



EESMC6000

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 Falcon EESMC6000 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 Falcon EESMC6000 module is paired with ePropelled starter generator Hercules SG6000 and its intelligent power system (IPS) module, which provides steady, regulated DC power for onboard avionics, servo, and other various payload requirements.

The hybrid-ready EESMC6000 has the capability to operate in propulsion mode and also converts a paired starter generator into a propulsion motor (SG6000) to assist the combustion engine and provides the UAV with additional takeoff, landing, and agile maneuvering power. This also means a smaller engine is required for normal flying.

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 EESMC6000, 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.

EESMC6000 TECHNICAL SPECIFICATIONS

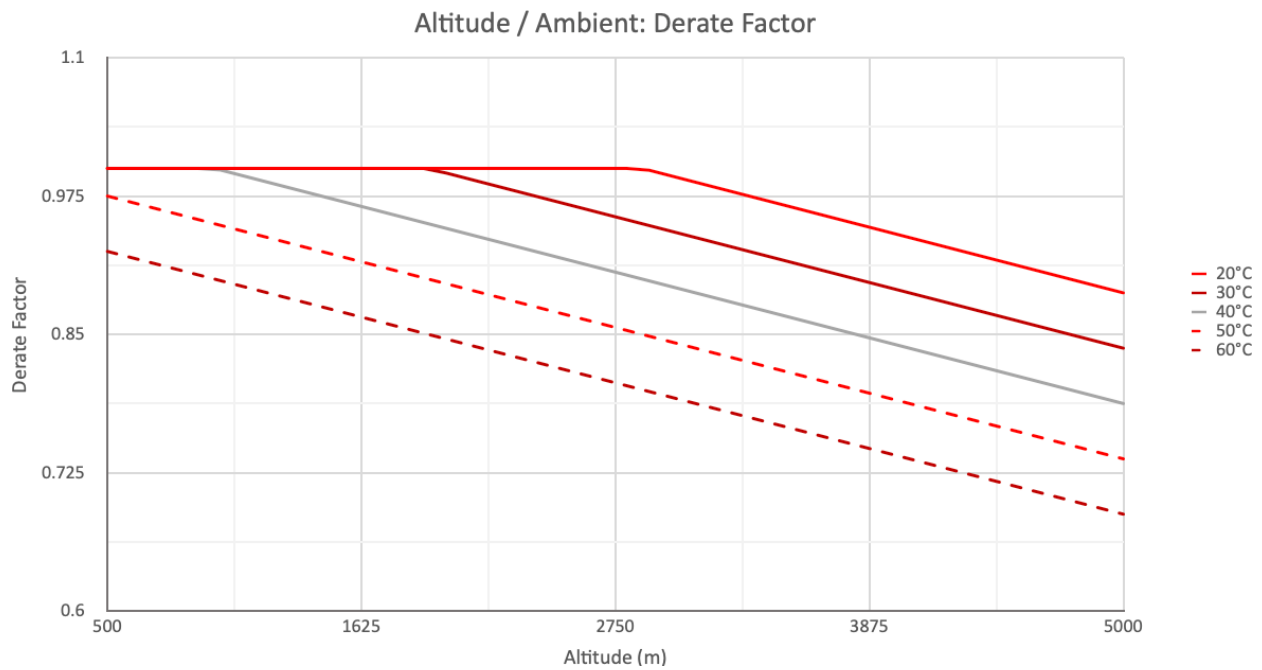
PARAMETER	INPUT		
	Min	Max	Notes
Input voltage range*	65 V	120 V	DC (96 V default)
Input current range	0 A	110 A	-
Maximum total input power	10,200 W		At 50°C ambient [122°F]
Start duration	1 s	10 s	-
Start trigger	CAN or digital		Through external CAN command
PARAMETER	OUTPUT		
	Min	Max	Notes
Output voltage range	0 V	0.577 *Vin	Peak line-neutral, SVM
Output current range	0 V	250 A	Peak
Total power at 3,000 s	10,000 W		
Total power at 60 s	20,000 W		
Maximum RPM as EES	4,000 RPM		Depends on the machine design
Maximum RPS as MC	7,000 RPM		Depends on the machine design
PARAMETER	MECHANICAL		
	Notes		
Dimensions	216.5 mm x 190 mm x 61.78 mm		
Weight	1,900 g		
Cooling	FAN		
Ambient operating temperature	-32°C to 50°C at 10 kW [-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.

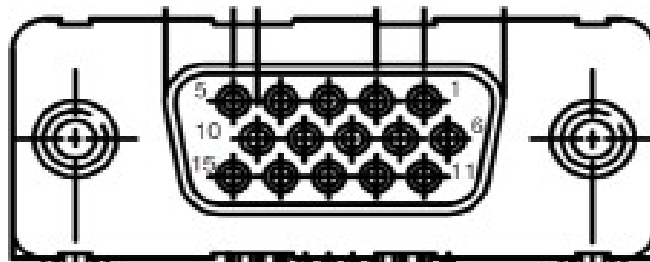


Derating with Increased Altitude

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



EESMC6000 PINOUT			
Connector Type	Pin	Name	Description
Würth 7460719	1	Phase U	3-phase output
Würth 7460719	1	Phase V	3-phase output
Würth 7460719	1	Phase W	3-phase output
Würth 7461383	1	VDC +	DC input power for starting
Würth 7461383	1	VDC -	DC input power for starting
Amphenol ICD15S13E4GX00LF	1	CAN2 LOW	-
	2	START	-
	3	3V3	-
	4	GND	-
	5	CAN1 HIGH	-
	6	CAN2 HIGH	-
	7	BOOT MODE SELECT	-
	8	SCI RX	-
	9	SCI TX	-
	10	CAN1 LOW	-
	11	JTAG TMS	-
	12	JTAG TCK	-
	13	JTAG TDO	-
	14	JTAG TDI	-
	15	PWM INPUT	-
	16/shell	GND	-
RS PRO: 70643748	1	K+	-
	2	-	-



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