

# Starter Generator

## SG12000



### Key Features



Hybrid-ready design to optimize engine size while providing battery assist



Lowest weight in its class to provide outstanding power density



Active air-cooling system operates at high temperatures



100% tested with individual performance reports



Built for industrial strength, longevity, and safety

### Fly Higher. Fly Longer. Fly Smarter.

UAV manufacturers face a complex set of trade-offs to meet the performance requirements for any given application, such as propulsion method and electrical power requirements. A permanent magnet brushless starter generator is a critical component for ensuring that an electrical system can meet the UAV design objectives.

The ePropelled starter generator (SG) series are the most versatile starter generators in their category, allowing for extended flight time, reduced noise, and increased power. The slimline design boasts an active air-cooling system that allows for operating temperatures of up to 180°C (patent pending).

#### ePropelled offers several customizable options for our starter generators:

- Bearingless option—our unique adaptor allows bearingless mounting of the starter generator directly onto the engine.
- Directly mounted on engine crankshaft with custom shaft interface ring
- Customizable active air-cooling rotor hub
- Optional K-type thermal sensor to measure winding temperature

ePropelled offers a range of electrical system components such as intelligent power systems (IPS) that are engineered to work with our starter generators.



## SG12000 TECHNICAL SPECIFICATIONS (PRELIMINARY DATA)

### MECHANICAL

Parameter	Measurement
Diameter	7.48 in (190 mm)
Length	2.68 in (68 mm)
Weight with bearing (incl. high-profile mounting bracket, winding leads and thermal sensor)	9.48 lb (4300 g)
Weight without bearing (incl. high-profile mounting bracket, winding leads and thermal sensor)	9.48 lb (4300 g)
Stator Winding Temperature Sensor	K-Type Thermocouple
Winding Operating Temperature	Up to 356°F (180°C)
Rotor Operating Temperature	Up to 356°F (180°C)
Generator Type	Brushless Permanent Magnet, Outer Rotor
Winding Type	3-phase (hand wound, vacuum impregnated)
No-Load, Line-to-Line-Voltage Constant	9.5 vac/1000 RPM
KV Rating	74
Maximum Continuous Power	3% below peak power
Peak Current	150 A
Peak Power Duration	10 minutes
Mounting Type	Direct on crankshaft via customizable coupling ring

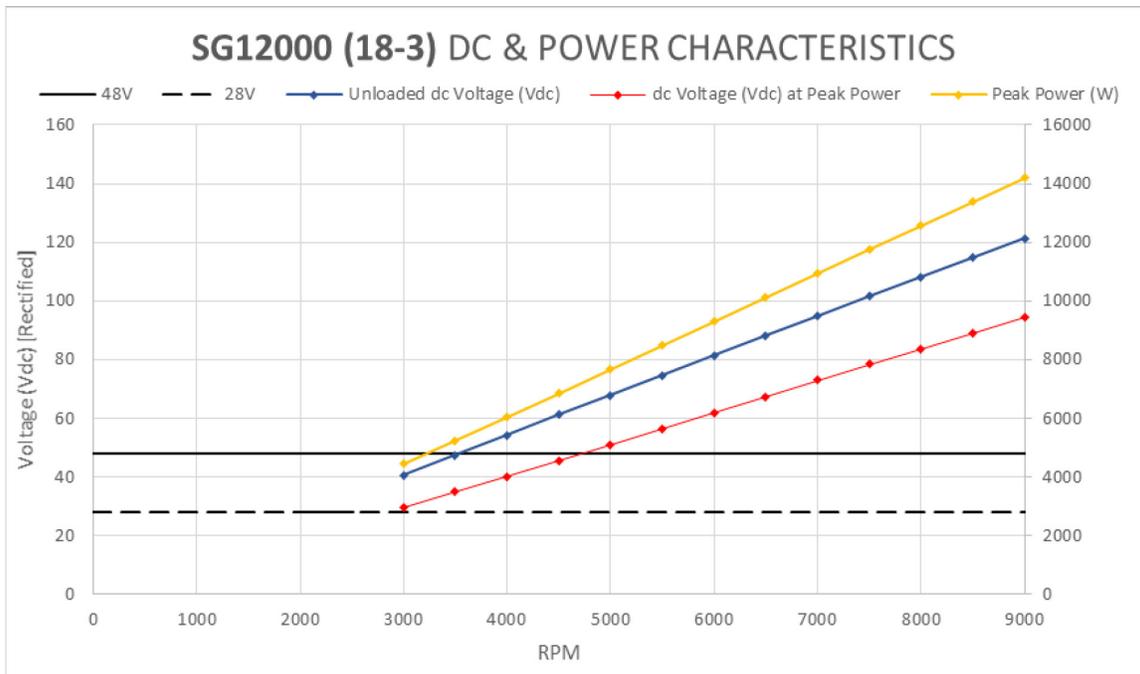
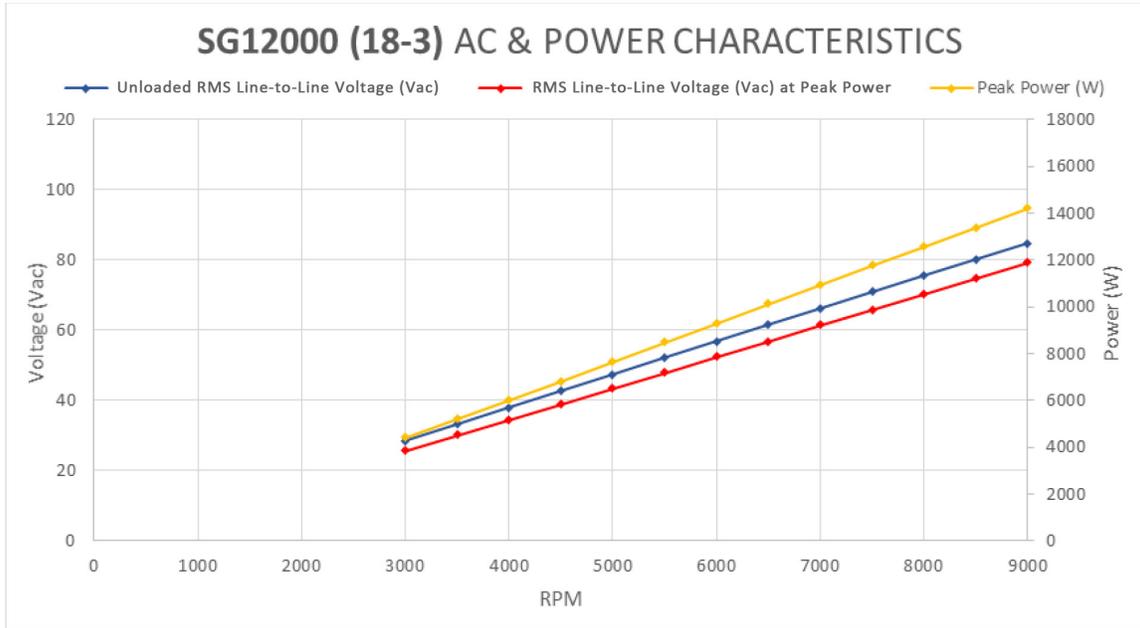
### SG12000 Power Characteristics

ePropelled starter generators require consistent (open) airflow of 2 m/s or larger across the windings to maintain the maximum continuous current and power ratings stated during runtime. The figures in this document are provided as guidelines for normal condition and device operation.

Environmental factors such as air temperature and/or humidity can affect the starter generator's maximum performance limits. Ambient temperature during testing was 25°C. Ensure that the starter generator is used within an environment that does not exceed its safe operational temperature of 180°C for the windings, 180°C for the rotor, and 120°C for the bearing. Tests carried out at mean sea level (altitude 0 ft) and 89% humidity.



## STARTER GENERATOR SG12000



### Assembled in USA

All specifications subject to change without notice. For more information, including ordering product, please contact us at [info@ePropelled.com](mailto:info@ePropelled.com).



ePropelled © 2021. ePropelled designs intelligent motors, motor controllers, and generators that help reduce energy consumption and improve system efficiency at a lower cost. We are a leader in magnetics engineering, and our patented technology and innovative smart power systems are equally at home in the air, on the road, and under water, defining the future of electric propulsion.