

48V BELT MOTOR GENERATOR (BMG)



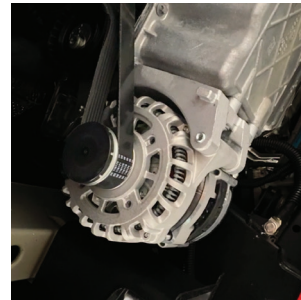
Power. Precision. Intelligence.

The Safiery Belt Motor Generator redefines the concept of onboard power generation. It is not a traditional alternator — It is a next-generation 48V generator system engineered for performance, efficiency, and intelligent control. Designed for modern electric and lithium-based systems, it delivers 90% generator efficiency with compact, lightweight design.

There are 5 models that change based on engine mount. Billet machine.

Problems with traditional alternators:

- Max efficiency when hot around 50%
- Max power for 48V models at idle is low
- No redundancy on windings
- Load dumps if lithium BMS stops charge suddenly
- No intelligent load control if engine at low RPM



2025 4 Cyl MB Sprinter
Genuine MB Parts used.
N62 Kit compliant.



2025 Isuzu NPS 300
Special bracket for engine
As well as frame change

Key Advantages

High Power Density — compact, lightweight design delivering up to 11 kW total output
Exceptionally Efficient — 90% generator and 94% inverter efficiency even at low speeds
Power at Idle — produces over 2 kW at engine idle
Real time Torque Sensing — can't overload engine at any RPM
Intelligent Charging Control — compatible with CAN and any non-CAN 48V lithium batteries
Integrated DC DC — Choice of second voltage charging or power supply up to 3,000W
Redundancy — Dual 3 Phase Windings; 50% power if one set fails
Drop-in Mounting — N62 frame: Sprinter, Pad mount: trucks and four models for marine engines
Dual Systems — True Master/slave for Dual engines plus Scotty AI for 24V or 12V charging

Efficient Energy for Modern Power Systems

The Safiery BMG is built for continuous, high-demand environments — from long-haul vehicles and expedition RVs to yachts and commercial vessels. With up to 11 kW peak output and 3 kW continuous at idle, it maintains charging even at low RPM, ensuring dependable power replenishment across all onboard systems.

Continuous Power	7.3–8.9 kW @ 6,000 RPM
Peak Power	10 kW @ 48V (SHSA4801 truck mount is 12kW)
Idle Output	> 2,000 to 3,000W
Max Speed	18,000 RPM
Operating Temperature	-40°C to 105°C
Efficiency	85% Round Trip (DC Motor 90%; Inverter 94%)
Weight	7.3–9.0 kg (Sprinter to Cummins mount)
IP Rating	Motor: IP25 / Inverter: IP6K9K

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Characteristic	Safieri BMG (Belt Motor Generator) Hybrid Synchronous Generator	Traditional 48V Alternator With Wakespeed/Balmar Regulator	Integrel E-Drive Integrated Generator System
Generator Efficiency	≥85% (Net) 90% motor × 94% inverter	50-65% Hot alternator typical	70-75% Remote Inverter-based conversion
Power Density	1.65 kW/kg 7.3kg for 11kW unit	~1.0 kW/kg Round-wire design	0.76 kW/kg 11.9kg alternator + 5.4kg controller
Peak Power Output	11 kW max 240A @ 48V peak	6.2 kW typical 130A @ 48V	9 kW max Limited by temperature
Power at Engine Idle	5.0 kW AI-optimized field boost	300-500W Limited by low RPM	Not specified Optimized for cruise RPM
Continuous Power	8 kW @ cruise 5.5-8.5kW hot conditions	5-7 kW Temperature dependent	7.5-8.5 kW @ 1700 RPM, temp limited
Voltage Regulation	±0.5% Digital CAN control	±2% Analog field control	Good Proprietary CANbus
Temperature Range	-40 to 105°C Grade H insulation	-20 to 80°C Grade F insulation	-30 to 85°C Marine rated
Expected Lifetime	10 years/300k km 8,000 hours rated	5-7 years 150-200k km typical	8+ years Marine duty cycle
Maintenance	Low Brushless, sealed IP6K9K	Moderate Brushes require service	Low-Moderate Asynchronous design
System Integration	PLUS: Built-in bidirectional DC-DC PLUS: Single compact unit PLUS: Native Victron display	MINUS: Requires separate DC-DC MINUS: Basic integration PLUS: Universal compatibility	MINUS: Requires separate DC-DC MINUS: Multiple components PLUS: Multi-brand support
Safety Features	PLUS: ISO 26262 ASIL B PLUS: 100% load dump protection PLUS: Real-time torque sensing	MINUS: No ASIL rating MINUS: Limited protection MINUS: No isolation	PLUS: Load management MINUS: No ASIL rating MINUS: No torque sensing
Redundancy	Dual 3-phase windings 50% power on failure	None Single winding	None Single asynchronous winding
Smart Features	PLUS: AI auto-tuning PLUS: Scotty AI app control PLUS: Predictive protection	PLUS: Basic remote regulation MINUS: No AI features	PLUS: Engine efficiency optimization MINUS: No AI capabilities
Installation Complexity	Simple Single unit, multiple mounts	Moderate Alternator + regulator	Complex 5+ components required
Overall Rating	9.5/10 Next-gen technology leader	6/10 Proven traditional approach	7.5/10 Good integrated system

SAFIERY SYSTEM LAYERS OVER THE TOP

