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› Runleader 36V LED Battery Level Indicator (Model RL-BI003-1) User Manual

Runleader RL-BI003-1

Runleader 36V LED Battery Level Indicator (Model RL-BI003-1) User Manual

Programmable Battery Charge Meter for Lead Acid, LiFePO4, AGM, and Gel Batteries

INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the Runleader 36V LED Battery Level Indicator, Model RL-BI003-1. This programmable battery charge meter is designed to accurately display battery capacity for various battery types, including Lead Acid, LiFePO4, AGM, and Gel batteries. It is suitable for a wide range of applications such as golf carts, forklifts, and lawn mowers.

The device features a waterproof design (IP68 rated) and offers real-time battery power display, charge and discharge status indication, and programmable working parameters for optimal performance with different battery chemistries.

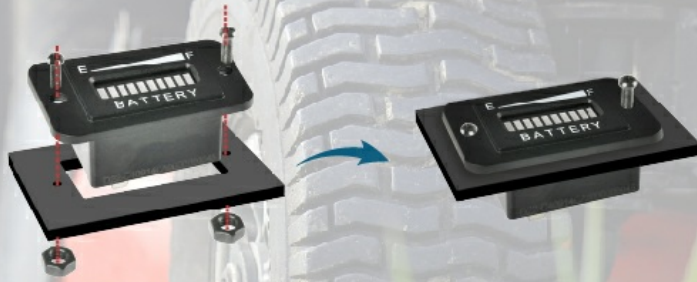
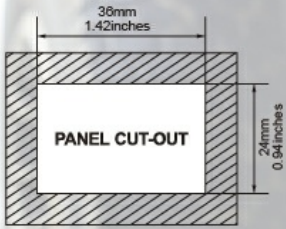
1. INSTALLATION

1.1 Panel Cut-out and Snap-in Mounting

The Runleader battery indicator is designed for snap-in mounting. Follow these steps for installation:

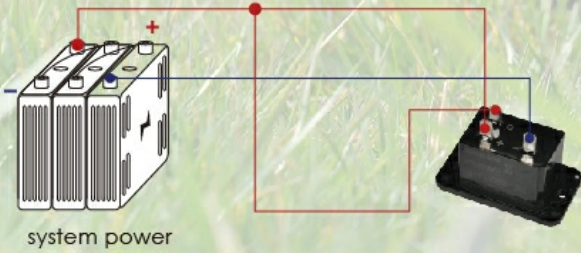
1. Prepare a panel cut-out with dimensions of approximately 36mm (1.42 inches) in width and 24mm (0.94 inches) in height.
2. Insert the battery indicator into the prepared cut-out from the front of the panel.
3. Secure the indicator from the rear using the provided screws and nuts.

Snap-in installation



Power connection

▪ Direct Connection



▪ Key switch connection



Figure 1: Panel cut-out dimensions and snap-in mounting illustration.

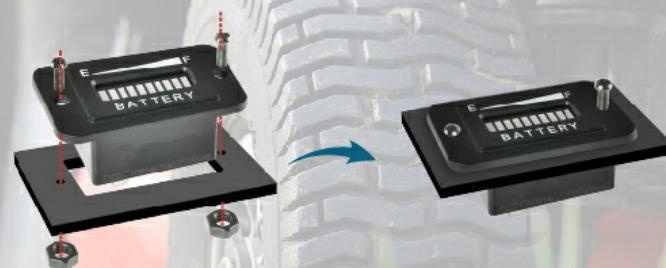
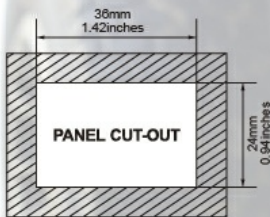
1.2 Power Connection

The battery indicator supports two types of power connections: direct connection and key switch connection.

Direct Connection

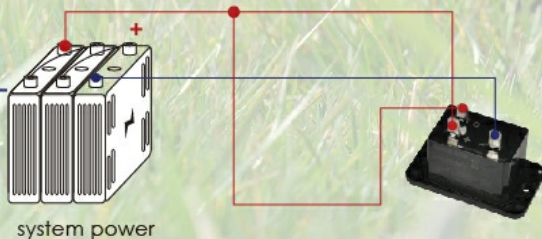
Connect the indicator directly to the system power source (battery terminals).

Snap-in installation



Power connection

▪ Direct Connection



▪ Key switch connection



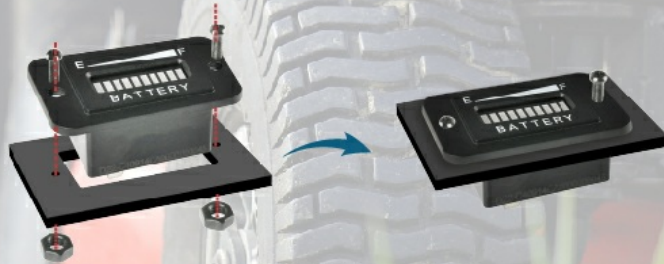
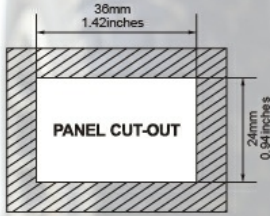
Figure 2: Direct power connection diagram. The image shows two batteries connected in series to a system power, with the indicator

connected directly to the positive and negative terminals.

Key Switch Connection

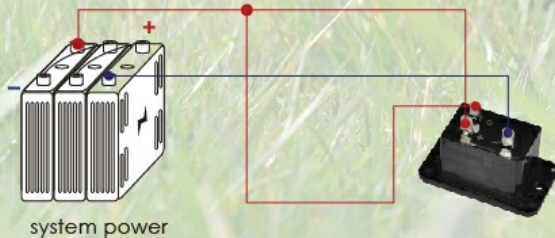
Connect the indicator through a key switch. This allows the indicator to turn on/off with the vehicle's ignition.

Snap-in installation



Power connection

▪ Direct Connection



▪ Key switch connection



Figure 3: Key switch power connection diagram. The image shows two batteries connected in series to a system power, with the indicator connected to the positive terminal via a key switch and directly to the negative terminal.

Note: Ensure the "C" pole is connected back to "+" to keep the normal power display.

2. OPERATION

2.1 Real-time Battery Power Display

The indicator provides a real-time visual representation of the battery's charge level. The display consists of multiple bars, where each single bar indicates approximately 10% of the battery's total power capacity.



Figure 4: Real-time battery power display. The image shows the indicator with a bar graph, where each segment represents 10% of the battery charge.

This gauge allows users to monitor the remaining battery power during both charging and discharging cycles. The applicable battery voltage for this model is 36V.

2.2 Battery Charge and Discharge Display

The indicator also visually distinguishes between charging and discharging states:

- **Charging State:** During charging, the bars will progressively light up, often in a distinct color (e.g., green) to indicate power input. The state of charge display is programmable (e.g., 200 seconds).
- **Discharging State:** During discharge, the bars will progressively turn off, indicating power consumption. The state of discharge display is also programmable (e.g., 155 seconds).

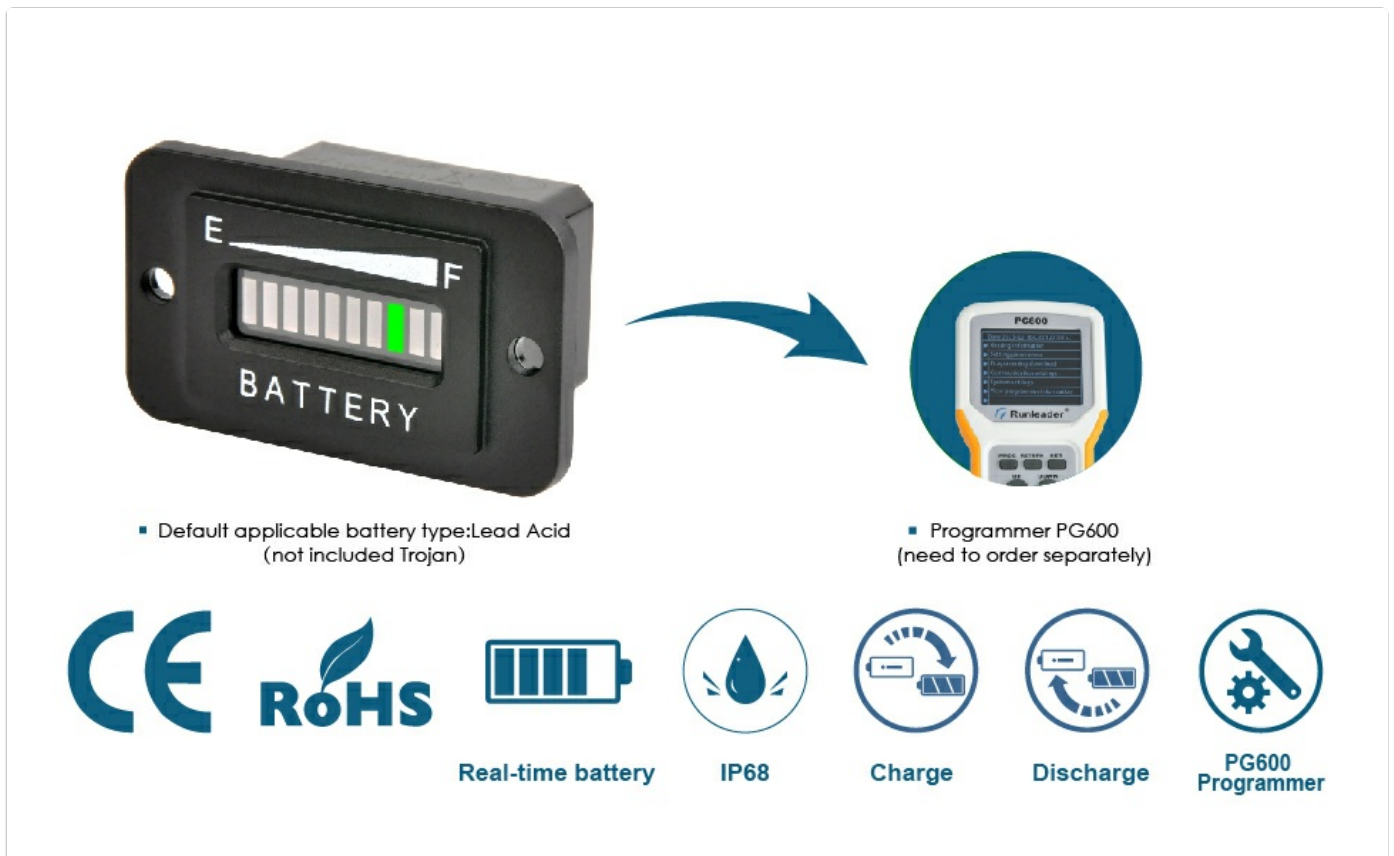


Figure 5: Battery charge and discharge display. The image shows sequences of bars lighting up (charging) and turning off (discharging), with green bars indicating charge and red indicating low charge.

2.3 Programmable Working Parameters

The Runleader battery indicator offers programmable parameters to adapt to different battery types and operational needs. These parameters can be adjusted using a separate programmer, such as the PG600 (sold separately).

Programmable settings include:

- **Battery Type:** Select from 8 groups of battery types (e.g., GEL, Lead Acid, LiFePO4, AGM).
- **Operating Mode:** Define how the indicator operates (e.g., "Only down not up" for discharge only).
- **Charge/Discharge Mode:** Configure display behavior during charging and discharging.
- **Display Mode:** Choose between different LED display modes.
- **Charge/Discharge Voltage Gears:** Set specific voltage thresholds for charge and discharge levels.



Figure 6: Programmable working parameters. The image displays the Runleader PG600 programmer and screenshots of its interface showing options for battery types, charge/discharge voltages, and display modes.

The default applicable battery type is Lead Acid (excluding Trojan batteries). For other battery types or customized settings, the PG600 programmer is required.

3. MAINTENANCE

3.1 Water Resistance (IP68)

The Runleader battery indicator features an IP68 waterproof rating, meaning it is protected against dust ingress and can withstand immersion in water up to 1.5 meters for 30 minutes. This high level of water resistance is achieved through an epoxy resin craft, ensuring durability in harsh environments.



Figure 7: Water resistance test. The image shows the battery indicator submerged in a clear tank of water, demonstrating its IP68 waterproof rating.

Regular cleaning with a damp cloth is sufficient. Avoid using abrasive cleaners or solvents that could damage the unit.

4. TROUBLESHOOTING

If the battery indicator is not functioning as expected, consider the following:

- **No Display:**
 - Check all power connections to ensure they are secure and correctly wired according to the "Power Connection" section.
 - Verify that the battery voltage is within the operational range (36V).

- If using a key switch connection, ensure the key switch is in the "ON" position.

- **Inaccurate Reading:**

- Confirm that the correct battery type is programmed into the indicator. If using a programmer, ensure settings match your battery chemistry (Lead Acid, LiFePO4, etc.).
- Check for any loose connections that might cause voltage drops.

- **Display Malfunction:**

- If the display shows erratic behavior or segments are missing, disconnect power for a few minutes and then reconnect.
- Ensure the unit has not been subjected to physical damage or extreme temperatures outside its operating range.

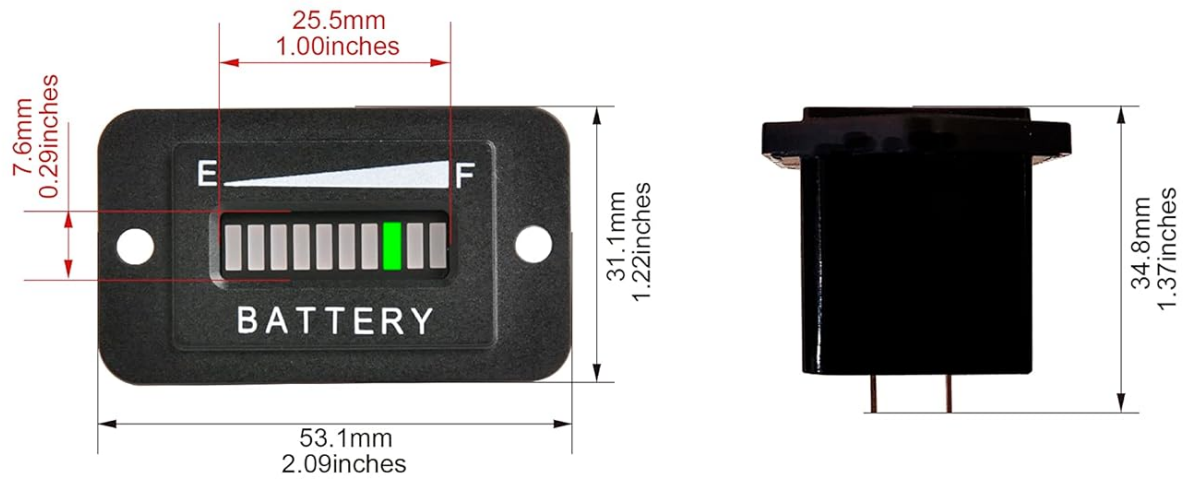
If issues persist after performing these checks, contact Runleader customer support for further assistance.

5. SPECIFICATIONS

Product Specifications (Model RL-BI003-1)

Feature	Detail
Brand	Runleader
Model Number	RL-BI003-1
Applicable Voltage	36V
Battery Cell Composition	Lead Acid (Programmable for LiFePO4, AGM, Gel)
Waterproof Rating	IP68
Item Dimensions (L x W x H)	53.1mm x 31.1mm x 34.8mm (2.09 x 1.22 x 1.37 inches)
Panel Cut-out Dimensions	36mm x 24mm (1.42 x 0.94 inches)
Item Weight	0.07 Kilograms
Recommended Uses	Golf Carts, Forklifts, Lawn Mowers, Motorhomes, Electric Bicycles
Manufacturer	Ningbo Jiangbei Run Leader Electronics Co., Ltd

PRODUCT DIMENSION



ACCESSORIES



Figure 8: Product dimensions. The image shows front and side views of the indicator with measurements in millimeters and inches.

6. INCLUDED ACCESSORIES

The following accessories are typically included with the Runleader 36V LED Battery Level Indicator:

- User Manual
- Plug spring sheath (x3)
- Insert spring (x3)
- Screws (x2)

APPLICATION

Default applicable device: Lead acid (not included Trojan)



■ Motorhome



■ Forklift



■ Golf cart



■ Electric bicycle

Figure 9: Included accessories. The image displays a user manual, three plug spring sheaths, three insert springs, and two screws with nuts.

7. APPLICATIONS

The Runleader 36V LED Battery Level Indicator is suitable for a variety of 36V battery-powered devices. The default applicable device type is Lead Acid (not including Trojan batteries), but it can be programmed for other types.



Figure 10: Applicable devices. The image displays icons for a motorhome, forklift, golf cart, and electric bicycle, indicating common uses for the battery indicator.

Common applications include:

- Motorhomes
- Forklifts
- Golf Carts
- Electric Bicycles

8. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Runleader website or contact your authorized dealer. Specific warranty terms may vary by region and retailer.

When contacting support, please have your product model number (RL-BI003-1) and purchase date available.