

CMEC battery single-cell system.

(Material) Safety Data Sheet (SDS / MSDS)

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Section 1 – Identification

1.1 Product Name and Description: Single-cell battery system for robotic assembled with Panasonic NCR18650B Lithium-ion rechargeable battery cell.

Electro-chemistry: Lithium-ion LiNiCoAlO₂ (Lithium Nickel Cobalt Aluminum Oxide)

This Safety Data Sheet covers all lithium ion rechargeable battery packs supplied by CMIUTA Electric Company.

1.2 Supplier

Office / Address / Telephone Numbers For Information

Telephone: +31 684531172

E-mail: cmiuta@uavfpvbattery.com

Emergency Telephone: +31 684531172

CMIUTA Electric Company (CMEC), Kollumerland street no 31, 4051GX Ochten, The Netherlands.

Section 2 – Hazard(s) Identification

Warning: the battery packs should not be short circuited, punctured, incinerated, crushed, immersed in water, over-charged, over-discharged, or exposed to a temperatures above the declared operation temperature range of the cell or battery. Risk of fire or explosion may occur in the above condition of abuse.

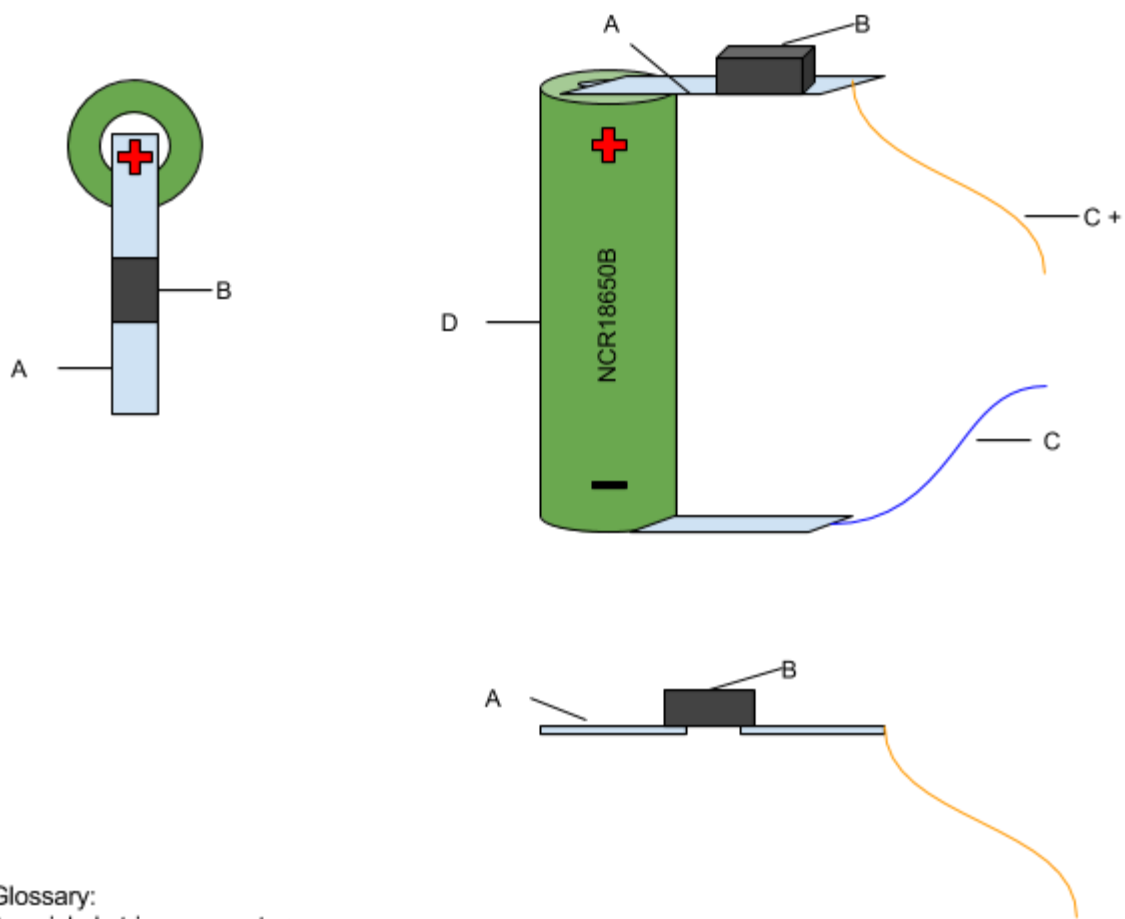
The battery cell's terminals are over insulated with electrical grade vulcanized fibre gasket, and joined by (99.97%) pure nickel-strips layers through pulse-welding (ERW). Then wiring-harnesses for PCB/BMS, insulated discharge cables are applied, spending more attention to detail and safety elements.

At the positive terminal of battery cell it is mounted an extra safety element, a PTC resettable fuse (Littelfuse 2920L700/12MR) that in a catastrophic short circuit scenario will interrupt the supply of power to the device.

Discharging/Charge wire gauge: 18AWG (300V/17A rated)

Wire colour: blue(-) and orange(+)

Nickel stripe (pole) connector: 7 x 0.15 mm



Glossary:

A = nickel stripeable connector

B = PTC Resettable Fuse

C = charging/discharging cables

D = battery cell

Section 3: Design Safety Features: Cell Level

Panasonic NCR18650B battery cell incorporate numerous mechanical, thermal, and chemical factors that contribute to their safety in the CMEC battery packs. This have an internal positive temperature coefficient (PTC) current limiting device. The primary role of this PTC is to limit short circuit current on an individual cell level. It is important to note that this device is completely passive and functions without any inputs from the rest of the battery pack systems.

A second level of protection is provided by the Current Interrupt Device (CID). Each battery cell used in the CMEC battery packs has an internal CID. These devices serve to protect the cell from excessive internal pressure..

Section 4: Instructions, cautions and warnings

CMEC battery single-cell system have no any electronic circuitry – PCB/BMS, requires an additional smart charger with proper protection and balancing functions for lithium-ion cells.

The cells should be kept away from heat generating electronic parts in order to avoid deterioration of battery performance.

For safety reason and in order not to shorten the cycle life, max charging voltage should be under 4.20V/cell including tolerance.

The standard charge condition is a constant current – constant voltage method with a current 1625mA/cell.

The charging process should be automatic halted by charging device when either time, battery voltage, or current reach certain values.

The discharge end voltage should be more than 3.3V/cell including tolerance.

The charging temperature should be confined to the range 5°C to +45°C.

The discharge temperature should be between -20°C to +60°C.

Section 5: Storage temperature and humidity.

When long duration storage the battery packs should be stored in a stable environment characterized by low-humidity (less than 70%RH), free of corrosive gasses, and an ambient temperature between -20°C and +20°C.

Avoid conditions that can create condensation such as rapid fluctuations in the ambient.

Section 6: Prohibited actions.

DO NOT short circuit

DO NOT force a reverse-charge or a reverse-connection

DO NOT overcharge

DO NOT modify, disassemble, puncture, cut, crush, or incinerate

DO NOT expose to liquids

DO NOT use or place the battery a high temperatures

DO NOT connect the battery directly with AC plug (outlet) or electric car plugs.

Section 7: Recycling.

When disposing of the battery, recycle it according to local rules and regulations.

Section 8: Other battery safety requirements.

In order to ensure the safety of the battery pack, please contact CMEC to discuss design of the application from a mechanical and electrical perspective. Also, if there are special usage conditions (for example: a large (DC) current load, a quick charge method, or a special usage pattern), please consult CMEC before finalizing the product specification.