

## Precautions In Handling of Lithium Ion Batteries

Rechargeable lithium ion batteries contain organic solvents and reactive materials. Erroneous handling of lithium ion batteries may result in heat generation, explosion or fire possibly leading to injury or out break of fire.

To ensure safety and to avoid any possibility of any accidents, please observe the following precautions.

### 1. Do not cause short circuits

If connection is made between the positive(+) and negative(-) terminal directly or via accidental contact with metallic objects, the battery is short circuited and an intense current will flow causing heat generation which may lead to casing rupture or fire.

### 2. Do not heat

If batteries are heated to above 100 °C, sealing and insulating separators and other polymer components may be damaged resulting in electrolyte leakage and/or internal short circuiting leading to heat generation, causing rupture or fire.

Moreover do not dispose of the batteries in fire, explosion and/or intense burning may result.

### 3. Do not solder directly onto cell casing

Attempt to solder directly onto cell casing may cause over heating and lead to damage to insulation as well as damage to sealing and result in leakage.

If over heating is continuing, casing rupture or fire may result.

Even if no visible damage is done immediately after soldering, weakened seals may lead to leakage during long term service causing damage to other components.

### 4. Do not disassemble or deform

If batteries are disassembled, irritant bases may be released and exposed active materials may react leading to fire.

If batteries are deformed by pressure or impact, sealing may be damaged leading to leakage or internal insulation may be damaged leading to internal short circuit.

### 5. Do not mix different type of cells

If different types of cells or if new and old cells of the same type or if different manufacturer of same type batteries are used in series or / and parallel, differences in performance may cause swelling, rupture or fire.

### 6. Ensure correct polarity

If positive(+) and negative(-) terminals of the batteries are confused during installation, the batteries may become short circuited, overdischarge (remark 1) or become reversed in polarity depending on the application. This may lead to casing rupture and/or fire.

### 7. Do not overcharge (remark 2) by high current and/or high voltage

Do not overdischarge (polarity reversal)

If batteries are overcharged by high current or if batteries are overdischarge to polarity reversal, internal gas pressure will rise leading to swelling, rupture and/or fire.

(2.75V/Cell)

Remark 1 - Overdischarge : To discharge below the specified end of discharge voltage.

In extreme cases of overdischarge the polarity of the battery will become reversed.

Remark 2 - Overcharge : To continue charge after the battery has been fully recharged. Never charge above 4.2V/Cell.