

EM powerLED BASIC CLE Emergency lighting LED Driver

Product description

- LED Driver for mains operation with integrated Simple CORRIDOR FUNCTION (CF) and emergency lighting function for manual testing
- For luminaire installation
- For the use with STARK CLE 1500 EM
- 5 years guarantee

Properties

- Constant current LED Driver with 350 or 470 mA output current
- Simple CORRIDOR FUNCTION (CF) with 10 % light level
- Integrated 1 W emergency lighting unit for non-maintained operation
- 3 h rated duration
- Constant current mode
- Green charge status display LED
- Electronic charge system
- Polarity reversal protection for battery
- Deep discharge protection
- Short-circuit-proof battery connection
- SELV
- Emergency lighting LEDs available
- LED module and sensor available

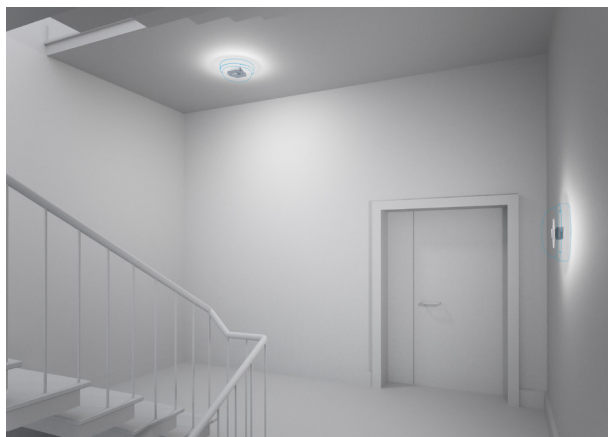
Batteries

- High-temperature cells
- NiMH / NiCd batteries
- Cs cells
- Blade terminals for simple connection
- 4-year design life
- 1-year guarantee

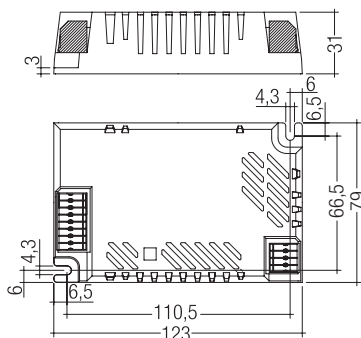


Standards, page 4

Wiring diagrams and installation examples, page 6



EM powerLED BASIC CLE Emergency lighting LED Driver



Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Leakage current (PE)	0
Overvoltage protection	320 V (for 1 h)
Battery charging time	24 h
Battery charge current	120 mA
Battery discharge current	see page 4
Number of cells	3
Turn on time (at 230 V, 50 Hz, full load)	100 ms
Ambient temperature t_a	0 ... 55 °C
Max. casing temperature t_c	75 °C
Dimensions LxBxH	123 x 79 x 31 mm
Mains voltage changeover threshold	according to EN 60598-2-22
Type of protection	IP20

Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED 12W BASIC CLE NiMH	89800526	10 pc(s).	560 pc(s).	0.126 kg
EM powerLED 12W BASIC CLE NiCd	89800525	10 pc(s).	560 pc(s).	0.125 kg
EM powerLED 15W BASIC CLE NiMH	89800174	10 pc(s).	560 pc(s).	0.126 kg
EM powerLED 15W BASIC CLE NiCd	89800176	10 pc(s).	560 pc(s).	0.125 kg

Specific technical data

Type	Output current	Output current tolerance	Min. output voltage [®]	Max. output voltage [®]	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 t_a [®]	t_c/t_a for ≥ 50.000 h [®]
Normal operation											
EM powerLED 12W BASIC CLE NiMH	350 mA	5 %	22 V	33 V	10.61 W	15 W	85 mA	71 %	0.8	-5 ... 55 °C	85 / 55 °C
EM powerLED 12W BASIC CLE NiCd	350 mA	5 %	22 V	33 V	10.61 W	15 W	85 mA	71 %	0.8	-5 ... 55 °C	85 / 55 °C
EM powerLED 15W BASIC CLE NiMH	470 mA	5 %	22 V	33 V	14.25 W	18 W	110 mA	82 %	0.8	-5 ... 55 °C	85 / 55 °C
EM powerLED 15W BASIC CLE NiCd	470 mA	5 %	22 V	33 V	14.25 W	18 W	110 mA	82 %	0.8	-5 ... 55 °C	85 / 55 °C
CF operation											
EM powerLED 12W BASIC CLE NiMH	29 mA	15 %	22 V	33 V	0.75 W	3.1 W	26 mA	23 %	0.5	–	–
EM powerLED 12W BASIC CLE NiCd	29 mA	15 %	22 V	33 V	0.75 W	3.1 W	26 mA	23 %	0.5	–	–
EM powerLED 15W BASIC CLE NiMH	43 mA	15 %	22 V	33 V	1.12 W	3.5 W	30 mA	49 %	0.5	–	–
EM powerLED 15W BASIC CLE NiCd	43 mA	15 %	22 V	33 V	1.12 W	3.5 W	30 mA	49 %	0.5	–	–
Emergency operation											
EM powerLED 12W BASIC CLE NiMH	400 mA	5 %	2.5 V	3.4 V	1.32 W	–	–	–	–	–	–
EM powerLED 12W BASIC CLE NiCd	320 mA	5 %	2.5 V	3.4 V	1.06 W	–	–	–	–	–	–
EM powerLED 15W BASIC CLE NiMH	400 mA	5 %	2.5 V	3.4 V	1.32 W	–	–	–	–	–	–
EM powerLED 15W BASIC CLE NiCd	320 mA	5 %	2.5 V	3.4 V	1.06 W	–	–	–	–	–	–

[®] Ambient temperature range t_a defined in normal operation

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

ACCES-
SORIES

Status indication green LED

Product description

- A green LED indicates that charging current is flowing into the battery



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	89899605	25 pc(s).	200 pc(s).	0.011 kg
LED EM green, ultra high brightness	89899756	25 pc(s).	800 pc(s).	0.012 kg



ACCES-
SORIES

SWITCH Sensor HF 5BP

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 with corridor-FUNCTION
- "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 3 potentiometers
- Max. installation height 5 m
- Infinitely variable range (0.5 – 5.0 m)



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
SWITCH Sensor HF 5BP	28000086	4 pc(s).	0,079 kg

Standards

EN 55015

EN 61000-3-2

EN 61000-3-3

EN 61347-1

EN 61347-2-13

EN 61547

EN 62384

according to EN 60598-2-22

according to EN 50172

EN 61347-2-7

Further technical data**Battery discharge current**

	Max. LED forward voltage (3,40 V)
12W CLE NiMH	500 mA
12W CLE NiCd	375 mA
15W CLE NiMH	500 mA
15W CLE NiCd	375 mA

Technical data batteries**Accu-NiCd**

Case temperature range

to ensure 4 years design life

1.6 Ah Cs

+5 °C bis +50 °C

Battery voltage/cell

1.2 V

Capacity Cs

1.6 Ah

Max. short term temperature (reduced life-time)

70 °C

Max. number discharge cycles

4 cycles per year plus
4 cycles during
commissioning

Packing quantity

5 pcs. per carton

Accu-NiMh

Case temperature range

to ensure 4 years design life

2.0 Ah Cs

+5 °C to +55 °C

Battery voltage

1.2 V

Capacity

2.0 Ah

Max. short term temperature (reduced life-time)

70 °C

Max. number discharge cycles

4 cycles per year plus
4 cycles during
commissioning

Packing quantity

5 pcs. per carton

Storage of batteries

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:

– temperature: +5 ... +25 °C

– humidity: 65 % ±5 %

- Avoid atmosphere with corrosive gas

- Disconnect batteries before store or delivery

- Avoid storage of discharged batteries

- A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For battery data see separate data sheet.

Mechanical details

Case manufactured from polycarbonate.

Glow-wire test according to EN 60598-1

650 °C and 850 °C passed

LED status indicator

- Green

- Mounting hole 6.5 mm dia

- Lead length 1,000 mm

Battery leads

- Quantity: 1 red and 1 black

- Length: 1,000 mm

- Wire type: 0.5 mm² solid conductor

- Insulation rating: 90 °C

Battery end termination

Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination

8.0 mm stripped insulation

Battery selection**EM powerLED BASIC CLE**

				Type	EM powerLED 12W BASIC CLE NiMH	EM powerLED 12W BASIC CLE NiCd	EM powerLED 15W BASIC CLE NiMH	EM powerLED 15W BASIC CLE NiCd
				Article no.	89800526	89800525	89800174	89800176
Technology and capacity	Design	Number of cells	Type	Article no.	Assignable batteries			
NiCd 1.6Ah Cs-cells	stick	1 x 3	Accu-NiCd C 3A	89899743		•		•
NiCd 1.6Ah Cs-Cells	battery pack	3	Pack-NiCd 3C	89899676		•		•
NiMH 2Ah Cs-Cells	stick	1 x 3	Accu-NiMH C 3A	89899744	•		•	

Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED output 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 life-time

Type		ta = 45 °C	ta = 55 °C
EM powerLED 12W BASIC CLE NiMH	tc	65 °C	75 °C
	Life-time	100,000 h	50,000 h
EM powerLED 12W BASIC CLE NiCd	tc	65 °C	75 °C
	Life-time	100,000 h	50,000 h
EM powerLED 15W BASIC CLE NiMH	tc	65 °C	75 °C
	Life-time	100,000 h	50,000 h
EM powerLED 15W BASIC CLE NiCd	tc	65 °C	75 °C
	Life-time	100,000 h	50,000 h

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²	I _{IRMS}	time
EM powerLED 12W BASIC CLE NiMH	90	130	130	130	10 A	120 µs
EM powerLED 12W BASIC CLE NiCd	90	130	130	130	10 A	120 µs
EM powerLED 15W BASIC CLE NiMH	90	130	130	130	10 A	120 µs
EM powerLED 15W BASIC CLE NiCd	90	130	130	130	10 A	120 µs

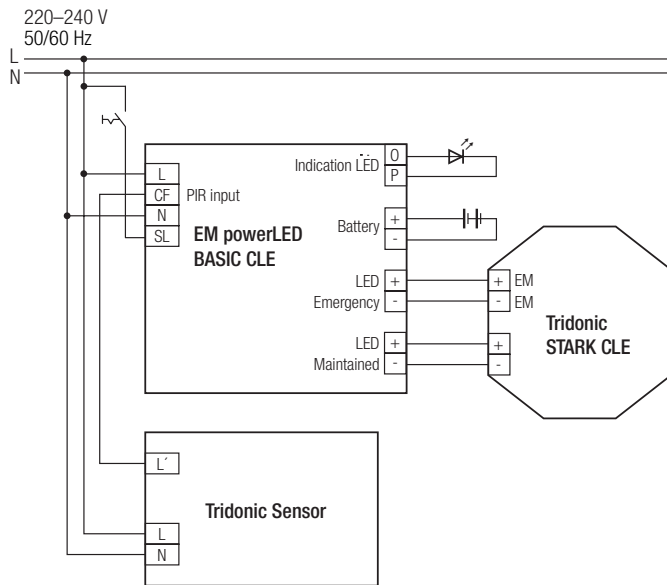
Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

Type	THD	3	5	7
EM powerLED 12W BASIC CLE NiMH	50	30	20	14
EM powerLED 12W BASIC CLE NiCd	50	30	20	14
EM powerLED 15W BASIC CLE NiMH	39	33	20	12
EM powerLED 15W BASIC CLE NiCd	39	33	20	12

Ballast lumen factor in %

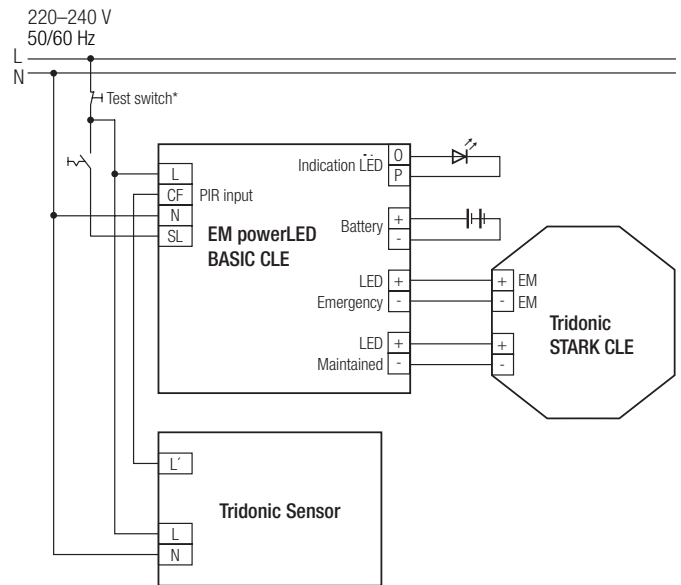
	Emergency BLF	EBLF	Corridor mode
EM powerLED 12W BASIC CLE NiMH	10	9.5	10
EM powerLED 12W BASIC CLE NiCd	8	7.7	10
EM powerLED 15W BASIC CLE NiMH	10	9.5	10
EM powerLED 15W BASIC CLE NiCd	8	7.7	10

Wiring diagram EM powerLED with sensor



PIR input \triangleq 230 V

Wiring diagram EM powerLED with sensor and testswitch

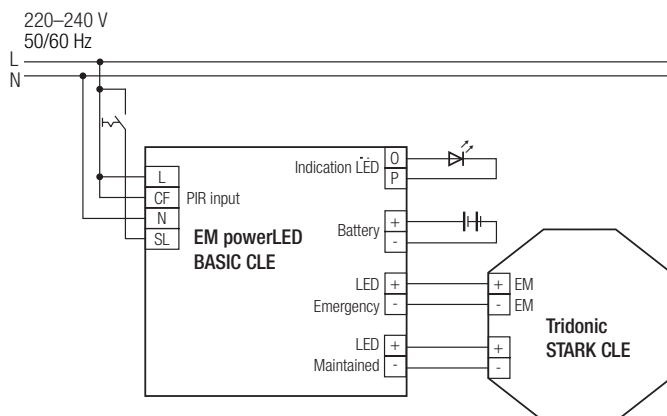


* Use 230 V Test switch

Switching behaviour

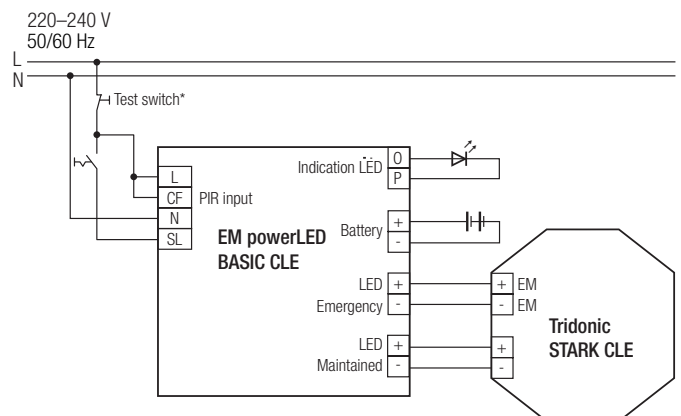
SL	CF	LED Maintained
off	off	off
off	on	off
on	off	10 %
on	on	100 %

Wiring diagram EM powerLED



PIR input \triangleq 230 V

Wiring diagram EM powerLED with testswitch



* Use 230 V Test switch

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.

Note for manually tested emergency lighting with combined LED modules:

For manually tested emergency applications when used with combined LED light modules for general and emergency lighting (e. g. Tridonic modules STARK QLE, STARK LLE24, STARK CLE and TALEX SLE I it is important that the normal supply of the mains LED Driver together with the permanent emergency supply is switched off prior to checking the operation of the emergency LEDs. These combined LED modules use independent circuits for general and emergency lighting.

If this is not done, it may not be possible to see that the emergency LEDs are operating.

Use a similar circuit to that shown above.

Wiring instructions

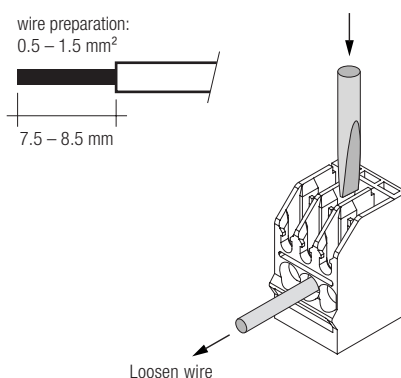
- Secondary leads should be separated from the mains connections and wiring for good EMC performance.
- The powerLED terminals, battery and indicator LED terminals are classified as SELV. Keep the wiring of the input terminals separated from the wiring of the SELV equivalent terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- Maximum lead length on the powerLED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Maximum lead length for the indicator LED connection is 1 m. The indicator LED wiring should be separated from the powerLED leads to prevent noise coupling.
- Battery leads are specified with 0.8 mm cross section and a length of < 1 m
- Switched live and unswitched live supplies must be off the same phase.

IDC interface

- solid wire with a cross section of 0.5 mm² according to the specification from WAGO

Horizontal interface

- solid wire with a cross section of 0.5–1.5 mm² according to the specification from WAGO
- strip 7.5–8.5 mm of insulation from the cables to ensure perfect operation of the terminals



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.

Additional information

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

Guarantee conditions at www.tridonic.com → Services

Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.