



## BATTERY CHARGER OPERATOR'S MANUAL



Model No	Supply Volt	Charging Volt	Current	Fuse	Battery capacity
GZL30	230V~50Hz	DC12/24V	Max. 24A	25A	Min. 80Ah-Max. 20Ah
GZL50	230V~50Hz	DC12/24V	Max. 30A	30A	Min. 100Ah-Max. 300Ah

**Please save these instructions. This manual contains important safety and operating instructions. Read all instructions**

### INTRODUCTION

The battery chargers are designed to electricize lead-acid storage battery suitable for automobile shipping as the power supply.

User should select the type charge by the capacity of the battery and confirm the voltage degree to manual 12/24V switch.

PROTECTION OF REVERSE POLARITY

PROTECTION OF OVER CHARGE

### IMPORTANT SAFETY INSTRUCTIONS

1. This manual contains important safety and operating instructions. You may need to refer to these instructions at a later date.
2. To reduce risk of injury, charge only wet cell, lead-acid automotive type rechargeable batteries. Other types of batteries may burst causing personal injury and property damage.
3. Do not expose charger to rain or snow.
4. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
5. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
6. Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
7. Do not operate charger with damaged cord or plug, replace the cord or plug immediately.
8. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
9. Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
10. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
11. **WARNING - RISK OF EXPLOSIVE GASES**
  - a. WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON IT IS OF UTMOST IMPORTANCE TO READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY EACH TIME BEFORE USING CHARGER.
  - b. To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and

manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products and on engine.

### **PERSONAL SAFETY PRECAUTIONS**

1. Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid or other battery.
2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
3. Wear complete eye protection, and clothing protection. Avoid touching eyes while working near battery.
4. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enter eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
5. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
6. Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short circuit battery or other electrical part that may cause explosion.
7. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid or other battery. A lead-acid or other battery can produce a short circuit current high enough to weld a ring or the like to metal, causing a severe burn.
8. Use the charger for charging a LEAD-ACID battery only. It is not intended to supply power to a low-voltage electrical system other than in a starter motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
9. NEVER charge a frozen battery.

### **PREPARATON FOR OPERATION**

#### **PREPARING TO CHARGE**

- a. If necessary to remove battery from vehicle to charge, always remove the grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- b. Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
- c. Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- d. Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
- e. Study all the battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- f. Determine voltage of battery by referring to car owner's manual and make sure that output voltage is set at correct voltage. If charger has adjustable charge rate, charge battery initially at lowest rate.

#### **CHARGER LOCATION**

- a. Locate charger as far away from battery as output cables permit.
- b. Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- c. Never allow battery acid to drip on charger when reading gravity or filling battery,
- d. Do not operate charger in a closed-in area, or restrict ventilation in any way.
- e. Do not set a battery on top of charger.

#### **DC CONNECTION PRECAUTIONS**

- a. Connect and disconnect dc output clamps only after setting any charger switches to off position and removing ac cord from electric outlet. Never allow clamps to touch each other.
- b. Attach clamps to battery posts and twist or rock back and forth several times to make a good connection. This tends to keep the clamps from slipping off terminals and helps to reduce risk of sparking.

#### **FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:**

- a. Position ac and dc cords to reduce risk of damage by hood, door, or moving engine part.
- b. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- c. Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
- d. Determine which post of battery is grounded (connected) to the chassi If negative post is grounded to chassis (as in most vehicles), see item "e". If positive post is grounded to the chassis, see item "f".
- e. For negative-grounded vehicle, connect POSITIVE (RED) clamp from battery charger to POSITIVE (POS, P, +) ungrounded post of battery.  
Connect NEGATIVE (BLACK) clamp to vehicle chassis or engine block away from battery. Do not connect clamp to carburetor, fuel lines, or sheet metal body parts. Connect to a heavy gage metal part of the frame or engine block.
- f. For positive-grounded vehicle, connect NEGATIVE (BLACK) clamp from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clamp to vehicle chassis or engine block away from battery. Do not connect clamp to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.
- g. When disconnecting charger, turn switches to off, disconnect AC cord, remove clamp from vehicle chassis, and then remove clamp from battery terminal.
- h. See operating instructions for length of charge information.

**FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:**

- a. Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- b. Connect POSITIVE (RED) charger clamp to POSITIVE (POS, P, +) post of battery.
- c. Position yourself and free end of cable as far away from battery as possible - then connect NEGATIVE (BLACK) charger clamp to NEGATIVE (NEG, N, -) battery post.
- d. Do not face battery when making final connection.
- e. When disconnecting charger, always do so in reverse sequence of connecting procedure and break the first connection while as far away from battery as practical.
- f. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

**AC POWER CORD CONNECTION INSTRUCTIONS**

The plug must be plugged into an outlet that is properly installed in accordance with all local codes and ordinances.

**DANGER.** Never alter AC cord or plug provided - if it will not fit outlet, have proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock.

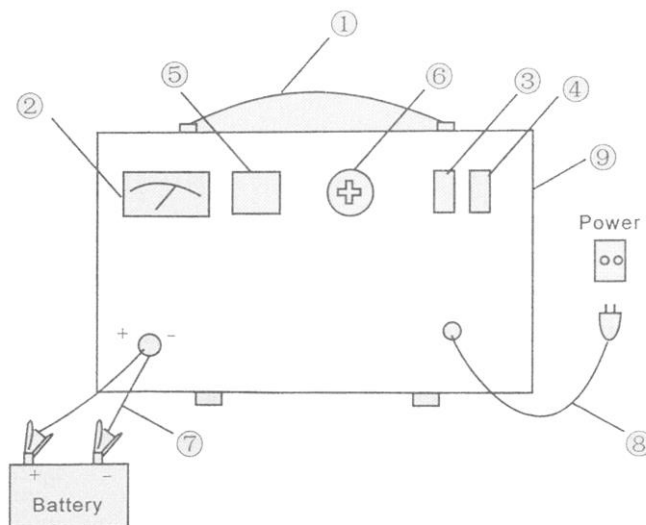
**OPERATING INSTRUCTIONS**

**NOTE:** Before using the charger, please review all safety and connection directions. Failure to do so can damage battery and cause serious injury or death.

**CHARGING**

- a. Connect the charger to the battery per the above instructions.
- b. Connect the charger to AC outlet.
- c. Press the MODE BUTTON to select the Battery Voltage Type that you will charge.
- d. Press the TYPE BUTTON to select the Battery Construction Type that you will charge.
- e. When charging is completed, unplug the charger from the AC outlet first and then disconnect the batteries with charger.

**PANEL DIAGRAM**



1. Handle
2. Output current meter
3. Over current protection
4. Switchover
5. 12V/24V switch
6. Power fuse
7. Clamps
8. Input cable
9. Shell

**MAINTANENCE INSTRUCTIONS**

This charger requires minimal maintenance. As with any appliance or tool, a few common sense rules will prolong the life of the battery charger.

**ALWAYS BE SURE THE CHARGER IS UNPLUGGED BEFORE PERFORMING ANY MAINTENANCE OR CLEANING.**

1. Store in a clean, dry place
2. Coil up the cords when not in use.
3. Clean the case and cords with a slightly damp cloth.
4. Clean any corrosion from the clamps with a solution of water and baking soda.
5. Examine the cords periodically for cracking or other damage and have them replaced if necessary.
6. **WARNING:** All other service should be done by qualified personnel only.

**FOR INDOOR USE!**

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