Simrad PX Battery 418811

Battery safety data sheet and specifications

KONGSBERG

SECTION 1: Identification

The specification describes the technical parameters for the sensor battery.

The Simrad PX Battery is a custom made 58 Wh Li-Ion sensor battery.

- **Product name**: Simrad PX Battery sensor battery
- **Part number**: 418811
- **Manufacturer**: Kongsberg Maritime AS
- **Address**: Strandpromenaden 50, 3190 Horten, Norway
- **Telephone**: +47 33 03 40 00
- **Telefax**: +47 33 04 29 87
- **Email address**: simrad.support@simrad.com
- **Website**: www.kongsberg.com/simrad

The sensor battery is used in the following products:

- PX Universal
- PX MultiCatch

Note

The sensor battery is provided as a solid and sealed unit. The sensor battery cannot be opened to reveal individual cells.

For additional information about the cells inside the sealed battery pack, see the safety data sheet provided by the cell manufacturer. http://www.a123systems.com

SECTION 2: Hazards identification

The sensor battery is not provided with any hazards identification. It is not classified as dangerous or hazardous with normal use.

The sensor battery must not be opened or burned. The sensor battery contains dangerous ingredients. Exposure to the ingredients contained within the sensor battery cells could be harmful. The battery cells include a barrier, preventing exposure to the user and environment. The sensor 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.

SECTION 3: Composition

The sensor battery is a solid, manufactured article.

Exposure to hazardous ingredients is not expected with normal use.

SECTION 4: First aid measures

The sensor battery will release toxic fumes if burned or exposed to fire.

If subjected to gas from a burning sensor battery, move the exposed personnel to fresh air and remove the source of contamination. Seek immediate medical attention.

SECTION 5: Firefighting measures

The sensor battery is designed to withstand damage to the internal battery pack. Non-flammable material

is used. In case of fire, move the sensor battery away from the fire area if you can do it without compromising your own safety. Extreme mechanical abuse to the sensor battery may result in a ruptured seal and exposure.

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

Suitable extinguishing media are dry chemical, CO_2, 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, eyes and mucous membranes. Fire will produce irritating, corrosive and/or toxic gases. Fumes may cause dizziness or suffocation.

SECTION 6: Accidental release measures

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

As an immediate precautionary measure, isolate the spill or leak area at least 25 metres (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind, and 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 the 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 it according to relevant regulations. Scrub the area with detergent and water; collect all contaminated water for proper disposal.

SECTION 7: Handling and storage

Do not open, disassemble, crush or burn the sensor battery.

Do not expose the sensor battery to temperatures outside the range of -40 °C to +80 °C. Store in a dry location. Recommended relative air humidity is 40 to 70 %. To minimize any adverse affects on the sensor battery performance it is recommended that it is kept at room temperature (25 °C +/- 5 °C). Higher temperatures can result in shortened life. Keep the sensor battery out of reach of children.

SECTION 8: Exposure control and personal protection

Airborne exposures to hazardous substances are not expected when the battery is undamaged and used as intended.

Personal protective equipment (PPE) is not required when the battery is undamaged and used as intended.

SECTION 9: Physical and chemical properties

The sensor battery is solid with a firm and hard surface. There is no risk for exposure to the chemicals inside an undamaged battery during normal operation and transportation.

For additional information about the cells inside the sealed battery pack, see the safety data sheet provided by the cell manufacturer.

SECTION 10: Stability and reactivity

The sensor battery is stable. No specific handling requirements apply. Avoid exposing the sensor 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 sensor battery will release toxic fumes if burned or exposed to fire. Breaching of the individual cell enclosure may lead to generation of hazardous fumes which again may include extremely hazardous HF (hydrofluoric acid).

SECTION 11: Toxicological information

Acute oral, dermal and inhalation toxicity data are not available for this sensor battery.

Risk of irritation occurs only if the sensor 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.

SECTION 12: Ecological information

The sensor battery is not biodegradable.

SECTION 13: Disposal considerations

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

SECTION 14: Transport information

Transportation of the Simrad PX Battery must be performed in accordance with rules and regulations stated for transportation of dangerous goods in the applicable countries.

- **Shipment of single sensor**

  Each Simrad PX Battery sensor is transported as a closed and sealed unit, and shall not be opened by unauthorized personnel.

  As 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 Simrad PX Battery sensor 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 Simrad PX Battery sensor is transported as a closed and sealed unit, and shall not be opened by unauthorized personnel.

  As a single sensor 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 Universal / PX MultiCatch catch monitoring sensor 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 IB**; *Cells or battery in a package, without electronic equipment*.

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

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

Transport identification codes:

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

Note

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

SECTION 15: Regulatory information

- **Part number**: 418811
- **Certification**: UN 38.3
- **Class 9 exception**: The battery is exempted from Class 9.

Technical specifications

Basic specifications

- **Cell type**: Li-Ion ($LiFePO_4$)
- **Cell size**: 18650
- **Nominal voltage**: 13.2 Vdc
- **Nominal capacity**: 4400 mAh / 58 Wh
- **Lifetime expectancy**: ≥ 1000 cycles at 0.5 C *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

  Note

  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 temperature**: -20 to 45 °C
- **Preferred charge state for long time storage**: 30 – 50%

Mechanical specifications

- Battery dimensions (including sleeve):
  - **Length**: 156.5 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)