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> 15A MPPT Solar Charge Controller 12V/24V Automatic Maximum PV 75V Charge Controller Built-in WiFi Adapter with LCD Display for Gel-Sealed Immersion AGM and Li-Ion Batteries (WiFi)(TD2107) - User Manual

GCSOAR TD2107

GCSOAR 15A MPPT Solar Charge Controller User Manual

Model: TD2107

1. INTRODUCTION

Thank you for choosing the GCSOAR 15A MPPT Solar Charge Controller, Model TD2107. This advanced Maximum Power Point Tracking (MPPT) charge controller is designed to efficiently manage power from your solar panels to charge various battery types in 12V or 24V systems. Featuring a built-in WiFi adapter and an intuitive LCD display, it allows for convenient monitoring and control. This manual provides essential information for safe installation, operation, maintenance, and troubleshooting to ensure optimal performance and longevity of your solar power system.

2. SAFETY INFORMATION

Please read all instructions carefully before installation and operation. Failure to follow these instructions may result in serious injury, damage to the controller, or damage to other components.

- Ensure all wiring is correctly polarized and securely connected. Incorrect wiring can cause damage.
- Always connect the battery to the charge controller first, then the solar panel, and finally the load. Disconnect in the reverse order: PV, then Load, then Battery.
- Do not disassemble or attempt to repair the controller. Refer to qualified service personnel.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Use appropriate circuit breakers or fuses for all connections (battery, PV, load) to prevent overcurrent.
- Wear eye protection when working with batteries. Batteries can produce explosive gases.
- Ensure the PV array's open circuit voltage (Voc) does not exceed the controller's maximum PV input voltage (75V).

3. PRODUCT FEATURES

- **Advanced MPPT Technology:** Maximizes power harvest from solar panels, increasing charging efficiency by up to

30% compared to PWM controllers.

- **Automatic System Voltage Recognition:** Automatically detects 12V or 24V battery systems.
- **Wide Battery Compatibility:** Supports Gel, Sealed, Flooded, AGM, and Li-Ion batteries.
- **Built-in WiFi Module:** Enables remote monitoring and parameter setting via a dedicated mobile application.
- **LCD Display:** Provides real-time system information including PV voltage, battery voltage, charging current, load status, and more.
- **Comprehensive Protections:** Includes overcharge, over-discharge, overcurrent, short circuit, reverse polarity, and overheating protection.
- **4-Stage Charging:** Features Bulk, Boost, Float, and Equalize charging stages for optimal battery health and longevity.
- **Dual USB Outputs:** Conveniently charge small electronic devices.



The GCSOAR 15A MPPT Solar Charge Controller (TD2107) with its LCD display and a representation of the mobile app interface.

4. PACKAGE CONTENTS

Please check the package contents upon receipt to ensure all items are present and undamaged:

- 1 x GCSOAR 15A MPPT Solar Charge Controller (TD2107)
- 1 x User Manual (this document)

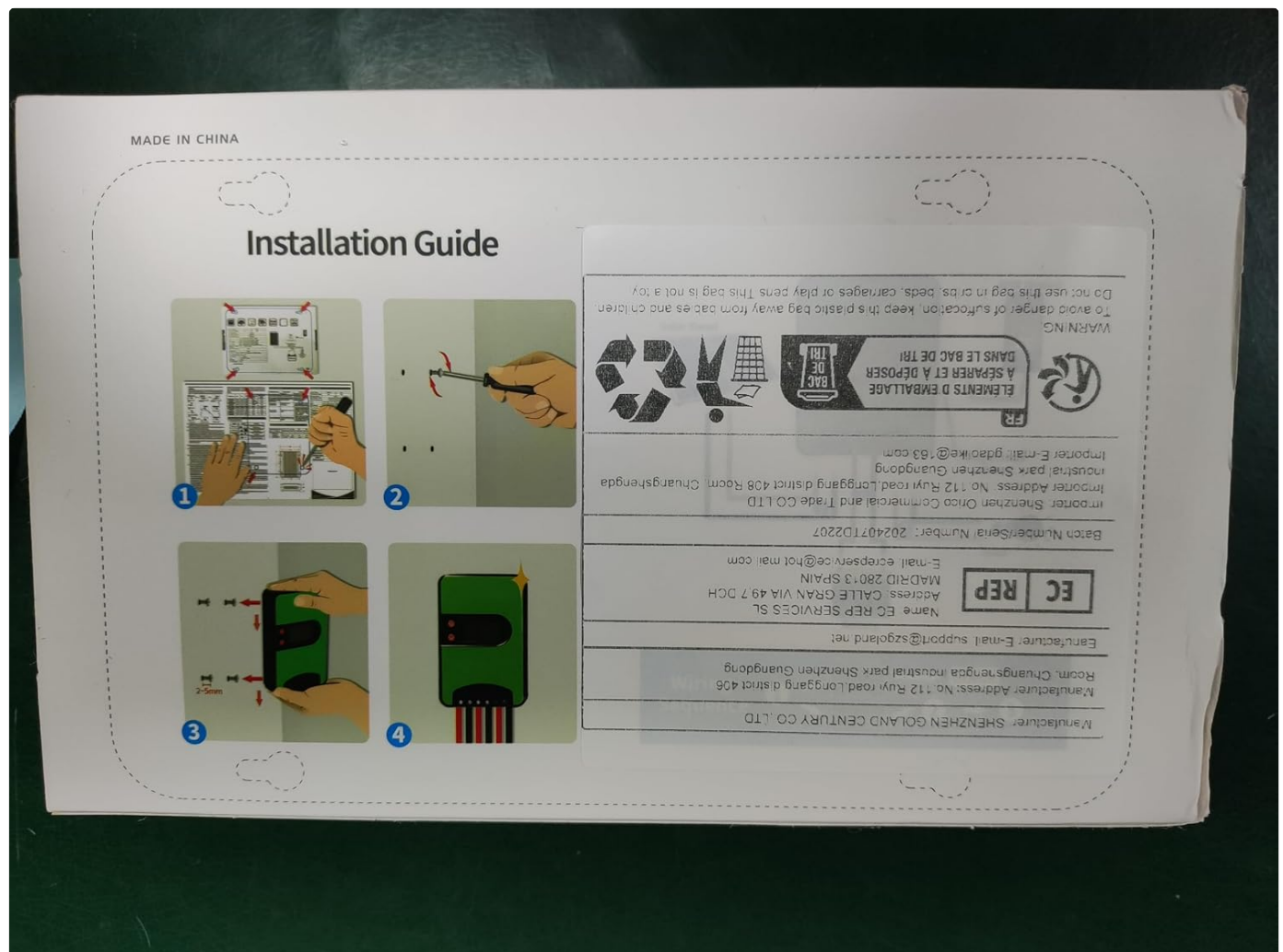
5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Follow these steps carefully:

5.1 Mounting the Controller

Choose a suitable location for mounting the controller. It should be:

- Indoors, protected from direct sunlight, high temperatures, and moisture.
- In a well-ventilated area to allow for heat dissipation.
- Close to the battery, but in a separate, well-ventilated compartment if possible, to avoid battery gases.



Mounting steps for the solar charge controller, typically on a wall or vertical surface.

5.2 Wiring Connections

Always follow the connection order: Battery → Load → PV. Disconnect in the reverse order: PV → Load → Battery.

1. **Connect the Battery:** Connect the positive and negative terminals of the battery to the corresponding battery terminals on the charge controller. Ensure correct polarity. The LCD display should light up.
2. **Connect the DC Load (Optional):** If you have a DC load, connect its positive and negative terminals to the load terminals on the controller.
3. **Connect the Solar Panel (PV Array):** Connect the positive and negative terminals of your solar panel(s) to the PV terminals on the charge controller. Ensure correct polarity. The controller will begin charging the battery.

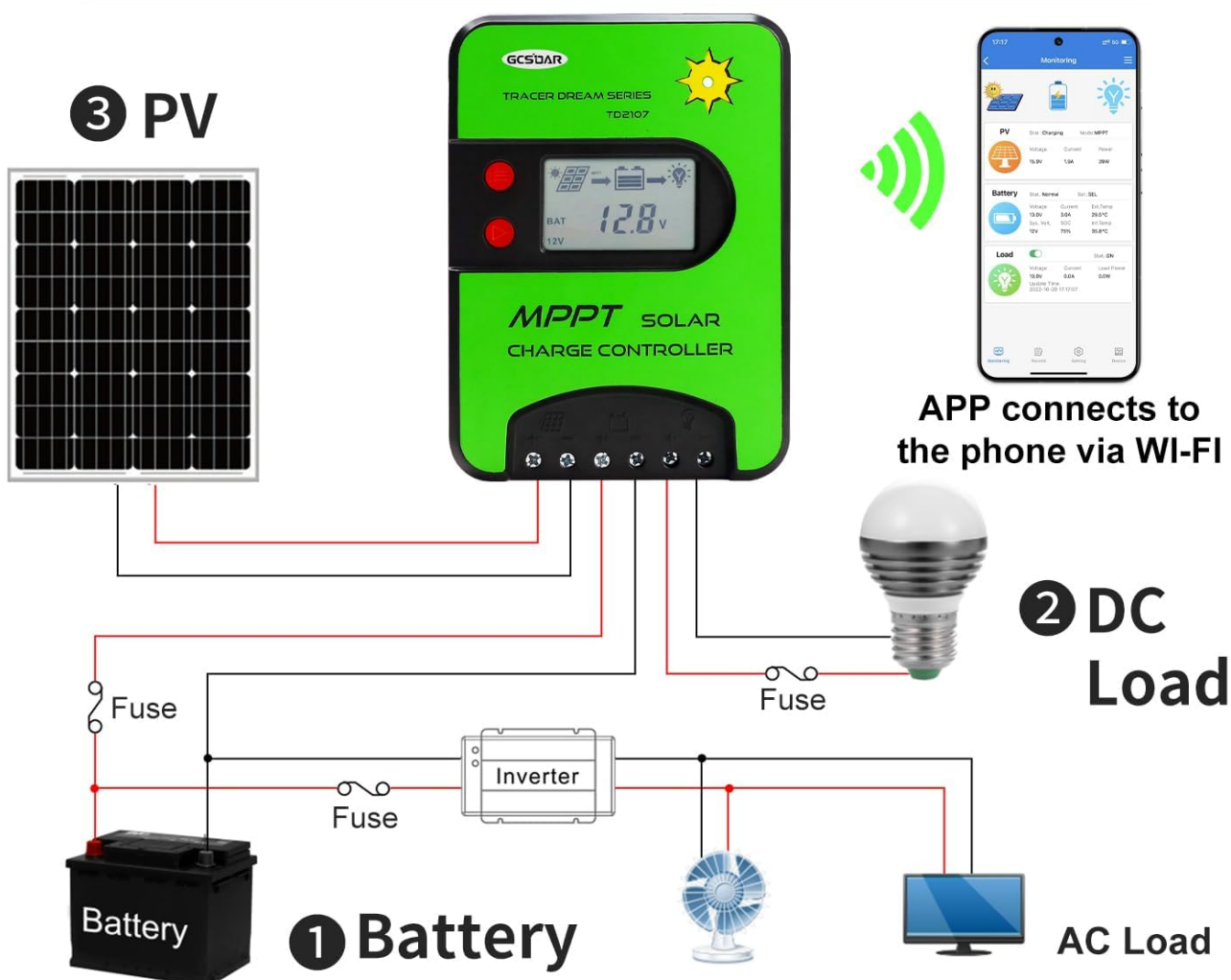
CONNECTION STEP

Connect in the order

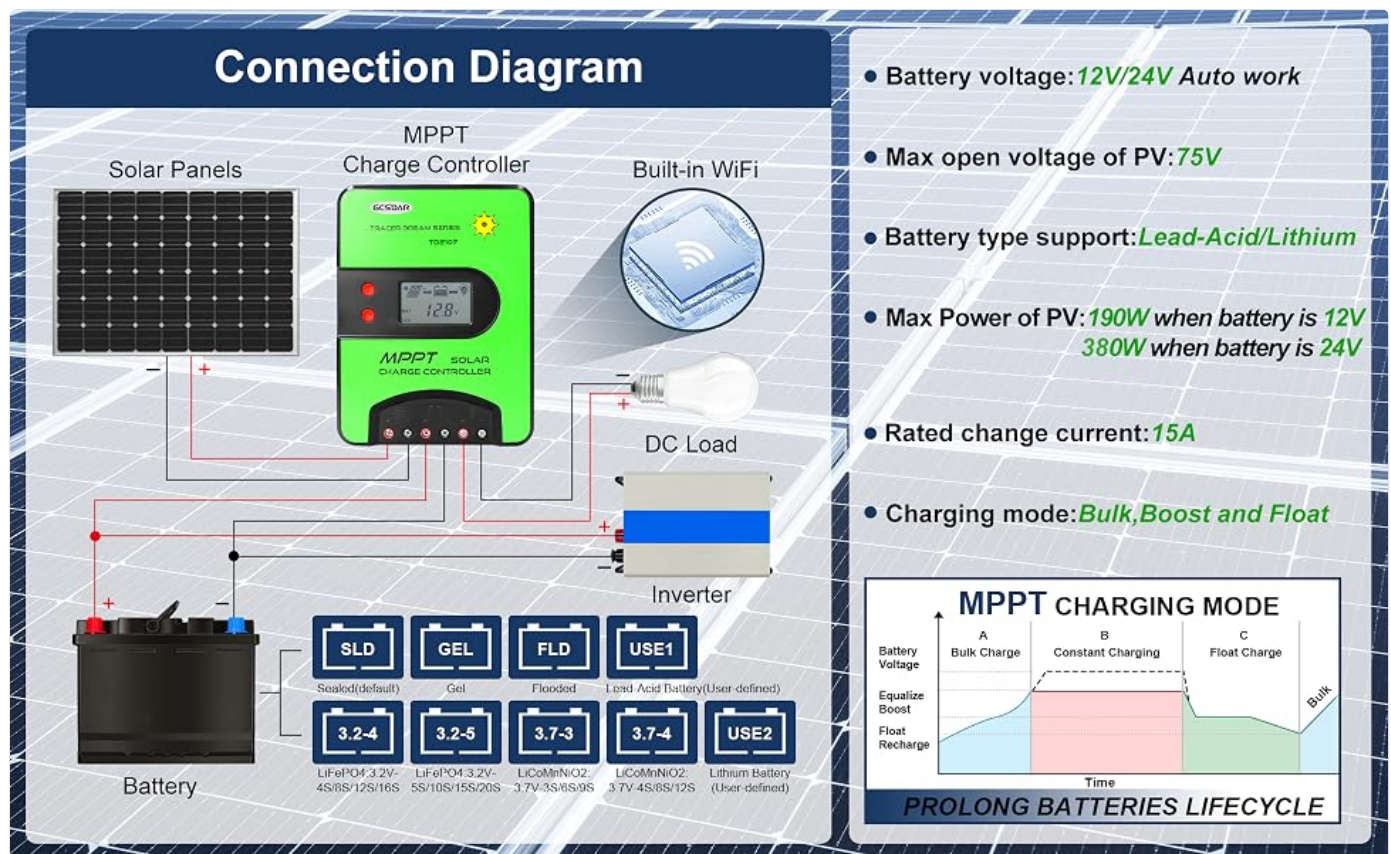
1 → 2 → 3

Disconnect in the order

3 → 2 → 1



Detailed connection steps for the battery, DC load, and PV array to the charge controller.



A comprehensive connection diagram illustrating the integration of the MPPT charge controller within a solar power system, including battery, inverter, and solar panels.

6. OPERATING INSTRUCTIONS

6.1 LCD Display Overview

The LCD display provides real-time operational data. Use the buttons below the display to navigate through different screens and settings.

6.2 Battery Type Selection

The controller supports various battery types. It is crucial to select the correct battery type for optimal charging and to prevent damage to your battery. You can typically set this via the mobile app or directly on the controller if it has a menu option.

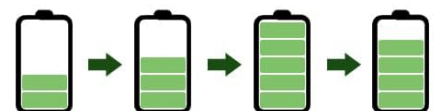
- **SEL:** Sealed Lead-Acid Battery
- **GEL:** Gel Battery
- **FLD:** Flooded Lead-Acid Battery
- **AGM:** Absorbed Glass Mat Battery
- **LI:** Lithium-Ion Battery (LiFePO4, Li-NCM, etc.)
- **USER:** User-defined parameters for custom battery types.

					
SEL	GEL	FLD	AGM	LI	USER
Sealed	GEL	Flooded	AGM	Lithium	User battery



4-Stage Charging

Bulk Charging → Boost Charging → Float Charging → Equalize Charging



The charge controller supports multiple battery chemistries, including Sealed, Gel, Flooded, AGM, Lithium, and user-defined settings.

6.3 Charging Modes

The controller employs a 4-stage charging algorithm to optimize battery charging and extend battery life:

- **Bulk Charging:** Charges the battery at its maximum current until it reaches the boost voltage.
- **Boost Charging:** Charges at a constant voltage for a set period to ensure the battery is fully charged.
- **Float Charging:** Maintains the battery at a lower voltage to compensate for self-discharge and keep it fully charged.
- **Equalize Charging (for certain battery types):** Periodically overcharges the battery to balance cell voltages and prevent sulfation.

7. WiFi CONNECTIVITY AND APP USAGE

The built-in WiFi module allows you to monitor and control your solar system remotely via a smartphone application. The app is typically named "iConnect" or "LD iConnect".

7.1 App Download and Installation

1. **For Android:** Scan the QR code provided in the physical manual or search for "iConnect" or "LD iConnect" in the Google Play Store.
2. **For iOS:** Search for "iConnect" or "LD iConnect" in the Apple App Store.

7.2 Connecting to the Controller

The controller broadcasts its own local WiFi signal. Connect your smartphone to this WiFi network. The network name and password should be available on the controller's display or in the physical manual.

SUPPORTS WI-FI CONNECTIVITY

1. Browse manual website or Scan QR code on manual to download APP (iConnect) for Android ,

2. search keyword "LD iConnect" in APP store to download APP for iOS

The charge controller's display shows the following information:

- Brand: GCS'DAR
- Model: TRACER DREAM SERIES TD2107
- Display: BAT 12.8V
- MPPT SOLAR CHARGE CONTROLLER

The smartphone app interface shows the following data:

Monitoring			
PV Stat.: Charging Mode: MPPT			
Voltage	Current	Power	
16.7V	2.4A	38W	
Battery Stat.: Normal Bat.: SEL			
Voltage	Current	Ext. Temp	
12.9V	3.0A	25.1°C	
Sys. Volt.	SOC	Int. Temp	
12V	75%	29.7°C	
Load Stat.: ON			
Voltage	Current	Load Power	
12.9V	0.0A	0.0W	
Update Time: 2022-10-20 14:40:15			

The charge controller supports WiFi connectivity, allowing remote monitoring and control via a smartphone application.

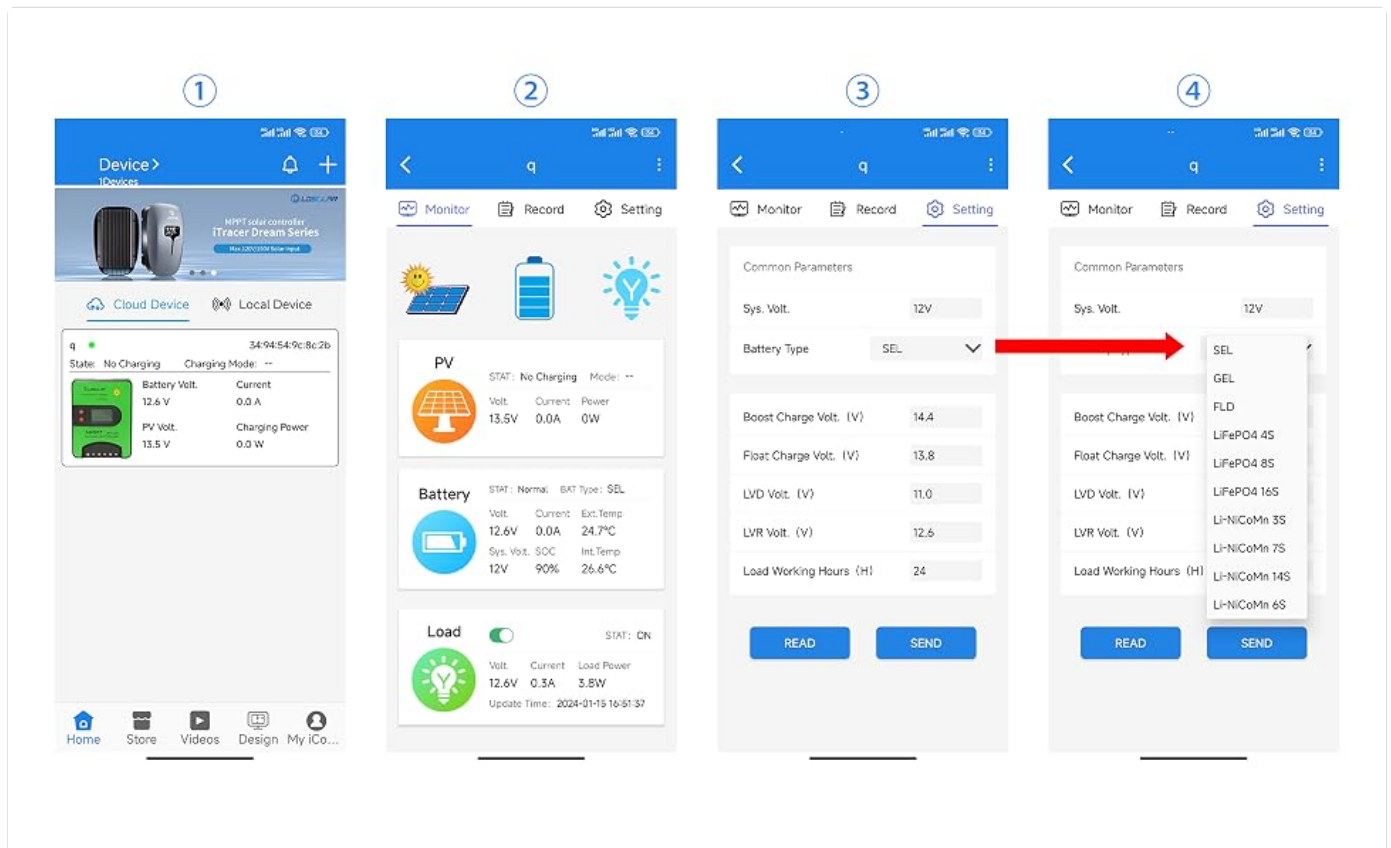
7.3 App Features

Once connected, the app allows you to:

- **Monitor Real-time Data:** View PV voltage, current, power; battery voltage, state of charge (SOC), temperature; load voltage, current, power.
- **View Historical Data:** Access records of energy generation and consumption.
- **Adjust Parameters:** Change battery type, set charging voltages, load control modes, and other system parameters.



The mobile application provides real-time monitoring of energy flow, including PV input, battery status, and load consumption.



Screenshots of the mobile app demonstrating how to access and modify system parameters, including battery type selection.

8. MAINTENANCE

Regular maintenance helps ensure the longevity and optimal performance of your solar charge controller:

- **Check Connections:** Periodically inspect all wiring connections to ensure they are tight and free from corrosion. Loose connections can cause overheating and poor performance.
- **Clean the Controller:** Keep the controller clean and free of dust and debris. Use a dry cloth to wipe the exterior. Do not use liquid cleaners.
- **Inspect for Damage:** Check for any visible signs of damage to the casing, wires, or terminals.
- **Ventilation:** Ensure the installation area remains well-ventilated to prevent overheating. Clear any obstructions around the controller.
- **Battery Health:** Monitor your battery's health and perform any recommended maintenance specific to your battery type.

9. TROUBLESHOOTING

This section addresses common issues you might encounter with your solar charge controller.

Problem	Possible Cause	Solution
Controller display is off / No power	Battery not connected or low voltage; reverse polarity.	Check battery connections and voltage. Ensure correct polarity. Charge battery if voltage is too low.
Battery not charging	PV panel not connected; insufficient sunlight; PV voltage too low/high; faulty PV panel; incorrect battery type setting.	Check PV connections. Ensure adequate sunlight. Verify PV voltage is within controller's operating range (Max PV 75V). Confirm correct battery type is selected in settings.
Load not working	Load not connected; load overcurrent; battery low voltage; load control setting.	Check load connections. Reduce load if it exceeds controller's capacity. Charge battery. Adjust load control settings in the app or on the controller.
WiFi connectivity issues	Incorrect WiFi password; out of range; interference; controller WiFi module issue.	Ensure correct WiFi password. Move closer to the controller. Reduce interference from other devices. Try resetting the controller (refer to manual for specific reset procedure). If persistent, contact support.
Inaccurate readings on LCD/App	Loose connections; sensor malfunction; software glitch.	Check all wiring connections. Restart the controller. Update app if available. If problem persists, contact support.

10. TECHNICAL SPECIFICATIONS

Parameter	Value
Model	TD2107
System Voltage	12V/24V Automatic
Rated Charge Current	15A
Max. PV Input Voltage	75V
Max. PV Input Power (12V)	190W
Max. PV Input Power (24V)	380W
Display Type	LCD
Operating Temperature	-20°C to +50°C (5E+1 Degrees Celsius)
Battery Types Supported	Gel, Sealed, Flooded, AGM, Li-Ion
Material	Plastic
Product Dimensions (L x W x H)	6.5 x 4.84 x 1.81 inches (165mm x 123mm x 46mm)
Item Weight	1.39 pounds (630 Grams)
Color	Green, Black



Physical dimensions of the GCSOAR TD2107 MPPT Solar Charge Controller.

11. WARRANTY AND SUPPORT

GCSOAR products are manufactured to high-quality standards. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official GCSOAR website. If you encounter any issues or require technical assistance, please contact GCSOAR customer support.

You can find more information and support resources by visiting the [GCSOAR Store on Amazon](#).

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