PRODUCT DATA SHEET

Lithium Polymer Rechargeable Batteries

Rev. February 2022

Section 1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY

PRODUCT NAME:	AirBM3V7L	3.7V, 1300mA/h, 4.81Wh	A0BATT00E0018/F0BATT00E0018/R0BATT00E0018/ /R1BATT00E0018
	LPM00	3.7V, 660mA/h, 2.44Wh	R0BATT00E13A0/A0BATT00E0025/F0BATT00E13A0/ R0BATT00E13A0
	LPM01/ LPM01EX	3.7V, 1300mA/h, 4.81Wh	F0BATT00E10A0/R0BATT00E10A0/F0BATT00X10A0/ R0BATT00X10A0
	LPM02	7.4V, 1400mA/h, 10.36Wh	A0BATT00E0021/F0BATT00E08A0/R0BATT00E08A0/ R1BATT00E08A0 /
	LPM04	7.4V, 2800mA/h, 20.72Wh	F0BATT00E12A0/R0BATT00E12A0

PRODUCT USE: Power supply for Autec radio remote control

SUPPLIER: AUTEC srl

ADDRESS: Via Pomaroli 65,
36030 Caldogno,
Vicenza, ITALY

MAIL: info@autecsafety.com

CONTACT NUMBER: +390444901000

Section 2. HAZARDS IDENTIFICATION

As a solid, manufactured article, no exposure to hazardous ingredients is expected with normal use. The substances contained in the battery are held in hermetically sealed plastic containers, which are designed to withstand the normal temperatures and pressures of use.
Exposure to the ingredients contained within or to the products of their combustion could be harmful, so we recommend to follow these safety measure:

- Do not short-circuit
- Do not reverse the polarity,
- Do not open or disassemble
- Do not expose to fire or open flame
- Do not puncture, deform, incinerate or heat above 60 °C
- Do not submit to excessive mechanical stress,
- Do not put in contact with water

Follow the instructions reported in the users manual prepared by the manufacturer.

Additional information on battery handling are shown under section 7 and 16.

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Section 3.

COMPOSITION / INFORMATION ON INGREDIENTS

Common Material	CAS #	EC #	Content %
Lithium Cobalt Oxide	12190-79-3	235-362-0	25~ 45
Carbon (Various Forms)	7440-44-0/ 7782-42-5	231-153-3/ 231-955-3	15~ 21
Lithium Hexafluorophosphate ($LiPF_6$)	21324-40-3	244-334-7	5 ~ 15
Poly Vinylidene Fluoride (PVDF)	24937-79-9	607-458-6	0.5 ~ 5

AirBM3V7L / LPM01 / LPM02 / LPM04	CAS #	EC #	Content %
Ethylene Carbonate (EC)	96-49-1	202-510-0	28 ~ 29
Styrene-Butadiene Rubber (SBR)	-	939-416-0	< 1

LPM00	CAS #	EC #	Content %
Aluminium	7429-90-5	231-072-3	21 ~ 23
Copper	7440-50-8	231-159-6	10 ~ 11
Acetylene Black (SP)	1333-86-4	215-609-9	0.5 ~ 3

This article does not contain Substances of Very High Concern (SVHC) as identified by the European of Chemical Agency (ECHA) according to EU REACH Regulation (Article 33).

Section 4.

FIRST-AID MEASURES

Under normal conditions of use, the battery is hermetically sealed. Don't handle or enter in direct contact with an open battery or electrolyte leaked from a battery. If this accidentally happens follow those measures:

Skin Contact — Contents of an open battery can cause skin irritation. Remove contaminated clothes and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

Eye Contact — The electrolyte leaked from a battery may produce severe eye irritation or even irreversible damage and possible eye burns. Immediately flush eyes with plenty of water for at least 15 minutes. Provide eyewash station. Remove contact lenses, if present and easy to do. Continue rinsing and get medical attention.

Inhalation — Inhalation of vapors may lead to severe irritation of the mouth and upper respiratory tract with a burning sensation, pain, burns and inflammation in the nose and throat. There may also be coughing or difficulty breathing. Supply fresh air or, in case of dyspnea or asphyxia, use an artificial respirator. Call for doctor for medical treatment.

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Ingestion	Swallowing a battery can be harmful. Exposure to contents of an open or damaged battery can cause serious irritation of the mouth, esophagus, and gastrointestinal tract, vomiting, hematemesis, stomach pains and diarrhea. Rinse mouth and let drink plenty of water. Do not induce vomiting. Seek medical attention immediately.

Section 5.

FIRE-FIGHTING MEASURES

Under normal use, the battery does not exhibit flammable properties.

Cold water and dry powder in large amount are applicable.

To control a small fire, small batteries can be immersed in water, or placed in a drum covered with a non- flammable blanket

In case of fire the more suitable extinguishing media are Carbon Dioxide, Foam, Fire Extinguishing Powder or Halon and cold water. Use Class D extinguishing media or dry sand if only few cells are involved.

When battery cells combust, they tend to ignite other cells in the adjacent area. Prevent this by flooding the area with Carbon Dioxide, Foam, Nitrogen Gas or Fire Extinguishing Powder or Water. Be aware that, although use of water will extinguish flames, if a cell vents and exposes lithium hexafluorophosphate mixed with water vapor, this could create a poisonous hydrogen-fluoride gas. Degradation of the cell by heat may produce hazardous fumes of lithium, hydrofluoric acid, hydrogen and oxides of carbon, aluminum, lithium, copper and cobalt.

Fire fighters should wear self-contained breathing apparatus and protective clothing.

Section 6.

ACCIDENTAL RELEASE MEASURES

Spill and leaks are unlikely because cells are contained in an hermetically-sealed case.

Personal precautions, protective equipment and emergency procedures

Personal Precautions	As an immediate precautionary measure isolate spill or leak area and keep unauthorized personnel away. Ventilate closed areas before entering. Avoid contact with skin, eyes or clothing. Wear protective clothing. Use personal protective equipment as described in section 8 of this safety data sheet.
Environmental Precautions	Prevent from penetration in the soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. See Section 13: Disposal Considerations.

Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so. For waste disposal, see Section 13 of the SDS.
Methods for Clean-Up	Absorb or pack spill residues in inert material such as vermiculite, clay or earth and dispose in accordance with local regulations.

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Section 7.

HANDLING AND STORAGE

Storage:

Store in a cool, well ventilated area. Avoid direct sunlight, extreme temperatures (above 60°C or below -20°C) and high humidity and do not expose the battery to condensation, rain or frozen condition. Elevated temperatures can result in a reduced battery service life.

Battery exposure to temperatures above 130°C will result in the battery venting flammable liquid and gases. Optimum storage temperatures are between -20 and +30 °C. Keep away from water. Do not allow battery terminals to enter in contact each other or with other conductive goods (i.e. metal) while packed and provide partitions or non-conductive (i.e. plastic) bags in order not to mix the batteries.

Handling:

Short circuits will cause high cell temperatures which can cause skin burns as well as shorten the battery life. Sources of short circuits include batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of batteries into devices.

Never disassemble a battery or bypass any safety device. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries.

Charging:

This battery is made to be charged many times. Use only approved chargers and procedures since improper charging can cause heat damage or even ignition. Observe proper charging polarity.

Section 8.

EXPOSURE CONTROLS / PERSONAL PROTECTION

Under normal condition of use no special personnel protection is required.

Ventilation Requirements: General ventilation normally adequate.

Measures should also be taken to protect operators from inhalation of volatile organic substances. Reaction of the electrolyte with water/humidity may generate hydrofluoric acid and irritate the eyes, nose, throat and skin.

Respiratory Protection: Not necessary under normal conditions. If dealing with an electrolyte leakage and irritating vapors are generated, an approved half face inorganic vapor and gas/acid/particulate respirator is required or Self Contained Breathing Apparatus (SCBA).

Eye Protection: Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery to be protected by liquid splashes.

Skin Protection: Not necessary under normal conditions. Use chemical resistant gloves if handling an open or leaking battery.

General considerations: Do not allow metallic articles to contact the battery terminals during handling. Avoid contact with the internal components of the battery. Do not store food, drink and tobacco near the product.

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Section 9.

PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical property	Value
Physical state	Solid Article
Appearance	Plastic case
Odor	If a leakage subsist: smell acrid and pungent
Color	Not determined
Odor Threshold	Not determined
pH	Not determined
Melting Point/Freezing Point	Not determined
Boiling Point/Boiling Range	Not determined
Flash Point	Not determined
Evaporation Rate	Not determined
Flammability (Solid, Gas)	Will burn if involved in a fire
Upper Flammability Limits	Not determined
Lower Flammability Limit	Not determined
Vapor Pressure	Not determined
Vapor Density	Not determined
Specific Gravity	Not determined
Water Solubility	Insoluble
Solubility in other solvents	Not determined
Partition Coefficient	Not determined
Auto-ignition Temperature	Not determined

Section 10.

STABILITY AND REACTIVITY

This product is stable under normal conditions at ambient temperature.

Conditions to avoid:	Shorting batteries such as creating a contact across terminals wit any metal object. Heat above 60 °C or incinerate. Deform, mutilate crush, pierce, disassemble. Exposure to direct sunlight.
Incompatibility (Materials to avoid):	Conductive materials, water, seawater, strong oxidizers and stron acids.

Section 11.

TOXICOLOGICAL INFORMATION

Battery is not harmful as its ingredients are in a hermetically sealed state.

In case of an accidental release see information in section 4 and 6.

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Section 12.

ECOLOGICAL INFORMATION

There is no ecological harm when batteries are used correctly and recycled after use has ended.

These batteries are Lead (Pb), Cadmium (Cd) and Mercury (Hg) free as defined by Directive 2006/66/EC and its amendment (Directive 2013/56/EU of 20 November 2013).

Environmental precautions

- Eliminate all possible sources of heat or ignition.
- Prevent further leakage or spillage if safe to do so (use absorbent cloth or other inert absorbent non-conductive material mineral such as sand, sodium bicarbonate, alumina or vermiculite).
- Dry clothes can also be used as a absorbent material in absence of fire.
- Do not allow material to contaminate ground water system.

Treatment of Waste Water

- Confine the effluent or the contaminated material and collect it for further as hazardous waste (water) for appropriate treatment. Pick up and transfer to properly labelled containers.
- Dispose of in accordance with local waste management legislation and emissions regulations

Section 13.

DISPOSAL CONSIDERATION

Europe: End-of-life management must be managed according to directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators and its transposition into each European Union's Member State national legislation. Importers and users outside EU should consider the local law and rules.

For more information see Section "Sustainability":

https://www.autecsafety.com/en/sustainability

As a waste their European Waste Code (EWC) is 16 06 05 - Other batteries and accumulators (Absolute Non-hazardous).

As all battery systems, Lithium batteries must be collected separately from other waste and recycled. Never incinerate Lithium batteries. Never dispose of Lithium batteries in landfills.

Residual waste: if contaminated by a leaking or damaged battery, empty containers should be taken to an approved waste handling site for recycling or disposal

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Section 14.

TRANSPORT INFORMATION

Autec Lithium batteries are considered "small exempted batteries" and are not subject to the full application of dangerous goods regulation for the transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), the International Maritime Dangerous Goods Code (IMDG), the European agreement on the transport of Dangerous goods by road (ADR).

Lithium ion batteries have been successfully tested according to Part III, Subsection 38.3 of the "UN Manual of Tests and Criteria" and the relevant Test Summary Report is available in Autec upon request.

Lithium batteries are classified in Class 9 – Miscellaneous dangerous goods and can be shipped as:

SINGLE BATTERIES:
UN 3480 Lithium ion batteries

United Nations Model Regulation:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries)
ADR/RID – Transportation By Road and Train:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries) Weight limit per package: 30 kg Gross
IMDG – Sea Transportation	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries) Weight limit per package: 30 kg Gross
IATA – Air Transportation	Packing group not assigned Packing Instruction **PI 965** as follows: ▪ PI 965 section IB ▪ Cargo Aircraft Only (CAO). ▪ State of Charge (SoC) of the battery or cell do not exceed 30%. ▪ Max Net weight per package 10 kg ▪ Label:

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CELLS AND BATTERIES INSTALLED IN EQUIPMENT:

UN 3481 Lithium ion batteries contained in equipment

United Nations Model Regulation:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries) The equipment shall be equipped with an effective means of preventing accidental activation.
ADR/RID – Transportation By Road and Train:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries) The equipment shall be equipped with an effective means of preventing accidental activation.
IMDG – Sea Transportation	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries) The equipment shall be equipped with an effective means of preventing accidental activation.
IATA – Air Transportation	Packing group not assigned Packing Instruction **PI 967** as follows: Not more than 5 kg net qty of lithium batteries per package PI 967 Section II Consignments of packages containing: ▪ more than two batteries installed in equipment. ▪ more than two packages in the consignment require the following label: 

CELLS AND BATTERIES PACKED WITH EQUIPMENT:

UN 3481 Lithium ion batteries packed with equipment – Class 9

United Nations Model Regulation:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries)
ADR/RID – Transportation By Road and Train:	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries)
IMDG – Sea Transportation	Packing group not assigned Special Provision 188 (Small Excepted Lithium Ion Cells and Batteries)
IATA – Air Transportation	Packing group not assigned Packing Instruction **PI 966** as follows: Not more than 5 kg of batteries per package PI 966 Section II Max number of batteries per package: the minimum number required to power the equipment plus 2 spares Label: 

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Section 15.

REGULATORY INFORMATION European Union: According to Directive 2006/66/EC, the batteries must be marked with the crossed wheel bin symbol. Waste batteries must be collected and recycled.

Section 16. **General remark**

OTHER INFORMATION

This "product Information" is provided as a service to our customers. The information contained in this Data Sheet are critical to the safe handling and proper use of the product. The details presented are in accordance with our present knowledge and experiences, they cannot advise all possible situation.

Legal remark

E.U. These batteries are no "substances" or "mixtures" according to Regulation (EC) No 1907/2006 EC, they are "articles" and no substances are intended to be released during handling. Therefore, there is no obligation to supply an SDS according to Regulation (EC) 1907/2006, Article 31.

U.S.A. Safety Data Sheets are a sub-requirement of the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". According to OSHA, Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

As these batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard.

Canada This is not a controlled product under Workplace Hazardous Materials Information System (WHMIS). This product meets the definition of a "manufactured article" and is not subject to the regulations of the Hazardous Products Act.

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