

EPEVER VS2024AU

EPEVER VS2024AU 20A PWM Solar Charge Controller User Manual

Model: VS2024AU | Brand: EPEVER

1. INTRODUCTION

The EPEVER VS2024AU is a Pulse Width Modulation (PWM) solar charge controller designed for efficient battery charging in various solar power systems. It features an integrated LCD display for dynamic monitoring of operating data and working conditions. This controller supports 12V/24V auto-work voltage and includes dual USB ports for charging electronic devices. Its advanced digital techniques and multiple load control modes make it suitable for solar home systems, traffic signals, solar street lights, and solar garden lamps.

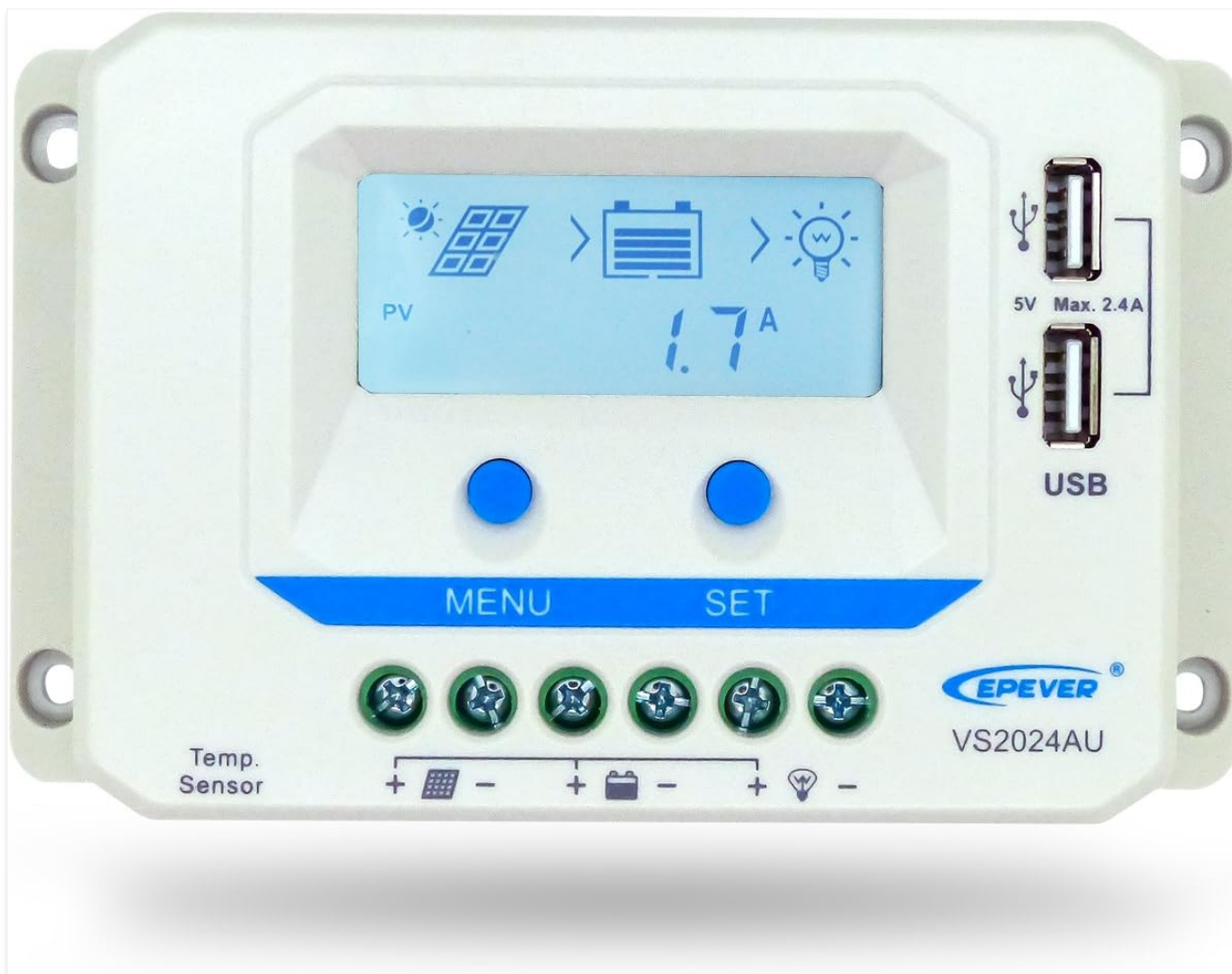


Figure 1: Front view of the EPEVER VS2024AU Solar Charge Controller.

2. KEY FEATURES

- 3-Stage Intelligent PWM Charging: Bulk, Boost/Equalize, Float.
- Supports 3 battery charging options: Sealed, Gel, and Flooded.
- LCD display for dynamic device operating data and working condition display.
- Dual USB ports (5VDC/2.4A total) for electronic equipment charging.
- User-friendly button settings for comfortable and convenient operation.
- Multiple load control modes.
- Energy statistics function.
- Battery temperature compensation function.
- Extensive Electronic Protections: PV reverse polarity, Battery over voltage, Battery over discharge, Battery reverse polarity, Battery overheating, Load overload, Load short circuit, Controller overheating.

3. SAFETY INSTRUCTIONS

Please read all instructions and warnings in this manual before installation and operation. Keep this manual for future reference. Always ensure proper polarity and secure connections to prevent damage to the controller, battery, or other components. Disconnect all power sources before performing any wiring or maintenance. This device is intended for indoor use in a dry, well-ventilated environment. Avoid exposure to water, high humidity, or corrosive substances.

4. PRODUCT OVERVIEW

4.1 Components and Interfaces

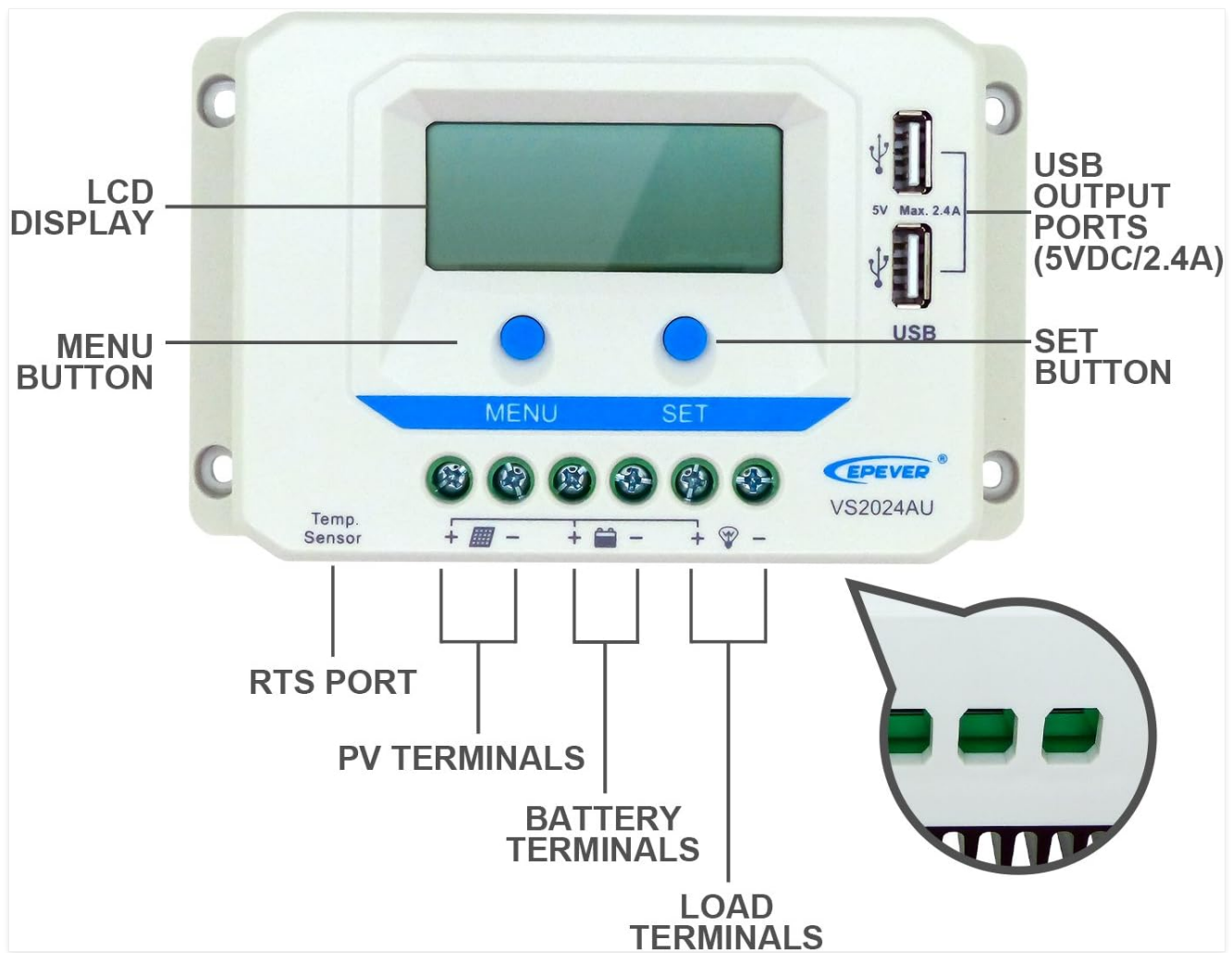


Figure 2: Labeled components of the VS2024AU controller. This includes the LCD display, Menu and Set buttons, USB output ports, RTS port, PV terminals, Battery terminals, and Load terminals.

4.2 Dimensions and Applications

Function



**Multiple load
control modes**



**Hight reliability
components of ST
IR and Infineon**



**PV reverse polarity/
Battery reverse polarity/
Load short circuit/
overload Protection**



**12V/24V
Auto Work**



**Informative black
light LCD display**



**5V Dual USB
2.4A (Total)**

Figure 3: The controller measures 16cm in length, 9.49cm in width, and 4.93cm in height. It features multiple load control modes, high reliability components, an informative black light LCD display, 12V/24V auto-work, and 5V dual USB 2.4A (Total) output.

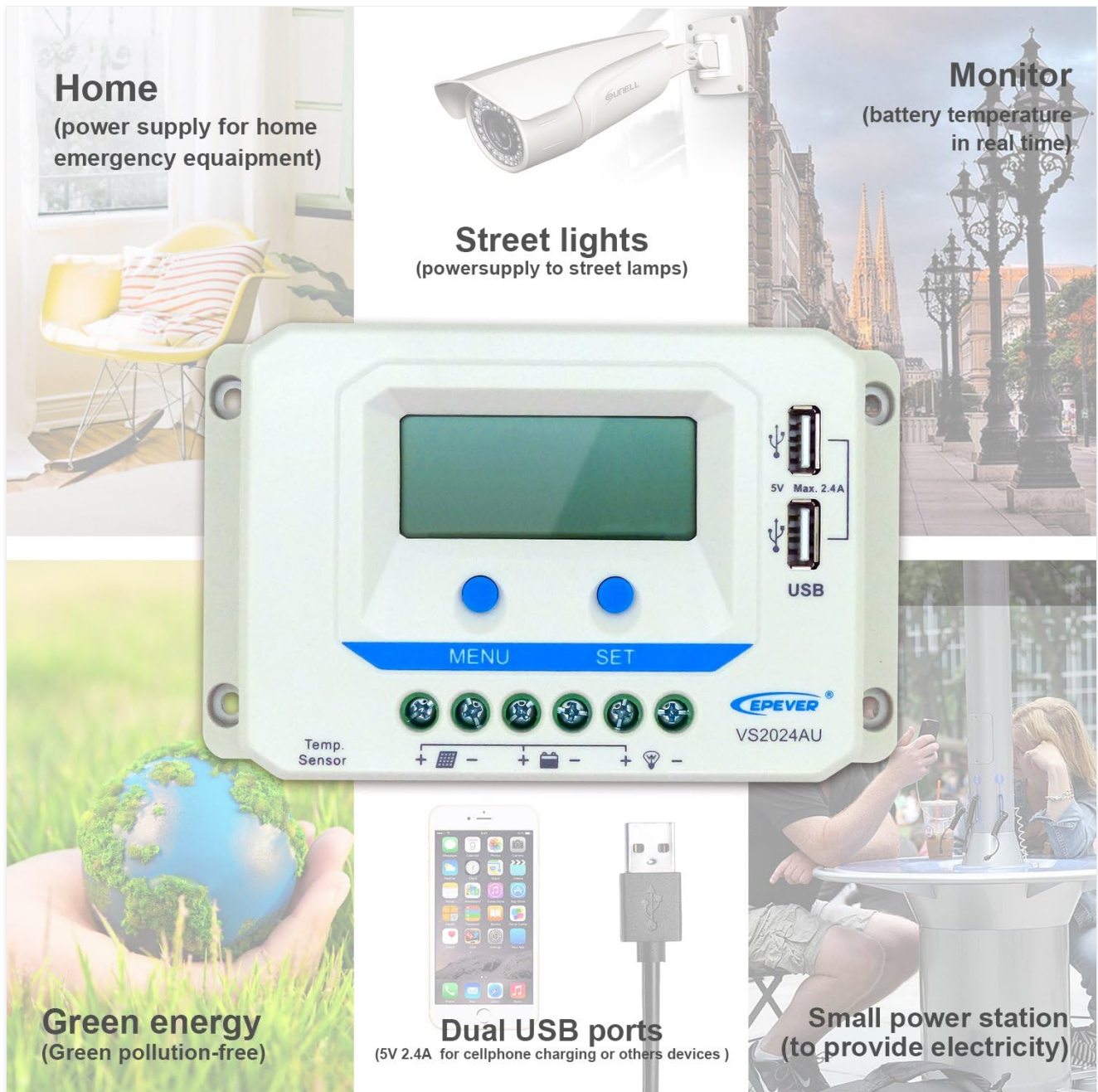


Figure 4: The VS2024AU is suitable for various applications including home emergency equipment power supply, street lights, real-time battery monitoring, green energy solutions, and small power stations. It also features dual USB ports for charging mobile devices.

5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your EPEVER VS2024AU solar charge controller. Always connect the battery first. Please read the complete installation instructions to familiarize yourself with the installation steps before proceeding.

5.1 Wiring Diagram

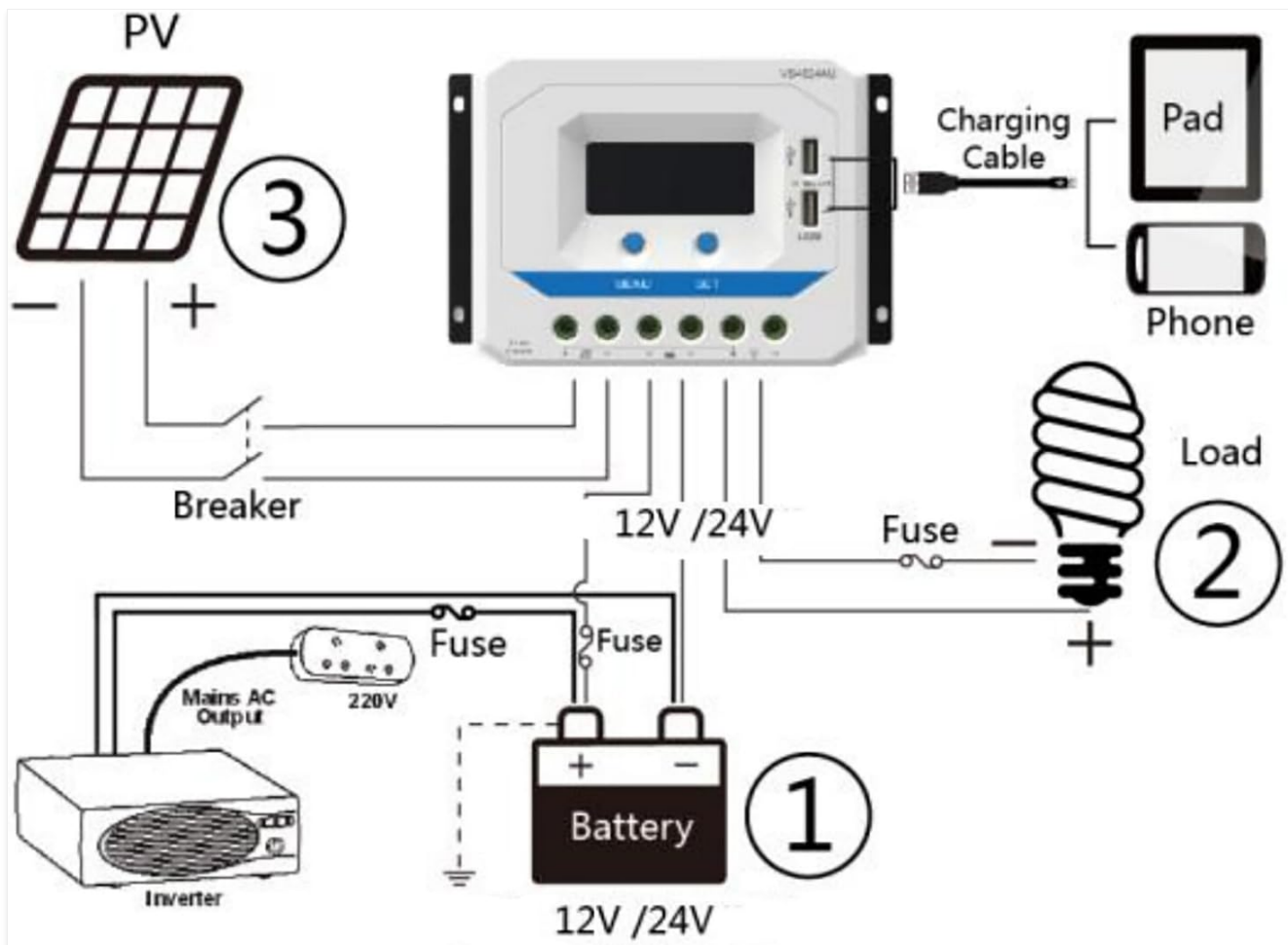


Figure 5: Connection diagram showing the solar panel (3), controller, battery (1), and load (2). Ensure correct polarity for all connections. An inverter can also be connected to the battery.

5.2 Connection Steps

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (positive to positive, negative to negative). The controller will power on once the battery is connected.
2. **Connect the Solar Panel:** Connect the solar panel to the controller's PV terminals. Ensure correct polarity.
3. **Connect the Load:** Connect the load to the controller's load terminals. Ensure correct polarity.

Important: Always connect the battery first and disconnect the solar panels first when disassembling the system.

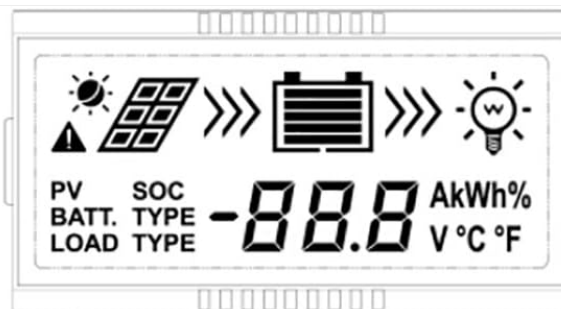
5.3 Installation Video Guide

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Video 1: This video provides a visual guide to the unboxing, interface, installation, and basic settings of the EPEVER PWM Solar Charge Controller VS-AU Series, which includes the VS2024AU model. It demonstrates the physical connections and initial setup procedures.

6. OPERATING INSTRUCTIONS

6.1 LCD Display and Button Functions



➤ Status Description

Item	Icon	Status
PV array		Day
		Night
		No charging
		Charging
	PV	PV Voltage, Current ,Power
Battery		Battery capacity, In Charging
	BATT.	Battery voltage. current, temperature
	BATT. TYPE	Battery type
Load		Load ON
		Load OFF
	LOAD	Load Voltage, Current, Load mode

Figure 6: The LCD displays various status icons and parameters. Icons include PV array status (Day, Night, No charging, Charging), Battery status (Battery capacity, In Charging, Battery voltage, current, temperature, Battery type), and Load status (Load ON, Load OFF, Load Voltage, Current, Load mode).

The controller features MENU and SET buttons for navigation and parameter adjustment. Pressing the MENU button cycles through different display interfaces. Holding the SET button allows entry into setting modes for parameters like battery type and load working mode.

6.2 Load Control Modes

The VS2024AU offers multiple load control modes to suit various application needs. These modes can be configured via the controller's interface:

- **Manual Control Mode (Default):** The load can be manually turned ON/OFF by pressing the load button.
- **Light Control Mode:** The load automatically turns ON at dusk and OFF at dawn.
- **Dual Time Mode:** Combines light control with a timer, allowing the load to operate for a set duration after dusk.
- **Test Mode:** For testing purposes.

Refer to the detailed instructions in the full product manual for specific parameter settings for each load control mode.

6.3 Battery Type Setting

The controller supports Sealed, Gel, and Flooded battery types. To set the battery type:

1. Press the SET button to enter the setting interface.
2. Press and hold the BATT button for 5 seconds to enter the battery type interface.
3. Use the PV+/LOAD- buttons to select the desired battery type.
4. Press the SET button to confirm the battery type.

7. MAINTENANCE

To ensure optimal performance and longevity of your EPEVER VS2024AU solar charge controller, regular maintenance is recommended:

- **Check Connections:** Periodically inspect all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Ensure the heat sink (Figure 7) is not obstructed for proper cooling.
- **Inspect Wiring:** Check all cables for signs of wear, fraying, or damage. Replace any damaged cables immediately.
- **Monitor Performance:** Regularly check the LCD display for normal operation and parameter readings. Note any unusual behavior or error codes.



Figure 7: Back view of the controller, highlighting the heat sink for thermal management.

8. TROUBLESHOOTING

If you encounter issues with your VS2024AU controller, refer to the following general troubleshooting steps. For detailed error codes and solutions, consult the comprehensive manual included with your product.

- **No Display/No Power:** Check battery connections and ensure the battery has sufficient charge. Verify all wiring is secure and correctly polarized.
- **Battery Not Charging:** Check solar panel connections and ensure the panel is receiving adequate sunlight. Verify solar panel voltage and current. Confirm the correct battery type is selected in the settings.
- **Load Not Working:** Check load connections and ensure the load is not overloaded or short-circuited. Verify the load control mode settings.
- **Overheating:** Ensure the controller is installed in a well-ventilated area and the heat sink is free from obstructions. Reduce the load if consistently overheating.

If problems persist after following these steps, contact EPEVER customer support or a qualified technician.

9. SPECIFICATIONS

Below are the technical specifications for the EPEVER VS2024AU 20A PWM Solar Charge Controller:

Parameter	Value (VS2024AU)
Nominal System Voltage	12V/24V Auto Work
Battery Input Voltage Range	9V~32V
Rated Charge/Discharge Current	20A
Max. PV Open Circuit Voltage	50V
Battery Type Support	Sealed (Default), Gel, Flooded
Equalize Charging Voltage	Sealed:14.6V / Gel:No / Flooded:14.8V
Boost Charging Voltage	Sealed:14.4V / Gel:14.2V / Flooded:14.6V
Float Charging Voltage	Sealed/Gel/Flooded:13.8V
Low Voltage Reconnect Voltage	Sealed/Gel/Flooded:12.6V
Low Voltage Disconnect Voltage	Sealed/Gel/Flooded:11.1V
Self-consumption	≤10mA/12V; ≤18mA/24V
Temperature Compensation Coefficient	-3mV/°C/2V (25°C)
Grounding	Common positive
USB Output	5VDC/2.4A
Overall Dimension	160.9x94.9x49.3 mm (6.3 x 3.74 x 1.94 inches)
Terminals	10mm ² /8AWG
Net Weight	0.35kg (12.3 ounces)
Enclosure	IP30
Working Environment Temperature	-25°C ~ +55°C
Humidity Range	≤95% (N.C.)

Note: The parameters above are for a 12V system. For a 24V system, multiply voltage parameters by two.

Technical specifications:

CE RoHS

Model	VS1024AU	VS2024AU	VS3024AU	VS4524AU	VS6024AU
			VS3048AU	VS4548AU	VS6048AU
Nominal system voltage	VS**24AU 12/24V auto work		VS**48AU 12/24/36/48V auto work		
Battery input voltage range	VS**24AU 9~32V		VS**48AU 9V~64V		
Rated charge/discharge current*	10A	20A	30A	45A	60A
Max. PV open circuit voltage	VS**24AU 50V VS**48AU 96V				
Battery type	Sealed(Default) / Gel / Flooded				
Equalize charging voltage*	Sealed:14.6V/ Gel: No/ Flooded:14.8V				
Boost charging voltage*	Sealed:14.4V/ Gel:14.2V/ Flooded:14.6V				
Float charging voltage*	Sealed/Gel/Flooded:13.8V				
Low voltage reconnect voltage*	Sealed/Gel/Flooded:12.6V				
Low voltage disconnect voltage*	Sealed/Gel/Flooded:11.1V				
Self-consumption	≤10mA/12V;≤18mA/24V; ≤14.5mA/36V; ≤17mA				
Temperature compensation coefficient	-3mV/℃/2V (25℃)				
Grounding	Common positive				
USB output	5VDC/2.4A				
Overall dimension	142x85x41.5 mm	160x94.9x49.3 mm	181x100.9x59.8 mm	194x118.4x63.8 mm	214x128.7x72.2 mm
Terminals	12AWG(4mm ²)	8AWG(10mm ²)	6AWG(16mm ²)	6AWG(16mm ²)	3AWG(25mm ²)
Net weight	0.22kg	0.35kg	0.55kg	0.76kg	1.02kg
			0.58kg	0.88kg	1.04kg
Enclosure	IP30				
Working environment temperature	-25℃~+55℃(Product can work continuously at full load)				
Humidity range	≤95% (N.C.)				

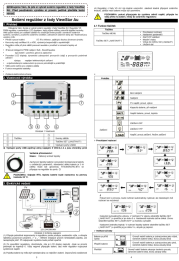
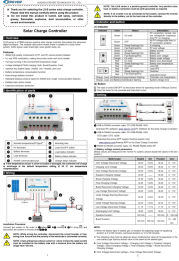
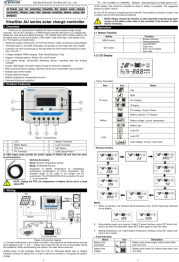
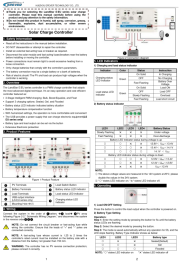
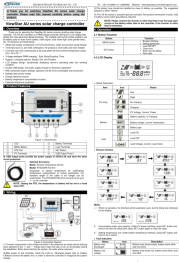
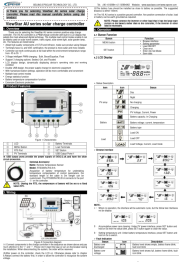
•Above the parameters are in 12V system at 25°C, twice in 24Vsystem, triple in 36V system and quadruple in 48V system.
 •Rated charge/discharge current temp. range is -25 to 55 °C

Figure 8: Detailed technical specifications for the EPEVER VS-AU series, including VS1024AU, VS2024AU, VS3024AU, VS4524AU, and VS6024AU models.

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the official EPEVER website or contact your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.

Related Documents - VS2024AU

	<p>Návod k obsluze solárního regulátoru EPEVER ViewStar AU</p> <p>Kompletní návod k obsluze solárních regulátorů EPEVER řady ViewStar AU. Zjistěte informace o instalaci, provozu, funkcích, řešení problémů a technických specifikacích.</p>
	<p>EPEVER LS-B Series Solar Charge Controller User Manual</p> <p>Comprehensive user manual for the EPEVER LS-B series PWM solar charge controller, detailing its features, installation, operation, protections, troubleshooting, and technical specifications for models LS1024B, LS2024B, and LS3024B.</p>
	<p>EPEVER ViewStar AU Series Solar Charge Controller Manual</p> <p>Comprehensive manual for the EPEVER ViewStar AU series solar charge controllers, covering overview, product features, wiring, operation, troubleshooting, protections, technical specifications, and disclaimer. This PWM charge controller with LCD display is designed for solar home systems, street lights, and more.</p>
	<p>EPEVER LandStar E/EU Series PWM Solar Charge Controller User Manual</p> <p>Comprehensive user manual for the EPEVER LandStar E/EU series PWM solar charge controllers. Provides detailed information on safety, installation, operation, LED indicators, troubleshooting, and technical specifications for reliable solar energy management.</p>
	<p>EPEVER ViewStar AU Series Solar Charge Controller Manual</p> <p>User manual for the EPEVER ViewStar AU series solar charge controller, detailing features, operation, wiring, protections, troubleshooting, and technical specifications.</p>
	<p>EPEVER ViewStar AU Series Solar Charge Controller User Manual</p> <p>Comprehensive user manual for the EPEVER ViewStar AU series PWM solar charge controllers. Covers overview, features, wiring, operation, protections, troubleshooting, and technical specifications for models VS1024AU, VS2024AU, VS3024AU, VS3048AU, VS4524AU, VS4548AU, VS6024AU, and VS6048AU.</p>