



THE CHARGE CONTROLLER, REIMAGINED

- True Controller Technology Integration
- 99 % Peak Efficiency
- Total System Visibility & Accessibility with Local and Cloud-Based Monitoring



Shown with optional ReadyBlocks installed

- Fanless Design
- Advanced features can be built-in and fully integrated with exclusive snap-in ReadyBlocks, instead of wired outside the system as accessories
- Powerful Load Control

The revolutionary GenStar represents Morningstar's best engineering efforts brought together in a single design, with full, advanced communications and control features built-in—plus the ability to add more technology to any system through our innovative ReadyRail expansion technology. ReadyBlock™ snap-in modules make it easy to add key features when needed—such as BMS, Shunt and Relay capabilities—ensuring a future-proofed system which can always be upgraded and is never obsolete. Equally important, GenStar MPPT is not just "compatible" with advanced battery chemistries such as lithium—GenStar was engineered with lithium in its DNA.

In short, we designed GenStar MPPT to be the industry's first truly "future-proofed" charging system, one that can grow with a solar powering system as needs change. The new GenStars feature best-in-class efficiency and extremely low self-consumption, thanks to fanless design along with our acclaimed TrakStar™ MPPT technology. Full communications capability as a standard feature and international certifications for global use complete Morningstar's next generation of charge controllers—and set a new bar for the rest of the industry.

Key Features & Benefits

- ✓ ReadyBlock expansion system through exclusive ReadyRail design achieves true controller technology integration. All information is instantly available since it's actually part of the hardware and software of the charge controller itself, instead of outside the system as with a typical stand-alone accessory device. Available ReadyBlock modules include:
 - **ReadyShunt:** Battery meter & DC Current Sensor for monitoring SOC, energy in/out (Amp hours), current measurement for system sources and loads, and more
 - **ReadyBMS:** BMS Interface for full communications and control with lithium batteries
 - **ReadyRelay:** Relay Controller for signaling (dry contact) & advanced load control
- ✓ Full network integration without requiring adapters – Modbus™ via RS-232, USB and EIA485; ModbusIP™, SNMP and HTML (LiveView 2.0) via Ethernet, MS-CAN connects MS Devices (proprietary), EIA-485 serial to Ethernet bridging
- ✓ LiveView 2.0 Web App and Morningstar Mobile App provide live dashboard views, system control and firmware updates.
- ✓ LiveView 2.0 also includes settings adjustments and historic data
- ✓ Powerful Load Control – built-in 30 A load capability, unique for controllers in this power class
- ✓ Oversized PV Array Input capability – array input power rating @ 150% meets today's system design needs for PV oversizing
- ✓ Extensive electronic protections include cold-weather lithium "fold back" circuitry to guard against cold-weather charging damage. Also, short-circuit, over-current and reverse polarity to ensure the controller will not be damaged by wiring mistakes or overloads
- ✓ Fanless design for improved efficiency and exceptional long-term reliability
- ✓ Includes access to Morningstar SolarConnect remote cloud service for visibility into your remote energy system anywhere in the world.

TECHNICAL SPECIFICATIONS

MODELS	GS-MPPT-60M-200V		GS-MPPT-80M-200V		GS-MPPT-100M-200V	
Electrical						
Maximum Battery Current	60 A		80 A		100 A	
Max. Input Voltage	200 V					
Max. Input Current	60 A		80 A		100 A	
Nominal Operating Voltage	12-24-48 VDC					
Battery Voltage Range	9 V–72 V					
Load Current	30 A		30 A		30 A	
Max. Self-Consumption	< 2.4 Watts (12/24 V); < 3.2 Watts (48 V)					
Grounding Leg	Negative (Positive Ground compatible with singular ground point)					
Real-Time Clock (RTC)	Yes, w/ coin cell backup					
Peak Efficiency	99 %					
Transient Surge Protection	4500 W/port (battery, solar and load terminals)					
Nominal Maximum Output Power	Max Output	Max PV Input*	Max Output	Max PV Input*	Max Output	Max PV Input*
12 Volt	800 W	1200 W	1075 W	1600 W	1350 W	2000 W
24 Volt	1600 W	2400 W	2150 W	3200 W	2700 W	4000 W
48 Volt	3200 W	4800 W	4300 W	6400 W	5400 W	8000 W
Max. Recommended Solar PV Input	~150 % of Nominal Max Output Power ("Max PV Input" column above)					
I/O, Communication, Interfaces	SD Card (8 GB included) for logging, firmware updates, setpoints (unique with all 3 functions) USB-C for data, RS232/EIA-485 ports, Ethernet, Bluetooth® Low Power, MS-CAN					
ReadyRail ReadyBlock Support	3 ReadyBlock slots for expandability (BMS, Shunt, Relay)					
Standard Graphical Meter	•					
Remote Temperature Sensor, Battery Sense	•					
Battery Chemistries Supported	Lithium (multiple types), Lead-Acid (all types), NiCad, Flow					
Protections	Reverse night current, Solar short circuit, PV reverse polarity, Solar overload (current limit), Load short circuit & overload, Battery removal protection, Low & high-temperature foldback, High voltage foldback					
Software						
LiveView 2.0 Web App	Dashboard, Settings Adjustment, Schedules, Actions, Firmware Update,Logged, Data View					
Supported Protocols	Modbus™, ModbusIP™, HTTP, SNMP (v1, v2c, v3), Bluetooth® LE					
Morningstar Mobile App	Dashboard , Actions , Firmware Update					
Datalogging Capacity & Capability	Internal (LiveView): 3–4 years of daily records, 35,000–140,000 events (event frequency can vary greatly), Nearly infinite storage with 8 GB SD card (data files only)					

The PV array power rating may exceed the controller's Max Nominal Output Power specification. The controller will limit battery current and prevent damage. Array oversizing should be considered on a case-by-case basis. See the array string sizing tool and related technical documentation.

<https://www.morningstarcorp.com/arrayoversizing>

TECHNICAL SPECIFICATIONS (CONTINUED)

MODELS	GS-MPPT-60M-200V		GS-MPPT-80M-200V	GS-MPPT-100M-200V
Mechanical				
Enclosure Rating	IP20			
PV Input and Battery Wire Size Range	10 – 53.5 mm² / #8 – 1/0 AWG			
Load Wire Size Range	2.5 – 13.3 mm² / #14 – 6 AWG			
Equipment Ground Wire Size Range	2.5 – 33.6 mm² / #14 – 2 AWG			
Battery Sense Wire Size Range	0.25 – 1.0 mm² / #24 – 16 AWG			
Product Weight	14 lb 10 oz / 6.63 kg	15 lb 10 oz / 7.09 kg	16 lb 7 oz / 7.46 kg	
Product Dimensions (H × W × D)	14.2 × 8.75 × 6.70 in / 360.4 × 222 × 170.2 mm			
Shipping Dimensions (L × W × H)	18.5 × 12.5 × 10.5 in 469.9 × 317.5 × 266.7 mm	18.5 × 12.5 × 10.5 in 469.9 × 317.5 × 266.7 mm	18.5 × 12.5 × 10.5 in 469.9 × 317.5 × 266.7 mm	
Shipping Weight	18.5 lbs / 8.39 kg	20.0 lbs / 9.07 kg	21.0 lbs / 9.52 kg	
Environmental				
Ambient Operating Temperature Range	-30 °C to +60 °C (current may de-rate above 45 °C)*			
Storage Temperature Range	-50 °C to +80 °C			
Max. Operating Altitude	3000 meters			
Humidity	100 % non-condensing			
CERTIFICATIONS				
UL 1741 / CSA 22.2 107-1	•			
IEC 62109-1	•			
EMC Directive 2014/30/EU	•			
ICES-003 (latest std, class B)	•			
FCC Class B Compliant	•			
CEC Australia Listing	•			
IEC 60950	•			

Thermal performance depends on the model and system parameters. See operating manual and [Heat Dissipation of GenStar MPPT Controllers Inside Enclosures white paper](#) for further performance characteristic data and information.

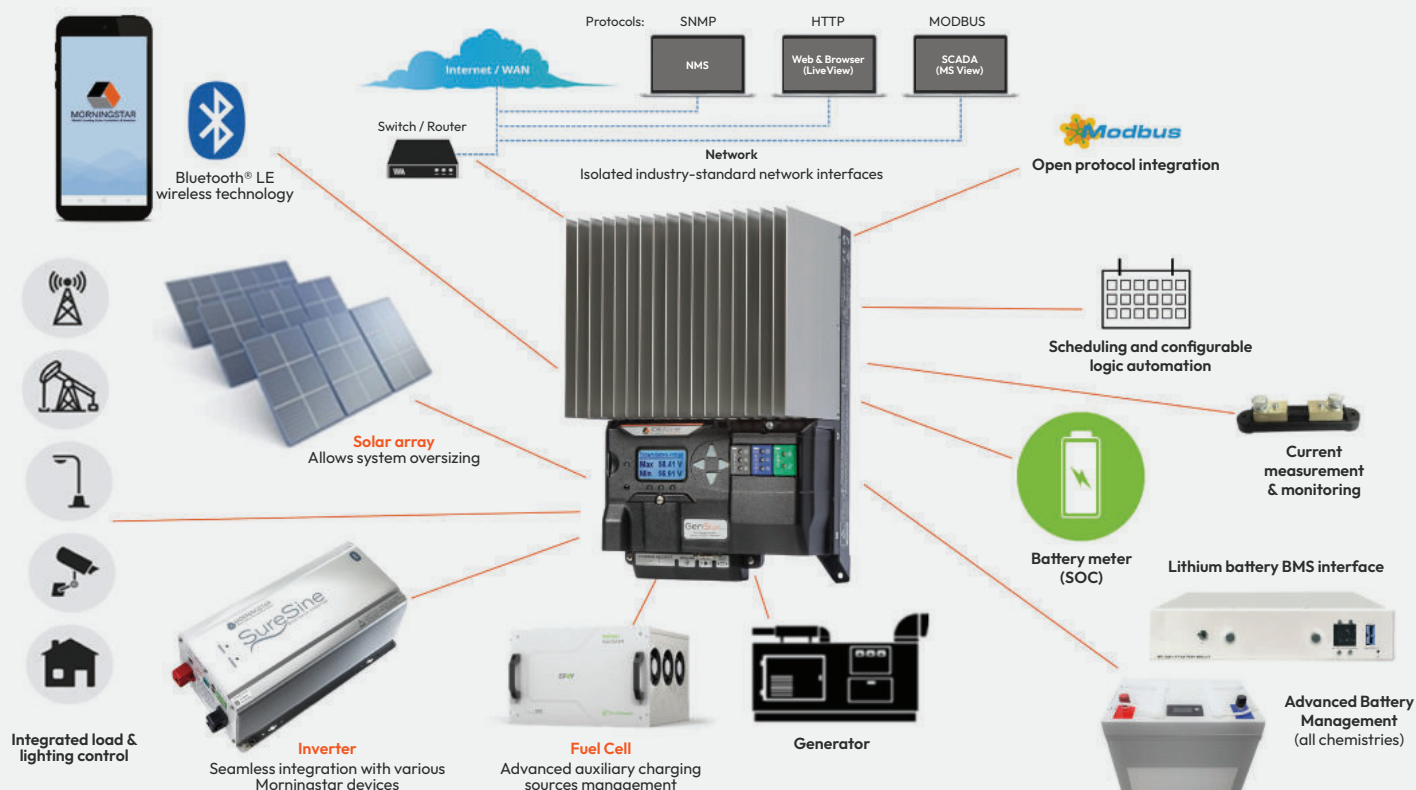


Morningstar Mobile App
Android
Google Play Store

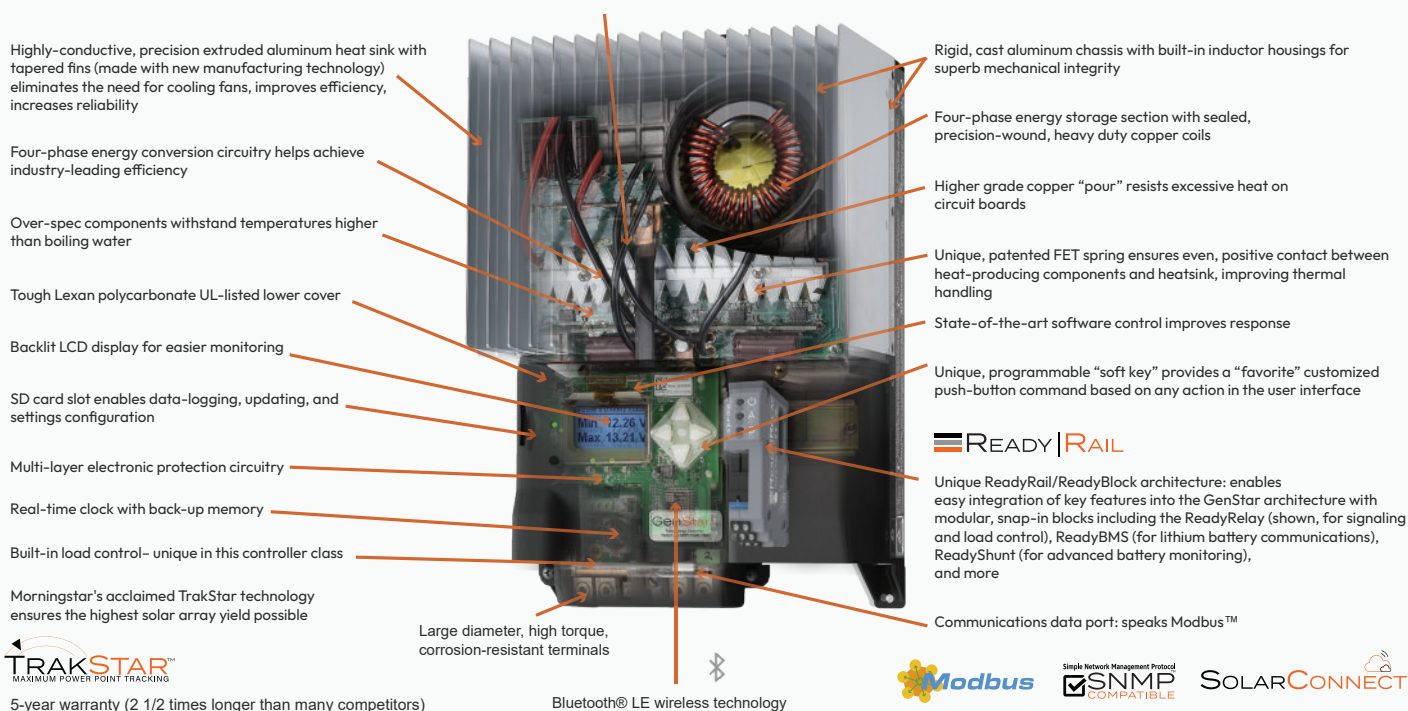


Morningstar Mobile App
iOS
Apple Store

GENSTAR MPPT DC SYSTEM CONTROLLER CAPABILITIES



DirectFET™ MOSFET premium power devices for superior internal heat transfer and array isolation



TRAKSTAR™
MAXIMUM POWER POINT TRACKING

5-year warranty (2 1/2 times longer than many competitors)

MORNINGSTAR
THE OFF-GRID SOLAR EXPERTS

www.morningstarcorp.com