Beleeb C35

Beleeb C35 Adjustable Battery Charger User Manual

Model: C35

1. Introduction and Overview

The Beleeb C35 Adjustable Battery Charger is a versatile charging and maintenance device designed for a wide range of battery types and voltages. It supports 12V, 24V, 36V, 48V, 60V, and 72V lead-acid and lithium-ion batteries. This manual provides essential information for safe and effective operation, including setup, charging procedures, maintenance, and troubleshooting.
The charger features a smart chip for intelligent charging, a high-voltage pulse desulfation mode for lead-acid batteries, and quick-connect plugs for various adapter cables.

2. Product Features

- **Multi-Voltage Compatibility:** Supports 12V, 24V, 36V, 48V, 60V, and 72V battery systems.
- **Battery Chemistry Support:** Compatible with Lead-Acid (SLA/AGM/GEL), Li-ion, and LiFePO4 batteries.
- **"H" Mode Desulfation:** High-voltage pulse mode for reviving and restoring lead-acid batteries by equalizing cell status and reducing sulfation.
- **Intelligent Charging System:** Features a 3-stage charging process (Fast, Absorption, Float) with automatic voltage matching and full charge auto-termination to prevent overcharging.
- **Quick Connect Plug (SB-50 Anderson):** Allows for easy and quick connection of various adapter cables.
- **Heavy Duty Charging Cable:** Includes charging clip cables for direct battery connection and individual battery maintenance.
- **Versatile Applications:** Suitable for golf carts, forklifts, sightseeing cars, floor scrubbers, and other vehicles.

3. Components Overview

Familiarize yourself with the main components of the Beleeb C35 charger:

Image 1: Functionality Overview of the Beleeb C35 Battery Charger. This image displays the charger's front and rear panels, highlighting key components such as the Cooling Fan, AC protector, Input terminal, Indicator Light (Red for Charging, Green for Full Charged), Power Switch, LCD Screen, Current Control Knob, Voltage Setting Knob, and Output Terminals.

- **Cooling Fan:** Dissipates heat during operation.
- **AC Protector:** Internal safety mechanism.
- **Input Terminal:** For connecting the AC power cord.
- **Indicator Light:** Red indicates charging, Green indicates fully charged.

- **Power Switch:** Turns the charger ON/OFF.
- **LCD Screen:** Displays charging status, voltage, and current.
- **Current Control Knob:** Adjusts the charging current (Amperes).
- **Voltage Setting Knob:** Selects the target charging voltage.
- **Output Terminals:** For connecting charging cables to the battery.

4. Setup and Connection

Before connecting the charger, ensure the power switch is in the OFF position. Connect the appropriate charging cable to the charger's output terminals and then to your battery or battery system.

Your browser does not support the video tag.

Video 1: This video demonstrates the various applications for chargers equipped with Anderson connectors, showcasing how different adapter cables can be connected to the Beleeb C35 charger for diverse charging needs.

4.1 Connecting Adapter Cables

The charger utilizes an SB-50 Anderson quick-connect plug system. This allows for easy interchangeability of various adapter cables (e.g., alligator clips, golf cart plugs) to suit different battery connection types.

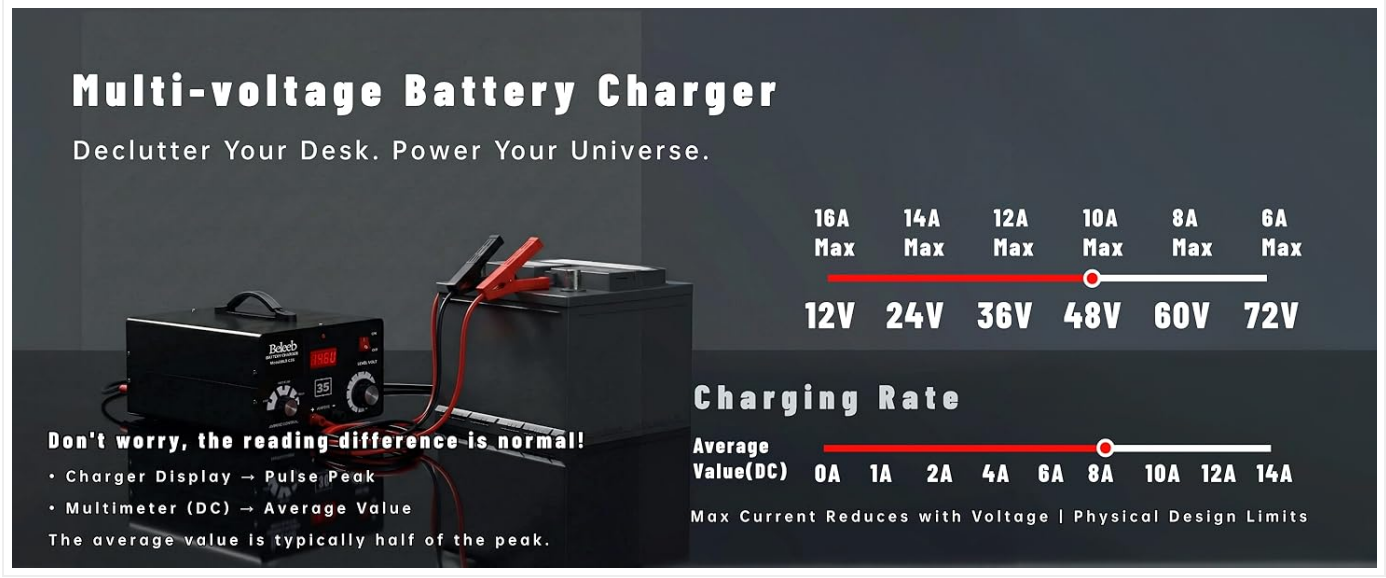

Image 2: The Beleeb C35 Multi-voltage Battery Charger shown with various adapter cables, including alligator clips and different golf cart plugs, demonstrating its versatility.

4.2 Initial Connection Steps

1. Ensure the charger's power switch is OFF.
2. Connect the desired adapter cable to the charger's output terminals.
3. Connect the adapter cable to your battery. Ensure correct polarity (red to positive, black to negative).
4. Plug the charger's AC power cord into a standard 110V AC outlet.

5. Operating Instructions

5.1 Normal Charging Mode

This mode is for routine charging of compatible batteries.

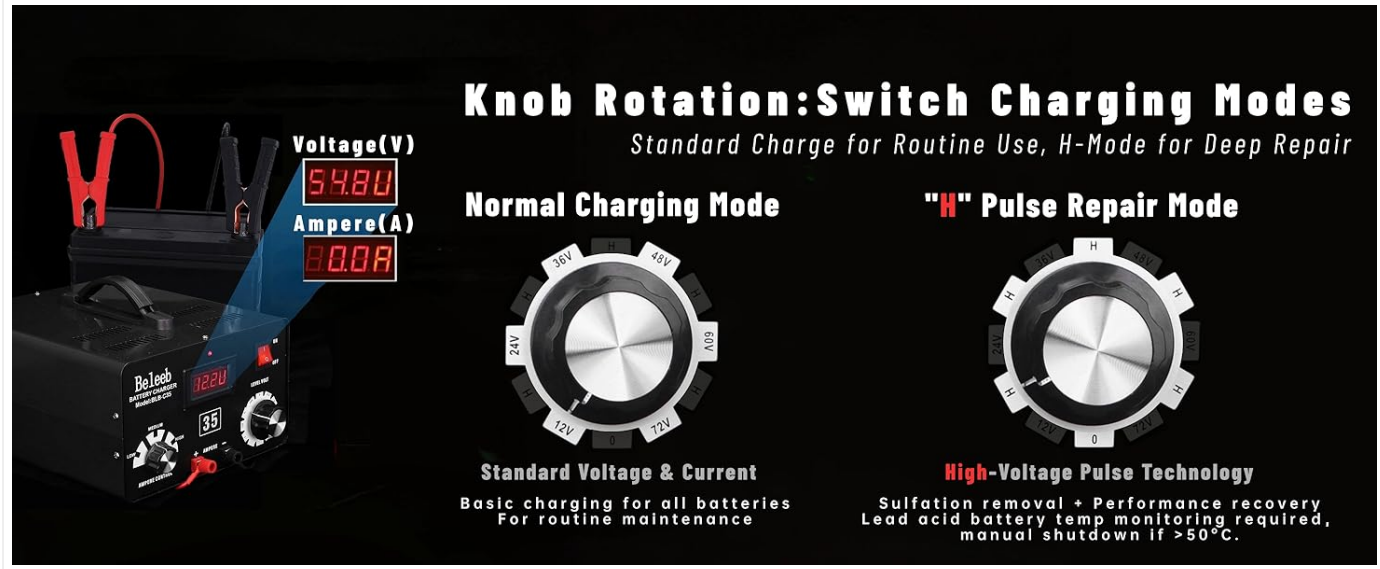

Image 3: This image illustrates the knob rotation for switching between Normal Charging Mode and "H" Pulse Repair Mode on the Beleeb C35 charger.

1. Turn the Voltage Setting Knob to match your battery's voltage (e.g., 12V, 24V, 36V, 48V, 60V, or 72V).
2. Adjust the Current Control Knob to your desired charging amperage (Low, Medium, or High). The charger automatically regulates current based on voltage, with maximum currents as follows:
    - 12V: 14A Max
    - 24V: 12A Max
    - 36V: 10A Max
    - 48V: 8A Max
    - 60V: 6A Max
    - 72V: 4A Max
3. Turn the Power Switch ON. The LCD screen will display charging information, and the indicator light will be red.
4. The charger will automatically terminate charging when the battery is full, and the indicator light will turn green.

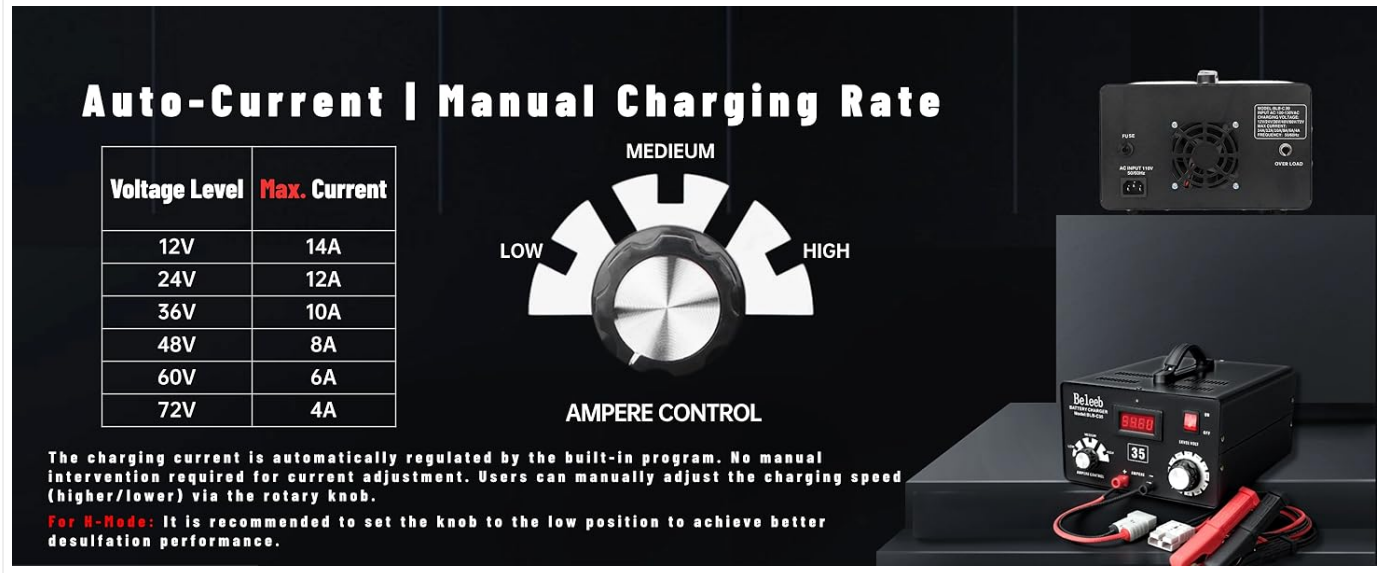

Image 4: This diagram illustrates the auto-current regulation and manual charging rate adjustment feature of the Beleeb C35 charger, showing maximum current limits for different voltage levels.

5.2 "H" Mode (High-Voltage Pulse Desulfation)

The "H" mode is designed for lead-acid batteries to equalize cell status and reduce sulfation, which can extend battery life.

This mode is also known as equalized charging.

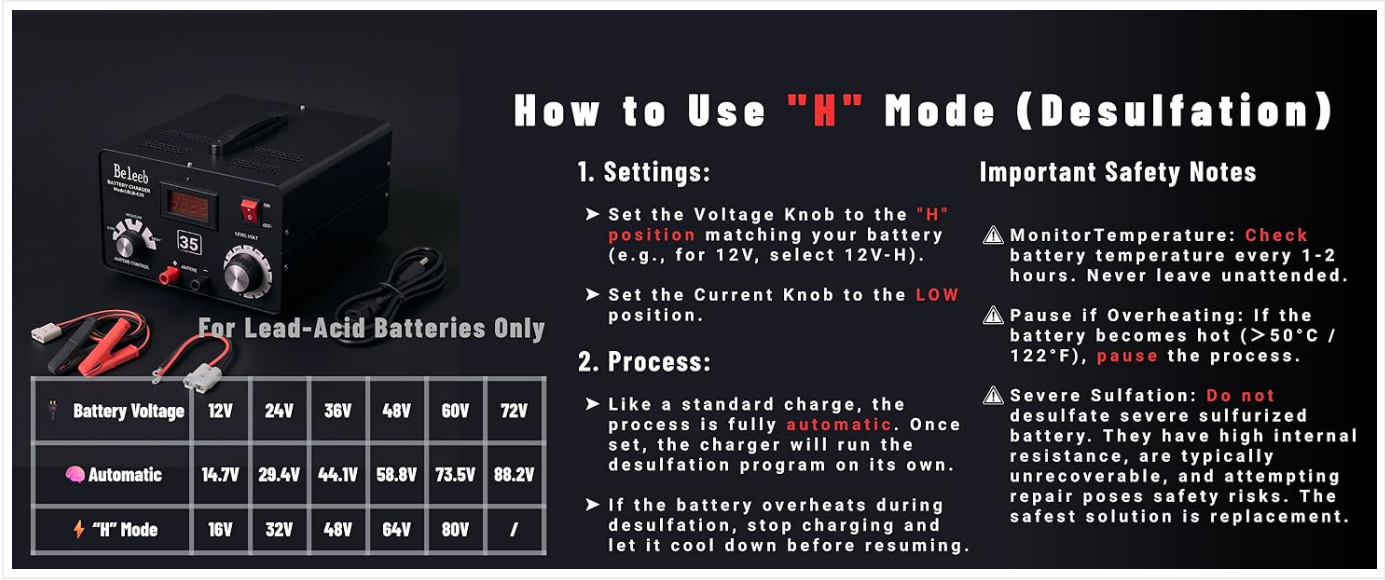

Image 5: Instructions on how to use the "H" Mode (Desulfation) on the Beleeb C35 charger, including settings and important safety notes.

1. **Settings:**
   - Set the Voltage Setting Knob to the "H" position corresponding to your battery's voltage (e.g., "48V-H" for a 48V battery).
   - Set the Current Control Knob to the**LOW** position.
2. **Process:**
   - Like a standard charge, the process is fully automatic once initiated. The charger will run the desulfation program on its own.

Important Safety Notes for "H" Mode:

- **Do not** leave unattended. Monitor battery temperature every 1-2 hours.
- **Pause** if the battery becomes hot (>50°C / 122°F). Allow it to cool down before resuming.
- **Do not** attempt to desulfate severely sulfated batteries. Batteries with high internal resistance are typically unrecoverable, and attempting repair poses safety risks. Replacement is the safest solution.

5.3 Charging Lithium Batteries

When charging lithium-ion batteries, it is crucial to understand the role of the Battery Management System (BMS).

Image 6: A comparative diagram illustrating the differences in charging control between Lead-Acid and Lithium batteries with the Beleeb C35 charger.

Important Notes for Charging Lithium Batteries:

- The BMS monitors battery conditions like temperature, cell balance, and overall health.
- Ensure the **correct voltage setting** is used to avoid damaging the BMS with excessive voltage.
- If the BMS detects an issue (e.g., overheating or aging), it may reduce or stop charging to protect the battery.
- For a 12V lithium battery, set the charger voltage to 14.7V. The BMS will typically accept up to 14.4V, and the charger output will be 14.4V.

5.4 Intelligent Charging Program

The Beleeb C35 employs a multi-stage charging program to optimize battery health and lifespan.

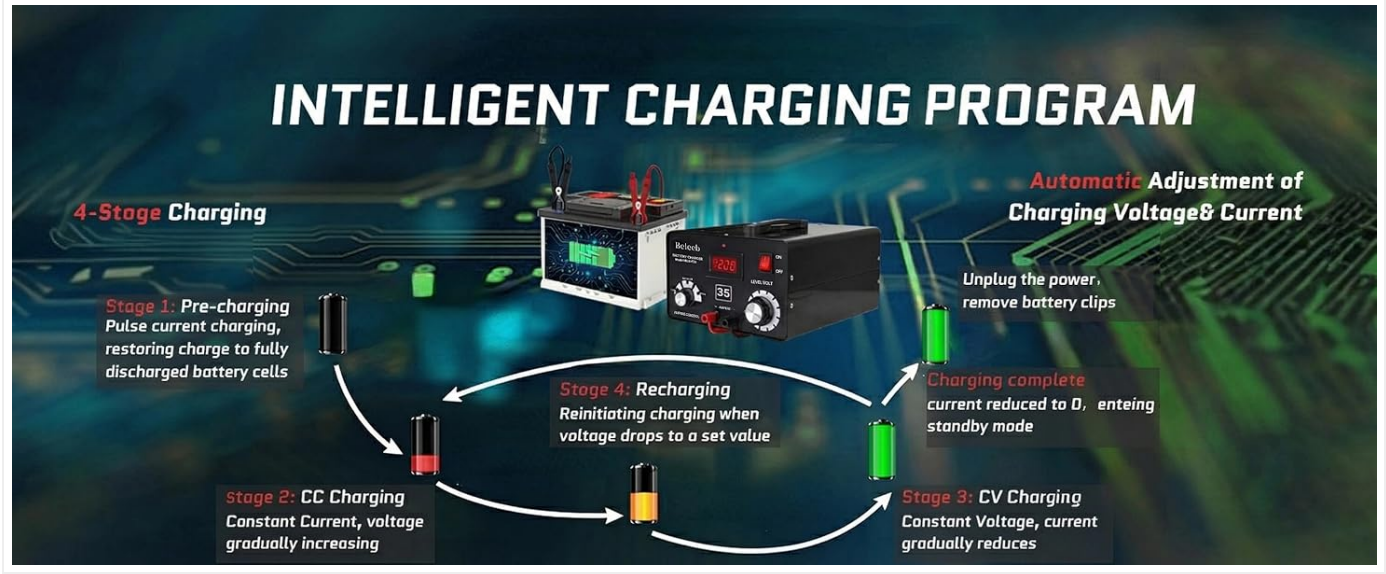

Image 7: A diagram illustrating the 4-stage intelligent charging program of the Beleeb C35 charger.

- **Stage 1: Pre-charging:** Pulse current charging to restore fully discharged battery cells.
- **Stage 2: CC Charging (Constant Current):** Voltage gradually increases.
- **Stage 3: CV Charging (Constant Voltage):** Current gradually reduces.
- **Stage 4: Recharging:** Reinitiating charge when voltage drops to a set value.
- **Charging Complete:** Current reduces to 0, entering standby mode.

6. Maintenance

- **Regular Cleaning:** Keep the charger clean and free from dust and debris. Use a dry cloth for cleaning.
- **"H" Mode for Lead-Acid Batteries:** For optimal performance and extended life of lead-acid batteries, use the "H" mode charging approximately once every 3 months to equalize cell status.
- **Storage:** Store the charger in a cool, dry place when not in use.
- **Cable Inspection:** Periodically inspect charging cables and connectors for any signs of wear or damage. Replace if necessary.

7. Troubleshooting

- **Charger Not Turning On:**
  - Check if the AC power cord is securely plugged into both the charger and the wall outlet.
  - Ensure the power switch is in the ON position.
  - Verify the wall outlet is functional.
- **Battery Not Charging:**
  - Confirm that the charging cables are correctly connected to the battery terminals with proper polarity.
  - Ensure the Voltage Setting Knob matches the battery's voltage.
  - Check if the battery is severely discharged or damaged. The charger may not initiate charging if the battery voltage is too low.
  - For lithium batteries, the BMS might have stopped charging due to an internal issue.
- **Battery Overheating During "H" Mode:**
  - Immediately pause the "H" mode process.

- Allow the battery to cool down to a safe temperature (<50°C / 122°F) before resuming.
- Do not attempt to desulfate severely sulfated batteries, as this can cause excessive heat.

- **Incorrect Voltage/Current Display:**
  - Ensure all connections are secure.
  - Note that the charger display shows pulse peak values, while a multimeter (DC) shows average values. A reading difference is normal, with the average value typically being half of the peak.

8. Specifications

Specification	Value
Model	C35
Brand	Beleeb
Input Voltage	110 Volts (AC)
Output Voltage	12V, 24V, 36V, 48V, 60V, 72V (Adjustable)
Max Output Current (12V)	14A
Max Output Current (24V)	12A
Max Output Current (36V)	10A
Max Output Current (48V)	8A
Max Output Current (60V)	6A
Max Output Current (72V)	4A
Supported Battery Types	Lead-Acid (SLA/AGM/GEL), Li-ion, LiFePO4
Desulfation Mode	"H" Mode (High-Voltage Pulse) for Lead-Acid Batteries
Charging Stages	Multi-stage (Pre-charging, CC, CV, Recharging)
Safety Certifications	CE, FCC
Item Weight	20.8 pounds (approx. 9.43 kg)
Package Dimensions	14.13 x 12.25 x 8.63 inches (approx. 35.89 x 31.12 x 21.92 cm)

Image 8: This image shows the contents of the Beleeb C35 package, including the charger, 3.3 FT/1.0M Charger Cable, 0.8 FT/25CM Adaptor Cable, 4 FT/1.2M Power Cord, and User Manual, along with dimensions and weight.

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact Beleeb customer service directly. Refer to the product packaging or the official Beleeb website for contact details.