

EM BASIC Ip, 220 – 240 V BASIC version

Product description

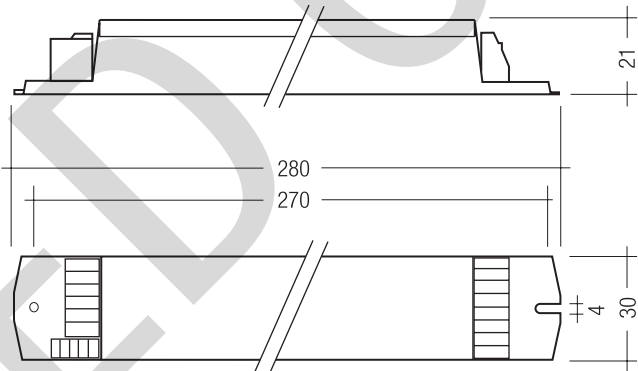
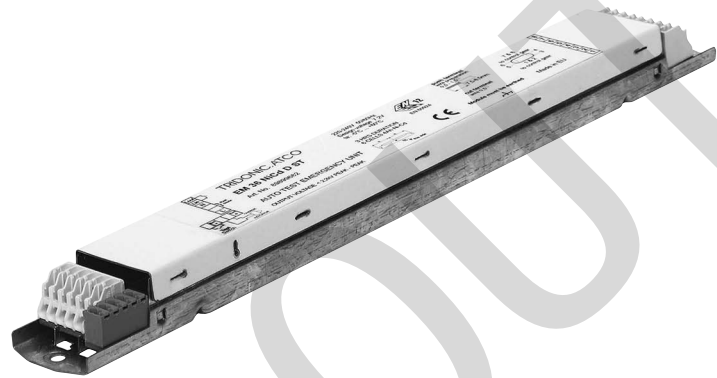
- Emergency lighting supply unit for manual testing
- For linear and compact fluorescent lamps
- Low-profile casing (21 x 30 mm cross-section)

Properties

- 1 or 3 h rated duration
- Compatible with all electronic ballasts (dimnable and non-dimnable)
- 5-pole technology: 4-pole lamp changeover and delayed power switching for the ballast
- High-frequency ac operation of the lamp
- Hot restart in emergency mode
- Gentle on the lamp thanks to permanent cathode heating in emergency mode
- 55 sec. boost start for rapid heating of the lamp, more light in the startup phase and optimum lamp life
- Maximum ballast lumen factors (BLF) for all lamps
- Green charge status display LED
- Electronic multi-level charge system
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery

Batteries

- High-temperature cells
- NiCd or NiMH batteries
- D or Cs cells
- Blade terminals for simple connection



Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Mains current	60 mA
Rated power	< 10 W
Overvoltage protection	320 V (for 1 h)
Maximum operating voltage (U-OUT of the ECG)	460 V
Battery charging time 3 / 1 h	15 / 10 h
Discharge current	1.1 A
Leakage current (PE)	0.5 mA
Ambient temperature t_a	-5 ... +60 °C
Max. casing temperature t_c	70 °C
Mains voltage changeover threshold	according to EN 60598-2-22
Min. lamp starting temperature (emergency operation)	-5 °C
Type of protection	IP20
Protection class	I

Ordering data

Number of cells	Type	Article number
Rated operating time 3 h, Standard BLF		
4	EM 34 BASIC Ip	89899761
5	EM 35 BASIC Ip	89899762
6	EM 36 BASIC Ip	89899763
Rated operating time 1 h, Standard BLF		
4	EM 14 BASIC Ip	89899764
5	EM 15 BASIC Ip	89899765
6	EM 16 BASIC Ip	89899766

Packaging: 25 pieces/carton, 475 pieces/pallet

Standards, page 6

Wiring diagrams and installation examples, page 8

Specific technical data

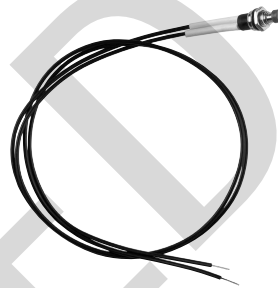
Type	Battery charge time	Charge current		
		Initial charge	Fast charge	Trickle charge
Rated operating time 3 h, Standard BLF				
EM 34 BASIC Ip	15 h	330 mA	330 mA	130 mA
EM 35 BASIC Ip	15 h	330 mA	330 mA	130 mA
EM 36 BASIC Ip	15 h	330 mA	330 mA	130 mA
Rated operating time 1 h, Standard BLF				
EM 14 BASIC Ip	10 h	130 mA	210 mA	50 mA
EM 15 BASIC Ip	10 h	130 mA	210 mA	50 mA
EM 16 BASIC Ip	10 h	130 mA	210 mA	50 mA

ACCES-
SORIES

Test switch EM2

Product description

- For connection to the emergency lighting unit
- For checking the device function



Ordering data

Type	Article number
Test switch EM 2	89805277

Packaging: 25 pieces/bag, 200 pieces/carton

Product description

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



Ordering data

Type	Article number
LED EM green	89899605
LED EM green, ultra high brightness	89899756

Packaging: 25 pieces/bag, 200 pieces/carton

EM BASIC Ip for linear lamps, 3 or 1 h

	Duration	3 h			1 h		
		4 cells	5 cells	6 cells	4 cells	5 cells	6 cells
Type		EM 34 BASIC Ip	EM 35 BASIC Ip	EM 36 BASIC Ip	EM 14 BASIC Ip	EM 15 BASIC Ip	EM 16 BASIC Ip
Article no.		89899761	89899762	89899763	89899764	89899765	89899766
Lamp type	Wattage	BLF in emergency lighting mode in % for rated operating time					
T5	4W	38			38		
	6W	43			43		
	8W	40			40		
	13W	27			27		
T5 FH	14W	24			24		
	21W		16			16	
	28W			14			14
	35W			12			12
T5 FQ	24W	13			13		
	39W			8			8
	49W			6			6
	54W			6			6
	80W			5			5
T8	15W	20			20		
	18W	16			16		
	30W	12			12		
	36W	10			10		
	38W		10			10	
	58W		8			8	
	70W			6			6

Technology and capacity	Design	Number of cells	Type	Article number	Assignable batteries		
NiCd 1.5 Ah Cs-cells	Stick	4	Accu-NiCd C 4A	89899692	•		
	Side by side	4	Accu-NiCd C 4B	89899693	•		
	Stick + Stick	2+2	Accu-NiCd C 4C	89899694	•		
	Stick	5	Accu-NiCd C 5A	89899695		•	
	Side by side	5	Accu-NiCd C 5B	89899696		•	
	Stick + Stick	3+2	Accu-NiCd C 5C	89899697		•	
	Stick	6	Accu-NiCd C 6A	89899698			•
NiCd 4.0 Ah D-cells	Stick + Stick	3+3	Accu-NiCd C 6C	89899699			•
	Stick	4	Accu-NiCd 4A	89895961	•		
	Side by side	4	Accu-NiCd 4B	89895977	•		
	Stick + Stick	2+2	Accu-NiCd 4C	89895978	•		
	Stick	5	Accu-NiCd 5A	89895973		•	
	Stick + Stick	3+2	Accu-NiCd 5B	89895962		•	
NiMH 2.0 Ah Cs-cells	Stick + Stick	3+3	Accu-NiCd 6A	89895963			•
	Stick	4	Accu-NiMH C 4A	89899700		•	
	Stick	5	Accu-NiMH C 5A	89899703			•
	Stick	6	Accu-NiMH C 6A	89899706			•
NiMH 4.0 Ah Cs-cells ①	Stick + Stick	3+3	Accu-NiMH C 6C	89899707			•
	Stick	4	Accu-NiMH 4 Ah C 4A	89899850	•		
	Stick	5	Accu-NiMH 4 Ah C 5A	89899851		•	
	Stick	6	Accu-NiMH 4 Ah C 6A	89899852			•
	Stick + Stick	3+3	Accu-NiMH 4 Ah C 6C	89899853		•	

① Maximum battery housing temperature 50 °C.

EM BASIC Ip for compact lamps, 3 or 1 h

	Duration	3 h			1 h		
		4 cells	5 cells	6 cells	4 cells	5 cells	6 cells
Type		EM 34 BASIC Ip	EM 35 BASIC Ip	EM 36 BASIC Ip	EM 14 BASIC Ip	EM 15 BASIC Ip	EM 16 BASIC Ip
Article no.		89899761	89899762	89899763	89899764	89899765	89899766
Lamp type	Wattage	BLF in emergency lighting mode in % for rated operating time					
TC-DD	10 W	37			37		
	16 W	25			25		
	21 W	19			19		
	28 W	14			14		
	38 W			10			10
	55 W			4			4
TC-SEL	5 W	40			40		
	7 W	39			39		
	9 W	39			39		
	11 W	34			34		
TC-DEL	10 W	31			31		
	13 W	26			26		
	18 W	21			21		
	26 W	14			14		
TC-TEL	13 W	26			26		
	18 W	21			21		
	26 W	14			14		
	32 W		11			11	
	42 W			7			7
	57 W			5			5
T5c	22 W	14			14		
	40 W			7			7
	55 W			7			7
TC-F	18 W	18			18		
	24 W		12			12	
	36 W		11			11	
TC-L	18 W	18			18		
	24 W		12			12	
	36 W		11			11	
	40 W		5			5	
	55 W			6			6

Technology and capacity	Design	Number of cells	Type	Article number	Assignable batteries		
NiCd 1.5 Ah Cs-cells	Stick	4	Accu-NiCd C 4A	89899692	•		
	Side by side	4	Accu-NiCd C 4B	89899693	•		
	Stick + Stick	2+2	Accu-NiCd C 4C	89899694	•		
	Stick	5	Accu-NiCd C 5A	89899695		•	
	Side by side	5	Accu-NiCd C 5B	89899696		•	
	Stick + Stick	3+2	Accu-NiCd C 5C	89899697		•	
NiCd 4.0 Ah D-cells	Stick	6	Accu-NiCd C 6A	89899698			•
	Stick + Stick	3+3	Accu-NiCd C 6C	89899699			•
	Stick	4	Accu-NiCd 4A	89895961	•		
	Side by side	4	Accu-NiCd 4B	89895977	•		
	Stick + Stick	2+2	Accu-NiCd 4C	89895978	•		
	Stick	5	Accu-NiCd 5A	89895973		•	
NiMH 2.0 Ah Cs-cells	Stick + Stick	3+2	Accu-NiCd 5B	89895962		•	
	Stick + Stick	3+3	Accu-NiCd 6A	89895963		•	
	Stick	4	Accu-NiMH C 4A	89899700		•	
	Stick	5	Accu-NiMH C 5A	89899703		•	
	Stick	6	Accu-NiMH C 6A	89899706			•
	Stick + Stick	3+3	Accu-NiMH C 6C	89899707			•
NiMH 4.0 Ah Cs-cells ①	Stick	4	Accu-NiMH 4 Ah C 4A	89899850	•		
	Stick	5	Accu-NiMH 4 Ah C 5A	89899851		•	
	Stick	6	Accu-NiMH 4 Ah C 6A	89899852		•	
	Stick + Stick	3+3	Accu-NiMH 4 Ah C 6C	89899853		•	

① Maximum battery housing temperature 50 °C.

Standards

- EN 55015
- EN 601347-2-7
- in accordance with EN 60598-2-22
- EN 60925
- EN 61000-3-2
- EN 61547
- in accordance with EN 50172
- IEC 60068-2-64
- IEC 60068-2-29
- IEC 60068-2-30

Isolation 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 isolation 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 isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

Accu-NiCd

case temperature range
to ensure 4 years design life
storage life in temperate conditions
battery voltage/cell
capacity D
capacity Cs

0 °C to +55 °C
4 years
1.2 V
4.0 Ah
1.5 Ah

Accu-NiMH

case temperature range
(to ensure 4 years design life)
2.0 Ah Cs
4.0 Ah Cs
storage life in temperate conditions
battery voltage
capacity Cs

0 °C to +55 °C
0 °C to +50 °C
4 years
1.2 V
2.0 Ah
4.0 Ah

Ballast compatibility

The EM BASIC Ip emergency units use 5 pole technology and are compatible with most high frequency ballasts on the market, however it is important to check that the U-OUT rating of the ballast does not exceed the value specified under "Technical data".

Service life

Average service life 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Mechanical details

Channel manufactured from galvanised steel.
Cover manufactured from white pre-coated steel.

LED status indicator

- Green
- Mounting hole 6.5 mm dia
- Lead length 750 mm
- Insulation rating: 90 °C

Test switch

- Mounting hole 7.0 mm dia
- Lead length 550 mm

Battery leads

- Quantity: 1 red and 1 black
- Length: 1300 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

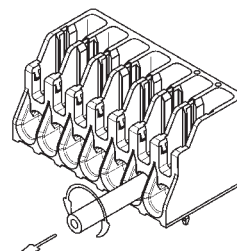
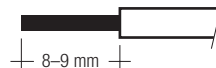
Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulating covers to connect the separate sticks together.

Electrical connections

An earthed starting aid is recommended. The module should be earthed by the fixings used to attach it to the luminaire.

Wiring**Lamp/ballast/supply**

wire preparation:
0.5–0.75 □



Loosen wire through twisting and pulling

IDC interface

- solid wire with a cross section of 0.5 mm² according to the specification from WAGO
- alternatively a flexible lead with a cross section of 0.75 mm²

Horizontal interface

- solid wire with a cross section of 0.5–0.75 mm² according to the specification from WAGO
- solid wire with a cross section of 1.0 mm² with an insulation diameter up to 2.5 mm
- strip 9 mm of insulation from the cables
- Loosen wire through twisting and pulling

Batteries/LED/Test switch

push terminal with button release: 0.5 mm²
6.5 mm strip

Maximum lamp lead capacitance

terminals 5 and 6 (* hot leads) 100 pF¹⁾
terminals 3 and 4 200 pF¹⁾

¹⁾ Note: care should be taken not to exceed the total maximum lamp lead capacitance for HF ballast. Leads should always be kept as short as possible.

Wiring guidelines

To ensure that a luminaire containing high frequency 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 50Hz supply wiring must be routed as short as possible and be kept as far away as possible from the lamp leads. This means, for example, in a linear T8 or T5 luminaire the mains wiring should be routed along one side of the luminaire body, while the wires to the emergency lamp from the emergency module are routed along the other side.

The high frequency emergency lamp wiring contains "hot" leads at pins 1 and 6, which have high voltage to earth. These should be kept as short as possible and separated from other wiring to minimize coupling. They also have a restriction on capacitance to other wiring and earth of 100 pF, which must be observed to ensure good lamp starting.

EM FLT1 filter

When the EM BASIC Ip is used in a remote application, where the lamp leads and LED indicator leads are routed together in close proximity, it is possible to have electrical interference picked up in the indicator leads.

Under certain conditions this interference can cause a lock-up of the EM BASIC Ip micro-controller.

To overcome this problem in such applications it is necessary to fit the filter EM FLT1 between the indicator LED and the EM BASIC Ip unit. To be effective the filter must be connected close to the EM BASIC Ip module.

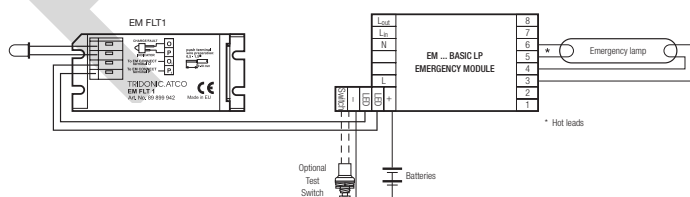
For further information please contact Tridonic.

Technical data:

Push wire terminals 0.5–1.5 mm² solid conductor

Product	article number
EM FLT1	89899942

Circuit diagram with EM FLT1 filter



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.

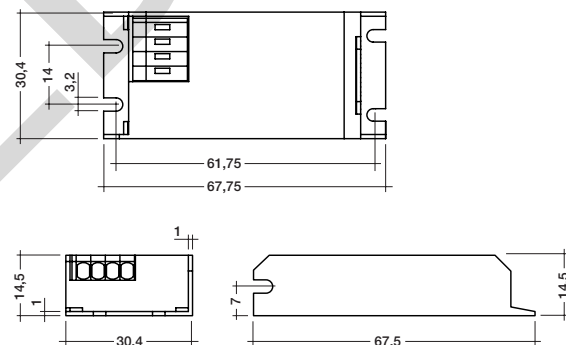
With an earth connection of the metal case of the emergency module the noise suppression can be further improved. The wiring of the earth should be kept as short as possible.

Through wiring may affect the emc performance of the luminaire.

With the use of the fifth pole possible compatibility problems between the products can be prevented. Depending on the luminaire wiring the radio suppression in the emergency mode of operation can be further improved.

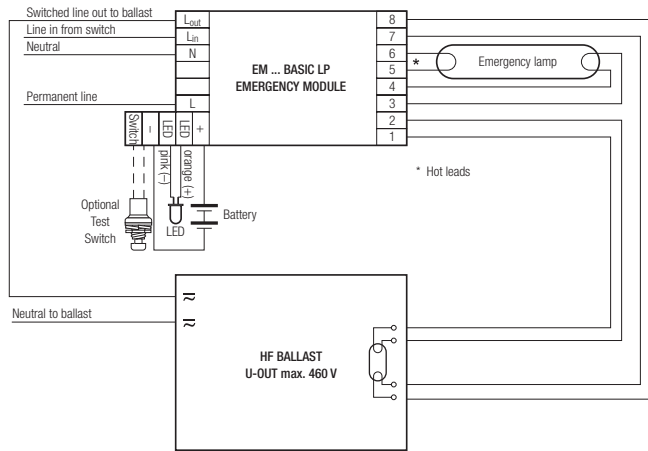
Capacitive loading limits of lamp leads must not be exceeded. Note the capacitance of the emergency lamp leads adds to the capacitance of the leads from the ballast to the EM BASIC module when considering ballast loading.

EM FLT1 filter

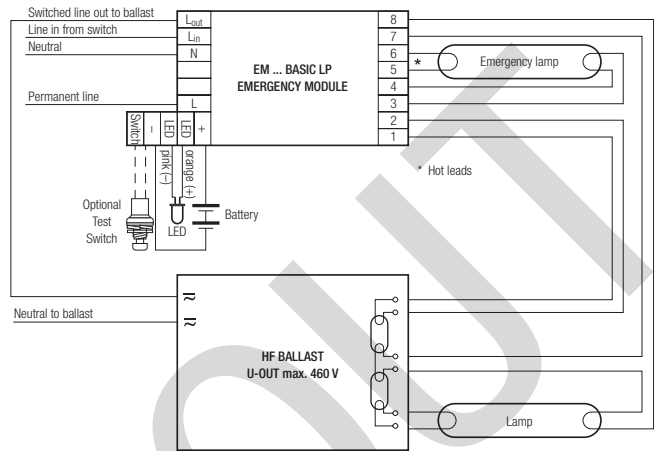


EM ... BASIC Ip emergency module wiring diagrams

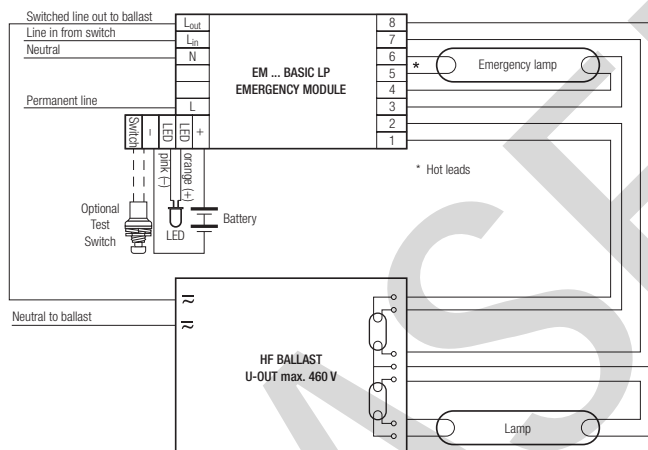
Not for use with magnetic ballasts and switch start circuits



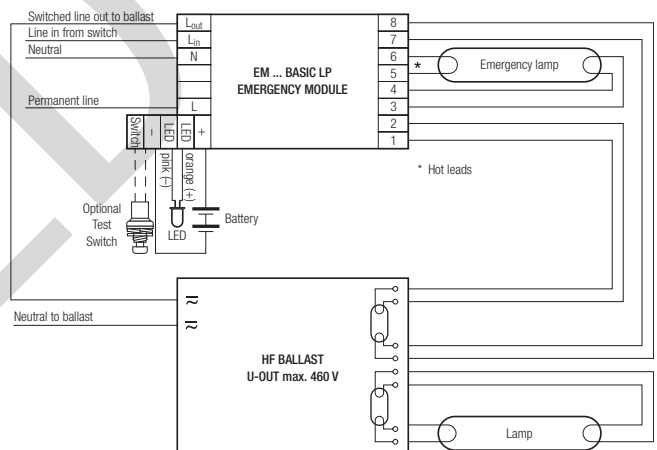
Wiring diagram for single lamp high frequency ballasts



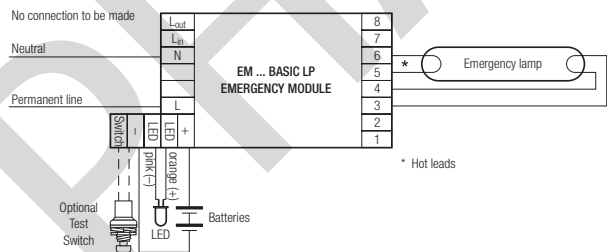
Wiring diagram for twin lamp high frequency ballasts with 6 terminals



Wiring diagram for twin lamp high frequency ballasts with 7 terminals



Wiring diagram for twin lamp high frequency ballasts with 8 terminals



Wiring diagram for non-maintained operation

Note:

All hot leads normally marked with an * should be kept as short as possible. For comprehensive wiring diagrams and instructions consult the Tridonic website www.tridonic.com

Packing quantities

EM BASIC Ip	25 pieces per carton	475 pieces per pallet
LED green	25 pieces per bag	200 pieces per box
Test switch EM2	25 pieces per bag	200 pieces per box
NiCd batteries	25 pieces per box	450 pieces per pallet
NiMh batteries	25 pieces per box	450 pieces per pallet
EM FLT1 filter	50 pieces per box	1.000 pieces per pallet