IMPORTANT SAFETY INFORMATION:

WARNING: Shock Hazard
The GenStar MPPT must not be installed by a qualified technician in accordance with the electrical regulations of the installation location. Improper electrical installation could result in a fatal shock hazard.

WARNING: Equipment Damage or Risk of Explosion
Never install the GenStar MPPT in an environment with flammable gases or dust. Battery fumes are flammable and will corrode and destroy the GenStar MPPT circuits.

MOUNTING:

Choose an indoor mounting location, with no exposure to water or sun. When mounting, allow for proper air flow, as seen in upper-right illustration.

Use only pan head screws. Use mounting template to mark, and drill (3)-1/8” in. screw hole locations. Drive top screw head to 1/4 in. from flush with wall. Hang keyhole slot on hanging screw head - see lower-right illustration. Drive top screw head and (2) lower screw heads flush with mounting brackets.

OPTIONAL ACCESSORIES:
See product manuals at www.morningstarcorp.com/support/library/

ReadyRelay (RB-Relay-1)
The ReadyRelay is an expansion block that adds AC or DC relay dry contact hardware functionality and firmware control and logic to the GenStar MPPT.

ReadyShunt (RB-Shunt-1)
The ReadyShunt is an expansion block designed to display measured branch currents, count Amp-hours for those branches, and allow net maximum charge current into a battery, but not exceeding the battery's maximum charging rate.

ReadyBMS (RB-BMS-1)
The ReadyBMS provides simple visibility of battery performance, hands-free settings and optimized battery control. Through the ReadyBMS, the GenStar MPPT will report any data variable contained in the battery BMS.

WIRE SIZE RANGES and TORQUE REQUIREMENTS

Connection Point | Wire Size | Max. Torque
--- | --- | ---
Power Terminals | #6-1/0 AWG (8.4 - 53.4 mm²) | 100 in-lb (11.3 N·m)
Load Terminals | #14-6 AWG (2.1 - 13.3 mm²) | 35 in-lb (4.0 N·m)
Equipment Grounding Terminal | #14-6 AWG (2.1 - 13.3 mm²) | 50 in-lb (5.6 N·m)
Battery Voltage Sense Terminals | #24-16 AWG (0.2 - 1.3 mm²) | 5 in-lb (0.56 N·m)
Remote Temperature Sensor | INCLUDED | 5 in-lb (0.56 N·m)

SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Product</th>
<th>GS-MPPT60</th>
<th>GS-MPPT80</th>
<th>GS-MPPT100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Battery Voltage</td>
<td>12-24-48V</td>
<td>12-24-48V</td>
<td>12-24-48V</td>
</tr>
<tr>
<td>Maximum PV Open-circuit Voltage</td>
<td>200V</td>
<td>200V</td>
<td>200V</td>
</tr>
<tr>
<td>Nominal Maximum Output Power</td>
<td>800-1600W</td>
<td>1075-2150W</td>
<td>1350-2700W</td>
</tr>
<tr>
<td>Maximum Recommended PV Input</td>
<td>1200-2400W</td>
<td>1600-3200W</td>
<td>2000-4000W</td>
</tr>
<tr>
<td>Max. Battery Charging Current</td>
<td>60A</td>
<td>80A</td>
<td>100A</td>
</tr>
<tr>
<td>Rated Load Current</td>
<td>30A</td>
<td>30A</td>
<td>30A</td>
</tr>
</tbody>
</table>

150% of Nominal Maximum Output Power

CAUTION:
This guide must be used with GenStar MPPT circuits.

CAUTION:
Ensure sufficient ventilation - see clearance illustration on p. 3 - and do not install in a sealed enclosure. Improper ventilation will result in over-heating and a decreased product lifetime.

LEGEND

NOTE: Actual wire routing and connection hardware components may vary.

WARNING:
Risk Of Electrical Shock.
NO POWER OR ACCESSORY TERMINALS ARE ELECTRICALLY ISOLATED FROM DC INPUT, AND MAY BE ENERGIZED WITH HAZARDOUS SOLAR VOLTAGE. UNDER CERTAIN FAULT CONDITIONS, BATTERY COULD BECOME OVER-CHARGED. TEST BETWEEN ALL TERMINALS AND GROUND BEFORE TOUCHING.

WARNING:
Risk Of Electrical Shock.

LEGEND

NOTE: Actual wire routing and connection hardware components may vary.

WARNING:
Risk Of Electrical Shock.
NO POWER OR ACCESSORY TERMINALS ARE ELECTRICALLY ISOLATED FROM DC INPUT, AND MAY BE ENERGIZED WITH HAZARDOUS SOLAR VOLTAGE. UNDER CERTAIN FAULT CONDITIONS, BATTERY COULD BECOME OVER-CHARGED. TEST BETWEEN ALL TERMINALS AND GROUND BEFORE TOUCHING.

WARNING:
Risk Of Electrical Shock.

LEGEND

NOTE: Actual wire routing and connection hardware components may vary.
WARNING: When installing the GenStar MPPT, refer to product manual Section 3.1 - General Installation Notes - and all mandatory Section 3.3 Overcurrent Protection Devices and 3.4 Wiring ratings, specifications, warnings and cautions.

WIRED ACCESSORY INSTALLATION: Refer to product manual Section 3.4 - Steps 1 and 2 - for important safety warnings, and additional information.

Install ferrite core with at least one RTS wire loop, then close and lock core.

COMMISSIONING:
Commissioning requires the user to enter and confirm important settings required for basic operation. Connect the battery to initiate the commissioning procedure, and then follow the meter prompts. Do not connect the solar input until after the controller has been commissioned.

The commissioning flowchart - p. 6 - illustrates the selectable options required to prepare the GenStar-MPPT for operation or further programming. After commissioning, disconnect and then reconnect the battery to re-start the unit, connect the solar input. When powering down, disconnect the solar input, disconnect the battery.

CONFIGURATION:
All settings - excluding factory reset - can be configured using Morningstar LiveView web pages - see the main LiveView web page for locations and screens. The product manual configuration sections describe all settings details in terms of LiveView screens, and many settings are also accessible within the Setup-Installer Setup on-board meter menus shown below and in Section 4 of product manual.

BATTERY SENSE (+) (-)
RTS LUGS

LVD-LVR PROFILES

<table>
<thead>
<tr>
<th>Battery Type-Profile</th>
<th>Absorption Voltage</th>
<th>Float Voltage</th>
<th>Equalization Voltage</th>
<th>Absorption Time</th>
<th>Equalization Time</th>
<th>Equalization Timeout</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Sealed</td>
<td>14.10</td>
<td>13.70</td>
<td>Disabled</td>
<td>150</td>
<td>Disabled</td>
<td>150</td>
</tr>
<tr>
<td>2 - Sealed</td>
<td>14.30</td>
<td>13.70</td>
<td>14.6(^1)</td>
<td>150</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>3 - Sealed / Flooded</td>
<td>14.50</td>
<td>13.60</td>
<td>15.01</td>
<td>180</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>4 - Sealed / Flooded</td>
<td>14.60</td>
<td>13.50</td>
<td>15.21</td>
<td>180</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>5 - Sealed / Flooded</td>
<td>14.80</td>
<td>13.50</td>
<td>15.41</td>
<td>180</td>
<td>120</td>
<td>180</td>
</tr>
<tr>
<td>6 - LiFePO4 - Low(^2)</td>
<td>13.60</td>
<td>13.50</td>
<td>Disabled</td>
<td>180</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>7 - LiFePO4 - Medium(^2)</td>
<td>13.90</td>
<td>13.50</td>
<td>Disabled</td>
<td>20</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
<tr>
<td>8 - LiFePO4 - High(^2)</td>
<td>14.20</td>
<td>13.50</td>
<td>Disabled</td>
<td>15</td>
<td>Disabled</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

1 “RTS Required”, is the default setting. Once a unit is commissioned with this default, a subsequent change to “RTS not required”, necessitates that the unit be re-commissioned via a Factory Reset using the local meter - Installer Setup, Commands, Factory Reset. Also see RTS Start-up and Run-time Behavior Tables in the Commissioning Section of the full manual.

2 CAUTION: LiFePO4 settings are for 4, 8 and 16-cell LiFePO4 batteries only.

• Preset temperature compensation co-efficient for sealed or flooded batteries = -30 Millivolts / °C / 12V – temp. comp. is disabled for LiFePO4 presets.

• All settings, including charging stage voltages and timing, can be custom programmed using the local meter - LiveView. LiveView includes additional advanced custom programming options.

• CAUTION: Equipment Damage
Do not equalize sealed batteries with preset or custom settings unless recommended by the battery manufacturer. To prevent the possibility of unintended equalization, use custom settings to disable all equalization.

• CAUTION: Settings may not be compatible with all models of these battery types.

• All voltage setting values are for 12V systems. Multiply values by two (2) for 24 Volt batteries, or by four (4) for 48 Volt systems.

See full manual for complete details on charging settings operation.

©2023 Morningstar Corporation. All rights reserved.

MS-003634 v4