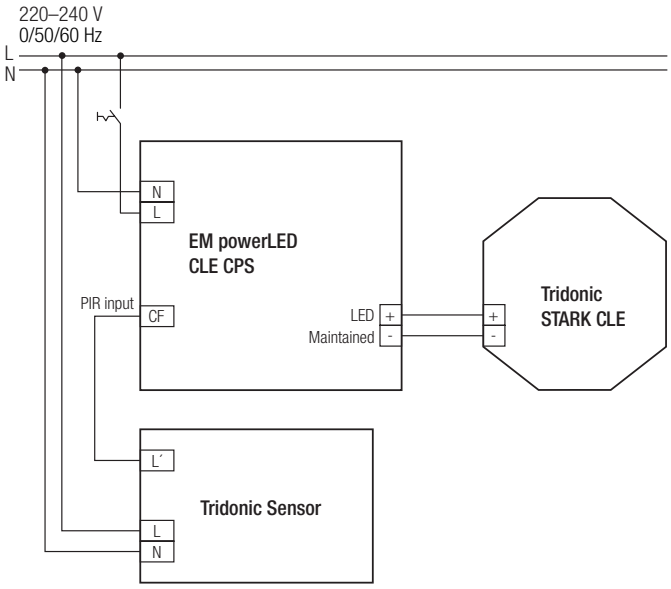
Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

Type	THD	3	5	7
EM powerLED 12W CLE CPS	43	32	9	12
EM powerLED 15W CLE CPS	38	33	20	8

Ballast lumen factor (BLF) in %

	Corridor mode	DC operation
EM powerLED 12W CLE CPS	10	10 / 100
EM powerLED 15W CLE CPS	10	10 / 100

Wiring diagram EM powerLED with sensor



PIR input ≙ 230 V

Switching behaviour:

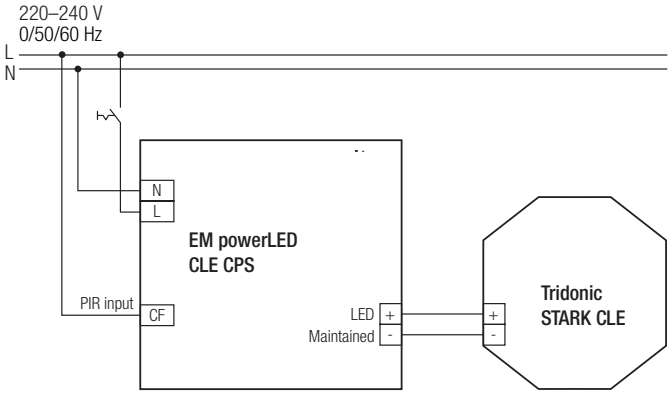
L	CF	Output LED
off	off	off
off	on	off
on	off	10 %
on	on	100 %

DC operation behaviour:

Emergency level EoF_i: 0.1

The sensor is not activ in DC operation.

Wiring diagram EM powerLED



PIR input ≙ 230 V

DC operation behaviour:

The emergency level EoF_i (0.1 or 1) depends on the polarity of the DC voltage.

Polarity of the DC voltage		
L	+	–
N	–	+
CF	+	–
Emergency level EoF_i	1	0.1

The mains power must be removed before changing the LED load.

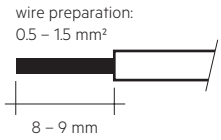
Secondary switching of LEDs is not allowed and may cause damage to the LEDs. The hot plug-in of LEDs during normal operation may result in current peaks of up to 50% above the typical output current.

Wiring instructions

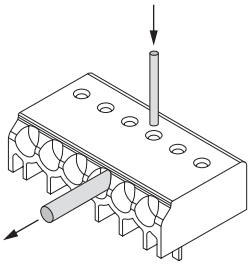
- The LED terminals are classified as SELV. Keep the wiring of the input terminals separated from the wiring of the SELV equivalent terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.



Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

Installation instruction

Max. torque for the mounting screws: 0.5 Nm / M4.

You must make sure that the LED is connected with the correct polarity. LEDs that are connected to EM powerLED should have polarity reversal protection such as a Schottky diode. There may be irreversible damage if the LED is connected with the wrong polarity. The protection device must be capable of handling a load of more than 700 mA.

Maximum number of switching cycles

All LED Drivers are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.