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› 80 Amp MPPT Solar Charge Controller User Manual

## AMPINVT AP-80C

# 80 Amp MPPT Solar Charge Controller User Manual

Model: AP-80C | Brand: AMPINVT

## 1. INTRODUCTION

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This user manual provides essential information for the safe and efficient operation of your AMPINVT 80 Amp MPPT Solar Charge Controller. This advanced controller is designed to maximize power harvesting from your solar panels and efficiently charge various battery types, including Lead-acid (Sealed, AGM, Gel, Flooded) and Lithium batteries. It automatically identifies 12V, 24V, 36V, and 48V system voltages and features an LCD display for real-time monitoring and control.

# AP-SERIES

## MPPT Solar Charge Controller



>99%

MPPT Tracing Efficiency

150  
VDC

Max PV Input Voltage

APP

Monitor APP

The AMPINVT AP-Series MPPT Solar Charge Controller features over 99% MPPT tracing efficiency, 150 VDC max PV input voltage, and mobile app monitoring capabilities.

Key features include a tracking rate of maximum power  $\geq 99\%$  and a maximum conversion rate  $> 98\%$ . It is suitable for a wide range of applications, such as solar RV setups, household power systems, and industrial field monitoring.

# WIDE APPLICATION

Household



RV



Base station



Pasture



The solar charge controller can be used in various applications including household solar systems, RVs, base stations, and agricultural pastures.

This video provides a general overview of the Ampinvt MPPT Solar Charge Controller, showcasing its design and primary functions.

## 2. SAFETY INFORMATION

Please read and understand all safety instructions before installation and operation to prevent injury or damage to the controller and connected equipment.

- **Battery Connection First:** Always connect the battery to the controller first. Ensure the battery voltage is sufficient for the controller to recognize the correct system voltage.
- **NEVER Connect Solar Panel Array Without Battery:** Do not connect the solar panel array to the controller before connecting the battery.
- **Disassembly Sequence:** The disassembly sequence is contrary to the wiring order (disconnect solar panels first, then battery).
- **Inverter/Charger Connection:** DO NOT connect any Inverter, wind turbine, alternator, or external charger directly into the charge controller. Connect the Inverter directly to the battery.
- **Solar Input Voltage:** Ensure solar input voltage is at least 3V higher than the battery's voltage and that

the total input power is within the specified range.

- **Installation Location:** DO NOT install the charging controller in direct sunlight to avoid power loss due to overheating.
- **Ventilation:** Remove all clutter around the controller to reduce interference and ensure enough space for heat dissipation (approximately 20cm clearance).
- **Tight Connections:** Ensure all connections going into and from the controller are tight.
- **Polarity:** DO NOT let the positive (+) and negative (-) terminals of the battery touch each other.

### 3. PRODUCT OVERVIEW

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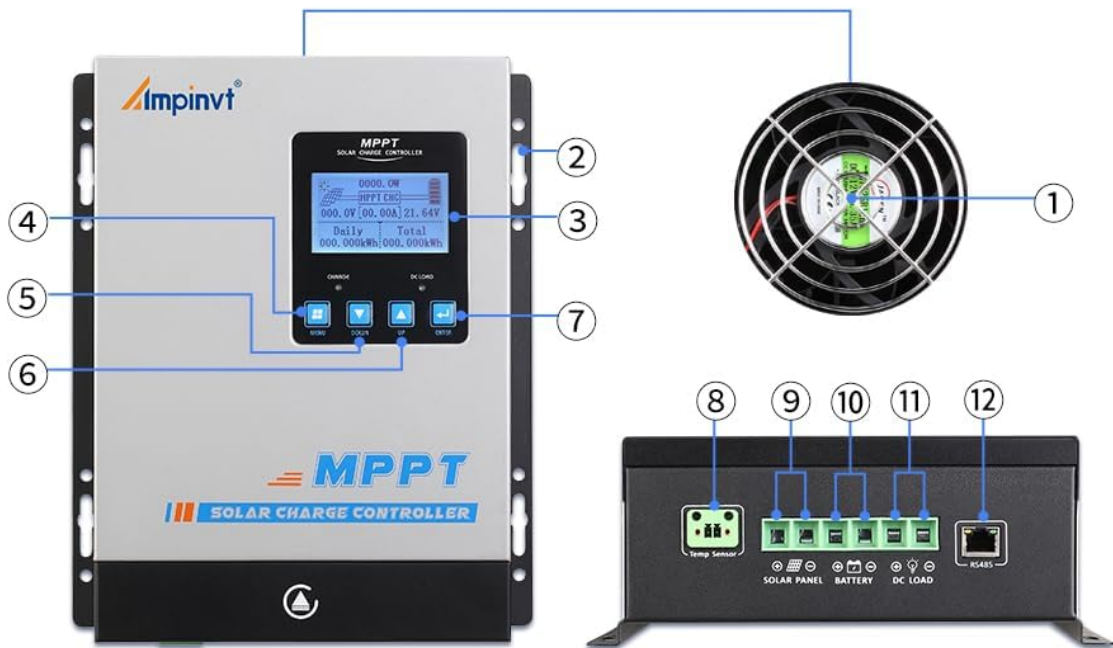
The AMPINVT MPPT Solar Charge Controller is housed in a durable metal casing, designed for efficient heat dissipation and long-term reliability. It features an intuitive LCD display and user-friendly buttons for easy operation and monitoring.



Front view of the AMPINVT 80 Amp MPPT Solar Charge Controller, showing the LCD display and control buttons.

## Components and Interface

# PRODUCT FUNCTION INTRODUCTION



- |               |                |                |                         |
|---------------|----------------|----------------|-------------------------|
| ① Cooling Fan | ② Hang Bracket | ③ LCD Display  | ④ Menu Button           |
| ⑤ Down Button | ⑥ Up Button    | ⑦ Enter Button | ⑧ Temperature Interface |
| ⑨ Solar Panel | ⑩ Battery      | ⑪ Dc Load      | ⑫ RS485                 |

Detailed diagram illustrating the main components and interface points of the solar charge controller.

1. **Cooling Fan:** For heat dissipation.
2. **Hang Bracket:** For mounting the controller.
3. **LCD Display:** Shows operating data and working conditions.
4. **Menu Button:** Accesses the menu options.
5. **Down Button:** Navigates down or decreases values.
6. **Up Button:** Navigates up or increases values.
7. **Enter Button:** Confirms selections.
8. **Temperature Interface:** For connecting the external temperature sensor.
9. **Solar Panel Terminals:** Connects to solar panel array.
10. **Battery Terminals:** Connects to the battery bank.
11. **DC Load Terminals:** Connects to DC loads.
12. **RS485 Port:** For communication, including Wi-Fi remote monitoring (requires additional purchase).

## Product Dimensions

The controller has physical dimensions of approximately 9.05 inches (L) x 3.58 inches (W) x 12 inches (H) and weighs about 9.2 pounds.

# PRODUCT SIZE



- ① 1\* 80A MPPT Solar Charge Controller
- ② 1\* Temperature sensor
- ③ 1\* User Manual

Product dimensions: 160mm (width), 290mm (depth), 365mm (height).

This video showcases the different models of the AMPINVT Solar Charge Controller (40A, 60A, 80A, 120A), highlighting their physical appearance and size variations.

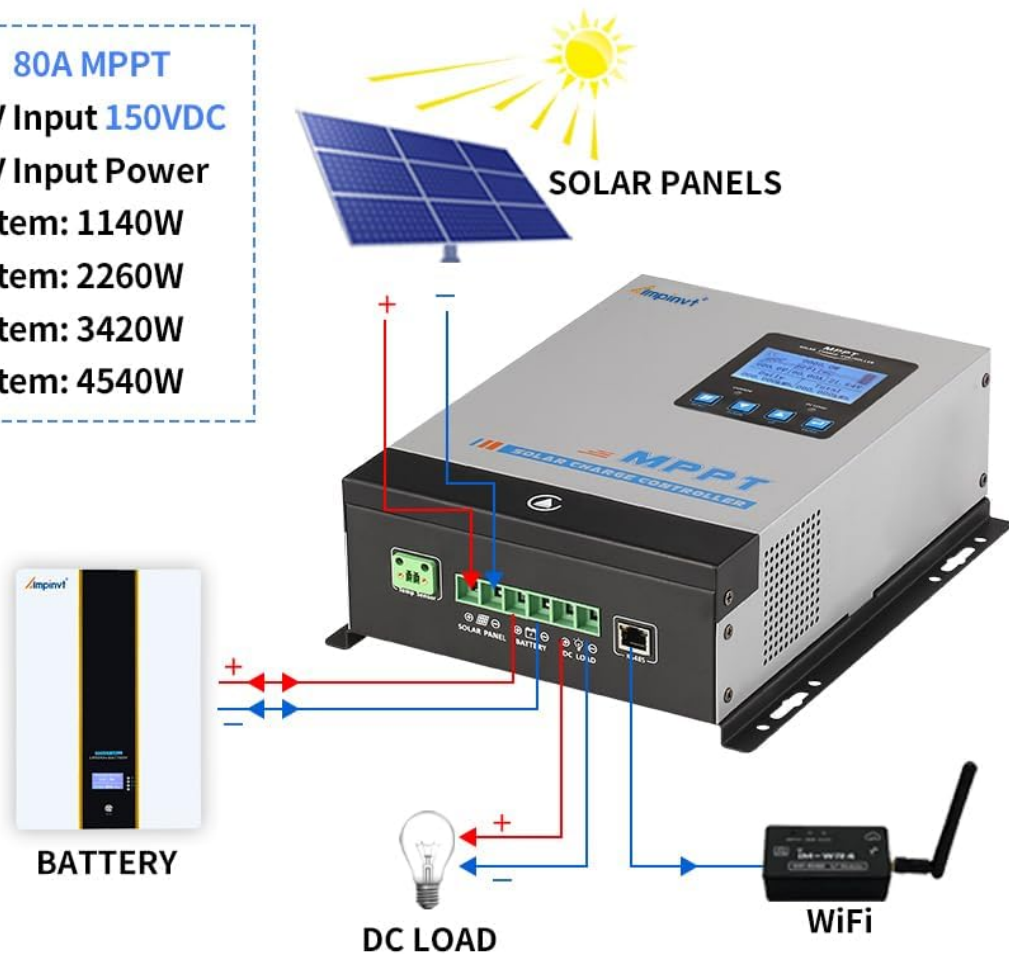
## 4. SETUP AND INSTALLATION

Proper installation is crucial for the performance and longevity of your solar charge controller. Follow these steps carefully:

- Mounting:** Install the controller in a well-ventilated area, away from direct sunlight and heat sources. Ensure at least 20cm of clear space around the unit for proper airflow.
- Battery Connection:** Connect the battery to the controller first. Ensure the battery voltage is sufficient for the controller to auto-detect the system voltage (12V/24V/36V/48V).
- Solar Panel Connection:** After the battery is connected, connect the solar panel array to the controller. Ensure the maximum input voltage (150V PV) and power (1140W for 12V, 2260W for 24V, 3420W for 36V, 4540W for 48V) are not exceeded. The MPPT best working voltage range is DC18V-DC80V (12V), DC30V-DC100V (24V), DC65V-DC150V (48V).
- DC Load Connection:** Connect your DC loads to the designated terminals.
- Tighten Connections:** Double-check all wiring connections to ensure they are secure and tight to prevent loose connections and potential hazards.

# CONNECTION DIAGRAM

**Model: 80A MPPT**  
**Max. PV Input 150VDC**  
**Max. PV Input Power**  
**12V system: 1140W**  
**24V system: 2260W**  
**36V system: 3420W**  
**48V system: 4540W**



Connection diagram illustrating how to connect the solar panels, battery, and DC load to the MPPT solar charge controller. Optional Wi-Fi module connection is also shown.

## 5. OPERATING INSTRUCTIONS

The LCD display provides comprehensive information about the system's performance and allows for configuration adjustments.

### LCD Display and Buttons

The LCD display shows real-time operating data, including daily power generation curves and current curves. Use the Menu, Down, Up, and Enter buttons to navigate through the display and adjust settings.

### Battery Type Configuration

The controller supports charging for four types of batteries: Lead-acid (Sealed, AGM, Gel, Flooded) and User-defined (Lithium Battery). Ensure you select the correct battery type in the settings for optimal charging and battery health.

# Battery Types

Compatible With 12V/24V/36V/48V



The controller is compatible with LifePO4, AGM, Lithium, GEL, Flooded, and User-defined battery types, supporting 12V, 24V, 36V, and 48V systems.

## Load Control Modes

The controller offers multiple load control modes, allowing you to manage the power supply to your DC loads based on various parameters.

## Wi-Fi Remote Monitoring (Optional)

The RS485 communication port enables Wi-Fi remote monitoring capabilities. This requires an additional purchase of a Wi-Fi module. Once connected, you can monitor and set parameters via a mobile application compatible with Android and iOS systems. The app allows for real-time wireless monitoring and offers a one-key restore to factory settings.

This video demonstrates the ease of operation for the AMPINVT MPPT solar charge controller, guiding users through its interface and functions.

This video provides insights into the AMPINVT 40A, 60A, and 80A solar charge controllers, focusing on their battery charging capabilities.

## 6. MAINTENANCE

Regular maintenance ensures the optimal performance and lifespan of your solar charge controller.

- **Connection Checks:** Periodically inspect all wiring connections to ensure they remain tight and free from corrosion.
- **Cleaning:** Keep the controller clean and free from dust and debris. Use a dry cloth for cleaning.

- **Ventilation:** Ensure the cooling fan and ventilation openings are not obstructed.

## 7. TROUBLESHOOTING

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

- **Charging Indicator On/Off:** If the charging indicator is intermittently on and off, and the charging current fluctuates, this is generally normal. It often occurs on cloudy days or in the evening when light is insufficient, indicating the controller is adjusting to available solar input.
- **Controller Buzzing:** If the controller produces a buzzing sound, it is typically due to the internal fan operating to dissipate heat. This is a normal function, especially under heavy load or high ambient temperatures. Allow the fan to operate as needed.
- **Low Charging Current:** If the charging current is almost zero when the controller is in floating charge mode, it may indicate that the solar input power is too low for the maximum input power capacity, or the battery is already fully charged.

## 8. SPECIFICATIONS

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Feature	Specification
Model	AP-80C
Brand	AMPINVT
Rated Current	80 Amp
System Voltage	12V/24V/36V/48V Auto
Max PV Input Voltage	150V PV
MPPT Best Working Voltage Range	DC18V-DC80V (12V); DC30V-DC100V (24V); DC65V-DC150V (48V)
Max Input Power (12V System)	1140W
Max Input Power (24V System)	2260W
Max Input Power (36V System)	3420W
Max Input Power (48V System)	4540W
Display Type	LCD
Product Dimensions	9.05 x 3.58 x 12 inches
Item Weight	9.2 pounds
Material	Plastic (Note: Product description mentions metal casing, but specifications list plastic. User should verify.)
Country of Origin	China

## 9. WARRANTY AND SUPPORT

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For warranty information and technical support, please refer to the documentation included with your product or contact AMPINVT customer service directly. Protection plans may be available for purchase separately to extend coverage beyond the standard warranty period.