

# Long-Range Battery Box User Manual

## (Version 1.1)

	Read instructions before use.
	For indoor use only.
	Intertek Safety Mark: Compliance of this product with applicable standards is certified by Intertek, an independent testing agency.
	At the end of the service life electric and electronic equipment should be disposed of using separate collection, treatment, recovery/recycling. If in doubt, contact your local authorities to determine the proper disposal method.
Product complies with IEC 62368-1:2014Ed.2+C1 safety standards. Refer to Chapter 4 of the User Manual.	

### FCC Statement:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can radiate radio frequency energy and may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the users' expense.

**CISPR WARNING:** This is a Class A product. In domestic environments this product may cause radio interference in which case the user may be required to take adequate measures.

**WARNING:** The Battery Box should only be charged via the supplied charger and should not be used in conjunction with any other adapters/chargers as they could damage the device.

**WARNING:** Opening or modifying the battery box, connectors or cables will void the user's warranty and authority to operate the equipment, and may affect safety compliance of the system. There are no user-serviceable parts inside - contact SR Research for all repairs.



**Caution** – Using controls or adjustments or performance of procedures other than those specified herein may result in product damage. Refer to Chapter 4 of the User Manual.

## **CONTACT ADDRESS**

SR Research Ltd.  
35 Beaufort Drive  
Ottawa, Ontario, K2L 2B9  
Canada

Fax: (613) 482-4866  
Phone: (613) 271-8686  
Toll Free: 1-866-821-0731 (North America only)  
Email: [support@sr-research.com](mailto:support@sr-research.com)  
Sales: [sales@sr-research.com](mailto:sales@sr-research.com)  
Support: <https://www.sr-research.com/support/>

## **MANUFACTURER ADDRESS**

SR Research Ltd.  
8-1400 Cornwall Rd.  
Oakville, Ontario, L6J 7W5  
Canada

## **EU AUTHORISED REPRESENTATIVE**

EyeSeeTec GmbH  
Neumarkter Str. 84c  
81673 München  
Germany

## **1. Introduction**

SR Research Long Range Battery Box (LRBB) is a battery-based power source intended for use with designated SR Research isolated eye tracking devices (EyeLink FO camera head, FL Long Range illuminator, or other designated devices). The LRBB has an internal lead acid battery that is charged electrically with an included AC/DC charger.

### **1.1 Specifications**

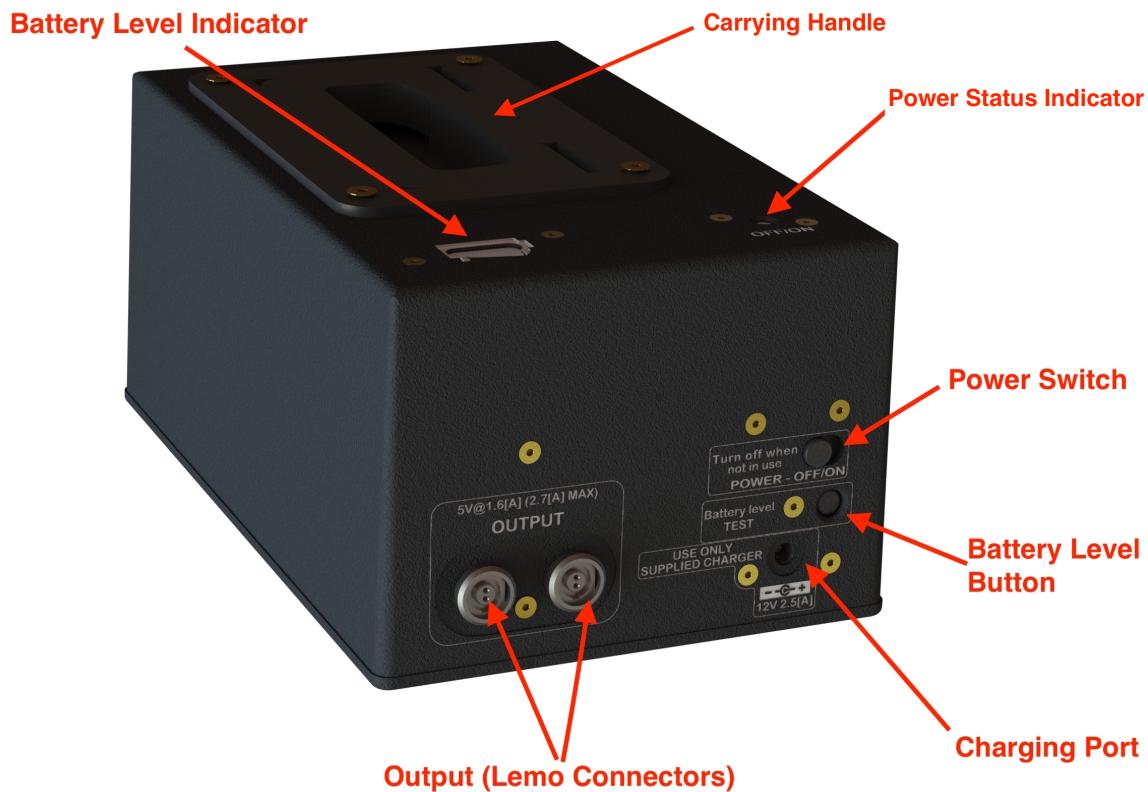
Model	Long Range Battery Box (LRBB)
Output Current DC	5 V (1.6 A)
Charger Input Voltage (AC)	100 ~ 240 V (50-60 Hz)
Charging Voltage (DC)	12 V
Charging Current	2.5 A
Trickle Charging Mode	Supported
Internal Battery	Lead Acid Rechargeable Battery
Operating Conditions	10°C to 40°C, 10%-80% humidity (non-condensing). For indoor use only.
Storage Conditions	0°C to 40°C, 10%-90% humidity (non-condensing). Allow to warm to room temperature before unpacking or use after storage at temperatures below 10°C to prevent condensation.
Enclosure Type	Anodized aluminum enclosure
IP Rating	IP20 (Do not expose to fluids, clean according to instructions)
Output Connections	LEMO-to-LEMO Y cable
Dimensions	L 22.5 cm × W 15.0 cm × H 11.5 cm
Weight	4.0 Kg
Safety Standards	IEC 62368-1:2014Ed.2+C1

## 2. Using the Battery Box

This section provides the operation and charging instructions for the Long Range Battery Box. It also describes how to read the battery level indicator and when to recharge the battery box.

### 2.1 Identification of Connections and Controls

The following pictures identify the various controls and connections of the LRBB, and the accessory parts.





Battery Box Charger

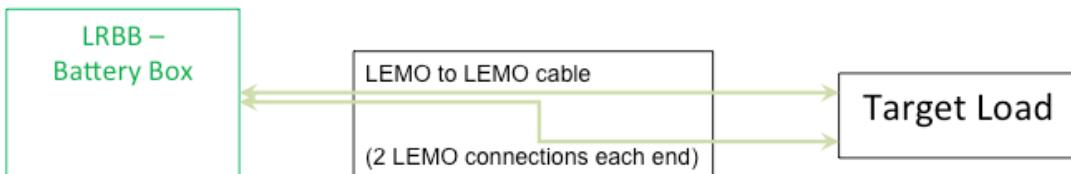


LEMO Y-cable

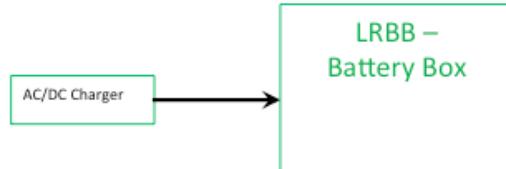
## 2.2 Typical Connections

The diagram below shows the typical configuration on how the battery box is used. See the manual for each powered device for specific instructions for use.

1. Configuration as power source for a general-purpose target load:



2. Configuration when recharging internal battery:



## 2.3 Connecting to Load Devices

- 1) Turn OFF the Power Switch on the battery box.
- 2) Connect the output ports of the battery box to the target devices using the supplied LEMO Y-cable. The order of connection is not critical, and either of the Y-cable connections can be used on any port or device.
- 3) Turn ON the Power Switch on the Battery Box.

- 4) Start the system using target devices (e.g., EyeLink FO camera head, FL Long Range illuminator) and check for normal operation (please refer to the manuals for the devices).

## 2.4 Power Switch

- The ON/OFF switch allows you to fully disconnect all power from the LEMO connectors, cables, and devices when the unit is charging or in storage.
- Turn off the battery box whenever the unit is not in use or charging. Leaving the switch in the ON position when the battery is in storage may deplete the battery and shorten its lifespan.

**Note:** The charger cable must be removed from the battery box when in the operating mode. The battery box will not provide power output when the charger cable is connected.

## 2.5 Charging Instructions

**Important!** The battery box should only be charged via the supplied charger and should not be used in conjunction with any other adapters/chargers as they could damage the battery box.

**WARNING:** The battery charger contains ferromagnetic parts and should not be taken into the same room as the scanner.

- 1) Set the battery box Power Switch button to the OFF position.
- 2) Disconnect the devices by disconnecting the LEMO cable from the box
- 3) Plug in the supplied charger to the charging port on the battery box.
- 4) Plug the charger to a mains power outlet. The LEDs on the charger will display its status.

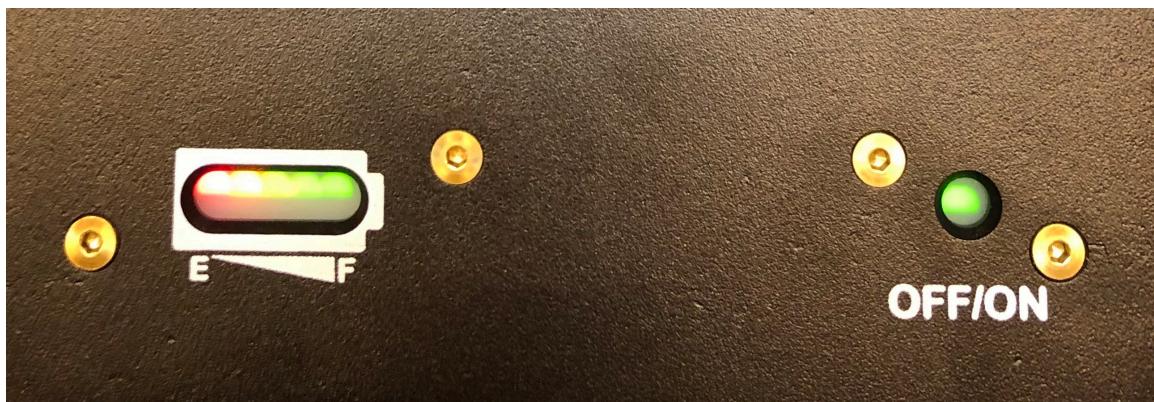
Red	Charging is in progress.
Yellow	The battery is fully charged and is now in trickle charging mode. The charger may be left connected.
Green	Trickle charging is complete.

Typical charging time is about 4 hours (from the battery level showing a Red-only LED). To maintain the battery at full charge, the battery can be left on continuous charge for an extended duration.

- When the battery box is fully charged (the LED is green) remove the charger from the battery box and disconnect the AC power cable from the mains power outlet.

## 2.6 Battery Level and LED Indicators

To see the current battery level, set the battery box Power Switch button to the ON position and press the Battery Level button. **This indicator is disabled during charging and when power switch is OFF to prevent accidental discharge.**



There are five LEDs in the Battery Level Indicator window on the top of the box: (3 green, 1 orange, 1 red). Each LED represents approximately 20% of battery charge.

<u>LED State</u> <u>(with Power Switch on and Battery Level button pressed)</u>	<u>Charge State</u>	<u>Action to take</u>
All LEDs are lit (3 green plus red and orange)	Fully charged	Ready for extended use or storage.
One green LED (plus red and orange)	Less than 50% charge	Consider charging.
Only orange and red LEDs	Battery Level low, limited time remaining.	Charge before starting further use.
Red LED only	Critically low, may lose power in a few minutes.	Charge as soon as possible.
No LEDs lit	Battery completely discharged.	Charge immediately.

- Do not start a new session if only the red and orange LEDs are lit. Turn off and disconnect the battery box and connect to charger for whatever time is available before use.

- Consider recharging between sessions if only one green LED is present (along with red and orange LEDs). Turn off and disconnect the devices before connecting to the charger.
- Turn off and recharge the battery box immediately if the battery is discharged to the point where only the red LED is displayed, as power may be exhausted at any time.
- The built-in protection circuit on the battery box will disengage the power to the system (Power Status indicator will be off) if the battery is discharged beyond certain level to prevent battery damage.

**Note:** The Battery Box and the Indicators (Power Status and Battery Level) are disabled during charging; charging progress is indicated by the LED on the charger.

### **3. Cleaning and Storage**

This section provides basic cleaning and storage instructions for the Long Range Battery Box.

#### **3.1 Cleaning**

- Before cleaning, turn off the battery box and disconnect the cable and charger.
- Wipe the outside of the box with a dry or damp cloth. For stubborn dirt or disinfection, wipe the enclosure with prepackaged 70% isopropyl alcohol swabs. DO NOT USE saturated cotton balls or >70% strength alcohol, these may cause damage to the connectors, switches, and labels.
- Let the battery box dry thoroughly before charging or use.

#### **3.2 Storage and Transportation**

- For short periods, it is permissible to leave the Long-Range Battery Box connected to the target devices. Be sure to set the power switch to the OFF position to prevent discharge. For safety, the charger should not be connected to the box unless the LEMO cables are first disconnected from the LRBB.
- If the system is not going to be used for an extended period, you may wish to unplug the LEMO cable from the box. This should also be done before connecting the charger. It is safe (and may be most convenient) to leave the LEMO cable connected to the devices.
- For long-term storage, shipping, or transportation, it is recommended that the battery box cables are disconnected, then the battery box fully charged.
- The cables and charger may be stored with the battery box in the shipping box that the system was supplied in. Store the shipping box above freezing and below 40°C and avoid high-humidity conditions which might cause moisture to condense within the device.
- When the battery box has been stored in conditions below 10°C, leave it in the packaging for at least 8 hours to reach room temperature before exposing it to warm moist air.

## **4. Important Information**

### **4.1 Safety**

**WARNING:** The Long-Range Battery Box must only be connected to approved load devices (e.g., EyeLink FO camera head, FL Long Range Illuminator, or any other designated devices), and only the supplied cables may be used.

**WARNING:** Battery Box should only be charged via the supplied charger and should not be used in conjunction with any other adapters/chargers as they could damage the device.

**WARNING:** The battery charger contains ferromagnetic parts and should not be taken into the same room as the scanner.

**CAUTION:** Use of controls or adjustments or performance of procedures other than those specified herein may shorten the lifespan of the device.

This system complies with IEC 62368-1:2014Ed.2+C1 safety standards, and is safe under any conditions.

### **4.2 Servicing Information**

**WARNING:** Changes or modifications to battery box, internal batteries, charger, or cables not expressly approved by SR Research Ltd. could void the user's warranty and authority to operate the equipment, and may affect the safety compliance of the system. No user-serviceable parts inside - contact SR Research for all repairs.

**CAUTION:** Modification of battery box, or use of other power supply voltages with this system, may result in damage to the battery box or shorten its lifespan.

#### **4.2.1 Charger Replacement**

**WARNING:** See the Specifications section for information on the power supply requirements. Use of a battery charger with incorrect polarity, voltage, or other ratings may cause safety hazards, void the user's warranty or damage system components.

The Battery Box should be charged via the supplied charger and should not be used in conjunction with any other adapters/chargers as they

could damage the battery box. Please contact SR Research if you suspect the charger is not working.

#### **4.2.2 Cable Replacement**

The LEMO cable should not be replaced with other cables without the express permission of SR Research. The EyeLink FO camera head and FL long range illuminator require a power supply in the range of 3.6 to 5.6 VDC, with a minimum current rating of 2.0 A. A special a 2-pin polarized LEMO cable is supplied to connect the power supply to the camera head and illuminator, to eliminate any RF energy leakage in sensitive environments. Please contact SR Research if you need to replace the supplied LEMO cable.

### **4.3 Limited Hardware Warranty**

**SR Research Ltd.**  
35 Beaufort Drive,  
Ottawa, Ontario, K2L 2B9, Canada

#### **Long Range Battery Box – Limited Warranty**

SR Research Ltd. warrants this product to be free from defects in material and workmanship and agrees to remedy any such defect for a period as stated below from the date of original installation.

**Long Range Battery Box – Two (2) year parts and labor.**

#### **LIMITATIONS AND EXCLUSIONS**

This warranty does not apply to any product which has been improperly installed, subjected to usage for which the product was not designed, misused or abused, damaged during shipping, or which has been altered or repaired in any way that affects the reliability or detracts from the performance. Any replaced parts become the property of SR Research Ltd.

This warranty is extended to the original end purchaser only. Proof of original date of installation is required for warranty service will be performed.

This warranty does not apply to the software component of the product.  
**THIS EXPRESS, LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, EXCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

**IN NO EVENT WILL SR RESEARCH LTD. BE LIABLE FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES.**

In certain instances, some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, or the exclusion of implied warranties, so the above limitations and exclusions may not be applicable.

**WARRANTY SERVICE**

**For product operation and information assistance**, please contact a SR Research Ltd. Support representative ([support@sr-research.com](mailto:support@sr-research.com)). **For product repairs**, please contact your sales representative for appropriate instructions.

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Product design and specifications may change at any time without notice.