



EES3000

HERCULES SERIES

KEY FEATURES



Over temperature warning and pending shutdown warning



Input and output undervoltage warning and pending shutdown warning



Input and output short circuit protection



DATASHEET

Fly Higher. Fly Longer. Fly Smarter.

Uncrewed aerial vehicle (UAV) electronics have evolved to meet more demanding and varied mission requirements. More intelligent energy control and starter designs improve efficiency, expand mission options, reduce size/weight, and lower total costs. The greater levels of intelligence and control delivered in the versatile Hercules EES3000 meets the most stringent demands and UAV design requirements.

Electronic Engine Starters

ePropelled's USA-made and hybrid-ready electronic engine starter (EES) module powers the starter generator during the engine start sequence and can be triggered digitally via the controller area network (CAN) interface, or physically through pins on the connector. The Hercules EES3000 module is paired with ePropelled starter generator Hercules SG3000 and its intelligent power system (iPS) module.

As a motor for takeoff assist in hybrid uses and rapid conversion to a generator, the paired ePropelled starter solution provides steady, regulated DC power for onboard avionics, servo, and other various payload requirements.

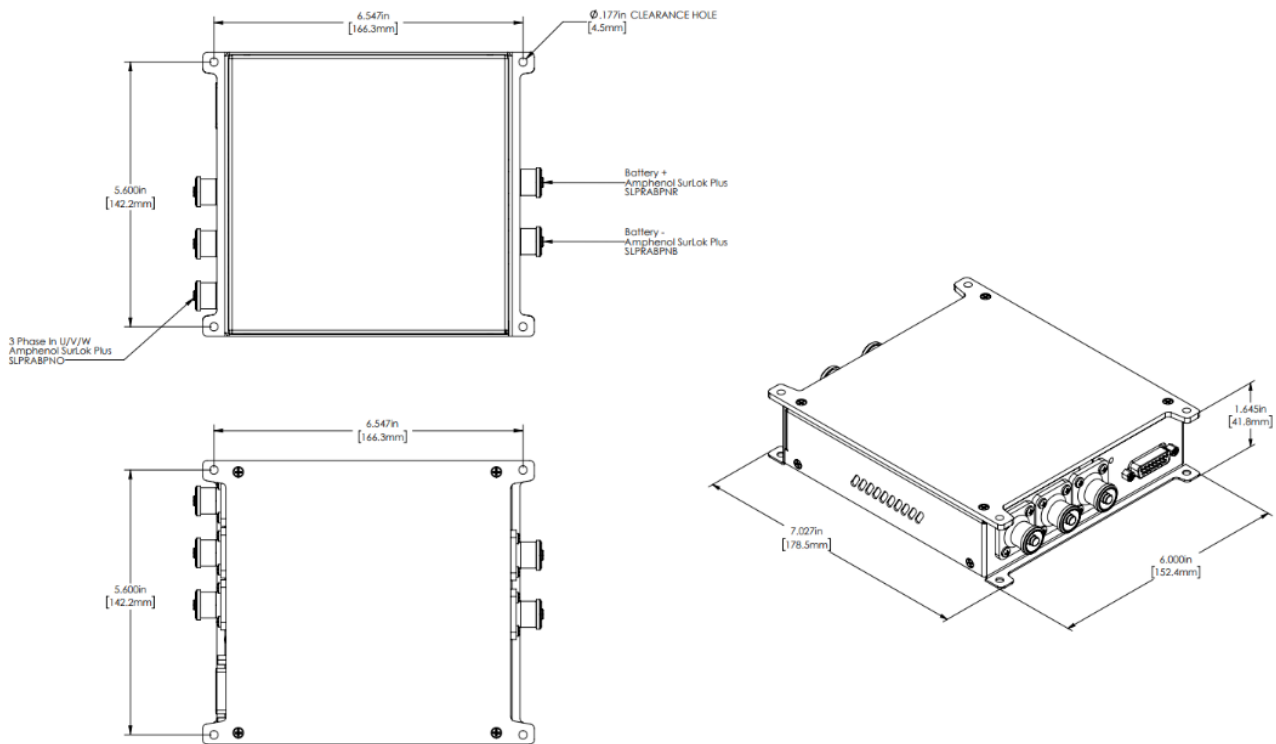
The smart iPS and EES together also provide a wide array of real-time performance and operational data for a range of useful applications and analytics. The EES3000, for example, monitors input and output voltage as well as current levels and collects and reports the data via the CAN interface. Aircraft and power system designers can create custom applications via the open application programming interface (API) and thresholds can be set for parameter threshold alerts and alarms based on specific uses and mission profiles.

EES3000 TECHNICAL SPECIFICATIONS

PARAMETER	INPUT		
	Min	Max	Notes
Input voltage range*	24 V	58 V	DC (28 V default) (See note below)
Input current range	0 A	55A	-
Maximum total input power	3,190W		At 50°C ambient [122°F]
Start duration	1 s	10 s	-
Start trigger	2.3 V	5 V	Applied to " start, input" or via CAN trigger message
PARAMETER	OUTPUT		
	Min	Max	Notes
Output voltage range	0 V	0.82 * Vin	Line-line voltage RMS
Output current range	0 V	125 A	Peak/phase
Maximum total output power (continuous)	3,000 W		At 50°C ambient [122°F]
Max RPM at 24 V	2,205 RPM		With SG3000
Max RPM at 58 V	5,325 RPM		With SG3000
PARAMETER	MECHANICAL		
	Notes		
Dimensions	178.5 x 152.4 x 45 mm		
Weight	950 g		
Cooling	Natural convection (0.1 m/s airflow)		
Ambient operating temperature	-32°C to 50°C at 3,000 W [-26°F to 122°F]		
Storage temperature	-40°C to 85°C [-40°F to 185°F]		
Ingress protection	IP20		

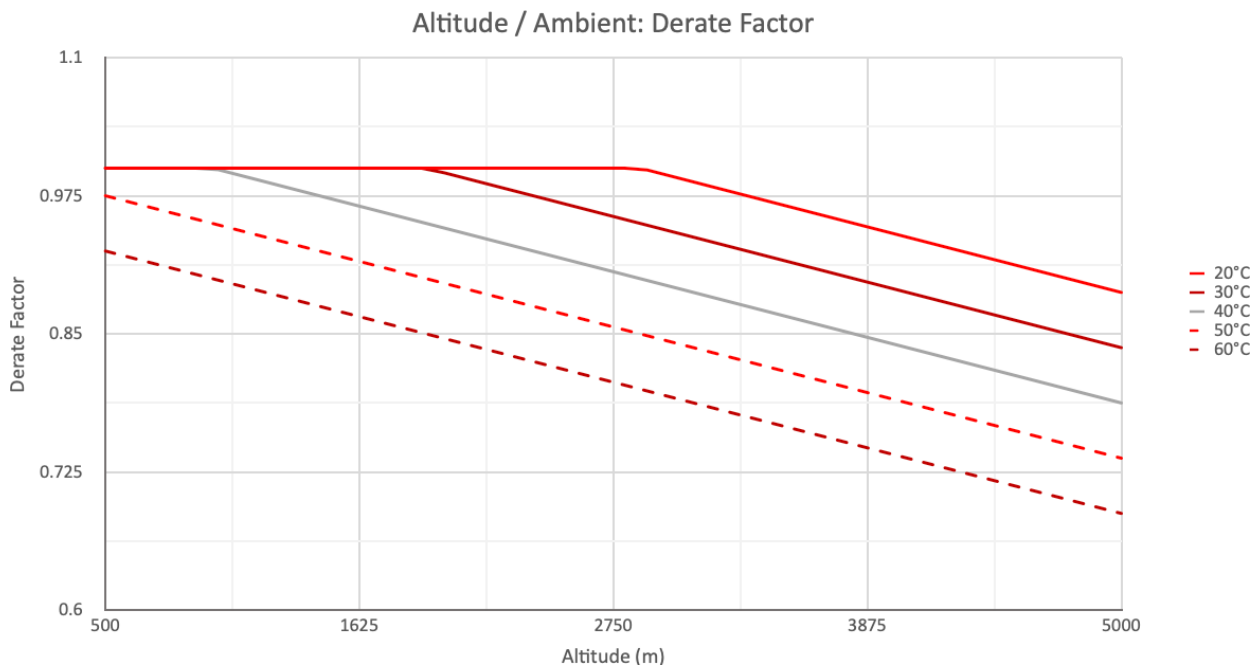
*Note: Depending on the characteristics of the engine, the effective engine starter voltage range may be in a narrower range than specified. This value is only provided as an indication of the range possible and will be dependent on the specific internal combustion engine (ICE) the customer has specified.

MECHANICAL DIMENSIONS



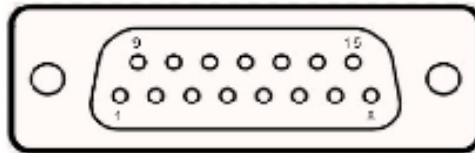
Derating with Increased Altitude

The derating factor for altitude is based on the loss of dielectric strength of the air as the density decrease with the altitude. The diagram below shows how the cooling efficiency changes with high altitude and ambient temperatures.



EES3000 PINOUT

Connector Type	Name	Description
Power (SurLok Plus 5.7 mm receptacles)	AC U	U phase output connection for SG
	AC V	V phase output connection for SG
	AC W	W phase output connection for SG
	Battery+	Positive input connection for starter battery
	Battery-	Negative input connection for starter battery
Communications (female DB-15)	1	TMS (used only for firmware upgrade)
	2	TCK (used only for firmware upgrade)
	3-5	Not to be used by customer
	6	Ground
	7	CAN high
	8-11	Not to be used by customer
	12	Start, input
	13	Start, enable (+3.3 V)
	14	CAN low
	15	Not to be used by customer



Note: All specifications are subject to change without notice. For more information, including ordering products, please contact us at info@epropelled.com | Phone: +1 (603) 236 7444