



EM T5 BASIC, 220 – 240 V BASIC version

Product description

- Emergency lighting supply unit for manual testing
- For T5 fluorescent lamps
- Low-profile casing (21 x 30 mm cross-section)

Properties

- 1 or 3 h rated duration
- Selectable operating time (jumper)
- 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
- Gentle on the lamp thanks to permanent cathode heating in emergency mode
- „Rest mode“ function
- Green charge status display LED
- Electronically controlled battery charging
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery

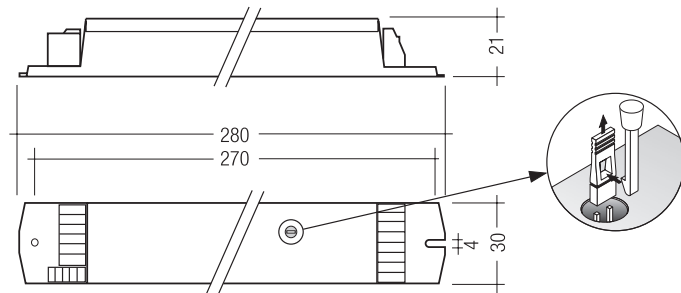
Batteries

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



Standards, page 4

Wiring diagrams and installation examples, page 6



Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Mains current 1 h	25 mA
Mains current 3 h	35 mA
Rated power	< 7 W
Overvoltage protection	320 V (for 1 h)
Maximum operating voltage (U-OUT of the ECG)	460 V
Battery charging time	24 h
Discharge current	1.1 A
Charge current 1 h	100 mA
Charge current 3 h	200 mA
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)	5 °C
Type of protection	IP20
Protection class	I
Rest mode: Max. units	100
Rest mode: Max. cable length	1,000 m

Ordering data

Number of cells	Type ^①	Article number
Rated operating time 3 / 1 h		
4	EM 14/24-4 T5 BASIC	89899822
5	EM 21/28/49-5 T5 BASIC	89899823
5	EM 39-5 T5 BASIC	89899824
6	EM 35-6 T5 BASIC	89899825
6	EM 54/80-6 T5 BASIC	89899826

Packaging: 25 pieces/carton, 850 pieces/pallet

^① Remove short-circuit connector and select the correct battery to switch to 1-hour operation

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

Status indication green LED

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 T5 BASIC for T5 fluorescent lamps, 3 or 1 h

	3 oder 1 h	4 cells	5 cells		6 cells	
Type	EM 14/24-4 T5 BASIC	EM 21/28/49-5 T5 BASIC	EM 39-5 T5 BASIC	EM 35-6 T5 BASIC	EM 54/80-6 T5 BASIC	
Article no.	89899822	89899823	89899824	89899825	89899826	
Lamp type	Wattage		BLF in emergency lighting mode in % for rated operating time			
T5 FH	14 W	21				
	21 W		12			
	28 W		12			
	35 W				13	
T5 FQ	24 W	14				
	39 W			7		
	49 W		7			
	54 W					6.5
	80 W					4.5

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	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		•	•	
	Stick + Stick	3 + 3	Accu-NiCd 6A	89895963			•	•
NiMH 2.0 Ah Cs-cells	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			•	•

For 3-hour operation: 4.0 Ah D-cells NiCd or 4.0 Ah Cs-cells NiMH.

For 1-hour operation: 1.5 Ah Cs-cells NiCd or 2.0 Ah Cs-cells NiMH.

① Maximum battery housing temperature 45 °C.

Standards

- EN 55015
- EN 601347-2-7
- EN 60925
- EN 61000-3-2
- Allows compliance with EN 60598-2-22
- EN 61547
- 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	0 °C to +55 °C
to ensure 4 years design life	
storage life in temperate conditions	4 years
battery voltage/cell	1.2 V
capacity D	4.0 Ah
capacity Cs	1.5 Ah

Accu-NiMh

case temperature range	0 °C to +55 °C
(to ensure 4 years design life)	
2.0 Ah Cs	0 °C to +55 °C
4.0 Ah Cs	0 °C to +45 °C
storage life in temperate conditions	4 years
battery voltage	1.2 V
capacity Cs	2.0 Ah

Ballast compatibility

The EM T5 BASIC 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".

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.

Rest mode

Rest mode can be initiated by applying a short pulse of between 9.5 V_{DC} and 22.5 V_{DC} in amplitude for a period of between 200 ms and 1.0 second. This should be applied to terminals marked Rest after the mains supply has been disconnected and whilst the module is in emergency operation. A mains reset is required to exit the rest mode. The Rest terminals are sensitive to polarity.

Service life

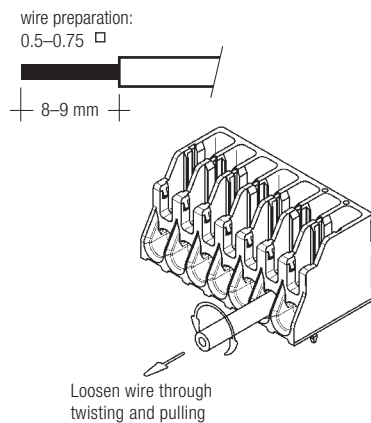
Average service life 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

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



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.

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 50 Hz 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.

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 pF ¹⁾
terminals 3 and 4 200 pF ¹⁾

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.

Packing quantities

EM T5 BASIC: 25 units per carton
LED: 25 pieces per box
Accu-NiCd: 25 pieces per box
Accu-NiMh: 25 pieces per box

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.

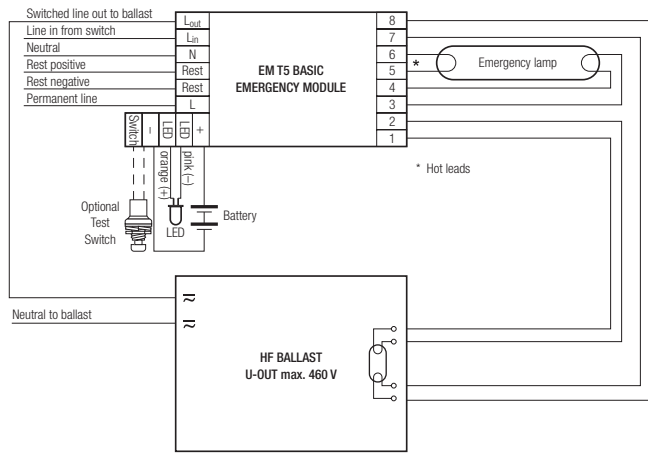
Through wiring may affect the emc performance of the luminaire.

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.

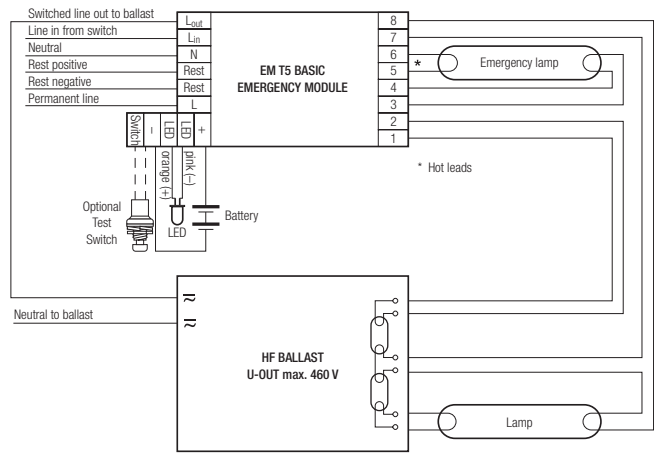
Capacitive loading limits of lamp leads must not be exceeded. Note the capacitance of the emergency lamp leads adds to the capacitance of the leads from the ballast to the EM T5 BASIC module when considering ballast loading.

EM T5 BASIC emergency module wiring diagrams

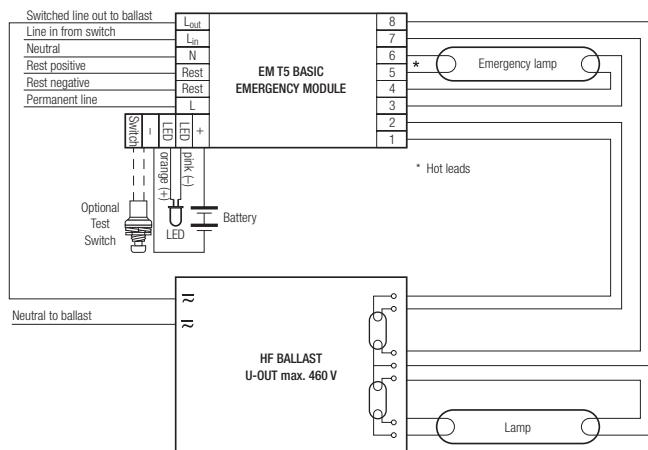
Not for use with magnetic ballasts and switch start circuits



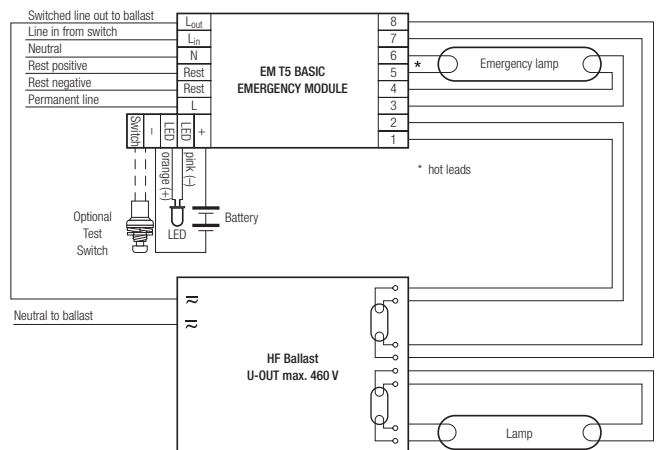
Wiring diagram for single lamp high frequency ballasts



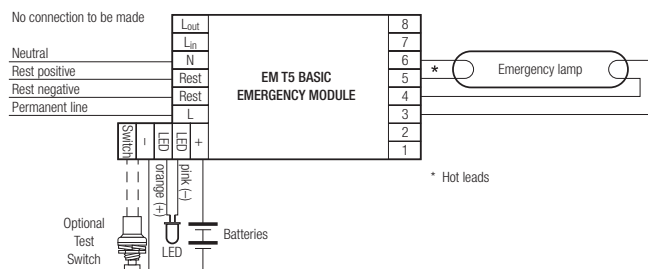
Wiring diagram for twin lamp high frequency ballasts with 6 terminals



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