T5

EM T5 BASIC, 220 – 240 V 50/60 Hz

BASIC version

Product description

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

Properties

- 1or 3 h rated duration
- Selectable operating time (jumper)
- Compatible with all electronic ballasts (dimmable and non-dimmable)
- 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 (not reversible)

Batteries

- High-temperature cells
- NiCd or NiMH batteries
- D, Cs or LA cells
- Blade terminals for simple connection
- 4-year design life
- 1-year guarantee
- For battery compatibility refer to chapter „Ballast-Lumen-Factor (BLF)“

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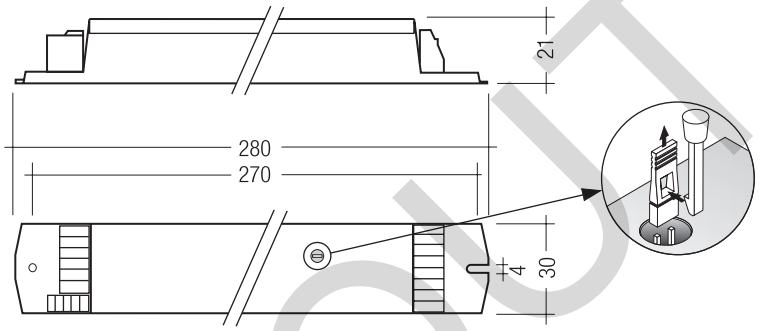
EM T5 BASIC, 220 – 240 V 50/60 Hz

BASIC version



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 ta	5 … +60 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold	according to EN 60598-2-22
Min. lamp starting temperature (emergency mode)	5 °C
Type of protection	IP20
Rest mode max. number of emergency units	100
Rest mode max. wiring distance	1,000 m

Ordering data

Type[①②]	Article number	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
Rated operating time 3 / 1 h					
EM 14/24-4 T5 BASIC	**89899822**	4	25 pc(s).	475 pc(s).	0.197 kg
EM 21/28/49-5 T5 BASIC	**89899823**	5	25 pc(s).	475 pc(s).	0.197 kg
EM 39-5 T5 BASIC	**89899824**	5	25 pc(s).	475 pc(s).	0.197 kg
EM 35-6 T5 BASIC	**89899825**	6	25 pc(s).	475 pc(s).	0.197 kg
EM 54/80-6 T5 BASIC	**89899826**	6	25 pc(s).	475 pc(s).	0.197 kg

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

② EM = Emergency

RoHS

ACCESSO-RIES

Test switch EM2

Product description

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

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	600 pc(s).	0.011 kg

RoHS

ACCESSO-RIES

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

Ballast lumen factor (BLF) in %

EM T5 BASIC for T5 fluorescent lamps, 3 or 1 h

	3h or 1h	**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 4 Ah D cells	Stick	4	**Accu-NiCd 4A 55**	**89800089**	•				
	Side by side	4	**Accu-NiCd 4B 55**	**89800385**	•				
	Stick + Stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**	•				
	Stick	5	**Accu-NiCd 5A 55**	**28002774**		•	•		
	Stick + Stick	2 + 3	**Accu-NiCd 5C 55**	**89800090**		•	•		
	Stick + Stick	3 + 3	**Accu-NiCd 6C 55**	**89800388**				•	•
NiMH 2.2 Ah Cs cells	Stick	4	**Accu-NiMH 4A**	**28002089**	•				
	Stick	5	**Accu-NiMH 5A**	**28002090**		•	•		
	Stick	6	**Accu-NiMH 6A**	**28002091**				•	•
	Stick + Stick	3 + 3	**Accu-NiMH 6C**	**28002092**				•	•
NiMH 4 Ah LA cells	Stick	4	**Accu-NiMH 4Ah 4A CON**	**89800442**	•				
	Stick + Stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**	•				
	Stick + Stick	2 + 3	**Accu-NiMH 4Ah 5C CON**	**89800439**		•	•		
	Stick + Stick	3 + 3	**Accu-NiMH 4Ah 6C CON**	**89800440**				•	•

For 3-hour operation: 4 Ah D-cells NiCd or 4 Ah Cs-cells NiMH.

For 1-hour operation: 1.6 Ah Cs-cells NiCd or 2 Ah Cs-cells NiMH.

Standards
- EN 61347-2-7
- EN 60929
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- according to EN 50172
- according to EN 60598-2-22

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 VDC 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 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test must not be conducted.

Technical data batteries

Accu-NiCd

4.2 / 4.5 Ah

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 temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

Accu-NiMH

2.2 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 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +40 °C
Max. short term temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

For further informations refer to corresponding battery datasheet.

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

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 diameter, 1 – 1.6 mm thickness
• Lead length 750 mm
• Insulation rating: 90 °C

Test switch
• Mounting hole 7.0 mm diameter
• 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 insulting covers to connect the separate sticks together.

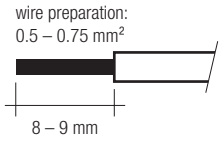
Rest mode
Rest mode can be initiated by applying a short pulse of between 9.5 VDC and 22.5 VDC in amplitude for a period of between 200 ms and 1.0 second. This should be applied to terminals marked Rest after the mains supply has been disconnected and whilst the module is in emergency operation. A mains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

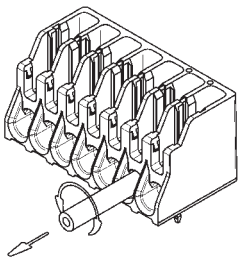
Life-time
Average life-time 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

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





Loosen wire through twisting and pulling

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 0.5–0.75 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.

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.

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.

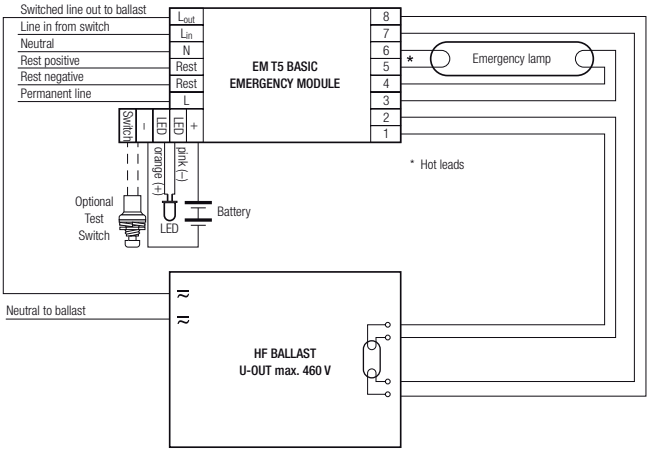
With the use of the fifth pole possible compatibility problems between the products can be prevented. Depending on the luminaire wiring the radio suppression in the emergency mode of operation can be further improved.

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.

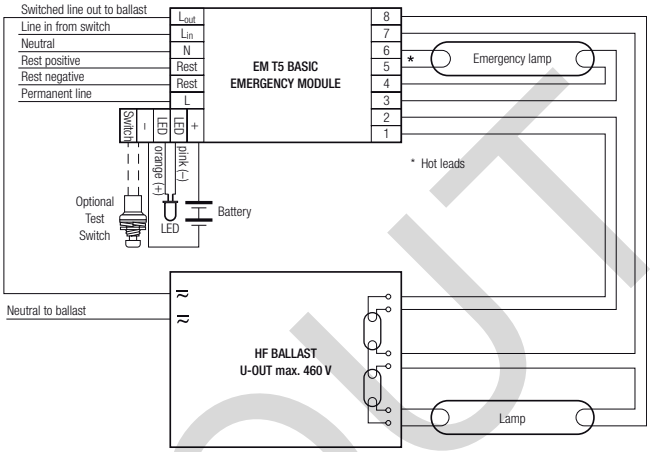
To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

EM T5 BASIC emergency module wiring diagrams

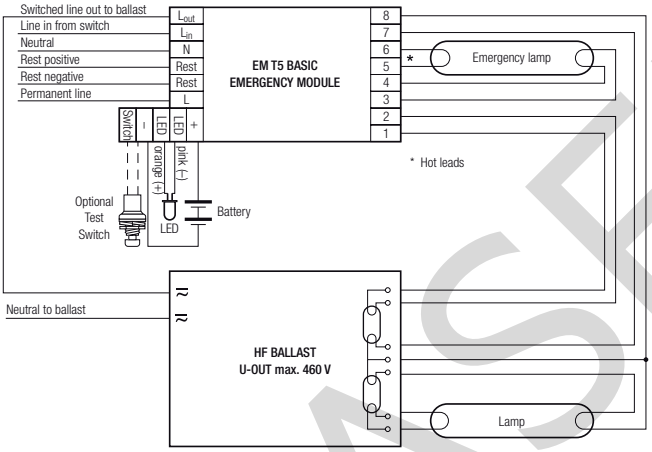
Not for use with magnetic ballasts and switch start circuits



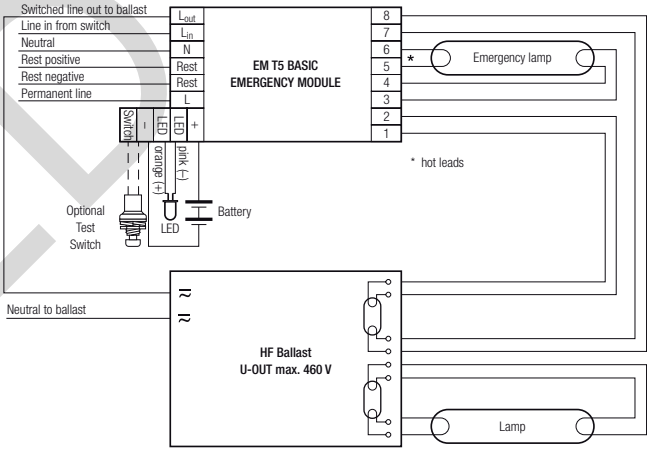
Wiring diagram for single lamp high frequency ballasts



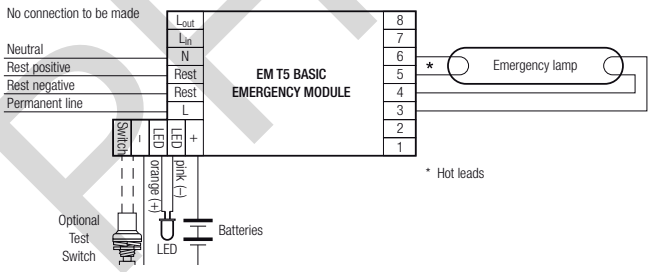
Wiring diagram for twin lamp high frequency ballasts with 6 terminals.



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

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.