

## KONNWEI RC-10

# KONNWEI RC-10 Car Battery Tester and 7-Stage Automatic Charger User Manual

Model: RC-10

Brand: KONNWEI

## 1. INTRODUCTION

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The KONNWEI RC-10 is a versatile 2-in-1 smart battery charger and pulse repair tool designed for a wide range of 12V and 24V batteries. It combines intelligent charging with advanced pulse repair technology to restore and maintain various battery types, including lead-acid (AGM, GEL, SLA, Flooded, EFB) and LiFePO4 lithium batteries. This manual provides essential information for the safe and effective operation of your RC-10 device.

The RC-10 is suitable for batteries in cars, trucks, SUVs, motorcycles, boats, and lawn mowers, offering both fast charging and battery restoration capabilities.



Figure 1.1: The KONNWEI RC-10 Smart Battery Charger and Tester with its alligator clips.

## 2. SAFETY INFORMATION

Always prioritize safety when operating battery charging equipment. The KONNWEI RC-10 incorporates several safety features, but user adherence to safety guidelines is crucial.

- **Read the Manual:** Before use, thoroughly read and understand all instructions and safety warnings in this manual.
- **Ventilation:** Ensure adequate ventilation when charging batteries, as they can produce explosive gases.
- **Eye and Skin Protection:** Wear appropriate eye protection (safety glasses) and protective clothing to prevent contact with battery acid.
- **Avoid Sparks:** Do not smoke or allow sparks or flames in the vicinity of the battery or charger.
- **Proper Connection:** Connect and disconnect the DC output clips only after setting the charger switch to the OFF position or unplugging the AC cord.
- **Reverse Polarity Protection:** The RC-10 features reverse polarity protection. However, always double-check connections to ensure positive (+) is connected to positive and negative (-) to negative.
- **Overheat Protection:** The device is designed with overheat protection and a silent cooling fan. Avoid

covering the charger during operation to ensure proper airflow.

- **Overcurrent Protection:** Built-in overcurrent protection prevents damage from excessive current.
- **Short-Circuit Protection:** The charger includes short-circuit protection for enhanced safety.
- **Voltage Stabilization:** Ensures stable voltage output during charging.
- **Fireproof Housing:** The ABS housing is fireproof for added safety.



Figure 2.1: Overview of the six safety protections integrated into the KONNWEI RC-10 charger.

### 3. PRODUCT FEATURES

The KONNWEI RC-10 is engineered with advanced features for efficient and safe battery management:

- **2-in-1 Functionality:** Combines a 12V 10A / 24V 5A intelligent battery charger with pulse repair technology.
- **Wide Battery Compatibility:** Supports lead-acid batteries (AGM, GEL, SLA, Flooded, EFB) and LiFePO4 lithium batteries, ranging from 4AH to 150AH.

- **7-Stage Automatic Charging:** An intelligent algorithm ensures optimal charging, including Desulfation, Soft Start, Bulk Charge, Absorption, Battery Test, Recondition, and Float & Maintenance stages.
- **Advanced Pulse Repair:** Utilizes pulsed voltage and current to detect and repair sulfation and acid stratification, extending battery life by up to 50%.
- **Automatic Identification:** Automatically detects battery type (12V/24V) and adjusts charging current accordingly.
- **Multi-Protection System:** Includes overheat, overcurrent, reverse polarity, short-circuit, and voltage stabilization protection.
- **Durable Design:** Features a fireproof ABS housing, silent cooling fan, and ARM-controlled PCB for continuous, reliable operation.
- **Temperature Compensation:** Automatically adapts charging parameters for optimal performance in both winter (below 10°C/50°F) and summer (above 28°C/82.4°F) conditions.



Figure 3.1: The KONNWEI RC-10's dual functionality as a charger and pulse repair tool.



# ALL-IN-ONE CHARGER



Figure 3.2: The RC-10's all-in-one charging capabilities for various battery types and voltages.

## 4. SETUP AND CONNECTION

Follow these steps to properly set up and connect the KONNWEI RC-10 to your battery:

1. **Prepare the Battery:** Ensure the battery terminals are clean and free of corrosion. If necessary, clean them with a wire brush.
2. **Connect the Red Clamp:** Connect the red positive (+) clamp of the charger to the positive (+) terminal of the battery.
3. **Connect the Black Clamp:** Connect the black negative (-) clamp of the charger to the negative (-) terminal of the battery.
4. **Connect to Power:** Plug the charger's AC power cord into a standard 110-220V electrical outlet.
5. **Automatic Detection:** The RC-10 will automatically detect the battery type (12V or 24V) and display the current battery voltage and charging status on its screen.

**Important:** Always connect the battery clamps before plugging the charger into the AC power outlet. Disconnect in reverse order: unplug AC power first, then remove the black clamp, and finally the red clamp.

## 5. OPERATING INSTRUCTIONS

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### 5.1. Mode Selection

The RC-10 features a one-key switch for selecting different charging modes. Press the "Mode" button to cycle through the available options:

- **STD (Standard):** Standard charging mode, suitable for general lead-acid batteries.
- **AGM/GEL:** Optimized for AGM, GEL, SLA, WET, DEEP CYCLE, EFB, Calcium, and similar lead-acid batteries.
- **LiFePO4 (LF):** Specifically for charging 14.8V LiFePO4 Lithium batteries or motorcycle Lithium batteries.
- **MOTO:** Suitable for charging 6V motorcycle batteries.
- **Repair:** This mode is for battery maintenance or to rejuvenate aged batteries. It uses pulse technology to address sulfation and acid stratification. Not all batteries can be repaired.

# One-key Switch 5 Modes Selection



Figure 5.1: The RC-10's mode selection interface.

## 5.2. 7-Stage Charging Process

The RC-10 employs a sophisticated 7-stage charging algorithm to ensure optimal battery health and charge efficiency:

1. **Desulfation:** Breaks down battery sulfation to restore capacity. This stage uses high-frequency pulse charges.
2. **Soft Start:** A gentle power-up to protect sensitive or deeply discharged batteries.
3. **Bulk Charge:** Rapid charging to reach approximately 80% of the battery's capacity. The charger delivers maximum current during this stage.
4. **Absorption:** Balances the voltage for a full charge, gradually reducing current as the battery approaches full capacity.
5. **Battery Test:** Automatically evaluates the battery's health status to determine if further reconditioning

is needed.

6. **Recondition:** If the battery test indicates, this stage applies pulse repair to revive aged cells and improve performance.
7. **Float & Maintenance:** Long-term trickle charge to prevent self-discharge and maintain the battery at 100% charge without overcharging.



Figure 5.2: Illustration of the 7-stage charging process and trickle charging support.

### 5.3. Pulse Repair Function

The dedicated "Repair" mode and the "Recondition" stage within the 7-stage process utilize advanced pulse technology to address common battery issues:

- **Sulfation Removal:** Detects and breaks down lead sulfate crystals that accumulate on battery plates, which is a primary cause of capacity loss.
- **Acid Stratification Correction:** Helps to mix the electrolyte, preventing acid from concentrating at the bottom of the battery.

This process can restore lost capacity and significantly extend the lifespan of aging batteries. Note that severely damaged or short-circuited batteries may not be repairable.



# Battery Repair

Restore battery capacity by repairing, extend battery life, and improve battery performance



Figure 5.3: The RC-10's battery repair function in action.

# 12V 10A & 24V 5A Battery Charger & Pulse Repair Tool

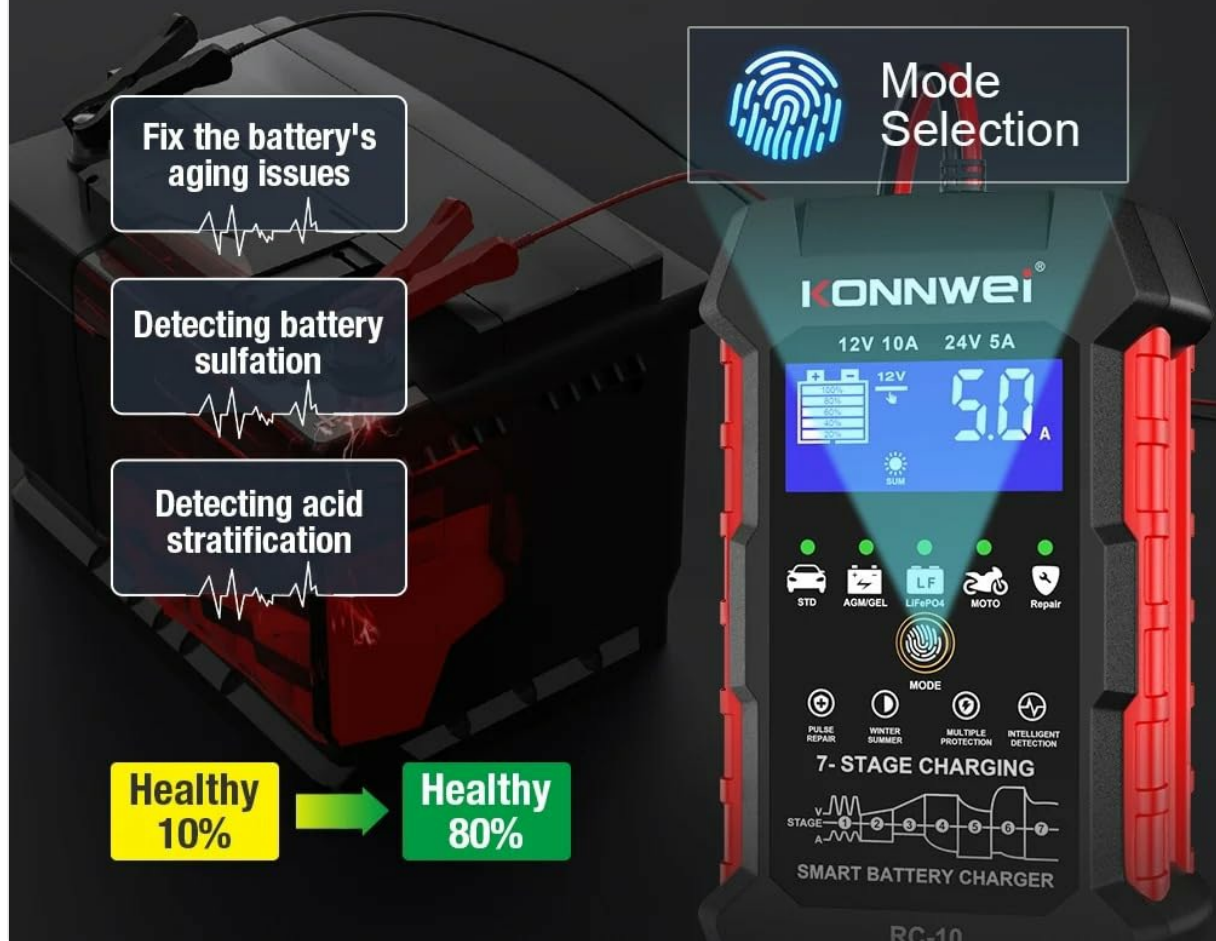


Figure 5.4: Visual representation of the RC-10 detecting and addressing battery aging issues.

## 5.4. Temperature Compensation

The RC-10 automatically adjusts its charging parameters based on ambient temperature to optimize charging efficiency and prevent over/undercharging:

- **Winter Mode:** Activates automatically when the temperature is below 10°C (50°F), providing a higher charging voltage to compensate for increased battery resistance in cold conditions.
- **Summer Mode:** Activates automatically when the temperature is above 28°C (82.4°F), reducing charging voltage to prevent overcharging in warmer conditions.



Figure 5.5: The RC-10's intelligent temperature compensation feature.

## 6. MAINTENANCE

Proper maintenance of your KONNWEI RC-10 charger and the batteries it services will ensure longevity and optimal performance:

- **Charger Cleaning:** Keep the charger clean and dry. Wipe the casing with a soft, damp cloth. Do not use harsh chemicals or abrasive cleaners.
- **Cable Inspection:** Regularly inspect the charging cables and clamps for any signs of damage, fraying, or corrosion. Replace if necessary.
- **Storage:** Store the charger in a cool, dry place when not in use, away from direct sunlight and extreme temperatures.
- **Battery Maintenance:** For batteries left connected for extended periods, the RC-10's float and maintenance mode will prevent overcharging and self-discharge. However, it is good practice to periodically check battery fluid levels for non-sealed lead-acid batteries.

## 7. TROUBLESHOOTING

If you encounter issues with your KONNWEI RC-10, refer to the following common troubleshooting tips:

- **Charger Not Turning On:**
  - Ensure the AC power cord is securely plugged into a live outlet.
  - Check if the outlet is functioning by plugging in another device.
- **Battery Not Charging:**
  - Verify that the positive (+) and negative (-) clamps are correctly and securely connected to the battery terminals.
  - Ensure the battery voltage is within the charger's operating range (12V or 24V).
  - The battery might be severely discharged or damaged beyond repair. Try the "Repair" mode, but note that not all batteries can be revived.
- **Error Message on Screen:**
  - If an error code or warning symbol appears, refer to the specific symbol's meaning (if provided on the device or in a more detailed manual). Common errors relate to reverse polarity, short circuits, or internal faults.
  - Disconnect the charger from both AC power and the battery, wait a few minutes, and then reconnect.
- **Charger Overheating:**
  - Ensure the charger is in a well-ventilated area and its cooling fan is not obstructed.
  - If overheating persists, disconnect immediately and contact customer support.

If these steps do not resolve the issue, please contact KONNWEI customer support for further assistance.

## 8. SPECIFICATIONS

Feature	Specification
Model	RC-10
Input Voltage	110-220V AC
Output Voltage (12V Mode)	12V DC, 10A
Output Voltage (24V Mode)	24V DC, 5A
Battery Capacity Range	4AH - 150AH
Battery Types Supported	Lead-Acid (AGM, GEL, SLA, Flooded, EFB), LiFePO4 Lithium
Charging Stages	7-Stage Automatic (Desulfation, Soft Start, Bulk Charge, Absorption, Battery Test, Recondition, Float & Maintenance)
Safety Protections	Overheat, Overcurrent, Reverse Polarity, Short-Circuit, Voltage Stabilization, Overcharge



Feature	Specification
Operating Temperature	Temperature compensated for optimal performance
Dimensions (L x W x H)	15.5 x 9.5 x 6 cm (6.1 x 3.7 x 2.4 inches)
Weight	0.5 kg (1.1 lbs)
Certifications	CE, FCC, RoHS

## 9. WARRANTY AND SUPPORT

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For warranty information, technical support, or service inquiries regarding your KONNWEI RC-10, please contact KONNWEI customer service directly. Refer to the product packaging or the official KONNWEI website for the most current contact details.

Please retain your proof of purchase for any warranty claims.