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› YONHAN Battery Charger 0-20A 12V/24V LiFePO4 Lead Acid Fully Automatic Battery Maintainer, Car Battery Trickle Charger Automotive w/Battery Repair, Winter Mode, for AGM, STD, Gel, Deep Cycle Batteries

YONHAN bc02-1a

YONHAN Battery Charger User Manual

Model: bc02-1a | Brand: YONHAN

1. INTRODUCTION

This manual provides detailed instructions for the safe and effective use of your YONHAN 0-20A 12V/24V Battery Charger. This advanced charger is designed to charge, maintain, and repair a wide range of 12-volt and 24-volt batteries, including LiFePO4, lead-acid (AGM, GEL, EFB, SLA, Flooded, Calcium), marine, and deep-cycle batteries. Its intelligent features ensure optimal charging performance and extended battery life.



Figure 1.1: YONHAN Battery Charger Overview

2. SAFETY INFORMATION

Always observe the following safety precautions to prevent injury or damage to the charger or battery:

- Read all instructions before using the charger.
- Ensure the charger is connected to a grounded outlet.
- Do not expose the charger to rain or wet conditions.
- Never charge a frozen battery.
- Ensure adequate ventilation during charging to prevent gas accumulation.
- Wear eye protection and protective clothing when working with batteries.
- Keep out of reach of children.
- Disconnect the AC power before making or breaking connections to the battery.

3. PRODUCT FEATURES

The YONHAN Battery Charger offers a range of features designed for efficient and safe battery management:

- **Wide Battery Compatibility:** Supports 12V 20 Amp and 24V 10 Amp charging for LiFePO4, lead-acid (AGM, GEL, EFB, SLA, Flooded, Calcium) batteries used in cars, trucks, SUVs, ATVs, motorcycles, snowmobiles, lawn mowers, boats, tractors, forklifts, and golf carts.



Figure 3.1: Charger compatibility with various battery types.

- **High Power Output:** Delivers up to 20 Amps, significantly reducing charging time compared to lower amperage chargers.

20 AMPS HIGH POWER SAVE YOUR CHARGER TIME



AC Input Voltage:

100 - 240V

input power with load:

Max 300W

Figure 3.2: High power output for faster charging.

- **Temperature Adaptive Charging:** Features intelligent control for winter and summer modes, automatically adjusting the charging rate based on ambient temperature to prevent overcharging or undercharging.

TEMPERATURE ADAPTIVE

Automatically adjust the charging voltage according to the ambient temperature

 **104°F/40°C**
SUMMER

Safety charging in summer



 **14°F/-10°C**
WINTER

Powerful charging in winter



Figure 3.3: Automatic temperature adjustment for optimal charging.

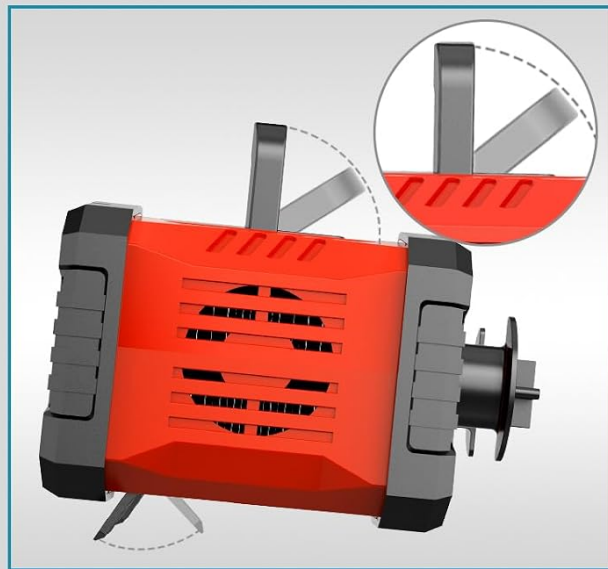
- **Pulse Repair Mode:** Advanced repair function to help recondition old or idle batteries and extend their lifespan. Note: This mode cannot repair completely dead batteries.
- **Clear LCD Screen:** An extra-large LCD displays real-time charging status, including voltage, current, internal temperature, charge percentage, and selected mode (summer/winter).

VISUAL DISPLAY OF BATTERY INFORMATION

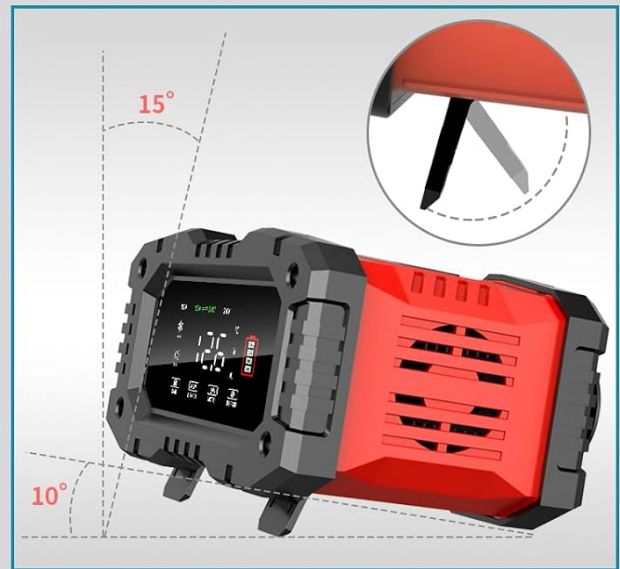


Figure 3.4: Detailed information displayed on the LCD screen.

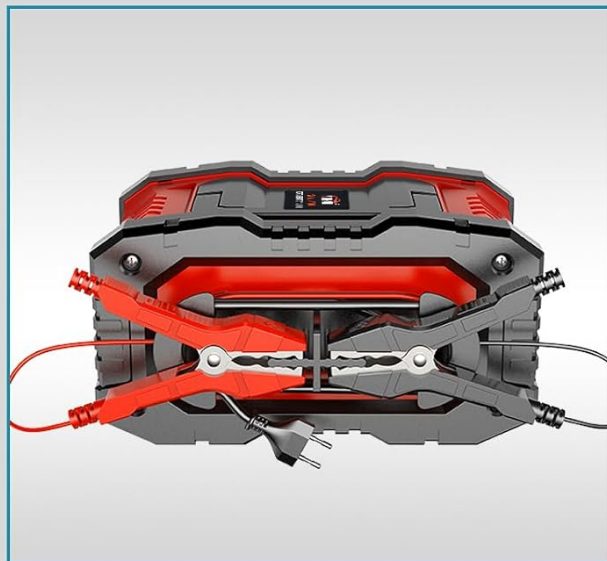
- **Comprehensive Safety Protections:** Includes reverse polarity protection, cooling system, overcurrent protection, fireproof materials, overcharge protection, short circuit protection, overheating protection, and spark-free contact.
- **User-Friendly Design:** Features a foldable handle for portability, an inclined screen for easier operation, a cable organizer on the back, and stronger alligator clips for secure connection.



1. Foldable Handle



2. Inclined Screen for Easier Operation



3. Cable Organizer on the Back



4. Stronger Alligator Clips

Figure 3.5: Ergonomic design elements for ease of use.

4. SETUP GUIDE

Follow these steps to set up your YONHAN Battery Charger:

1. **Inspect the Charger:** Before use, check the charger and cables for any signs of damage. Do not use if damaged.
2. **Connect to Battery:** Ensure the charger is unplugged from the AC power outlet. Connect the red positive (+) clamp to the positive (+) terminal of the battery. Connect the black negative (-) clamp to the negative (-) terminal of the battery. For vehicles, connect the negative clamp to the vehicle chassis away from the battery and fuel line if the battery is still in the vehicle.
3. **Connect to Power:** Plug the charger's AC power cord into a standard 100-240V 50/60Hz electrical outlet.

5. OPERATING INSTRUCTIONS

The charger features intelligent operation and multiple charging modes:

5.1 Mode Selection

Once connected, the charger will automatically detect the battery voltage (12V or 24V). Use the 'MODE' button to cycle through the available charging modes:

- **CAR Mode:** For standard 12V/24V lead-acid batteries in cars and light vehicles.
- **AGM Mode:** Specifically for AGM batteries.
- **LiFePO4 Mode:** For Lithium Iron Phosphate batteries.
- **MOTO Mode:** For smaller 12V/24V batteries found in motorcycles and ATVs.
- **REPAIR Mode:** For reconditioning sulfated or idle batteries.



Figure 5.1: Mode selection on the charger's display.

5.2 Charging Process

1. After selecting the appropriate mode, the charger will begin the 7-stage charging process automatically.
2. The LCD screen will display real-time charging information.
3. The charger will automatically switch to trickle/float charging mode once the battery is fully charged, maintaining the battery without overcharging.

4. To stop charging, first unplug the AC power cord from the outlet, then disconnect the battery clamps.

5.3 Official Product Videos

Watch this video for a product overview:

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Video 5.1: Product Overview Video by YONHAN. This video provides a general introduction to the charger's features and appearance.

Learn more about the YONHAN Battery Charger's capabilities:

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Video 5.2: YONHAN Battery Charger 20A 12V/24V LiFePO4 Lead Acid. This video demonstrates the charger's functionality with different battery types.

A closer look at the 20 Amp LiFePO4 Smart Charger:

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Video 5.3: Battery Charger 20 Amp Lifepo4 Smart Charger. This video highlights the smart charging features for LiFePO4 batteries.

6. MAINTENANCE

Proper maintenance ensures the longevity of your charger:

- **Cleaning:** Disconnect the charger from power and battery. Wipe the casing with a dry cloth. Do not use harsh chemicals or abrasives.
- **Cable Care:** Regularly inspect cables and clamps for damage. Store cables neatly using the integrated organizer.
- **Storage:** Store the charger in a cool, dry place when not in use.

7. TROUBLESHOOTING

Refer to the table below for common issues and their solutions:

Problem	Possible Cause	Solution
Charger not turning on	No power from outlet; loose connection; damaged power cord.	Check power outlet; ensure secure connections; inspect power cord for damage.
Charger not charging battery	Incorrect mode selected; poor clamp connection; battery is completely dead; battery fault.	Select correct mode; ensure clamps are clean and secure; try Repair Mode (if applicable); battery may need replacement.
Error message on display	Reverse polarity; short circuit; overheating.	Check clamp connections for correct polarity; inspect for short circuits; allow charger to cool down.
Battery not holding charge after charging	Battery is old or damaged; not fully charged.	Battery may need replacement; ensure charger completes full cycle (float mode).

8. TECHNICAL SPECIFICATIONS

Specification	Value
Model Number	bc02-1a

Specification	Value
Input Voltage	AC 100-240V, 50/60Hz
Output Voltage	12V / 24V DC (Auto-detection)
Output Current	12V 20A, 24V 10A
Max Input Power	300W
Product Dimensions	8.46 x 7.3 x 4.1 inches
Item Weight	2.68 pounds
Applicable Battery Types	LiFePO4, Lead-Acid (AGM, GEL, EFB, SLA, Flooded, Calcium)
Safety Compliance	UL Certified
Manufacturer	YONHAN
Country of Origin	China

9. WARRANTY AND CUSTOMER SUPPORT

For warranty information and customer support, please refer to the documentation included with your purchase or contact YONHAN directly through their official website or the retailer where the product was purchased. Please have your model number (bc02-1a) and purchase date ready when contacting support.