From Sky To Your Home

User Manual

SSD ELECTRONICS COMPANY

From Sky To Your Home

MaxSun Hybrid Solar Charge Controller

Highly Protected with Advance Features

support@maxsun.com.pk
maxsun.com.pk

Table of Contents

This manual contains all instructions of safety, installation and operation for MaxSun Hybrid MPPT Solar Charge Controller
Please read carefully all the instructions and warnings in the manual before installation. Mount the controller indoors. Prevent exposure to the elements and do not allow wet or water to enter the controller. Install the controller in well-ventilated places, the controller's case temperature may become very hot during operation. Suggested to install appropriate external breakers. Power connections must remain tight to avoid excessive heating from a loose connection.

Message from US

we want to express our deepest gratitude for choosing our product and entrusting us with your needs. Your decision to incorporate our MaxSun Hybrid MPPT Solar Charge Controller into your daily life not only supports our endeavor but also inspires us to continually strive for excellence in providing innovative solutions. As you will utilize our MaxSun Hybrid MPPT Solar Charge Controller please read carefully the manual to use it effectively.

MPPT TECHNOLOGY

MPPT stands for Maximum Power Point Tracking, and an MPPT solar charge controller is a device used in solar power systems to optimize the efficiency of charging batteries from solar panels. MPPT solar charge controller is a crucial component of solar power systems, optimizing the efficiency of charging batteries from solar panels, increasing overall system performance, and ensuring the longevity of the batteries.

INTRODUCTION

MaxSun Hybrid MPPT Solar Charge Controller

MaxSun Hybrid MPPT Solar Charge Controller is also known as an effective user of solar output power without wasting it. It plays a pivotal role in hybrid solar systems, ensuring efficient energy management, protection of system components, and maximizing the utilization of renewable energy sources. Its integration facilitates the seamless operation of solar panels and batteries, contributing to sustainable and reliable energy solutions.

Features

- Automatic Voltage Detection for 12V/24V/36V/48V Batteries
- Real MPPT Technology & Effective Hybrid Functionality
- LCD Display Interface
- Highly Protective Mechanisms
- Different Charging modes for different battery types;
  - Lead Acid Batteries
  - Tubular Batteries
  - Lithium-ION Batteries
- Smart delay in Charging startup for hybrid system switching
- Customize Setting Option
- Smart Constant DC 12V & 15A Output
- True Sharing System Between Electricity And Solar
- Buzzer Alert System
  - Battery Low
  - PV Over Volt
  - PV Under Volt
  - Solar On (Connected)
  - Solar Off (Disconnected)

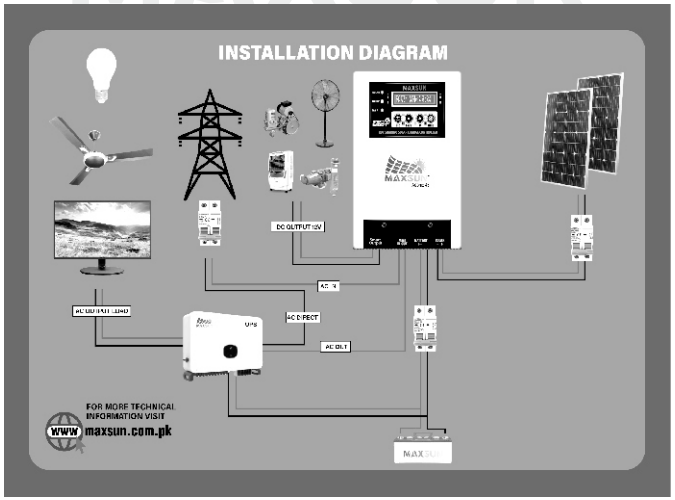
Benefits

- Over Solar Volt Protection
- Over Output Current Protection
- Over Heat Protection
- Reverse Battery Polarity Protection
- Reverse Solar Polarity Protection
- Short Circuit Protection
- Under Solar Volt Protection
- Battery Over Charge Protection
- Solar Reverse Current Protection
- Better Performance in Low Sun Light Conditions
- Compatibility with All Types of Solar Panels
- Lithium-Ion Battery Supported
- Advanced Battery Management
- Offers More Output

DIAGRAMS

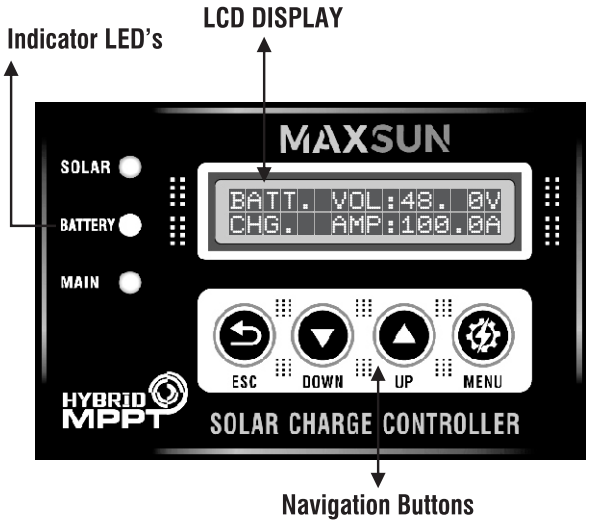
MaxSun Hybrid MPPT Solar Charge Controller

Wiring



Display

MaxSun Controller has a digital and smart display, in which not only you can see statistics of usage but you can customize setting as per your choice.



OPERATION & USAGE

LED'S

Solar LED

This LED is located at the top of the line. It indicates that the MaxSun controller is using solar power to charge the batteries.

Battery LED

This LED is located at the center of the line. It indicates that the MaxSun controller is consuming battery power.

Main LED

This LED is located at the end of the line. It indicates that the MaxSun controller identified the battery voltages as low and opened its hybrid system for UPS to use electricity for battery charging

Solar and Main LED

When the Solar and Main LED are on simultaneously, it indicates the MaxSun Controller has activated the true sharing System, in which the controller uses the source of the solar and electricity to maintain the battery's voltages to not reduce more voltages. It will be beneficial for the battery life.

Buttons

There are four buttons available in display, every button has a different function.

ESC (ESCAPE)

This button is available at the first number, this button is used for the MPPT SWEEP option, in this option MPPT system restarts and starts researching the maximum point. This button is also used for going back from menu.

Down & UP

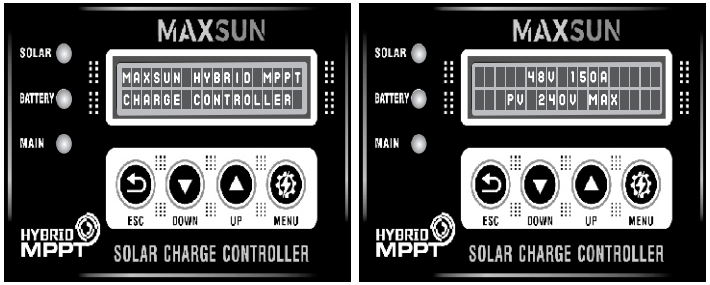
These buttons are available at the second & third number. These buttons are used for the next and pervious screen and these buttons are also used to change an option's value/parameter in the customize setting menu.

Menu

This button is available at the fourth number. This button is used to enter in customize setting menu and for the next screen.

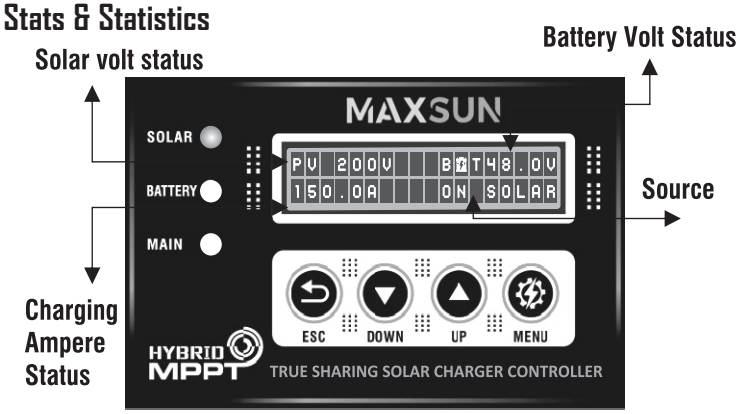
Screens

Welcome & Startup



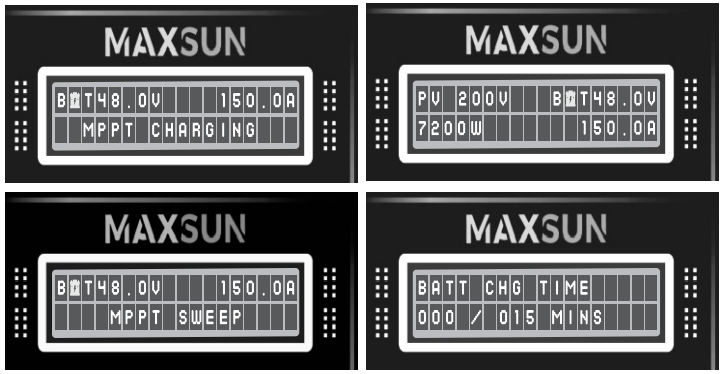
This is the startup screen of the MaxSun Hybrid MPPT Controller, which welcomes you by introducing itself with its Model name and its specifications.

Stats & Statistics



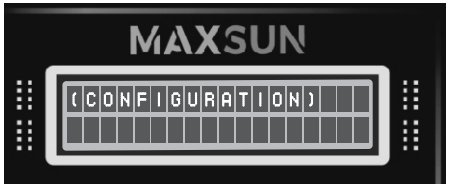
This is the first screen of the MaxSun Hybrid MPPT Controller, which shows its working status, on solar, battery, hybrid, and true sharing and it also shows statistics of current battery volts, coming Solar voltages, watts, and outgoing charging Amperes.

Functional & Informative



There are a few functional screens for the user's convenience. Users can see and change these screens by pressing the down and up key buttons.

Configuration & User Customize Setting



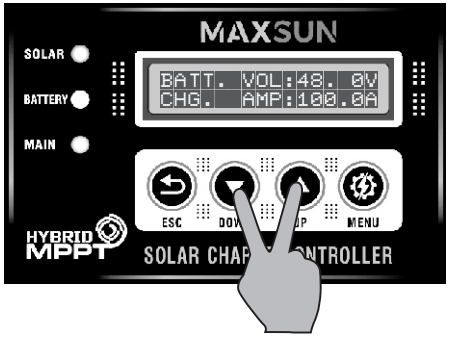
1

2

This screen is for users to customize the setting according to your desire. Users have to press the menu button to enter, after that the controller will again confirm to enter in the configuration menu; again user has to press the menu button. After entering the configuration menu, the user can change values by the long pressing the down and up buttons.

Setting Save Method

User can save changing of parameter by long pressing the UP & DOWN Buttons simultaneously.



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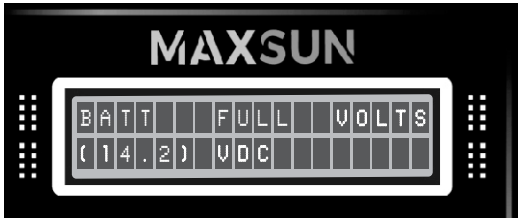
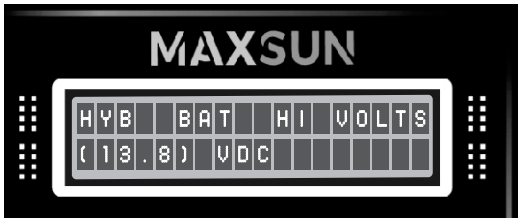
Battery Full Volts



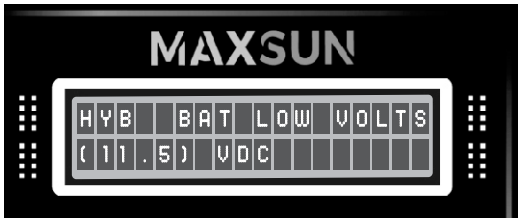
In this menu, the user can change the voltage level for the battery to fully charge.

Hybrid Battery High Volts



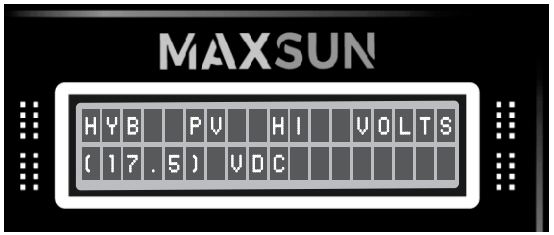
In this menu, the user can change the battery's voltage level to switch off the hybrid mode.

Hybrid Battery Low Volts



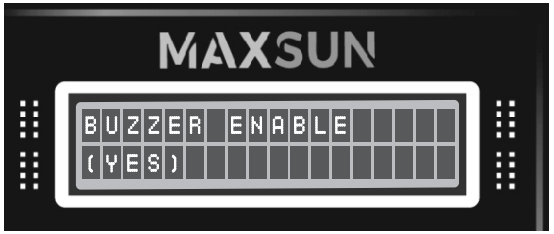
In this menu, the user can change the battery's voltage level to switch on the hybrid mode.

Hybrid PV High Volts



In this menu, the user can change the solar voltage level to switch off the hybrid mode.

Buzzer



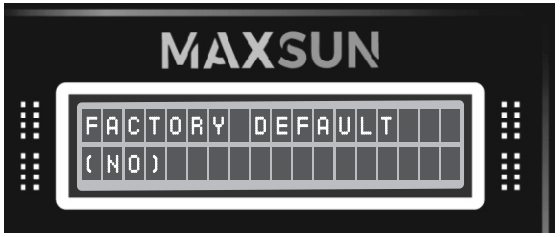
In this menu, you can switch on and off the sound of buzzer. This Alert system is very beneficial and informing, because when sun rises the controller will alert user on connected to the solar power and when sun sets down it will also alert user on disconnected from solar power. Along with this controller will also alert on over and low voltage of solar power and also when battery will low.

Charging Modes

As MaxSun have different type of charging mode; for three different types of batteries; Lead Acid, Tubular and Lithium-ION Batteries. User can also select their desired charging mode by pressing the down/up key. User can select desired charging mode according to their connected batteries.

Factory Default

This option is use to reset the mppt setting to default in case of any changes made. If user made any changes to parameters and after that user want to set the default parameters, then user can use this option.



OPERATING PRINCIPLE

Automatic Voltage Detection

12V/24V/36V/48V

MaxSun Hybrid MPPT Solar Charge Controller auto detects 12V/24V/36V/48V battery charging mode on every startup.

Smart 12V Output

MaxSun has smart output feature, it will give constant 12V and 15A output on every voltage mode (12V/24V/36V/48V).

True Sharing System

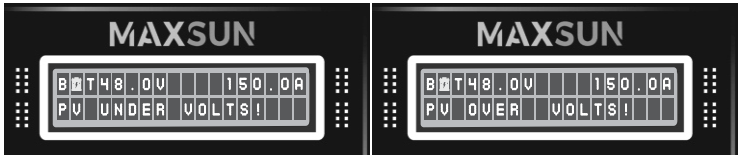
In this system, controller use the power of both electricity and solar at same time. This system will works when your battery reaches at the low volt point, controller will open hybrid system to take power from electricity and also use the power coming from solar. It will utilize every volt coming from solar.

Heat Protection and Cooling System

MaxSun has effective heat protection and cooling system. Heat is controlled by High-speed fan which helps to control the heat and prevent controller from high temperature. Fan will work on both modes (Normal/Hybrid). The Temperature of controller will also be shown in setting menu, it is an additional feature of MaxSun Controller. When temperature cross the limit of 100°C controller will switch off its working and fan will help it to reduce temperature and when it comes down from limit (100° C) controller will automatically starts its charging.

High Voltage and Low Voltage Protection

MaxSun Hybrid MPPT Solar Charge Controller has different five models; Aeonic45, Aeionic60, Aeionic80, Aeionic100 and Aeionic150. They all have different voltage limit. When PV (Solar) volts will below minimum range or higher than maximum range, controller will not pass the current. Controller will remain switch off on both conditions. The error message of under voltage and over voltage will be shown on screen.



Maximum & Minimum Voltage Limits

MaxSun Hybrid MPPT Solar Charge Controller					
Model AEONIC45			Model AEONIC60		
Type	Minimum PV Volt	Maximum PV Volt	Type	Minimum PV Volt	Maximum PV Volt
For 12V	15V	120V	For 12V	15V	120V
For 24V	30V	120V	For 24V	30V	120V
For 36V	45V	120V	For 36V	45V	120V
For 48V	60V	120V	For 48V	60V	120V
Model AEONIC80			Model AEONIC100		
Type	Minimum PV Volt	Maximum PV Volt	Type	Minimum PV Volt	Maximum PV Volt
For 12V	15V	180V	For 12V	15V	180V
For 24V	30V	180V	For 24V	30V	180V
For 36V	45V	180V	For 36V	45V	180V
For 48V	60V	180V	For 48V	60V	180V
	Model AEONIC150				
		Minimum PV Volt	Maximum PV Volt		
	For 12V	15V	240V		
	For 24V	30V	240V		
	For 36V	45V	240V		
	For 48V	60V	240V		

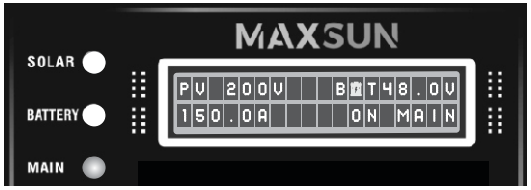
Over Charging Protection

MaxSun Hybrid MPPT Solar Charge Controller has over charging protection. When battery voltage comes at maximum level MaxSun Hybrid MPPT Solar Charge Controller will stop charging it and will switch on the trickle charging mode. Trickle charging is a charging mode, in this mode controller will pass the current according to the need of battery to maintain it power and gravity.

Hybrid Mode

MaxSun Hybrid MPPT Solar Charge Controller has very effective hybrid function. By Using the MaxSun Hybrid Solar Charger Controller you can save electricity by using battery power. MaxSun Controller will charger the batteries with maximum power point tracking (MPPT) technology.

MaxSun's hybrid system is depends on the voltages of battery and solar, when they both reach at their lower limit controller will allow UPS Inverter to use electricity (Wapda) to run AC Load. Till that condition controller will be used to run AC load by using same UPS Inverter with not allowing it to using electricity (Wapda).



INSTALLATION SAFETY INSTRUCTURE

- All wiring must be performed by professional person.
- The place where MaxSun controller has to be mount it must be strong.
- Do not install the unit where the risk of flammable exists.
- Install the unit as per your height convenience so that you can easily watching the display and also monitor the functionality of controller.
- It is recommended to install unit where direct sunlight does not directly expose to unit. It will help to reduce risk of overheating and other damages.

Battery Connections

- Battery Connection Must be done at first to start the controller.
- It is recommended to use suitable wire cables to avoid the power wastage.
- Before performing connection of battery to controller, ensure the wires type "Positive + and Negative - ".

AC Input Connection (For Hybrid Function)

- It is necessary to install an AC breaker between MPPT and Ac input source.
- While making Ac Input connection please ensure that AC connection is disconnected from main source.
- Make sure all wires are securely connected.

PV Connection

While connecting PV modules please consider the defined maximum and minimum parameters.

- Open circuit voltages of PV Module should be higher than defined minimum voltage.
- Open circuit voltages of PV Module should not be higher than defined maximum voltage.