Thank you for purchasing a LBC-4E5. This product is a battery charger designed for use only with the Li-FePO4 polymer battery. In order to get high performance of the product and use it safely, please read this instruction manual thoroughly before use.

### Safety Precautions

This instruction manual uses a variety of common symbols and icons for proper handling and usage of this product, and for avoiding potential hazards to yourself, the people around you, and your property. The meanings of these symbols and their significance are described below. Please understand them clearly before going on to main items.

**Meaning of Markings**

For safety, please pay special attention to the items indicated by the following marks.

- **DANGER**: Procedures which may have a high risk of death/severe injury to the user if not carried out carefully.
- **WARNING**: Procedures which may lead to dangerous conditions or cause death or severe injury to the user if not carried out properly. **CAUTION**: Procedures in which the possibility of injury to the user is small, but there is a danger of injury, or physical damage, if not carried out properly.

**Prohibited**

- Do not touch the battery charger, the AC adapter, or the battery for long hours while charging. Excessive contact with them could result in minor burns.
- Do not use the battery charger and AC adapter for improper purposes.
- Never expose the battery charger and AC adapter to water or moisture. Do not use them when they are wet or your hands are wet. Do not use them in damp or humid conditions such as in a bathroom.
- Never short the battery charger and AC adapter or attempt to repair, deform, modify or disassemble them.
- Do not use, charge or store the battery charger in places where it may be exposed to high temperatures. For example, do not leave it on the dashboard of a car under direct sunlight or place it near heating equipment.
- Do not use the battery charger in places where heat may build up, such as under a cushion.
- Never use the battery charger near flammable gas or combustible materials.
- Always insert the power plug completely and firmly into the outlet.
- Always use the AC adapter with the voltage specified in this instruction manual.

**Mandatory**

- Do not leave the battery in the battery charger or the equipment when stored. Even when the power switch is off, a small amount of electricity continues to leak out of the battery and may lead to the decrease in battery performance. If you do not use the battery, store it in a cool and dry place with a temperature between 15°C and 25°C.
- Do not store or use the battery charger in places where it may be exposed to high temperatures. For example, do not leave it on the dashboard of a car under direct sunlight or place it near heating equipment. This could cause a fire, overheating, explosion or the leakage of electrolyte fluid.
- Before use:
  - Please read the safety precautions thoroughly before use, and follow the instructions for operation.
  - Prevent charging if the battery charger is wet or the plug of the AC adapter is wet.
  - Do not use the battery charger near metal objects, such as a TV or radio. TV or radio reception may be interfered with during charging. However, this is not a malfunction.

**Procedures for Battery Charging**

1. Connect the charger and AC adapter and firmly insert the AC adapter into an AC outlet.
   * Connect to the AC side before connecting the battery.
   * The charger charging LED (red) and charging complete LED (green) will go off after about 1 second.
2. Connect the battery to the corresponding connector ("2S" or "3S") of the charger, while being careful of the polarity.
   * Do not simultaneously connect to the "2S" and "3S" outputs.
   * Always check the battery polarity before connecting the battery.

**Charging**

- When charging the complete LED (green) lights, the battery is fully charged and charging is complete.
- The charging time when charging a battery that has been fully discharged is approximately 3 hours for the FR2F1800 (1800mAh) Li-Fe battery for receiver. However, the charging time may be different depending on the charging conditions such as the ambient temperature and voltage variations among cells. In addition, when a battery that has not been used fully was charged, the charging time will be shorter than the above. Moreover, due to the characteristics of the charger, the remaining charge and the charging time are not proportional and the charging time may be somewhat longer.

3. After use, disconnect the AC adapter from the AC outlet.
   * Do not reconnect a fully charged battery to the battery charger. The battery will be over-charged and deteriorate.

4. LED display (Normal operation)

   - **Power not connected**: Off
   - **Power connected (battery not connected)**: On for 1 sec, then off
   - **Battery connection** (charging complete): On for 1 sec, then off, then off
   - **Charging**: Fully charged

5. When the charging complete LED (green) lights, the battery is fully charged and charging is complete.

6. *Procedures which may have a high risk of death/severe injury to the user if not carried out carefully.*

7. *Procedures which may lead to dangerous conditions or cause death or severe injury to the user if not carried out properly.*

8. *Procedures in which the possibility of injury to the user is small, but there is a danger of injury, or physical damage, if not carried out properly.*

**Notes:** Before using your new LBC-4E5, please read this manual thoroughly and use it properly and safely. After reading this manual, store it in a safe place.

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**Connection and LED Indication**

- **Battery connectors**
  - "2S": For 2 cells in series
  - "3S": For 3 cells in series
  - Connect the battery to the corresponding connector.

- **Output Connector of AC Adapter**
  - *To AC outlet*

- **Charging complete LED (green)**
  - *Lights when charging is complete*

- **Charging LED (red)**
  - *Remains lit while charging*

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**Usage Precautions**

**Life Battery**

Life battery will be damaged if it over-discharges.

- After discharging is carried out and low voltage, it becomes impossible to charge. It is important to charge a battery periodically. (about every 3 months)

**Precautions in Handling the Battery**

* The battery at the time of purchase:
  - Since the battery is not charged at the factory, please charge it before use. Also, whenever the battery has not been used for a long period of time, recharge it before use.
  - Operating temperatures:
    - The further the temperature goes down, the more the operating time shortens. When you use the battery at low temperatures, it is recommended to have another charged battery as a backup.
  - Carry and storage:
    - Do not leave the battery in the battery charger or the equipment when stored. Even when the power switch is off, a small amount of electricity continues to leak out of the battery and may lead to the decrease in battery performance. If you do not use the battery, store it in a cool and dry place with a temperature between 15°C and 25°C.
    - When you carry or store the battery, prevent the short-circuiting of the +/- terminals. Do not put any metallic objects including personal ornaments in a bag or drawer with the battery. This could cause a fire, overheating, explosion or the leakage of electrolyte fluid.

**Service life:**

- Battery performance degrades gradually after repeated charging and discharging. If the operating time of the battery decreases significantly, it may be the time to replace it with a new one.

**Precautions in Handling the Battery Charger**

* Before use:
  - Please read the safety precautions thoroughly before use, and follow the instructions for operation.
  - Precautions for use:
    - The optimum ambient temperature for charging is between 10°C and 30°C. When the battery is hot, as in the case shortly after use, recharging may not be performed properly. Wait until the battery temperature goes down. The battery charger and the battery get warm during the charging. However, it is not a malfunction.

**How to care the battery charger:**

- Remove stains from the battery charger by wiping it with a dry and soft cloth. Do not use a wet cloth, alcohol, thinner, benzene or detergent.

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**Specifications**

- **Rechargeable battery:** Li-FePO4 polymer battery/2S or 3S type
- **Operating temperature:** 0°C ~ 40°C (8°F ~ 104°F is recommended)
- **Storage temperature:** 0°C ~ 40°C (23.5 x 53 x 81.5 mm (excluding protruding portions))
- **Weight:** 35g

**Battery Charger (LBC-4E5)**

<table>
<thead>
<tr>
<th>Voltage (DC)</th>
<th>Voltage (DC)</th>
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<tbody>
<tr>
<td>DC10 ~ 18V</td>
<td>DC12 ~16V</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Input: DC10 ~ 18V</th>
<th>Output: 5.4V(2S), 6.8V(3S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output current: 1.1A</td>
<td>Output current: 2.5A (Do not simultaneously connect to the &quot;2S&quot; and &quot;3S&quot; outputs)</td>
</tr>
<tr>
<td>Balance Voltage: 30V</td>
<td>Balance Voltage: 30V</td>
</tr>
</tbody>
</table>

**Protection circuit:** Reverse/Shunt

**AC adapter (FAD-5)**

<table>
<thead>
<tr>
<th>Output: 250V</th>
<th>Output: 500mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Input: AC 100 ~ 240V, 50/60 Hz, 500mA</td>
<td>Rated Output: DC 15V, 1000mA</td>
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*This product cannot be repaired because it is designed not to be disassembled for safety reasons. If you have any questions about this product, please contact your Futaba dealer.*

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