TRIDONIC

Emergency lighting units Batteries

NiMH Accus 2.0 – 4.0 Ah for 45 – 55 °C Nickel-metal hydride cells (NiMH)

Product description

- High-temperature NiMH cells for use with emergency lighting units
- 4-year design life
- 1-year guarantee

Properties

- Cadmium free
- Constant high-temperature operation at 55 °C (2.0 Ah) or 45 °C / 50 °C (4.0 Ah) – depending on the emergency lighting unit used (refer to respective emergency control gear datasheet)
- Low profile, cross-section 22 mm (without end caps)
- Good charging properties at high temperature
- High energy maintenance of the charged battery
- · Certified quality manufacturer
- In various configurations
- Simple connection with blade terminal
- With polycarbonate fixing caps and connecting cable
- · Electrical connection with mounted end caps possible
- Complies with IEC 61951-2 (constant charging load test)
- Suitable for emergency lighting equipment as per IEC 60598-2-22







Fig. 2: Stick + Stick





Fig. 3: Side by side

Technical data

Battery voltage per cell	1.2 V				
Battery casing temp. 2.0 Ah Cs (life of 4 years)	0 +55 °C				
Battery casing temp. 4.0 Ah Cs (life of 4 years)	0 +45 / +50 °C depending on the				



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Batteries

Ordering data

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Туре	Article- number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
NiMH Cs cells - stick, 4 Ah						
Accu-NiMH 4Ah C 3A	89899854	1 x 3	4 Ah	5 pc(s).	25 pc(s).	0.235 kg
Accu-NiMH 4Ah C 4A	89899850	1 x 4	4 Ah	5 pc(s).	25 pc(s).	0.308 kg
Accu-NiMH 4Ah C 5A	89899851	1 x 5	4 Ah	5 pc(s).	25 pc(s).	0.384 kg
Accu-NiMH 4Ah C 6A	89899852	1 x 6	4 Ah	5 pc(s).	25 pc(s).	0.459 kg
NiMH Cs cells - stick + stick, 4	Ah					
Accu-NiMH 4Ah C 4C	89800102	2 + 2	4 Ah	5 pc(s).	25 pc(s).	0.319 kg
Accu-NiMH 4Ah C 5C	89899978	2 + 3	4 Ah	5 pc(s).	25 pc(s).	0.250 kg
Accu-NiMH 4Ah C 6C	89899853	3 + 3	4 Ah	5 pc(s).	25 pc(s).	0.480 kg
NiMH Cs cells - stick, 2 Ah						
Accu-NiMH C 2A	89899755	1 x 2	2 Ah	5 pc(s).	25 pc(s).	0.123 kg
Accu-NiMH C 3A	89899744	1 x 3	2 Ah	5 pc(s).	25 pc(s).	0.201 kg
Accu-NiMH C 4A	89899700	1 x 4	2 Ah	5 pc(s).	25 pc(s).	0.208 kg
Accu-NiMH C 5A	89899703	1 x 5	2 Ah	5 pc(s).	25 pc(s).	0.261 kg
Accu-NiMH C 6A	89899706	1 x 6	2 Ah	5 pc(s).	25 pc(s).	0.312 kg
NiMH Cs cells - stick + stick, 2	Ah					
Accu-NiMH C 6C	89899707	3 + 3	2 Ah	5 pc(s).	25 pc(s).	0.318 kg
NiMH Cs cells - side by side, 2 Ah						
Accu-NiMH C 5B	89899704	5 x 1	2 Ah	5 pc(s).	25 pc(s).	0.276 kg

Specific technical data								
Туре	Number of cells	Capacity	Article number	Image	Length L	Hole spacing D	Width B	Height H
NiMH Cs cells - stick, 4 Ah								
Accu-NiMH 4Ah C 3A	3	4 Ah	89899854	1	215 mm	203 mm	26 mm	26 mm
Accu-NiMH 4Ah C 4A	4	4 Ah	89899850	1	275 mm	263 mm	26 mm	26 mm
Accu-NiMH 4Ah C 5A	5	4 Ah	89899851	1	335 mm	323 mm	26 mm	26 mm
Accu-NiMH 4Ah C 6A	6	4 Ah	89899852	1	395 mm	383 mm	26 mm	26 mm
NiMH Cs cells - stick + stick, 4 Ah								
Accu-NiMH 4Ah C 4C	4	4 Ah	89800102	2	155 mm	143 mm	26 mm	26 mm
Accu-NiMH 4Ah C 5C	5	4 Ah	89899978	2	155 + 215 mm	143 + 203 mm	26 mm	26 mm
Accu-NiMH 4Ah C 6C	6	4 Ah	89899853	2	215 mm	203 mm	26 mm	26 mm
NiMH Cs cells - stick, 2 Ah								
Accu-NiMH C 2A	2	2 Ah	89899755	1	121 mm	109 mm	26 mm	26 mm
Accu-NiMH C 3A	3	2 Ah	89899744	1	164 mm	152 mm	26 mm	26 mm
Accu-NiMH C 4A	4	2 Ah	89899700	1	206 mm	194 mm	26 mm	26 mm
Accu-NiMH C 5A	5	2 Ah	89899703	1	249 mm	237 mm	26 mm	26 mm
Accu-NiMH C 6A	6	2 Ah	89899706	1	292 mm	280 mm	26 mm	26 mm
NiMH Cs cells - stick + stick, 2 Ah								
Accu-NiMH C 6C	6	2 Ah	89899707	2	164 mm	152 mm	26 mm	26 mm
NiMH Cs cells - side by side, 2 Ah					·			
Accu-NiMH C 5B	5	2 Ah	89899704	3	148 mm	40 x 96 mm	54 mm	25 mm

Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 61951-2 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

Technical data Accu

Capacity Cs	
Rated minimum capacity	2 Ah / 4 Ah
Typical capacity	2.2 Ah / 4.2 Ah
Typical weight per cell	60g/74g
Cell dimensions:	
Diameter	22 mm / 22 mm
Height	42.5 mm/60 mm

Consult individual emergency module data sheet for maximum allowable temperatures.

Technical data End caps

Glow-wire test according to EN 61347-1 with increased temperature of 960 $^{\circ}\mathrm{C}$ passed.

Installation & commissioning

Consider the following points during the installation and commissioning procedure when using rechargeable NiMH batteries for emergency lighting applications.

All new batteries need to go through an activation process to ensure they achieve their rated capacity and can operate for the required emergency duration. This process involves cyclic charging (24 hrs) and discharging (1/2/3 hrs) of the batteries a number of times. The number of cycles required is dependent on the temperature of the batteries and the storage time.

If this activation process is not conducted the batteries can fail to achieve the necessary duration during the first test.

If the first duration test fails, please repeat the test another time to activate the batteries and in order to verify the performance of the system.

However it is important that the batteries are not cycled too many times during use. Too much cycling can decrease the life-time of the NiMH batteries.

In many cases during the installation process batteries are charged and discharged a few times as a result of the switching of the mains supply. Where this mains switching is limited to a few times this will normally activate the batteries. However if excessive switching of the mains supply occurs this can as described lead to a reduction in the overall life of the batteries.

If batteries fail to achieve the required duration on the initial commissioning test then cycle them 1-2 times on a 24 hour charge / discharge in order to activate them fully prior to conducting another full duration test.

All rechargeable batteries, and especially NiMH, can be damaged by excessive discharge known as "Deep Discharge". This happens if batteries are left connected for long periods without charging. It can occur where buildings are unoccupied for several months with the mains supply switched off or when luminaires are stored with batteries connected for longer periods prior to installation.

All Tridonic Emergency units have deep discharge protection circuits to limit the discharge current when the battery voltage reaches a specific level known as LVBCO or low voltage battery cut off. Nevertheless all circuits consume a very small current and over a very long period this current can lead to deep discharge of the battery.

Unlike NiCd batteries, if NiMH batteries or individual cells within a battery pack, are driven into this deep discharge state they will not recover after charge / discharge cycles. Therefore it is very important that NiMH batteries are not left connected for such long periods in a discharged state.

Storage

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
 - temperature: +5...+25°C
 humidity: 65% ±5%
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries
- A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

Safety

- Do not short-circuit the battery pack when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- · Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- · Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.



Damage/improper use

If the battery is damaged or user incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

Disposal

- Do not dispose of batteries with normal waste.
- · Comply with local regulations when disposing of batteries.

Mechanical details

Battery leads

- Quantity: 1 red and 1 black
- Length: 1,300 mm
- Wire type: 0.5 mm² solid conductor
- Insulation temperature rating: 90 °C

Battery end termination

Push on 4.8 mm receptacle to suit battery soade 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 receptacles at each end and insulating covers to connect the separate sticks together. Connect two battery sticks in series by connecting plus to minus.

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.

Additional information

Additional technical information at www.tridonic.com \rightarrow Technical Data

Guarantee conditions at <u>www.tridonic.com</u> \rightarrow Services

No warranty if battery was opened.