TRIDONIC

EM powerLED BASIC FX SC MH/NiCd 32 W

Combined emergency lighting LED driver

Product description
_ Combined emergency LED driver for manual testing
_ For self-contained emergency lighting
_ Can be either used built-in or independent with clip-on strain-relief (see accessory)
_ Max. output power 32 W
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Functions
_ Adjustable output current between 350 and 700 mA via I-SELECT 2 plugs
_ Protective features (overtemperature, short-circuit, overload, no-load, input voltage range)
_ Suitable for emergency escape lighting systems acc. to EN 50172
_ 1 or 3 h rated duration depending on connected battery
_ Constant power output in emergency mode

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Polarity reversal protection for battery
_ Short-circuit-proof battery connection

Batteries
_ NiCd or NiMH batteries
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

Website
http://www.tridonic.com/89800688

Linear | High bay | Decorative | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

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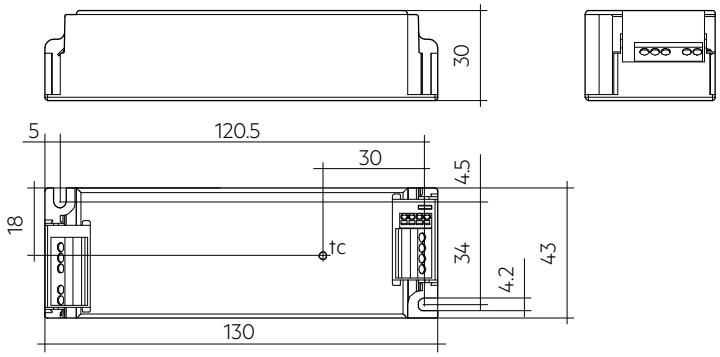
Combined emergency lighting LED driver



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	**89800688**	1/3 h	10 pc(s).	1,000 pc(s).	0.115 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Typ. rated current (at 230 V, 50 Hz, full load, charging) ①	178 mA
Max. input power	38.8 W
Typ. efficiency (at 230 V, 50 Hz, full load, charging) ①	84 %
λ (at 230 V, 50 Hz, full load, charging)	0.95
Typ. input current in no-load operation (charging)	20 mA
Typ. input power in no-load operation (charging)	1.1 W
In-rush current (peak / duration)	4 A / 260 µs
THD (at 230 V, 50 Hz, full load)	14 %
Starting time (at 230 V, 50 Hz, full load)	< 500 ms
Turn off time (at 230 V, 50 Hz, full load)	< 50 ms
Switchover time (AC/EM)	< 500 ms
Output current tolerance	< 5 %
Max. output current peak (non-repetitive)	> 35 %
Output LF current ripple (< 120 Hz)	5 %
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Mains voltage changeover threshold	According to EN 60598-2-22
Max. casing temperature tc	80 °C
Ambient temperature ta at ≤ 25 W ②	-25 … +50 / -25 … +40 °C
Ambient temperature ta at > 25 W ②	-25 … +45 / -25 … +35 °C
Mains surge capability (between L - N)	1.2 kV
Surge voltage at output side (against PE)	2.4 kV
Mains surge capability (between L/N - PE)	2.4 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	130 x 43 x 30 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 62384, EN 61547, according to EN 50172, according to EN 60598-2-22

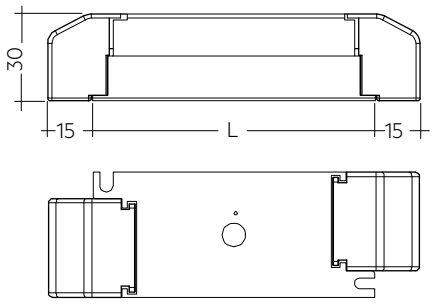
Specific technical data

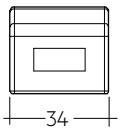
Type	Number of battery cells	Output current[3][4]	Min. output voltage	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz)		Typ. current consumption (at 230 V, 50 Hz)		I-SELECT resistor value[6]
						Min. load[5]	Max. load[5]	Min. load[5]	Max. load[5]	
Normal operation										
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	350 mA	15 V	50 V	17.5 W	10.5 / 10.0 W	23.5 / 23.0 W	60 / 57 mA	112 / 110 mA	–
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	400 mA	15 V	50 V	20.0 W	11.5 / 11.0 W	26.0 / 25.5 W	65 / 62 mA	126 / 125 mA	12.40 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	450 mA	15 V	50 V	22.5 W	12.5 / 12.0 W	29.0 / 28.5 W	68 / 65 mA	137 / 135 mA	11.00 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	500 mA	15 V	50 V	25.0 W	13.5 / 13.0 W	31.0 / 30.5 W	72 / 70 mA	147 / 145 mA	10.00 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	550 mA	15 V	50 V	27.5 W	14.0 / 13.5 W	33.4 / 33.0 W	75 / 70 mA	160 / 155 mA	9.09 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	600 mA	15 V	50 V	30.0 W	15.0 / 14.5 W	36.3 / 36.0 W	80 / 75 mA	170 / 165 mA	8.25 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	650 mA	15 V	50 V	32.2 W	15.5 / 15.0 W	38.8 / 38.5 W	83 / 80 mA	176 / 174 mA	7.68 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	700 mA	15 V	46 V	32.2 W	16.5 / 16.0 W	38.8 / 38.5 W	85 / 83 mA	178 / 176 mA	0.00 kΩ
Emergency operation										
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	1	–	15 V	50 V	2.5 W	–	–	–	–	–
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	3	–	15 V	50 V	2.5 W	–	–	–	–	–

① Depending on the selected output current.
② Build-in / Independent with clip-on.
③ Output current is mean value.
④ The table only lists a number of possible operating points but does not cover each single point. The output current can be set within the total value range in 1-mA-steps.
⑤ Charging / Not charging
⑥ Not compatible with I-SELECT (generation 1). Calculated resistor value.

Strain-relief set 43x30mm

Accessory





Permissible cable jacket diameter: 3 – 9 mm

Product description

_ Optional strain-relief set for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels for long strain-relief (30 x 43 x 30 mm)
_ With screws for short strain-relief (15 x 34 x 30 mm)
_ Overall length = length L (LED driver) + 2 x 30 mm (long strain-relief set), 2 x 15 mm (short strain-relief) or long and short strain-relief any combination
_ Standard SC (L = 30 mm) available as non-pre-assembled and pre-assembled
_ Short SC (L = 15 mm) only pre-assembled available

Website
http://www.tridonic.com/28001168

Ordering data

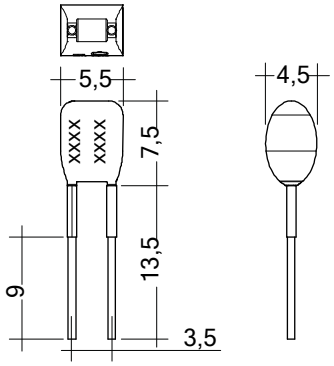
Type	Article number	Packaging, carton ①	Packaging, outer box	Weight per pc.
ACU SC 43x30mm CLIP-ON SR SET	**28001168**	10 pc(s).	500 pc(s).	0.018 kg
ACU SC 43x30mm CLIP-ON SR SET 300	**28001351**	300 pc(s).	300 pc(s).	0.033 kg
ACU SC 30x43x30mm CLIP-ON SR PA	**28001699**	10 pc(s).	500 pc(s).	0.015 kg
ACU SC 15x43x30mm CLIP-ON SR PA	**28001574**	10 pc(s).	1,200 pc(s).	0.012 kg

Approval marks

① 28001168: A carton of 10 pcs. is equal to 10 sets, each with 2 strain-reliefs parts. 28001351: A carton of 300 pcs. is equal to 300 sets, each with 2 strain-reliefs parts. 28001699 + 28001574: A carton contains exactly 10 pcs. strain-reliefs (no sets).

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001110

Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 525MA BL	**28001960**	Blue	0525 mA	525 mA	9.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication green LED EM

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery

Website
http://www.tridonic.com/89899605

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.013 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0.013 kg

Approval marks

RoHS

1. Standards

EN 55015
EN 60068-2-29
EN 60068-2-30
EN 60068-2-64
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-13
EN 62384
EN 61547
According to EN 50172
According to EN 60598-2-22

Housing fulfils requirements for reinforced insulation according EN 60598-1.

1.1 Glow wire test

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

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

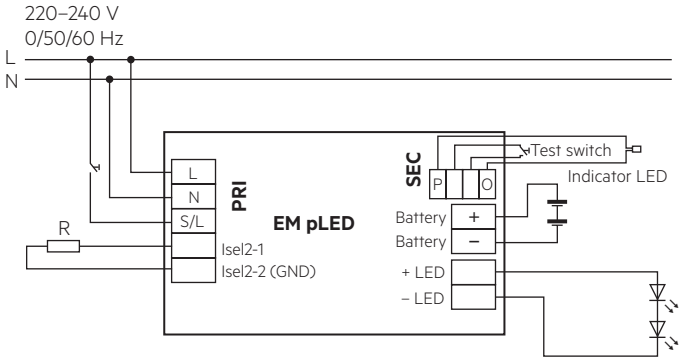
Type	Output current	ta	35 °C	40 °C	45 °C	50 °C	55 °C
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	350 mA	tc	60 °C	65 °C	70 °C	75 °C	80 °C
		Lifetime	> 100,000 h	> 100,000 h	> 100,000 h	70,000 h	50,000 h
	500 mA	tc	65 °C	70 °C	75 °C	80 °C	–
		Lifetime	> 100,000 h	> 100,000 h	70,000 h	50,000 h	–
	700 mA	tc	70 °C	75 °C	80 °C	–	–
		Lifetime	> 100,000	70,000 h	50,000 h	–	–

For operating points > 25 W the max. allowed ta is 45 °C. Ambient temperature with strain relief: ta max. (≤ 25 W) = 40 °C, ta max (> 25 W) = 35 °C.

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.

3. Installation / wiring

3.1 Wiring diagram

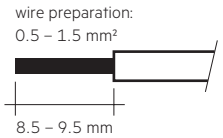


Recommendation to check glowing at standby in combination with class I luminaires.

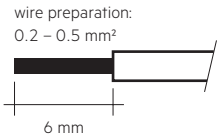
3.2 Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5–1.5 mm² or 0.2–0.5 mm². Strip 8.5 – 9.5 mm or 6 mm of insulation from the cables to ensure perfect operation of the push-wire terminals (depending on connection, see graphics below).
Use one wire for each terminal connector only.

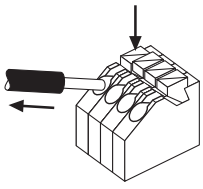
LED module/supply



Test switch/Indicator LED



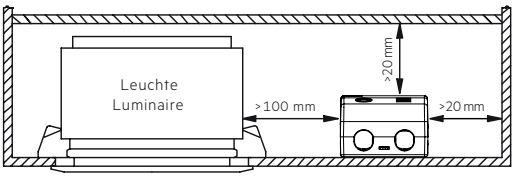
3.3 Loose wiring

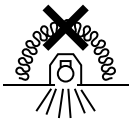


Press down the “push button” and remove the cable from front.

3.4 Fixing conditions when using as independent Driver with Clip-On

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 5 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 2 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.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- 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.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the EMC performance of the luminaire.

The length of LED leads must not be exceeded. Note that the length of the leads from the EM converterLED to the LED modules is added to the length of the leads from the LED Driver to the EM converterLED module when considering the max. permitted lead length of the LED Driver. Leads should always be kept short as possible.

3.6 Hot plug-in

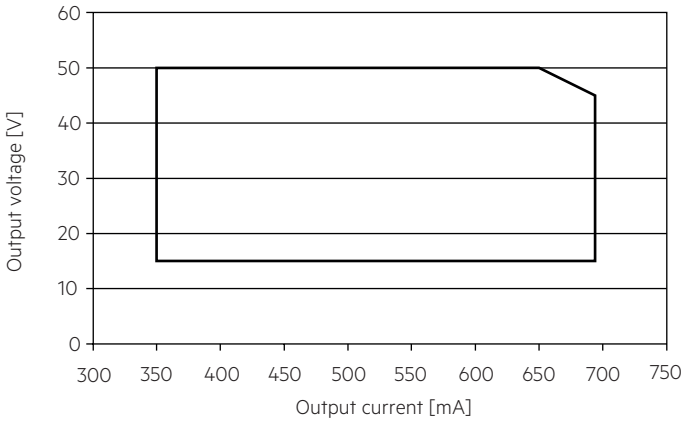
Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset.

3.7 I-SELECT 2 resistors connected via cable

For details see:
http://www.tridonic.com/com/en/download/technical/LCA_PRE_LC_EXC_ProductManual_en.pdf.

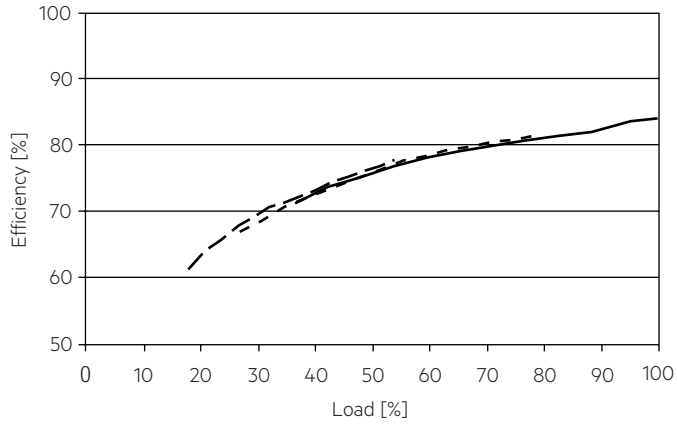
4. Electrical values

4.1 Operating window

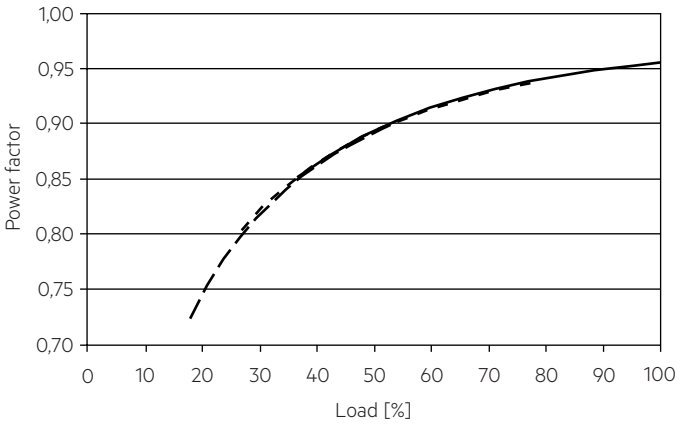


Operate the LED Driver only within the given window under all operating conditions. Coming below the specified minimum output voltage of the LED Driver may cause the device to shut-down.

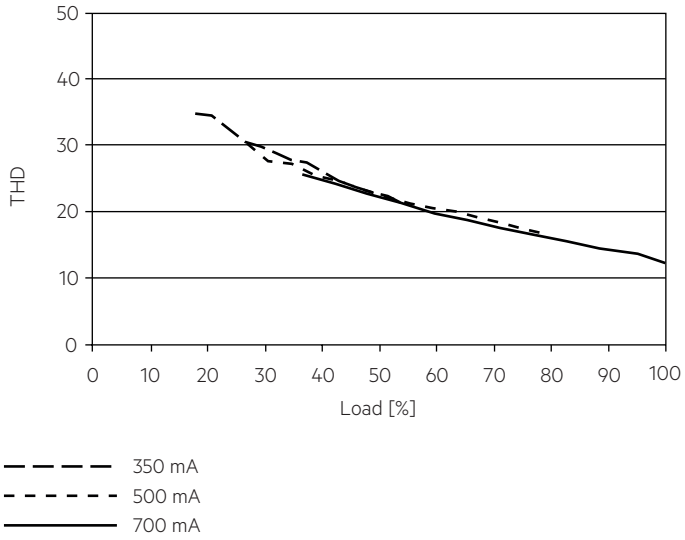
4.2 Efficiency vs load



4.3 Power factor vs load



4.4 THD vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	35	46	56	73	21	28	34	44	4 A	260 µs

Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

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

	THD	3.	5.	7.	9.	11.	13.
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V32W 50V	< 14	< 11	< 5	< 5	< 3	< 1	< 3

4.7 Insulation matrix

	Mains	**Switched Live**	**Battery, LED, Test switch, Indicator LED**
Mains	–	•	• •
Switched Live	•	–	• •
Battery, LED, Test switch, Indicator LED	• •	• •	–

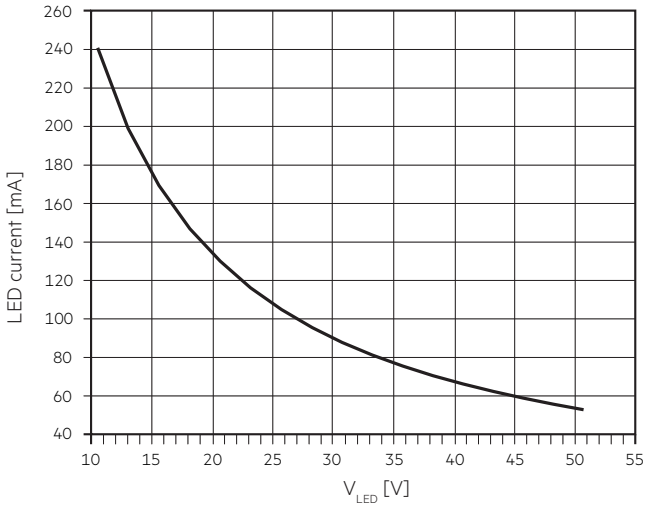
• Represents basic insulation

• • Represents double or reinforced insulation

4.8 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

EM pLED BASIC FX 102 SC MH/NiCd 32W 50V – 3 cells
Article number: 89800688
3.6 V battery voltage
900 mA battery discharge current (tolerance)



5. Emergency output factor EOFi

EM pLED BASIC

Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
Article no.	**89800688**	
Cells	**3 cells**	
Output current	**Min. LED load**	**Max. LED load**
350mA	44.0 %	13.5 %
400mA	37.5 %	12.0 %
450mA	33.5 %	10.5 %
500mA	30.5 %	9.5 %
550mA	28.0 %	8.5 %
600mA	25.5 %	8.0 %
650mA	24.0 %	7.5 %
700mA	22.0 %	7.0 %

6. Mechanical values

6.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

6.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

7. Functions

7.1 Function: adjustable current

By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

7.3 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

8. Battery data

8.1 Battery selection

EM pLED BASIC, 1 / 3 h

				Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
				Article no.	**89800688**	
				Duration	**1 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•
NiCd 1.8 Ah Cs cells	remote box	1 x 3	**Pack-NiCd 3C CON**	**28001221**	•	
NiCd 4.5 Ah D cells	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•

8.2 Battery charge / discharge data

EM pLED BASIC, 1 / 3 h

	Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
	Article no.	**89800688**	
	Duration	**1 h**	**3 h**
Battery charge time	Initial charge	24 h	
	Fast charge	10 h	15 h
	Trickle charge	continuously	
Charging current	Initial charge	105 mA	195 mA
	Fast charge	105 mA	195 mA
	Trickle charge	70 mA	105 mA
Discharge current		900 mA	900 mA
Charge voltage range[①]		2.0 – 4.9 V	
Discharge voltage range		3.2 – 4.5 V	

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < -5 °C or > 60 °C).

The emergency lighting LED Driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[①] The battery will not be charged below 2.0 V.

8.3 Accu-NiCd

4.2 / 4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	12 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.4 Accu-NiMh

2.2 Ah

International designation	HRMU 23/43
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 battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

1.8 Ah

International designation	KRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

9.2 Conditions of use and storage

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 acclimatised to the specified temperature range (ta) before they can be operated.

9.3 Maximum number of switching cycles

All Emergency LED Driver are tested with 50,000 switching cycles in maintained mode. The actually achieved number of switching cycles is significantly higher.

9.4 Additional information

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

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