

LiFe and Eco Series Battery Settings for Morningstar products



OVERVIEW

Settings listed are only applicable to battery charge.

It is the responsibility of the integrator to have a full understanding of Morningstar products prior to programming, and it is preferred that they have attended the manufacturer's training or integration course should they be available.

Secondary Charge Source

If the Morningstar solar charge controller is used with another charger, there is a possibility a conflict can be created between charger sources, and you may need to set the secondary charger $\sim 0.3V$ below the primary charger.

SoC Drift

State of Charge ("SoC") drift happens when the product that is calculating SoC builds up an accumulative error. This error is generally due to tolerance of components that measure voltage and current, and algorithms used to calculate the SoC. Most

products will reset its accumulative error when the system gets to 100% SoC or float.

It is important that a well-designed battery storage system reaches Float stage as regularly as possible, preferably every one to two days to rest SoC drift and at least every seven days to fulfill the warranty restrictions on the battery.

SoC drift can be addressed in many ways.

Examples:






1. Sufficient solar sized to charge batteries to float on the winter equinox.
2. Backup source installed (grid or generator) to allow charging of batteries during extended bad weather or high load events.

Always consult and read the manufactures documentation before designing, installing and programming their devices.

Recommended settings (based on 12V nominal values) for optimal integration

Note	Morningstar controllers are programed using 12V nominal voltage setpoints with MSView software. The controllers use a multiplier of 2 for 24V batteries and 4 for 48V batteries.
Critical Settings	
Absorption Voltage	14.4 V
Absorption Time	Arbitrary Value (regulation voltage maintained indefinitely throughout charging cycle)
Temperature Compensation	0.0 V/C° (Disabled)
Float/Float Voltage/Timeout	Not Enabled
Equalize	Not Enabled
Battery HVD/High Voltage Disconnect/Reconnect	Enable/ 14.8 V/14.00 V
Load LVD (Low Voltage Disconnect)	12.55 V (80%) / 12.37V (90%) / 12.0V (100%)
Load LVR (Low Voltage Reconnect)	1V above LVD
Delay Before Load LVD	1min (Possibly longer for cold temperatures or higher LVD settings)
Optional Recommended Settings	
Absorption Ext	Not Enabled
Low Battery Temperature Foldback	Optional (100% High limit = 1 C°, 0% Low limit = 0 C°)
Battery Service Reminder	Not Enabled (Monitor battery health using 3rd-party shunt meter/coulomb counter)
Float Cancel	Not enabled
Max Regulation Limit	Not enabled
Battery Current Limit	0.5 C
Load Current Compensation	Disabled
Load HVD/High Voltage Disconnect/Reconnect	Enable/15.00 V/14.60 V (Can be used to protect loads from voltage spikes in the event of battery failure during charging operation)

Battery Charge LED Indications (Not intended for accurate SoC measurement)

LED Transitions	4/8/16 Cell		
	12V	24V	48V
 Green Only	> 13.35	> 26.7	> 53.4
 Green – Yellow	13.2	26.4	52.8
 Yellow Only	13.05	26.1	52.2
 Yellow – Red	12.95	25.9	51.8
 Red Only	< 12.95	< 25.9	< 51.8

Settings available for the Morningstar controllers are listed below

12-24V systems	12-48V systems
ProStar MPPT (Includes low temperature foldback to limit the max. charge current)	TriStar MPPT (Compatible with 12V, 24V, 36V, 48V, 60V nominal systems)
SunSaver MPPT	TriStar MPPT 600V (Compatible with 24V, 36V, 48V and 60V nominal systems) [not compatible w/ 12V]
ProStar (PWM) Gen 3 (Includes low temperature foldback to limit the max. charge current)	TriStar [PWM] (Compatible with 12V, 24V, 36V and 48V nominal systems)

Communications hardware required for programming Custom Settings with MSView

ProStar MPPT, ProStar (Gen 3), SunSaver MPPT

[UMC-1 USB MeterBus Adapter](#)

[MSC PC RS-232 MeterBus Adapter](#)

[EMC-1 Ethernet MeterBus Converter](#)

TriStar, TriStar MPPT, TS-MPPT-600V

Includes an RS-232 port for connection to a PC

TS-MPPT-60 (60A, 150V and 600V) models also include an Ethernet port and EIA-485 port

[EMC-1 Ethernet MeterBus Converter](#)

Tripp Lite U209-000-R USB / Serial DB-9 (RS-232) Adapter Cable (*not available from Morningstar*)

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Installers should ensure an adequate system design is carried out at all times. PPE accepts no responsibility for underperforming system designs. As part of our continued improvement process, settings are subject to change without notice and are correct at time of publishing.