

Simrad PX MultiSensor

SIMRAD

Battery safety data sheet and specifications

Identification

The specification sheet describes the technical parameters for the battery unit provided for the Simrad PX MultiSensor. The PX MultiSensor Catch monitoring multisensor is an multifunction acoustic subsea sensor designed for use with the Simrad PI catch monitoring systems.

The PX MultiSensor Catch monitoring multisensor is equipped with a custom made 58 Wh Li-Ion battery.

- **Product name:** Battery for PX MultiSensor Catch monitoring multisensor
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battery contains dangerous ingredients. Exposure to the ingredients contained within the battery cells could be harmful. There is no expected release during use of the battery pack. The battery cells includes a barrier preventing exposure to the user and the environment. The battery cells are not classified as hazardous according to Regulation (EC) No.1272/2008.

The chemicals in the battery cells are contained in a sealed enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by inhalation, ingestion, eye contact and skin contact.

Composition

The PX MultiSensor Catch monitoring multisensor battery pack is a solid, manufactured article. Exposure to hazardous ingredients is not expected with normal use.

First aid measures

The battery will release toxic fumes if burned or exposed to fire. If subjected to gas from a burning sensor or battery, remove source of contamination or move victim to fresh air. Obtain medical advice.

Fire fighting measures

The sensor in which the battery pack is used is designed to withstand damage to the internal battery pack. Nonflammable material are used. In case of fire, move sensor from fire area if you can do it without risk. Extreme mechanical abuse to the sensor may result in ruptured seal, and expose the battery.

The individual cells in the battery pack contain flammable liquid electrolyte that may vent, ignite and produce sparks when subjected to high temperatures ($> 150\text{ }^{\circ}\text{C}$ ($302\text{ }^{\circ}\text{F}$)), when damaged or abused. A burning battery can ignite other batteries in close proximity.

Suitable extinguishing media are dry chemical, CO₂, water spray or regular foam.

The interaction of water or water vapor and exposed lithium hexafluorophosphate (Li PF₆) may result in the generation of hydrogen and hydrogen fluoride (HF) gas. Contact with battery electrolyte may be irritating to skin,

Note

The PX MultiSensor Catch monitoring multisensor battery is provided as a solid and sealed unit. The battery can not be opened to reveal the individual cells.

The battery contains individual cells. For additional information about these cells, see the safety data sheet provided by the cell manufacturer (A123). It can be obtained from <http://www.simrad.com/px>.

Hazards identification

The battery is not provided with any hazards identification. It is not classified as dangerous or hazardous with normal use. The battery should not be opened or burned. The

eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

Accidental release measures

During normal operation, accidental release measures are not applicable. Extreme mechanical abuse to the sensor in which the battery is used may result in ruptured seal and exposure.

As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed areas before entering. Wear adequate personal protective equipment.

Prevent material from contaminating soil and from entering sewers or waterways. Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to relevant regulations. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Handling and storage

Do not open, disassemble, crush or burn the battery. Do not expose the battery to temperatures outside the range of -40°C to 80°C. Store the battery in a dry location. To minimize any adverse effects on battery performance it is recommended that it is kept at room temperature (25°C +/- 5°C). Elevated temperatures can result in shortened life. Keep out of reach of children.

Exposure controls and personal protection

Airborne exposures to hazardous substances are not expected when the battery is used for its intended purpose. No protection (respirator, skin and/or eye) are required.

Physical and chemical properties

The battery is solid with a firm and hard appearance. No chemicals are exposed during normal use and transportation. For more information about the individual battery cells, observe the manufacturer's safety data sheet.

Stability and reactivity

The battery is stable. No specific handling requirements apply. Avoid exposing the battery to fire or temperatures above 80°C. Do not disassemble, crush, short or install the battery with incorrect polarity. Avoid mechanical or electrical abuse. Do not immerse in seawater or other high

conductivity liquids. The battery may release toxic fumes if burned or exposed to fire. Breaching of the individual cell enclosure may lead to generation of hazardous fumes which may include extremely hazardous HF (hydrofluoric acid).

Toxicological information

Acute oral, dermal and inhalation toxicity data are not available for this battery. Risk of irritation occurs only if the battery is abused to the point of breaking the container and opening it to reveal the individual cells. Risk of irritation occurs only if an individual cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.

Ecological information

The battery is not biodegradable.

Disposal considerations

Dispose of in accordance with local, state and federal laws and regulations for batteries.

Transport

• Shipment of single sensor

Each PX MultiSensor Catch monitoring multisensor unit is transported as a closed and sealed unit, and shall not be opened by unauthorized personnel.

As a single unit containing a battery with less than 100 Wh capacity, the transportation is made according to **ICAO/IATA packing instructions 967 Section II; Cells or batteries installed in equipment.**

The PX MultiSensor Catch monitoring multisensor unit must be shipped in accordance with the prevailing national regulations; **UN No. 3481, Miscellaneous (Lithium Ion batteries included in equipment)**

• Shipment of sensor and battery

Each PX MultiSensor Catch monitoring multisensor unit is transported as a closed and sealed unit, and shall not be opened by unauthorized personnel.

As a single unit containing a battery with less than 100 Wh capacity, and with one or two additional batteries included, the transportation is made according to **ICAO/IATA packing instructions 966 Section II; Cells or batteries contained in a package with associated electronic equipment.**

The PX MultiSensor Catch monitoring multisensor unit with extra batteries must be shipped in accordance with the prevailing national regulations; **UN No. 3481, Miscellaneous (Lithium Ion batteries included in equipment)**

- **Shipment of separate battery**

Separate sensor batteries conform to **ICAO/IATA packing instructions 965 Section II; Cells or battery in a package, without electronic equipment.**

If the battery is shipped separately, the following prevailing national regulations apply: **UN No. 3480, Miscellaneous (Lithium Ion battery).**

For all shipments – sensor and separate batteries – use lithium battery handling label as specified in the additional requirements of Section II of packing instructions 965, 966 and 967.

Transport identification codes:

- **Aircraft:** IATA DGR
- **Sea transport:** IMDG codes
- **Railway:** RID
- **Road transport:** ADR

Note _____

Damaged sensors that are returned to the manufacturer for repair shall be transported without batteries. Damages or spent batteries that have been recalled by the manufacturer for safety reasons shall not be transported by air.

Battery specifications

Regulatory requirements

- **Manufacturer's part number:** 369215
- **Certification:** UN 38.3
- **Class 9 exception:** The battery is excepted from Class 9

Basic specifications

- **Cell type:** Li-Ion (LiFePO₄)
- **Cell size:** 18650
- **Nominal voltage:** 13,2 Vdc
- **Nominal capacity:** 4400 mAh / 58 Wh
- **Lifetime expectancy:** ≥ 1000 cycles at 0.5C charge/discharge rate (C>70% of minimum capacity)
- **Total mass of lithium:** 5.3 g
- **Cell configuration:** 4S 4P

Charge

- **Charging method:** CC-CV (Constant current – constant voltage)

- **Initial charge current:** 2000 mA at standard charge
- **Charge end voltage:** 14.6 V
- **Taper current:** 75 mA

Discharge

- **Maximum continuous discharge current:** 3 A

Important _____

Avoid cell temperature above 60°C.

- **Discharge end voltage:** ≥ 11.2 Vdc (recommended)

Safety board protection functions

- **Overcharge cut-off voltage:** 14.8 V
- **Shut-down voltage:** 8.4 V
- **Charge and discharge permanent cut-off current:** 7.5 A
- **Short circuit protection:** Yes

Ambient temperature range

- **Charge:** 0 to 45°C
- **Discharge:** -20 to +70°C
- **Storage:** -20 to +45°C
- **Preferred charge state for long time storage:** 30 to 50%

Mechanical specifications

- **Battery dimensions (including sleeve):**
 - **Length:** 180 mm ± 2 mm
 - **Height:** 60 mm ± 2 mm
 - **Width:** 80 mm ± 2 mm
- **Weight:** 880 g (approximately)
- **Wire colours:** Red (+) | Black (-) | Blue (Identification resistor 1k8)