EM MINI BASIC, 220 – 240 V 50/60 Hz
BASIC version

Product description
• Emergency lighting supply unit for manual testing
• For compact fluorescent lamps
• Small dimensions (28 x 40 mm cross-section, 150 mm length)
• 5-year guarantee

Properties
• 3 h rated duration
• Compatible with all electronic ballasts (dimmable and non-dimmable)
• Can also be used in combination with conventional magnetic ballasts
• 5-pole technology, 4-pole lamp changeover and delayed power switching for the ballast
• Switchover relay with high-current contacts
• IDC (insulation displacement connection)
• Green charge status display LED
• Checking the emergency lighting function by interrupting the unswitched phase
• Deep discharge protection
• Short-circuit-proof battery connection
• Polarity reversal protection for battery

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

Standards, page 5
Wiring diagrams and installation examples, page 7 and 8
Emergency lighting units

EM INVERTER

EM MINI BASIC, 220 – 240 V 50/60 Hz
BASIC version

Technical data
Rated supply voltage: 220 – 240 V
Mains frequency: 50 / 60 Hz
Mains current: 0.03 A
Rated power: 3.9 W
Battery charging time: 24 h
Discharge current:
Charge current: 210 mA
Leakage current (PE): 0.5 mA
Ambient temperature (ta): 0 – +60 °C
Max. casing temperature (tc): 70 °C
Mains voltage changeover threshold according to EN 60598-2-22
Min. lamp starting temperature (emergency mode): 0 °C
Type of protection: IP20

Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Number of cells</th>
<th>Packaging, carton</th>
<th>Packaging, pallet</th>
<th>Weight per pc</th>
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</thead>
<tbody>
<tr>
<td>EM 33A MINI BASIC</td>
<td>89899951</td>
<td>3</td>
<td>25 pc(s)</td>
<td>1000 pc(s)</td>
<td>0.155 kg</td>
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<td>EM 34A MINI BASIC</td>
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<td>4</td>
<td>25 pc(s)</td>
<td>1000 pc(s)</td>
<td>0.155 kg</td>
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<tr>
<td>EM 34C MINI BASIC</td>
<td>89899952</td>
<td>4</td>
<td>25 pc(s)</td>
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<td>0.155 kg</td>
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</tbody>
</table>

Tolerance + 15 % at 230 V
Product description

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

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### Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, per pc.</th>
<th>Weight per pc.</th>
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</thead>
<tbody>
<tr>
<td>LED EM green</td>
<td>89899605</td>
<td>25 pc(s) 200 pc(s)</td>
<td>0.011 kg</td>
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<td>LED EM green, ultra high brightness</td>
<td>89899756</td>
<td>25 pc(s) 400 pc(s)</td>
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</table>
## Emergency lighting units

### EM MINI BASIC for compact lamps, 3 h

<table>
<thead>
<tr>
<th>Lamp type</th>
<th>Wattage</th>
<th>BLF in emergency lighting mode in % for rated operating time</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC-DD</td>
<td>28 W</td>
<td>9</td>
</tr>
<tr>
<td>TC-F</td>
<td>36 W</td>
<td>11.5</td>
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<tr>
<td>TC-DEL</td>
<td>18 W</td>
<td>16.5</td>
</tr>
<tr>
<td>TC-TEL</td>
<td>18 W</td>
<td>16.5</td>
</tr>
<tr>
<td>TSc</td>
<td>22 W</td>
<td>16</td>
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<table>
<thead>
<tr>
<th>Technology and capacity</th>
<th>Design</th>
<th>Number of cells</th>
<th>Typ</th>
<th>Article number</th>
<th>Assignable batteries</th>
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</thead>
<tbody>
<tr>
<td>NiCd 4 Ah D-cells</td>
<td>Stick</td>
<td>3</td>
<td>Accu-NiCd 3A</td>
<td>89895960</td>
<td>*</td>
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<td></td>
<td>side by side</td>
<td>3</td>
<td>Accu-NiCd 3B 5S</td>
<td>89800384</td>
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<td>Stick</td>
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<td>side by side</td>
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<td>Accu-NiCd 4B 5S</td>
<td>89800385</td>
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<tr>
<td></td>
<td>Stick + Stick</td>
<td>2 + 2</td>
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<td>Pack-NiCd 3D CON</td>
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<td>Pack-NiCd 4D CON</td>
<td>89800390</td>
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</table>

Subject to change without notice.
Emergency Ballast lumen factor (EBLF) in %

EM MINI BASIC, 3 h

<table>
<thead>
<tr>
<th>Type</th>
<th>Lamp type</th>
<th>Wattage</th>
<th>3 h 3 cells</th>
<th>3 h 4 cells</th>
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</thead>
<tbody>
<tr>
<td>EM 33A</td>
<td>TC-DD</td>
<td>28 W</td>
<td>9.4</td>
<td></td>
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<tr>
<td></td>
<td>TC-DD</td>
<td>38 W</td>
<td></td>
<td>5.3</td>
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<tr>
<td>EM 34A</td>
<td>TC-F</td>
<td>36 W</td>
<td>10.9</td>
<td></td>
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<tr>
<td>EM 34C</td>
<td>TC-OEL</td>
<td>18 W</td>
<td>18.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>26 W</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>16 W</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T5c</td>
<td>22 W</td>
<td>15.5</td>
<td></td>
</tr>
</tbody>
</table>

Lamp current in emergency operation in mA

EM MINI BASIC, 3 h

<table>
<thead>
<tr>
<th>Type</th>
<th>Lamp type</th>
<th>Wattage</th>
<th>3 h 3 cells</th>
<th>3 h 4 cells</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TC-DD</td>
<td>28 W</td>
<td>17</td>
<td></td>
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<tr>
<td></td>
<td>TC-DD</td>
<td>38 W</td>
<td></td>
<td>12</td>
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<td>EM 34A</td>
<td>TC-F</td>
<td>36 W</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>EM 34C</td>
<td>TC-OEL</td>
<td>18 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>26 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>16 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T5c</td>
<td>22 W</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

Battery discharge current in Ampere [A]

EM MINI BASIC, 3 h

<table>
<thead>
<tr>
<th>Type</th>
<th>Lamp type</th>
<th>Wattage</th>
<th>3 h 3 cells</th>
<th>3 h 4 cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM 33A</td>
<td>TC-DD</td>
<td>28 W</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-DD</td>
<td>38 W</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>EM 34A</td>
<td>TC-F</td>
<td>36 W</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>EM 34C</td>
<td>TC-OEL</td>
<td>18 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>26 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-TEL</td>
<td>16 W</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T5c</td>
<td>22 W</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- Tolerance ± 15 % at 230 V
- Low battery voltage cut off (LBVCO) = 0.8 V per cell

Standards
- according to EN 50172
- according to EN 60598-2-22
- EN 601347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30

Note
The EM Mini Basic is not intended to be used for high risk task area lighting.

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.

Basic insulation between supply and battery circuit.

PHASED OUT

Data sheet 10/17-755-12
Subject to change without notice.

www.tridonic.com
EM INVERTER

Technical data batteries

**Accu-NiCd 4.2 / 4.5 Ah**
- Battery voltage/cell: 12 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 commissioning
- Max. storage time: 6 months

**Akupack-NiCd 4.5 Ah**
- Battery voltage/cell: 12 V
- Cell type: D
- Case temperature range (to ensure a 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 commissioning
- Max. storage time: 6 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.

**Note:**
Care should be taken to ensure batteries and emergency units don’t exceed their maximum temperatures.

Connection method: 4.8 x 0.5 mm spade welded to end of cell.

For the stick batteries this connection is accessible after the battery end caps have been fitted.

To inhibit inverter operation, only disconnect the batteries by removing the connector from the battery spade tags.

<table>
<thead>
<tr>
<th>Type</th>
<th>Uout (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM 33A MINI BASIC</td>
<td>250 / 250 V</td>
</tr>
<tr>
<td>EM 34A MINI BASIC</td>
<td>250 / 250 V</td>
</tr>
<tr>
<td>EM 34C MINI BASIC</td>
<td>250 / 250 V</td>
</tr>
</tbody>
</table>

*Max. voltage between output terminals / Max. voltage between output terminal to earth*

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

- Terminal block type: Push wire and insulation displacement
- Terminal block capacity:
  - Push wire: 0.5 to 1.5 mm² solid conductor
  - Insulation displacement: 0.5 mm² solid conductor
- Wire strip length: 7.5 to 8.5 mm
- EM MINI BASIC leads 5, 6 max. 0.5 m (< 50 pF)
- EM MINI BASIC leads 3, 4 max. 1.0 m (< 100 pF)

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.

Mechanical details
Channel manufactured from 0.4 mm galvanised galvanised steel.
Cover manufactured from 0.4 mm white precoated steel.

- **LED charge indicator:**
  - Green
  - Mounting hole 6.5 mm dia
  - Length of LED lead 750 mm (Bezel supplied fitted to LED)
- **Insulation temperature rating:** 90 °C

- **Battery leads:**
  - Quantity: 1 red and 1 black
  - Length: 1000 mm (Accu NiCd 3B, 4B, 4C), 1300 mm (all others)
  - Wire type: 0.5 mm² solid conductor
  - Insulation temperature rating: 90 °C

- **Termination 1:**
  - Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

- **Termination 2:**
  - 9 mm stripped insulation

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

**Life-time**
Average life-time 50,000 h under rated conditions with a failure rate less than 10 %. Average failure rate of 0.2 % per 1,000 operating hours.
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 suppressin 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 MINI BASIC module when considering ballast loading.

Wiring diagrams

Non maintained

Wiring diagrams for high frequency electronic ballasts

Single lamp high frequency electronic ballast

Twin lamp high frequency electronic ballast (6 lamp lead connections)

Twin lamp high frequency electronic ballast (7 lamp lead connections)

Twin lamp high frequency electronic ballast (8 lamp lead connections)
Wiring diagrams for switch start circuits with magnetic control gear

Single lamp switch start circuit with separate lamp holder and starter holder

Single lamp switch start circuit with combined lamp holder and starter holder assembly

Twin series switch start circuit with separate lamp holder and starter holder

Twin series switch start circuit with combined lamp holder and starter holder assembly

Twin parallel switch start circuit with separate lamp holder and starter holder

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.