

Runleader RL-BI609B

Runleader RL-BI609B Battery Power Meter Instruction Manual

Model: RL-BI609B

1. PRODUCT OVERVIEW

The Runleader RL-BI609B is a versatile battery power meter designed to monitor battery status for various DC 12V to 48V equipment. It provides real-time battery percentage, voltage display, and includes a low battery reminder. Its robust, waterproof design ensures reliable performance in diverse environments.

2. KEY FEATURES

- **Battery Indicator:** Displays remaining battery power as a percentage and with 10 progress bars. Features a low battery reminder when power drops below a user-set threshold (5% to 60%). Compatible with Lead Acid, GEL, AGM, LiFePO4, and custom battery types. Supports DC 12V, 24V, 36V, 48V systems.
- **Battery Volt Meter:** Shows real-time battery voltage. Users can set high or low voltage alert values. Voltage measurement range: DC 8V to 65V.
- **Programmable Parameters:** Key parameters such as battery types, discharge and charge voltages can be edited using the Runleader PG600 programmer (sold separately). Communication method: UART.
- **Water Resistance:** 100% epoxy resin craft provides IP67 water resistance.
- **Backlight Modes:** White backlight can be programmed for always on, always off, or auto modes.

3. SPECIFICATIONS

Specification	Value
Part Number	RL-BI609B
Item Weight	110 g
Parcel Dimensions	9 x 6.7 x 5.2 cm
Power Source Type	Battery Powered

Specification	Value
Min. Operating Voltage	12 Volts
Battery Voltage Range	DC 8V to 65V
Water Resistance	IP67
Panel Cut-out Size	70.5 x 34.5 mm (2.78 x 1.36 inches)
UPC	760752190984

4. INSTALLATION

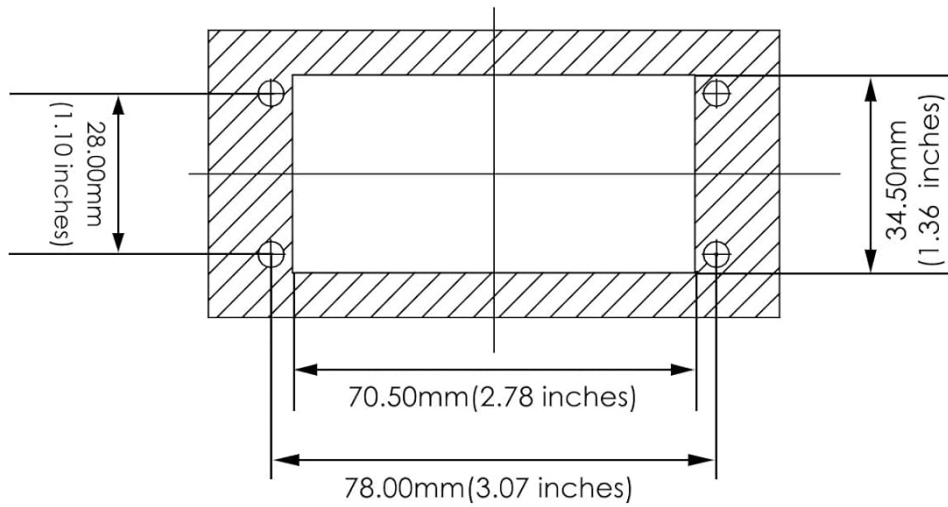
4.1 Panel Mounting

The RL-BI609B is designed for snap-in panel mounting. Ensure the panel cut-out dimensions are accurate for a secure fit.

- **Panel Cut-out Size:** 70.5mm (2.78 inches) x 34.5mm (1.36 inches).
- **Overall Dimensions:** 87.00mm (3.43 inches) x 41.00mm (1.61 inches).

PRODUCT MOUNTING

■ Panel cut-out size



■ Snap-in mounting

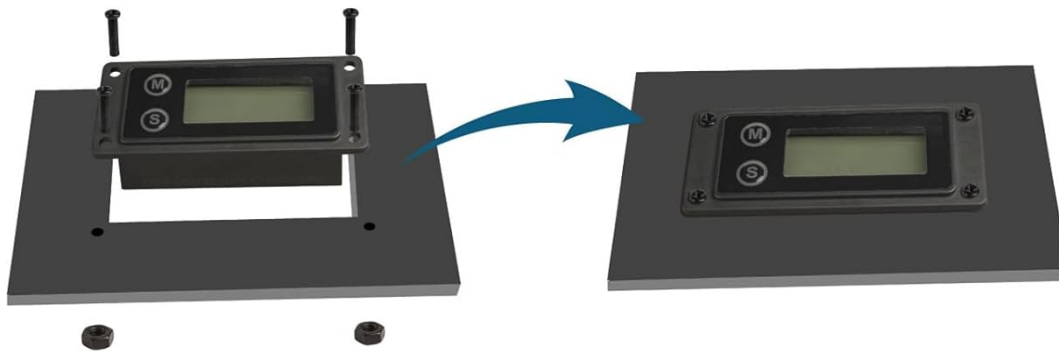


Figure 4.1: Panel cut-out dimensions and snap-in mounting. The diagram illustrates the required opening size of 70.5mm by 34.5mm and how the meter snaps into place.

4.2 Power Connection

Connect the meter to your battery system using the provided wiring. Ensure correct polarity for proper operation.

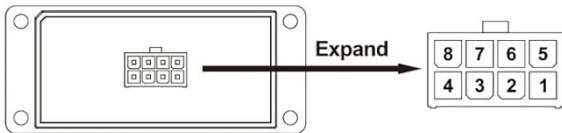
PIN No.	PIN Mark	PIN Meaning
1	B-	Negative pole of battery indicator; connect to the negative pole of power supply.
2	N/A	Standby; ODM custom pin function. (factory implementation)
3	Key switch	Display the battery voltage bars and real-time battery power left when key switch is on; display real-time battery voltage when key switch is off.
4	B+	The positive pole of battery indicator; connect to the positive pole of power supply.
5	N/A	Standby; ODM custom pin function. (factory implementation)

PIN No.	PIN Mark	PIN Meaning
6	N/A	Standby; ODM custom pin function. (factory implementation)
7	TX	Communication terminal: TX
8	N/A	Standby; ODM custom pin function. (factory implementation)

Note: Ensure the "key switch" pole connects back to "+" to maintain normal power display.

POWER CONNECTION

■ Power connection ports



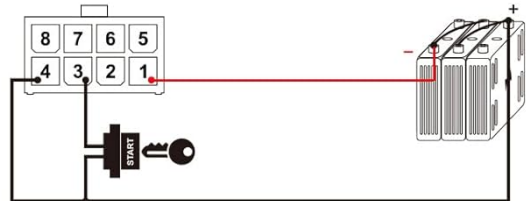
PIN NO.	PIN Mark	PIN Meaning
1	B-	The negative pole of battery indicator, connect to the negative pole of supply power.
2	N/A	Standby; ODM custom pin function. (factory implementation)
3	Key switch	Display the battery voltage bars and real-time battery power left when key switch is on, display real-time battery voltage when key switch is off.
4	B+	The positive pole of battery indicator, connect to the positive pole of power supply.
5	N/A	Standby; ODM custom pin function. (factory implementation)
6	N/A	Standby; ODM custom pin function. (factory implementation)
7	TX	Communication terminal: TX
8	N/A	Standby; ODM custom pin function. (factory implementation)

Note: please make sure the "key switch" pole connect back to "+" to keep the normal power display.

■ Direct connection



■ Key switch connection



■ PG600 programmer connection

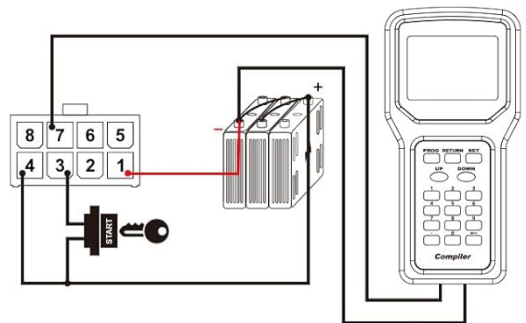


Figure 4.2: Power connection diagrams. This image illustrates various wiring configurations including direct battery connection, connection via a key switch, and connection to the PG600 programmer.

5. OPERATING INSTRUCTIONS

5.1 Battery Power and Voltage Display

The meter provides clear indications of battery status.

- **10-bars Battery Percentage Display:** Shows remaining battery power as a percentage and with a 10-segment bar graph. A low battery reminder (e.g., "Lo 10%") activates when power falls below 10%, prompting a charge.
- **Measurable Battery Voltage:** Displays the real-time voltage of the battery. The measurement range is DC 8V to 65V.

BATTERY POWER & VOLTAGE DISPLAY



■ 10-bars battery percentage display

It display battery power left and percentage. It also remind you to charge the battery when power percentage lower than 10%.



■ Measurable battery voltage

Monitor the real-time battery voltage,measurable range DC 8V to 65V.



■ Programmable backlight

The default white backlight can be programmed to always on,sleep and always off modes for different using requests.



Figure 5.1: Battery power and voltage display. This image shows the meter displaying 100% battery, a 'Lo 10%' low battery reminder, and a real-time voltage reading of 12.30V.

5.2 Programmable Backlight

The meter's white backlight can be configured to suit user preferences.

- **Backlight Modes:** Options include "b-On" (always on), "b-OFF" (always off), and "b-Aut" (sleeping/auto mode).

6. PROGRAMMABLE PARAMETERS

The RL-BI609B allows customization of various parameters to match your battery system and preferences.

6.1 Applicable Battery Voltages and Types

The meter supports a range of battery voltages and types.

- **Applicable Voltages:** U-12 (12V), U-24 (24V), U-36 (36V), U-48 (48V).
- **Applicable Battery Types:** L-A (Lead acid), GEL, Li-4 (LiFePO4), AGM, USER (Customized battery type).

APPLICABLE BATTERY VOLTAGES & TYPES

Battery type and voltage can be programmed.



■ Applicable voltages:

U-12(12V),U-24(24V),U-36(36V),U-48(48V)



■ Applicable battery types:

L-A(Lead acid),GEL,Li-4(LiFePO4),AGM, USER(Customized battery type)



- You also can reset all programmable parameters by the 2 buttons.

Figure 6.1: Programmable battery voltages and types. This image shows the meter displaying voltage settings (U-12, U-24, U-36, U-48) and battery type settings (L-A, GEL, Li-4, AGM, USER).

6.2 Advanced Programming with PG600

For advanced customization, the Runleader PG600 programmer (ordered separately) can be used to edit key working parameters.

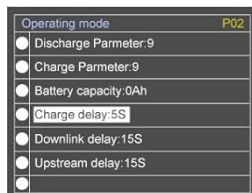
- **Charge Parameters:** Set charge voltage gears.
- **Discharge Parameters:** Set discharge voltage gears.
- **Charge/Discharge Delay Time:** Configure delays for charge and discharge events.
- **Operating Modes:** Customize work mode, low/raised gear, charging mode, display mode (multiple displays), power-on re-identify, and delay mode floating delay.
- **LCD Bars Display Modes:** Adjust how the battery level bars are shown.

PROGRAMMABLE WORKING PARAMETERS

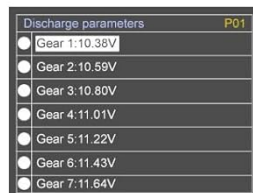


Programmable battery charge voltage

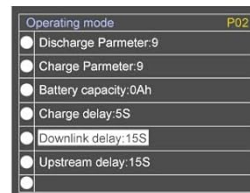
One-wire communication
(Baud rate: T=1ms,B=100)
with PG600 programmer.



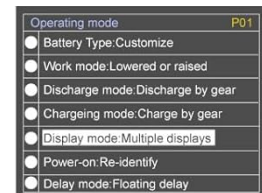
Programmable charge delay time



Programmable battery discharge voltage



Programmable discharge delay time



Programmable LCD bars display modes

- It can be programmed the key working parameters by Runleader's self-developed programmer PG600(need to order it seperately).

Figure 6.2: Programmable working parameters. This image illustrates the connection to the PG600 programmer and lists various programmable settings such as charge voltage, discharge parameters, and operating modes.

6.3 Resetting Parameters

All programmable parameters can be reset using the two buttons on the device.

7. MAINTENANCE

7.1 Water Resistance

The RL-BI609B features IP67 water resistance, meaning it is protected from dust and can withstand immersion in water up to 1 meter for 30 minutes. This makes it suitable for outdoor and marine applications.

FAVORABLE WATER RESISTANCE



- It made by 100% epoxy resin craft which have favorable water resistance.

Figure 7.1: Favorable water resistance. The image shows the meter submerged in a testing tank, highlighting its IP67 waterproof rating.

7.2 General Care

To ensure longevity and optimal performance:

- Keep the display clean using a soft, dry cloth.
- Avoid exposing the device to extreme temperatures beyond its operating range.
- Regularly check wiring connections for security and corrosion.

8. TROUBLESHOOTING

If you encounter issues with your RL-BI609B battery power meter, consider the following:

- **No Display:** Check power connections (B+ and B-). Ensure the "Key switch" is properly connected to the positive terminal for normal display. Verify battery voltage is within the operating range (DC 8V-65V).
- **Incorrect Readings:** Confirm that the correct battery type and voltage settings are programmed into the meter. If using a PG600 programmer, ensure parameters are correctly set and saved.

- **Intermittent Display:** Inspect all wiring for loose connections or damage. Ensure the meter is securely mounted and not subject to excessive vibration.

For persistent issues, please contact Runleader customer support.

9. APPLICATION

The Runleader RL-BI609B is suitable for a wide range of equipment utilizing Lead Acid, LiFePO4, GEL, and AGM batteries with applicable voltages from DC 12V to 48V.

- Golf carts
- Forklifts
- Motorhomes
- Lawn mowers
- Leaf trimmers
- Scrubber machines
- Other outdoor power equipment

APPLICATION

It can be worked on Lead acid, LiFePO4, GEL, AGM batteries with applicable voltage DC 12V to 48V equipments, such as:

- Golf cart
- Forklift
- Motorhome
- Lawn mower
- Leaf trimmer
- Scrubber machine etc.



Golf cart



Forklift



Motorhome



Lawn mower



Leaf trimmer



Scrubber

Figure 9.1: Typical applications. This image displays icons representing common uses for the battery meter, such as golf carts, forklifts, and lawn mowers.

10. DIMENSIONS & ACCESSORIES

10.1 Product Dimensions

Detailed dimensions of the RL-BI609B meter are provided for installation planning.

- **Overall Length:** 87.00mm (3.43 inches)
- **Overall Height:** 41.00mm (1.61 inches)
- **Display Area Height:** 17.00mm (0.67 inches)
- **Depth:** 31.60mm (1.18 inches)
- **Mounting Hole Distance:** 78.00mm (3.07 inches)

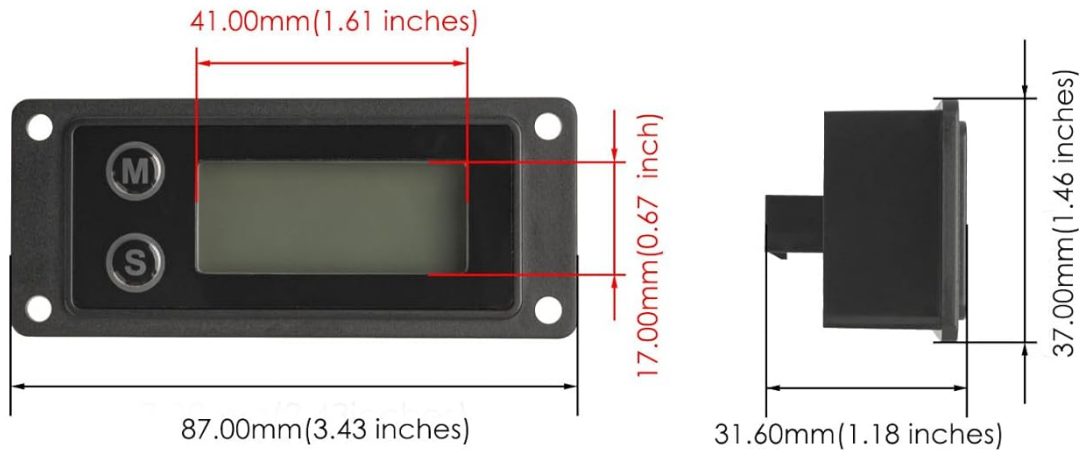
10.2 Included Accessories

The product package typically includes the following items:

- White box * 1
- User manual * 1
- Cut-out label * 1
- Connector spring * 8
- Connector wiring * 1
- Connector plug * 1
- M4 nut * 4
- M4 x 12 screw * 4

DIMENSIONS & ACCESSORIES

■ Dimensions



■ Accessories



Figure 10.1: Dimensions and accessories. This image provides a detailed dimensional drawing of the meter and displays the various components included in the package.

11. WARRANTY AND SUPPORT

Runleader products are manufactured with quality and reliability in mind. For warranty information or technical support, please refer to the official Runleader website or contact your authorized dealer. Keep your purchase receipt for warranty claims.