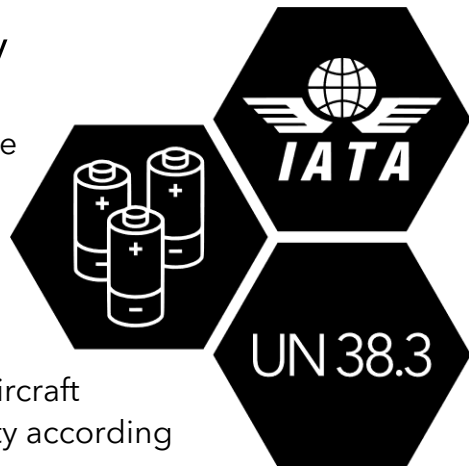


Declaration of Conformity

Quantum-Systems GmbH hereby declares that the **Smart Battery 120®** is in conformity with IATA regulations and the United Nations Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR).



The Smart Battery 120 is suitable for transport by aircraft and has been tested by an accredited testing facility according to:

UN 38.3 Rev.7 Recommendations on the TRANSPORT OF DANGEROUS GOOD, Manual of Tests and Criteria, Part III, cl. 38.3, UN ST/SG/AC.10/11/Rev.7

According to IATA regulation, the battery pack is to be classified as:

UN 3481 Lithium ion batteries packed with equipment
(when shipped together with a Vector® UAV)

UN 3480 Lithium ion batteries
(when shipped on its own)

For shipment of batteries, always adhere to the applicable packing instructions of IATA regulation or the ADR. The battery pack can be split into 7 physically separated packs of less than 100 Wh each.

The following Annexes are provided together with this document:

ANNEX A Summary of Test Results

ANNEX B Battery Cell Safety Data Sheet

This declaration is issued for and on behalf of:

Quantum-Systems GmbH
Zeppelinstrasse 18
82205 Gilching, Germany

15 December 2023
Date


Certification Manager



Technical Specification

Cell

Type	Lithium Ion
Chemistry	Lithium Nickel Cobalt Oxides
Design	cylindrical / 18650
Nominal voltage	3.6 V
Nominal capacity	3120 mAh
Rated capacity	3000 mAh

Pack

Cell setup	7S 5P
Nominal voltage	25.2 V
Nominal capacity	15600 mAh
Maximum voltage	29.4 V
Nominal energy	393.1 Wh
Mass	2.02 kg

Safety Instructions

In the following, safety instructions will be given for a secure handling, charging, storage and transport of the battery pack. For more detailed information, please refer to the Vector® User Manual.

To avoid fire, serious injury and property damage observe the following safety guidelines when using, charging or storing the UAV battery packs.

Battery Handling

1. Do not take-off with State of Charge below 50 %.
2. Do not use or charge swollen, leaky, or damaged batteries.
3. Do not use a battery that was involved in a crash or any kind of heavy impact.
4. The temperature of the battery pack must be within the operating temperature range: 20 - 40 °C (68 - 104 °F). Initiate the self-heating function by pressing and holding the button for 5 seconds.
5. Do not expose the battery pack to direct sunlight. Temperatures over 70 °C (158 °F) may damage the battery pack. To prevent malfunction of the battery, never fly the UAV in strong electrostatic or electromagnetic environments.
6. Do not expose the battery to water. Replace the battery pack if exposed to water.
7. If your eyes or skin make contact with any battery chemicals, immediately wash the affected area with clean running water for at least 15 minutes. See a doctor immediately.
8. Do not place the UAV battery packs in a microwave, dryer, oven or in a pressurized container. Do not solder on or close to a UAV battery pack. Do not place the battery pack near a cooking surface, iron or radiator.
9. Do not drop the battery pack. Do not step on it.
10. Never open or modify the battery pack. Do not short circuit the battery.
11. The battery life may be reduced if it is not used regularly.
12. Avoid touching the battery pack surface directly after the flight. **HOT! RISK OF BURNS!**
13. Never disassemble, puncture, shock, incinerate, or heat the battery pack over 70°C (158 °F).

Battery Charging

1. To charge the battery follow the guideline as described in this manual.
2. Always use the original battery charger to charge the battery packs. Quantum-Systems is not responsible or liable for damages caused by charging the battery with a third-party charger.
3. Only charge the batteries at ambient temperatures of 5 °C to 30 °C (41 °F - 86 °F).
4. Never connect the battery packs to a wall socket or to car charger outlets directly.
5. The battery must be charged under supervision. Never charge the battery pack close to flammable materials or on flammable surfaces.
6. Disconnect the battery when it is fully charged.
7. Do not clean the charger with flammable liquids like denatured alcohol.
8. Never use a damaged charger.

Battery Storage

1. Keep the battery out of reach of children and animals. Do not leave the battery near heat sources such as furnaces or heaters.
2. Always store the battery at proper ambient temperature: Storage less than 3 months: -20 °C to 45 °C (-4 °F to 113 °F) Storage more than 3 months: 22 °C to 28 °C (72 °F to 82 °F).
3. Always keep the battery dry. Do not expose the battery to water.
4. Never attempt to travel with or transport a damaged battery or a battery with a power level higher than 25 %.
5. Do not store the battery completely discharged.
6. Always remove the battery from the UAV when it is not in use.
7. Always apply the contacts protection cap if the battery pack is not in use.

Battery Transport

1. Before battery shipment, make sure the battery is discharged to a maximum of 30% (25% recommended) of its nominal capacity.
2. Before battery shipment, make sure to remove the 6 copper bridges to physically split the battery into 7 packs with less than 100 Wh each. After removing the copper bridges, make sure to attach the red transportation lid to the battery.
3. Make sure to pack and label the battery pack according to ADR respectively IATA regulations.
 - a. When packed with equipment, the battery pack is categorized as UN3481 and has to be packed following package instruction PI 966. Since the individual packs within the battery have a total energy of less than 100 Wh, section II applies. The limit for both passenger and cargo aircraft is 5 kg per package.
 - b. When packed on its own, the battery pack is categorized as UN3480 and has to be packed following package instruction PI 965. Since the individual packs within the battery have a total energy of less than 100 Wh, section IB applies. The limit for cargo aircraft is 10 kg per package. **Transport with passenger aircraft is prohibited!**

ANNEX A
Summary of Test Results



SUMMARY OF TEST RESULTS

according to UN ST-SG-AC 10-11 cl. 38.3 Revision 7



The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025:2018 by the Deutsche Akkreditierungsstelle GmbH (DAkkS). The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Applicant's name Quantum-Systems GmbH
Address Dornierstr. 11
82205 Gilching / GERMANY

Manufacturer's name Quantum-Systems GmbH
Address Dornierstr. 11
82205 Gilching / GERMANY

Kind of test item	Chemistry	Mass	Watt hours	Physical Description	Model	Type
	Lithium ion	2,02kg	393,1Wh	Pouch	QSmart Battery Pack7S5P	Battery

Specification/Standards	Testreport Nr. + Date	Result
UN 38.3 Rev.7 Manual of Tests and Criteria, Part III, cl. 38.3, UN ST/SG/AC.10/11/Rev.7	1-1572/20-01-02 dated 2021-06-28	conform

Test	Result	Test	Result	Test	Result	Test	Result
T1	PASS	T3	PASS	T5	PASS	T7	PASS
T2	PASS	T4	PASS	T6	N.A.	T8	N.A.

assembled battery testing requirements 38.3.3 (f) 38.3.3 (g)

Place, Issue date Saarbrücken, 2021-06-28	CTC advanced GmbH Untertürkheimer Str. 6-10 66117 Saarbrücken www.ctcadvanced.com info@ctcadvanced.com Tel.: +49 681 598 0
Authorized signature / title Michael Tousek Lab Manager Environmental & Safety Services	

ANNEX B

Battery Cell Safety Data Sheet



Tohoku Murata Manufacturing Co., Ltd.

1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima, 963-0531 Japan

Phone: +81-24-955-7770 / Fax: +81-24-955-7884

SAFETY DATA SHEET

1. Product and Company Identification

Product Information

Product Category : Lithium Ion Rechargeable Battery Cell

Model Name : US18650VTC6

Nominal Capacity : 3120 mAh (11.3 Wh)

Rated Capacity : 3000 mAh (10.8 Wh)

Average Operating Voltage : 3.60 V

Company Identification

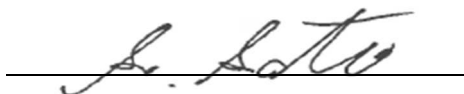
Supplier's Name : Tohoku Murata Manufacturing Co., Ltd.

Supplier's Address : 1-1 Shimosugishita, Takakura, Hiwada-machi, Koriyama-shi, Fukushima,
963-0531 Japan

Information Telephone : +81-24-955-7770

Date Prepared : Jan. 01, 2020

Signature of Paper :



2. Hazard Identification

Class Name : Not applicable for regulated class

Hazard : It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.

Toxicity : Vapor generated from burning batteries, may make eyes, skin and throat irritate.

3. Composition / Information on Ingredients

IMPORTANT NOTE:

The battery should not be opened or burned since the following ingredients contained within the battery that could be harmful under some circumstance if exposed or misused.

The cell contains neither metallic lithium nor lithium alloy.

Common chemical name / General name	CAS number	Concentration / Concentration range
Lithium Nickel Cobalt Oxides	113066-89-0	38%
Graphite	7782-42-5	18%
Ethylene Carbonate	96-49-1	3%
Dimethyl Carbonate	616-38-6	7%
Lithium hexafluorophosphate	21324-40-3	3%
Aluminum	7429-90-5	4%
Copper	7440-50-8	12%
Iron	7439-89-6	15%

UN number : UN3480

Watt-hour rating : 11.3 Wh / 10.8 Wh (Nominal / Rated)

4. First Aid Measures

The product contains organic electrolyte. In case of electrolyte leakage from the battery, actions described below are required.

Eye contact : Flush the eyes with plenty of clean water for at least 15 minutes immediately, without

rubbing, and call a doctor. If appropriate procedures are not taken, this may cause an eye irritation.

Skin contact : Wash the contact areas off immediately with plenty of water and soap.
If appropriate procedures are not taken, this may cause sores on the skin.

Inhalation : Remove to fresh air immediately, and call a doctor.

5. Fire Fighting Measures

- Use specified extinguishers (gas, foam, powder) and extinguishing system under the Fire Defense Law.
- Since corrosive gas may be produced at the time of fire extinguishing, use an air inhalator when danger is predicted.
- Use a large amount of water as a supportive measure in order to get cooling effect if needed.
(Indoor/outdoor fire hydrant)
- Carry away flammable materials immediately in case of fire.
- Move batteries to a safer place immediately in case of fire.

6. Accidental Release Measures

- Wipe off with dry cloth
- Keep away from fire
- Wear safety goggles, safety gloves as needed

7. Precautions for Safe Handling and Use

- Storage : Store within the recommended limit of -20°C to 45°C (-4°F to 113°F), well-ventilated area.
Do not expose to high temperature (60°C/140°F). Since short circuit can cause burn hazard or safety vent to open, do not store with metal jewelry, metal covered tables, or metal belt.
- Handling : Do not disassemble, remodel, or solder. Do not short + and - terminals with a metal.
Do not open the battery.
- Charging : Charge within the limits of 0°C to 45°C (32°F to 113°F) temperature. Charge with specified charger designed for this battery.
- Discharging : Discharge within the limits of -20°C to 60°C (-4 °F to 140°F) temperature.
- Disposal : Dispose in accordance with applicable federal, state and local regulations.
- Caution : Fire, Explosion, and Severe Burn Hazard. Do not Crush, Disassemble, Heat Above 100°C/212°F, or Incinerate.

8. Exposure Controls/Personal protection (In case electrolyte is leaked from battery)

- Acceptable concentration : Not specified in ACGIH.
- Facilities : Provide appropriate ventilation such as local ventilation system in the storage.
- Protective clothing : Gas mask for organic gases, safety goggle, safety glove.

9. Physical and chemical Properties

- Appearance : Lithium Ion Rechargeable Cells.
- Average Operating Voltage : 3.60 V

10. Stability and Reactivity

External short-circuit, deformation by crush, high temperature (over 100°C) exposure of a battery cause generation of heat and ignition.

11. Toxicological Information

- Acute toxicity : No information as a battery
- Local effects : No information as a battery

12. Ecological Information

When exhausted battery is buried in the ground, corrosion may be caused on the outer case of battery and electrolyte may be oozed. There is no information on environmental influence.

13. Disposal considerations

When battery is disposed, isolate positive (+) and negative (-) terminals of the battery to avoid those terminals from touching each other. Batteries may be short-circuited when piled up or mixed with the other batteries in disorder. Dispose in accordance with applicable federal, state and local regulations

14. Transport information

- When a number of batteries are transported by ship, vehicle and railroad, avoid high temperature and dew condensation.
- Avoid transportation which may cause damage of package.
- Lithium ion batteries are not subject to dangerous goods regulation for the purpose of transportation by the International Maritime Dangerous Goods regulations(IMDG). For Lithium ion batteries, the Watt-hour rating is no more than 20Wh/cell and 100Wh/battery pack can be treated as “non-dangerous goods” by the United Nations Recommendations on the Transport of Dangerous Goods/Special Provision 188, provided that the products are prevented from being short-circuited with each other and are packaged in an appropriate condition which satisfies Packing Group II performance level.
- IATA (International Air Transport Association): Dangerous Goods Regulation Packing Instruction 965 (Lithium ion or lithium polymer cells and batteries without electronic equipment) With effect 1 April 2016: Lithium ion cells and batteries must be offered for transport at a state of charge not exceeding 30 per cent of their rated capacity. UN 3480, PI 965, Section IA and IB and II will be restricted to carriage on cargo aircraft. All packages must bear the Cargo Aircraft Only label in addition to the other marks and labels required by the Regulations.

Section II requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that within the allowance permitted in Section II, Table 965-II.

TABLE 965-II

Contents	Lithium ion cells and/or batteries with a Watt-hour rating of 2.7Wh or less	Lithium ion cells with a Watt-hour rating of more than 2.7Wh but not more than 20Wh	Lithium ion batteries with a Watt-hour rating of more than 2.7Wh but not more than 100Wh
Maximum number of cells/batteries per package	No limit	8 cells	2 Batteries
Maximum net quantity per package	2.5 kg	N/A	N/A

Lithium ion cells and batteries meeting the requirements in this section are not subject to other additional requirements of these Regulations except for:

- each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3;
- cells and batteries must be manufactured under a quality management program;
- for batteries, The Watt-hour rating must be marked on the outside of the battery case;
- Each package must be capable of withstanding a 1.2m drop test in any orientation without:
 - damage to cells or batteries contained therein;
 - shifting of the contents so as to allow battery to battery (or cell to cell) contact;
 - release of contents.
- Each package must be marked with the lithium battery mark and the cargo aircraft only Label.
- A shipper is not permitted to offer for transport more than one package prepared according to Section II in any single consignment.

Section IB requirements apply to lithium ion cells with a Watt-hour rating not exceeding 20Wh and lithium ion batteries with a Watt-hour rating not exceeding 100Wh packed in quantities that exceed the allowance permitted in Section II, Table 965-II.

Quantities of lithium ion cells or batteries that exceed the allowance permitted in Section II, Table 965-II must be assigned to Class 9 and are subject to all of the applicable provisions of Regulation.

Even classified as lithium batteries packed with equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 966 is applied.

Even classified as lithium batteries installed in equipment (UN3481), IATA Dangerous Goods Regulations packing instruction 967 is applied.

15. Regulatory information

- IMDG Code: International Maritime Dangerous Goods (IMDG) Code 2018 Edition
- ICAO TI: International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air 2019-2020 Edition
- IATA DGR: International Air Transport Association (IATA) Dangerous Goods Regulations 61th Edition

16. Other Information

The information contained within is provided for your information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, Tohoku Murata Manufacturing **MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.**