

# Leo: the Battery Life Extender

Model: Leo

The term product refers to Leo: the Battery Life Extender and its accessories.

Do not use this product in a small confined space such as a bookcase or built-in cabinet.

Do not expose the product to excessive heat, such as sunshine or fire.

Do not use this product with USB adapters rated above 20V.

Do not expose the product to extreme low temperatures.

Do not open or dismantle the product. There are no serviceable parts inside.

Do not expose the product to rain or snow.

Unplug Leo when not being used for extended periods.

Never insert the USB plug when the product is wet. If the USB plug is inserted while the product is wet, a short circuit may occur due to the liquid or foreign matter causing abnormal heat generation or malfunction.

## Precautions

### On Bluetooth communications

Microwaves emitted from a Bluetooth device may affect the operation of electronic medical devices. Turn off this unit and other Bluetooth devices in the following locations, as it may cause an accident:

- In hospitals, near priority seating in trains, locations where flammable gas is present, near automatic doors, or near fire alarms.

### On charging

Use the supplied USB Type-C cable to ensure the product does not exceed maximum rated input/output.

### Other notes

If you have any questions or problems with the product that are not covered in this manual, please contact Liion Power at <https://liionpower.nl/contact>.

If water or foreign matter enters the product, it may result in fire or electric shock. If water or foreign matter enters the product, stop use immediately. In particular be careful when using the product:

- Near a sink or liquid container.
- High humid locations.

Dispose of properly.

For details on the effect of contact with the human body from the mobile phone or other wireless device connected to the unit, refer to the instruction manual of the wireless device.

### Note about static electricity

If you use the unit when the air is dry, you may experience discomfort due to static electricity accumulated on your body. This is not a malfunction of the unit. You can reduce the effect by wearing clothes made of natural materials that do not easily generate static electricity.

## Notice for customers

### EU/UK:

The following information is only applicable to the products sold in countries/regions applying EU directives and/or UK applying relevant statutory requirements.

This product has been manufactured on behalf of Liion Power B.V.

Inquiries to the EU/UK Importer or related to product compliance in Europe/UK, should be sent to the Liion Power B.V. De Boelelaan 1095 A, 1081 HV Amsterdam

Hereby, Liion Power declares that this product is in compliance with directives 2014/53/EU and 2011/65/EU.



A full text of the EU/UK declarations of conformity is available at <https://liionpower.nl/compliance>.

## Specifications

### Device

#### Rated Input/Output:

5V = 2A (Max 20V = 5A, 100W)

#### Operating conditions:

0 - 40 degrees °C

0 - 90% Relative Humidity (non-condensing)

Max. altitude: 2000m / 6600 feet.

#### Mass:

Approximately 12g

#### Included items:

Leo: The Battery Life Extender

USB Type-C cable (USB-C to USB-C) rated 100W. Approximately 13cm

## Communication Specifications

#### Communication system:

BLE class 1

#### Output:

BLE Power Class 1

#### Frequency band:

2.402 GHz to 2.480 GHz

#### Maximum output power:

+3.910 dBm EIRP

Design and specification are subject to change without notice.

## System requirements

### USB AC adapter

Minimum. A commercially available USB AC adapter capable of supplying an output current of at least 0.5 A or more.

Recommended. For autonomous smart charging capabilities, a commercially available USB AC adapter of at least 5V = 2A is needed.

Maximum. A commercially available USB AC adapter capable of supplying Max 20V = 5A, 100W.

Use with double isolated or Class-II adapters only.

System requirements are subject to change without notice.

## Limitations

When switching between devices, when using smart-charging mode, please wait five seconds before plugging in a new device.

## Trademarks

The Bluetooth word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.

USB Type-C and USB-C are registered trademarks of the USB Implementers Forum.

All registered trademarks are owned by their respective holders. In this manual ® and ™ marks and not specified.

## Operation

### Button

Set Mode:

1x Smart Charging

2x Ghost Mode

3x Safe Mode

Hold: Restart / top-up

### LED Bar

Smart charging: White

Ghost mode: Blue

Safe mode: Green

### USB-C

Step 1: Connect  
Charger

Step 2: Set Mode  
(button)

Step 3: Connect  
charging device

If Leo does not start  
charging within ~1  
minute, unplug fully  
and repeat steps 1, 2  
and 3.

1. Connect Leo to your charger or a USB charging port
2. Set charging mode (using the button)
3. Connect the charging USB device

Leo can be connected on either the charger side or the device side, in any orientation.

Leo has USB-C ports and a USB-C cable but is backwards compatible with USB-A, Micro USB, or Lightning connections with the appropriate adapter. Always use the cable supplied with the device as input or output. Note: Some devices may not fast-charge when using cables that do not support the required charging speed or charge protocol.

Please use an adapter/charging port that can provide the current as required by the device that is charging (preferably the original charger of the charging device). If the current is limited by using a slower charger/charging port, Leo might fail in analyzing the charge protocol and not perform optimally with the autonomous smart-charging function (for example, not stopping before the device reaches 100%).

Only use Leo for devices that are USB 2.0 compatible. Some devices that can only be powered by high-power USB Type C, might not charge with Leo (such as laptops). In future software updates, these features could be added, but the current Leo software version needs a USB-protocol compliant device.

### Button Function

Button	Function	Explanation	LEDs
1x Press	Smart charging mode / LED animation	Return Leo to its standard smart-charging mode, charging slowly to around ~90% (assuming the charger provides enough current for normal charging).  When Leo is already smart charging, it will 'wake up' and display the LED charging animation. If the LED animation is not visible, charging is complete (or Leo is not powered on).	White wave
2x Press	Ghost Mode Charging	Leo will enter 'ghost mode', enabling the connected device to charge normally, as if Leo is not there (up to 100W with PD or fast charging compatible devices and USB ports).  Note: Some devices, chargers, or cables have proprietary fast-charging protocols that may not support Leo, which uses a 100W e-marked cable.	Blue bar / wave
3x Press	Safe mode	Activate this mode to prevent any data transfer, and enable slow charging.  Use this mode to protect your data when charging in public places or through other devices. Charging via USB ports can transfer various data, including device type, sensitive information, or even viruses. Stay safe!	Green bar / wave
Hold >1sec	Reset / Restart Smart Charge Session / Charge New Device	This reset/restart is useful if Leo is already smart-charging but taking a break, and you prefer a quick top-up.  If Leo gets confused when switching devices quickly (<5 seconds), holding the button resets Leo, clears previous charging data, and starts charging the new device.	White bar / wave

### LED functions

1. LEDs will move in a wave in the direction of charging when charging starts.
2. LEDs will turn off after some time, to save energy and to prevent light pollution at night (except when in Ghost mode or Safe Mode the LEDs will stay on).
3. Slowly press the button in a dark Star Wars melody to turn the LEDs red.

## Firmware & Software

Keep your firmware up to date. For details please refer to the Liion Power application.

## Application

Download and keep up to date the Liion Power App found in the Apple App Store or Google Play Store.



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# FCC INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

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## CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

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## RF Exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

# EU DECLARATION OF CONFORMITY

1. Model Number:	Leo
2. Name and address of the manufacturer's authorized representative:	Liion Power B.V. De Boelelaan 1095 A, 1081 HV Amsterdam, The Netherlands
3. This declaration of conformity is issued under the sole responsibility of the manufacturer:	Liion Power B.V.
4. Object of the declaration:	The Battery Life Extender
5. The object of the declaration described above is in conformity with:	2014/53/EU (Radio Equipment) 2011/65/EU (RoHS)
6. Where applicable, references to the relevant harmonized standards used or references to the technical specifications in relation to which conformity is declared:	Radio Equipment: EN IEC 62368-1:2020 + A11:2020, EN 50663:2017, EN 55032:2015 + A11:2020, EN 55035:2017 + A11:2020, EN 301 489-1:2019 (V2.2.3), EN 301 489-17:2020 (V3.2.4), EN 300 328:2019 (V2.2.2)  RoHS: EN IEC 63000:2018
7. Where applicable, the notified body (name and number), description of intervention and certificate:	-
8. Where applicable, description of accessories and components, including software, which allow the radio equipment to operate as intended and covered by the EU declaration of conformity:	-
9. Additional information:	-

Signed for and on behalf of: Liion Power B.V.

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Jardo Stammeshaus (CEO)

Amsterdam, The Netherlands. 2024-08-12

Liion Power B.V. De Boelelaan 1095 A, 1081 HV Amsterdam



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# UK STATEMENT OF COMPLIANCE

1. Model number: Leo
2. Name and address of the manufacturer's authorized representative: Liion Power B.V. De Boelelaan 1095 A, 1081 HV Amsterdam, The Netherlands
3. This statement of compliance is issued under the sole responsibility of the manufacturer: Liion Power B.V.
4. Where applicable, references to the relevant standards used in the relation to which compliance is declared:
5. Defined support period for security updates: 2029-06-30.
6. Additional information:
7. Note(s):

Signed for and on behalf of: Liion Power B.V.

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Jardo Stammeshaus (CEO)

Amsterdam, The Netherlands. 2024-08-12

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