

#### EM powerLED BASIC CLE

Emergency lighting LED Driver

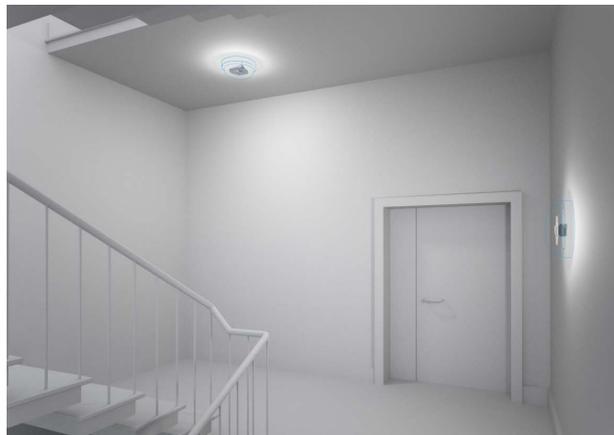
#### Product description

- 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
- For battery compatibility refer to table „Battery selection“



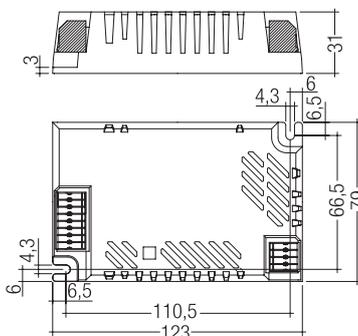
**Standards**, page 4

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### 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
Max. open circuit voltage	0 V
Overvoltage protection	320 V (for 1 h)
Battery charging time	24 h
Battery charge current	120 mA
Battery discharge current	see page 4
Rated duration	3 h
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

<b>EM powerLED 12W BASIC CLE NiMH</b>	<b>89800526</b>	10 pc(s).	560 pc(s).	0.126 kg
<b>EM powerLED 12W BASIC CLE NiCd</b>	<b>89800525</b>	10 pc(s).	560 pc(s).	0.125 kg
<b>EM powerLED 15W BASIC CLE NiMH</b>	<b>89800174</b>	10 pc(s).	560 pc(s).	0.126 kg
<b>EM powerLED 15W BASIC CLE NiCd</b>	<b>89800176</b>	10 pc(s).	560 pc(s).	0.125 kg

#### Specific technical data

Type	Output current	Output current tolerance	Min. output voltage <sup>®</sup>	Max. output voltage <sup>®</sup>	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)	$\lambda$ (at 230 V, 50 Hz, full load)	Ambient temperature $t_a$ <sup>®</sup>	$t_c/t_a$ for $\geq 50,000$ h <sup>®</sup>
<b>Normal operation</b>											
<b>EM powerLED 12W BASIC CLE NiMH</b>	350 mA	5 %	22 V	33 V	10.61 W	15 W	85 mA	71 %	0.8c	-5 ... 55 °C	85 / 55 °C
<b>EM powerLED 12W BASIC CLE NiCd</b>	350 mA	5 %	22 V	33 V	10.61 W	15 W	85 mA	71 %	0.8c	-5 ... 55 °C	85 / 55 °C
<b>EM powerLED 15W BASIC CLE NiMH</b>	470 mA	5 %	22 V	33 V	14.25 W	18 W	110 mA	82 %	0.8c	-5 ... 55 °C	85 / 55 °C
<b>EM powerLED 15W BASIC CLE NiCd</b>	470 mA	5 %	22 V	33 V	14.25 W	18 W	110 mA	82 %	0.8c	-5 ... 55 °C	85 / 55 °C
<b>CF operation</b>											
<b>EM powerLED 12W BASIC CLE NiMH</b>	29 mA	15 %	22 V	33 V	0.75 W	3.1 W	26 mA	23 %	0.5c	-	-
<b>EM powerLED 12W BASIC CLE NiCd</b>	29 mA	15 %	22 V	33 V	0.75 W	3.1 W	26 mA	23 %	0.5c	-	-
<b>EM powerLED 15W BASIC CLE NiMH</b>	43 mA	15 %	22 V	33 V	1.12 W	3.5 W	30 mA	49 %	0.5c	-	-
<b>EM powerLED 15W BASIC CLE NiCd</b>	43 mA	15 %	22 V	33 V	1.12 W	3.5 W	30 mA	49 %	0.5c	-	-
<b>Emergency operation</b>											
<b>EM powerLED 12W BASIC CLE NiMH</b>	400 mA	5 %	2.5 V	3.4 V	1.32 W	-	-	-	-	-	-
<b>EM powerLED 12W BASIC CLE NiCd</b>	320 mA	5 %	2.5 V	3.4 V	1.06 W	-	-	-	-	-	-
<b>EM powerLED 15W BASIC CLE NiMH</b>	400 mA	5 %	2.5 V	3.4 V	1.32 W	-	-	-	-	-	-
<b>EM powerLED 15W BASIC CLE NiCd</b>	320 mA	5 %	2.5 V	3.4 V	1.06 W	-	-	-	-	-	-

<sup>®</sup> Ambient temperature range  $t_a$  defined in normal operation

<sup>®</sup> Output voltage range defined in normal operation. LED forward voltage will decrease in CF operation.

## 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



## 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 corridorFUNCTION
- "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**

**1.6 Ah**

Battery voltage/cell 1.2 V  
 Cell type Cs  
 Case temperature range to ensure 4 years design life +5 °C to +50 °C  
 Max. short term temperature (reduced life-time) 70 °C  
 Max. number discharge cycles 4 cycles per year plus 4 cycles during commissioning  
 Max. storage time 6 months

**Accu-NiMh**

**2.0 Ah**

Battery voltage/cell 1.2 V  
 Cell type Cs  
 Case temperature range to ensure 4 years design life +5 °C to +55 °C  
 Max. short term temperature (reduced life-time) 70 °C  
 Max. number discharge cycles 4 cycles per year plus 30 cycles during commissioning  
 Max. storage time 6 months

**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 further information refer to corresponding battery datasheet.

**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.

**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 mm<sup>2</sup> 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
		Duration	3 h	3 h	3 h	3 h
Technology and capacity	Design	Number of cells	Type	Assignable batteries		
		Article no.				
NiCd 1.6 Ah Cs-cells	stick	1 x 3	Accu-NiCd C 3A	89899743	•	•
NiCd 1.6 Ah Cs-Cells	battery pack	3	Pack-NiCd 3C	89899676	•	•
NiMH 2 Ah 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

**Expected life-time**

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

are operated:

**Maximum loading of automatic circuit breakers**

Automatic circuit breaker type	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	I <sub>max</sub>	time
<b>EM powerLED 12W BASIC CLE NiMH</b>	90	130	130	130	10 A	120 µs
<b>EM powerLED 12W BASIC CLE NiCd</b>	90	130	130	130	10 A	120 µs
<b>EM powerLED 15W BASIC CLE NiMH</b>	90	130	130	130	10 A	120 µs
<b>EM powerLED 15W BASIC CLE NiCd</b>	90	130	130	130	10 A	120 µs

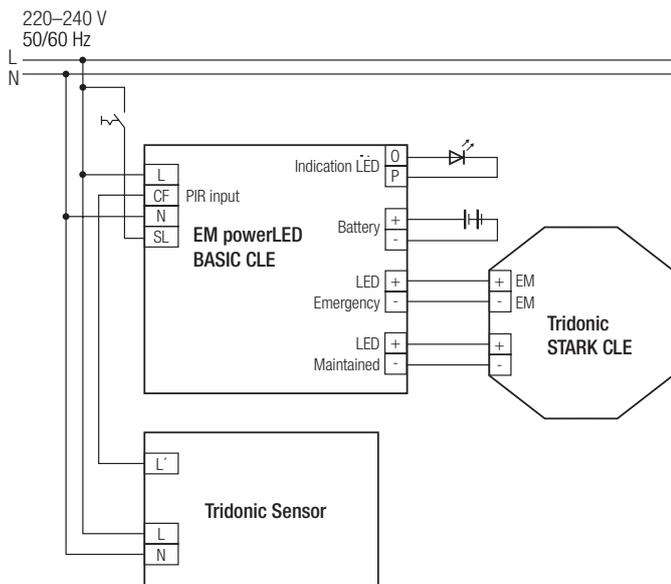
**Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %**

Type	THD	3	5	7
<b>EM powerLED 12W BASIC CLE NiMH</b>	43	32	9	12
<b>EM powerLED 12W BASIC CLE NiCd</b>	43	32	9	12
<b>EM powerLED 15W BASIC CLE NiMH</b>	39	33	20	12
<b>EM powerLED 15W BASIC CLE NiCd</b>	39	33	20	12

**Ballast lumen factor in %**

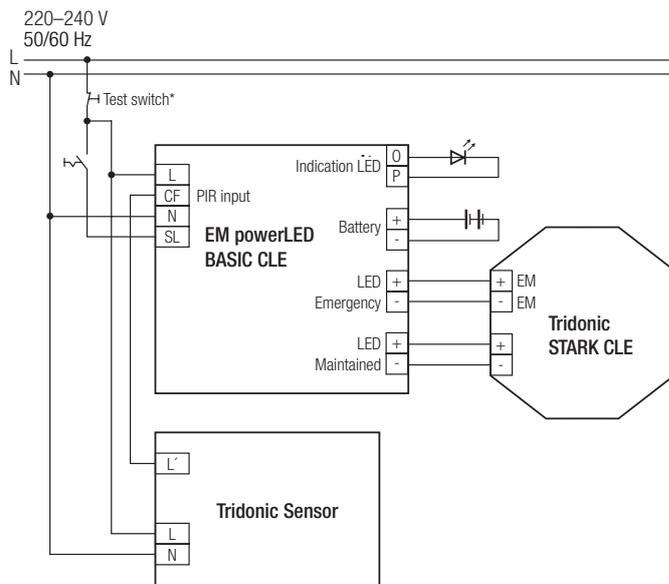
	Emergency BLF	EBLF	Corridor mode
<b>EM powerLED 12W BASIC CLE NiMH</b>	10	9.5	10
<b>EM powerLED 12W BASIC CLE NiCd</b>	8	7.7	10
<b>EM powerLED 15W BASIC CLE NiMH</b>	10	9.5	10
<b>EM powerLED 15W BASIC CLE NiCd</b>	8	7.7	10

Wiring diagram EM powerLED with sensor



PIR input  $\cong$  230 V

Wiring diagram EM powerLED with sensor and testswitch

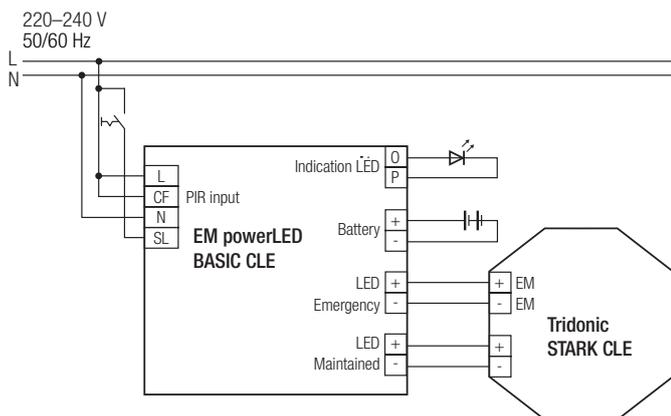


\* Use 230 V Test switch

### Switching behaviour

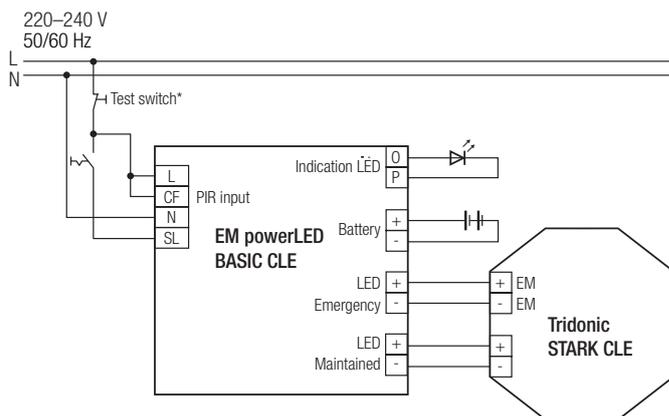
SL	CF	LED Maintained
off	off	off
off	on	off
on	off	10 %
on	on	100 %

Wiring diagram EM powerLED



PIR input  $\cong$  230 V

Wiring diagram EM powerLED with testswitch



\* Use 230 V Test switch

### 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 QLE, LLE 24, CLE and SLE) 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**

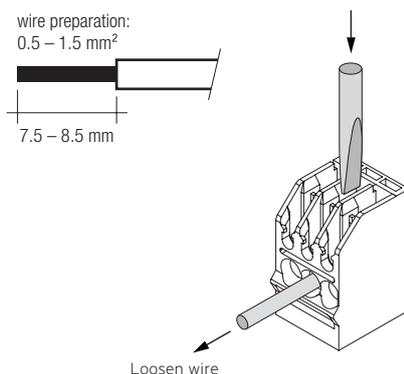
- Secondary leads should be separated from the mains connections and wiring for good EMC performance.
- The powerLED terminals, battery and indicator LED terminals are classified as SELV. Keep the wiring of the input terminals separated from the wiring of the SELV equivalent terminals or consider special 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 mm<sup>2</sup> according to the specification from WAGO

**Horizontal interface**

- solid wire with a cross section of 0.5–1.5 mm<sup>2</sup> 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](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

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