

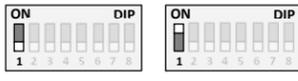
## Specifications:

	EB-MPPT-20, EB-MPPT-20M	EB-MPPT-30, EB-MPPT-30M	EB-MPPT-40, EB-MPPT-40M
Nominal Battery Voltage	12/24 V	12/24 V	12/24 V
Max. PV Open-Circuit Voltage	120 V	120 V	120 V
Nominal Maximum Input Power	300 / 600 W	400 / 800 W	560 / 1,120 W
Maximum Battery Charging Current	20 A	30 A	40 A
Rated Load Current	20 A	30 A	30 A

## Operational Configuration:

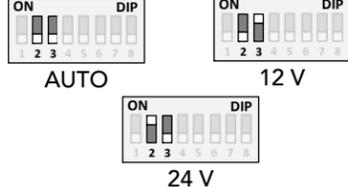
### Switch 1: Load/Lighting

Mode	Switch 1
Normal	OFF
Lighting	ON



### Switches 2 & 3: System Voltage

System Voltage	Switch 2	Switch 3
Auto	OFF	OFF
12	OFF	ON
24	ON	OFF



### Switches 4, 5, & 6: Battery Type Selection

**NOTE:** The EcoBoost MPPT (metered models only) can be programmed to accommodate a wide range of charging parameters. Consult the battery manufacturer for optimal battery charging settings.

#### To select pre-configured settings (all models):

- Configure DIP Switches 4, 5, and 6 to one of the pre-configured selections shown below.

#### To select customized settings (metered versions only):

- Set DIP Switches 4, 5, and 6 to Custom and use the interface on the meter to configure the settings.

See the EcoBoost Installation, Operations, and Maintenance Manual for additional information/guidance.



DIP Switch Setting			Battery Type	Absorption Stage (Volts)*	Float Stage (Volts)*	Equalize Stage (Volts)*	Absorption Time (Minutes)	Equalize Time (Minutes)	Equalize Timeout (Minutes)	Equalize Interval (days)
4	5	6								
OFF	OFF	OFF	1 - Sealed**	14.00	13.50	---	150	---	---	---
OFF	OFF	ON	2 - Sealed**	14.15	13.50	14.40	150	60	120	28
OFF	ON	OFF	3 - Sealed**	14.30	13.50	14.60	150	60	120	28
OFF	ON	ON	4 - AGM/Flooded	14.40	13.50	15.10	180	120	180	28
ON	OFF	OFF	5 - Flooded	14.60	13.50	15.30	180	120	180	28
ON	OFF	ON	6 - Flooded	14.70	13.50	15.40	180	180	240	28
ON	ON	OFF	7 - L-16	15.40	13.40	16.00	180	180	240	14
ON	ON	ON	8 - Custom***	Custom	Custom	Custom	Custom	Custom	Custom	Custom

\* Multiply the voltage by 2 for 24-volt systems.

\*\* "Sealed" battery types include Gel and AGM Batteries

\*\*\* Custom settings can be used for lead-acid batteries.

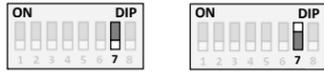
**NOTE:** The EcoBoost settings are not compatible with Lithium-ion batteries.

Shared Settings		Set Point	
Absorption Extension Voltage		12.50 Volts*	
Absorption Extension Time		Absorption Time +30 minutes	
Float Exit Time-Out		30 minutes	

Shared Settings		Set Point	
Float Cancel Voltage		12.30 Volts*	
Equalize Time-Out		Equalize Time +60 minutes	
Temperature Compensation Co-Efficient		-30 millivolts / °C / 12 Volts*	

### Switch 7: Battery Equalization

Mode	Switch 7
Manual Equalization	OFF
Auto-Equalization	ON



**NOTE:** Regardless of DIP 7 setting, manual EQ can be initiated using the on-board meter command, **Start Equalize**. For non-meter versions, DIP 7 only enables or disables auto equalization; manual EQ is not available.

### Switch 8: Not Used

Mode	Switch 8
Default	ON
N/A	OFF



## Contact Information:

Technical Support: [Support.morningstarcorp.com](mailto:Support.morningstarcorp.com)  
Phone: 1-215-321-4457



EIC 62109-1  
EN 62109-1



## Warning: Shock Hazard

Test between all terminals and ground before touching.

Power or accessory terminals are **NOT** electrically isolated from DC input and **may be energized with hazardous solar voltage.**



Worlds Leading Solar Controllers & Inverters



### Models:

- EB-MPPT-20, EB-MPPT-30, EB-MPPT-40
- EB-MPPT-20M, EB-MPPT-30M, EB-MPPT-40M

For 12- or 24-volt Systems

Scan QR Code to go directly to the EcoBoost MPPT Installation Manual and warranty information online.



Warranty Registration: <https://www.morningstarcorp.com/product-registration/>

# EcoBoost MPPT™

Solar Charging System Controller

## Quick Start Guide

### Safety Information:



#### Warning: Shock Hazard

The EcoBoost MPPT controller must be installed by a qualified technician in accordance with the electrical regulations of the country of installation.



#### Warning: Shock Hazard

This unit is not provided with a GFDI device. This charge controller must be used with an external GFDI device as required by the Article 690 of the National Electrical Code for the installation location.



**IMPORTANT:** READ the EcoBoost Installation, Operation and Maintenance Manual for safety and regulatory information, instructions on configuration and operation, and warranty information.

### In the box:

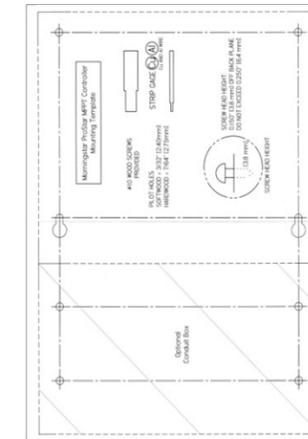


EcoBoost MPPT™ Charge Controller (with Meter)

OR



EcoBoost MPPT™ Charge Controller (without Meter)



Mounting Template

\*A Menu Map is also included with metered versions, but is not shown in this guide.

### Tools Required:

- #2 Philips Screwdriver
- 3/16 (5 mm) & 3/32" (2.5 mm) Flathead Screwdriver
- Drill with a 1/8" (3 mm) bit
- Multimeter



### Optional Accessories:

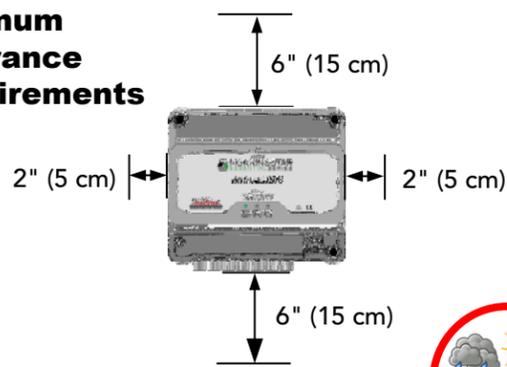


Remote Temperature Sensor (RTS)



PV Ground Fault Protection (GFPD-150V and GFPD-600V)

## Minimum Clearance Requirements



### Caution: Equipment Damage

Do not expose the EcoBoost to weather. Locate in a dry, protected area to prevent equipment damage. Ensure the minimum clearance requirements are followed to provide adequate ventilation and prevent the unit from overheating.

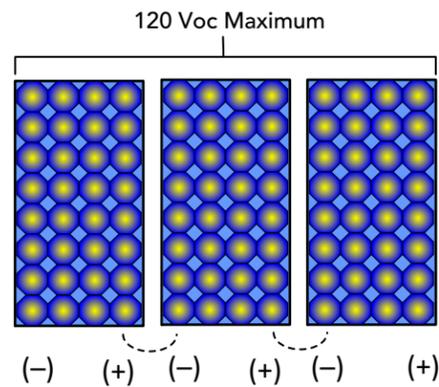


### WARNING: Explosion Hazard

Never install the EcoBoost in an enclosure with vented/flooded batteries. Battery fumes are flammable and will corrode and destroy the EcoBoost circuits. Ensure sufficient ventilation.

## Photovoltaic (PV) Array

See the Morningstar PV String Calculator at: <http://string-calculator.morningstarcorp.com/>

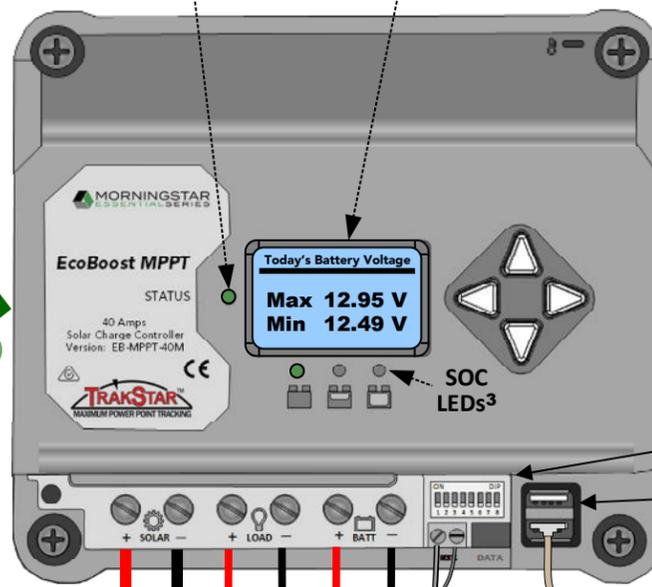


**Chassis Ground**  
(Connects to the M4 screw on the heatsink on the back)

**Ferrite Choke<sup>2</sup>**

**Solar Disconnect<sup>1</sup>**  
(PV GFP required per NEC 690)

Status LED<sup>3</sup>  
LCD Meter Display (Metered versions only)



**DIP Switch Block**  
(enlargement)  
(See Page 4 for settings)

**USB Ports (x2)<sup>2</sup>**

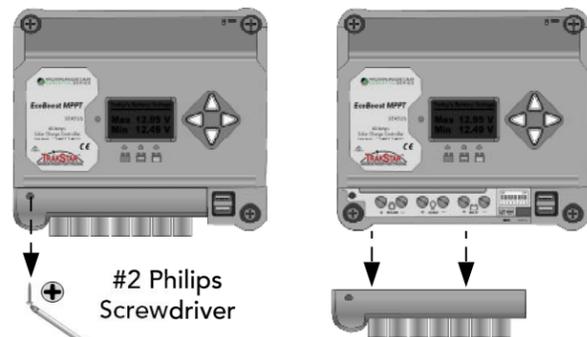
**Ferrite Choke<sup>2</sup>**

**2Note:** Ferrite Chokes ensure compliance with electromagnetic emissions standards. See Section 4.8, Auxiliary USB Charging for additional information.

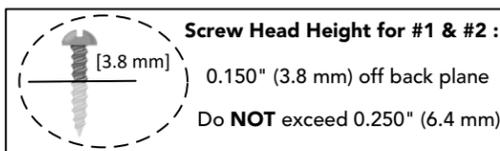
**3Note:** See the EcoBoost MPPT Installation, Operations, and Maintenance Manual for additional information on LED indications.

**Devices to be charged by the USB Ports<sup>2</sup>**

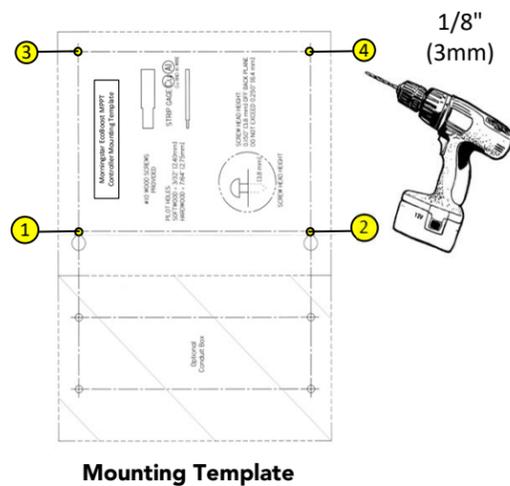
## Mounting:



1. Remove the terminal cover on the charge controller.
2. Use the Mounting Template to pre-drill the mounting holes.
3. Drill holes 1, 2, 3, & 4.
4. Place a screw on which to hang the controller in holes 1 & 2.
5. Back the screw out to 0.150" or 3.8 mm.
6. Place the controller onto the hanging screws. Secure the controller in place with the other 2 screws (3 & 4).

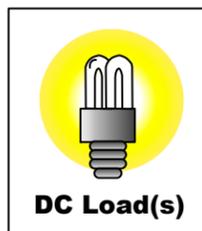


Wiring and Torque Requirements			
Component	Wire Size	Tool Required	Torque (Max)
Power Terminals	2.5 - 16 mm <sup>2</sup> / #14 - 2 AWG	3/16" (5 mm) Flathead Screwdriver	35 in-lbs. (3.95 Nm)
Remote Temperature Sensor (RTS)	(included)	3/32" (2.5 mm) Flathead Screwdriver	5 in-lbs. (0.56 Nm)
Cover Screws	---	#2 Philips Screwdriver	5 in-lbs. (0.56 Nm)

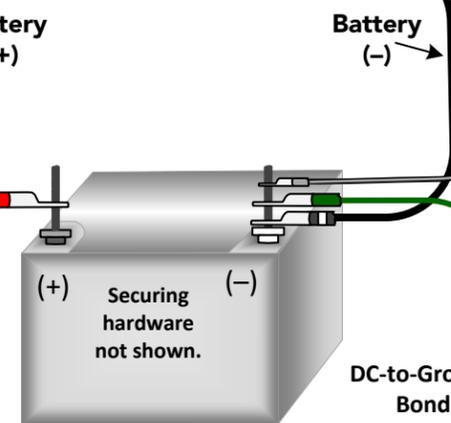


LEGEND	
	Negative (-)
	Positive (+)
	Ground

**1 WARNING: Risk of Fire**  
All over-current protection devices and wiring must be sized properly, in accordance with US National Electric Code (NEC) or the country of installation's local regulations. Fuses or circuit breakers must be sized according to wire ampacity.



**Battery Disconnect<sup>1</sup>**  
6" (15 cm) MAXIMUM Distance from Battery (+) Terminal



**Battery / Battery Bank**  
12-volt or 24-volt

**Primary Ground Electrode Conductor (System Ground)**

**IMPORTANT:** Ensure there is only 1 DC Negative-to-Ground Bond in the entire system.