






iPS3000

HERCULES SERIES

KEY FEATURES

-  One primary output (Factory 28V or 48V)
-  LED indicators provide status for each output voltage and current
-  Overcurrent and short circuit protection
-  Real Time Data Monitoring (RTDM)
-  Software and Hardware alerts to systems controller
-  High efficiencies of up to 93.5%, load dependent
-  Onboard battery charging



DATASHEET

Fly Higher. Fly Longer. Fly Smarter.

Uncrewed aerial vehicle (UAV) electronics have evolved to meet more demanding and varied mission requirements. More intelligent power management improves efficiency, expands mission options, reduces size/weight, and lowers total costs. The intelligent and integrated power electronics in the sophisticated Hercules iPS3000 meets the most stringent demands and UAV design requirements.

Intelligent Power Systems

ePropelled intelligent power systems (iPS) provide a comprehensive power management solution for aviation by converting 3-phase sinusoidal AC from a starter generator into tightly regulated DC for onboard avionics, servos, and various other payloads. Designed to handle varying input voltages, the Hercules iPS3000 uses active rectification and switching regulation to ensure a steady DC output. It continuously monitors input and output voltages, as well as current levels, and reports this data via a CAN interface. Custom applications and alert thresholds can be configured through an open API. The system also supplies onshore DC power for functions including EES, output power, and battery charging.

Additionally, the iPS3000 features an optional electronic engine starter (EES) that aids in driving the starter generator during engine start-up, switching to regulated voltage once the engine reaches operational speed. If the starter generator fails, an onboard battery (if installed) provides temporary power based on its size, ensuring reliable operation and system integrity.



Battery Features

- The Onboard battery can provide power to outputs if 3-phase generator power is lost
- The Onboard battery is charged when the unit is connected to 3-phase power

Temperatures Monitored and Logged

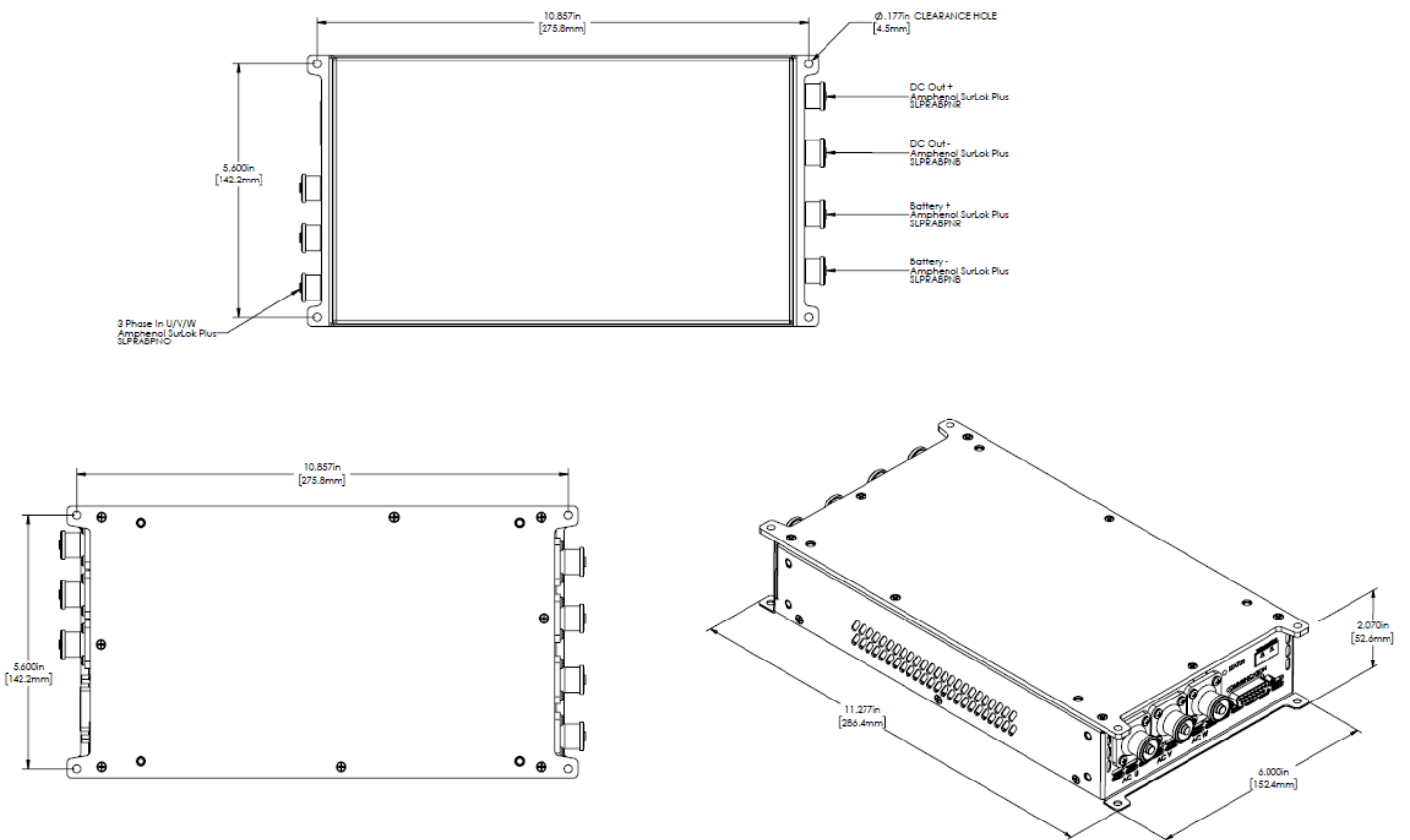
- Synchronous rectifier FETs
- DC Converter FETs
- Output or Input FETs

User-Configurable Parameters

- Conductor compensation voltage boost
- Alert and Threshold Settings
- RTDM Settings
- CAN bus Settings

Mounting Instructions

The figure below depicts the overall dimensions of the iPS chassis. Four holes are used for mounting the unit. Please note that weight and other details are provided in the technical specification table.



iPS3000 TECHNICAL SPECIFICATIONS

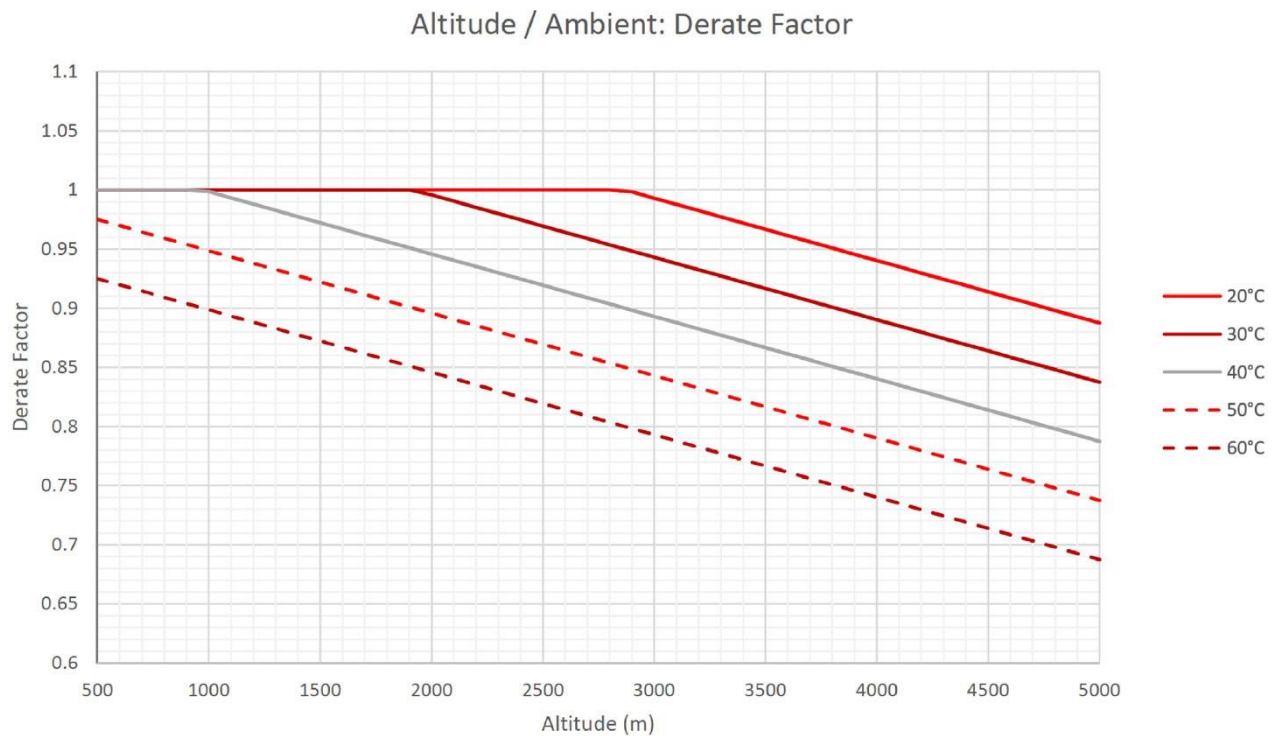
iPS3000 SPECIFICATIONS					
Parameter	INPUT				
	iPS3000-28V		iPS3000-48V		Notes
	Min	Max	Min	Max	
Input voltage range	25 V @ no load 50 V @ full load	95 V	25 V @ no load 50 V @ full load	95 V	Volts RMS No load for system checks only
Onboard battery input	24V	28 V	44 V	48 V	DC
Maximum total input power	3,150W				At 50°C ambient [122°F]
Parameter	OUTPUT				
	Value				Notes
Maximum total output power (continuous)	3,000W				DC at 50°C ambient [122°F]
Primary output voltage	28 V		48 V		DC (108 A, 62.5 A) factory set
Voltage regulation	±500mV				Both 28 V / 48 V versions
Voltage ripple P-P	<500mV				Both 28 V / 48 V versions
Peak efficiency	≥95%				Load dependent
Onboard battery charging voltage(iPS3000-28V)	29.2V		-		Battery type: 8S LiFePo4 or 7S LiPo
Onboard battery charging voltage(iPS3000-48V)	-		54.8 V		Battery type: 15S LiFePo4
Onboard battery charging current	3.33 A				Max
Protection features	Input undervoltage and overvoltage warning Output undervoltage and overvoltage warning *Output short circuit protection Output overcurrent warning and protection Over temperature warning				
Parameter	MECHANICAL				
	Notes				
Dimensions	286.4 mm x 152.4 mm x 52.6 mm				
Weight	1,540 g				
Cooling	Natural convection (0.1 m/s airflow lengthwise) @ 1,250 W Required 5 m/s airflow lengthwise for operation @ 3,000 W				
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				

⚠ ***WARNING:** When operating without an onboard battery, the unit has output short circuit protection. However, if a battery or a power supply is connected to the onboard battery terminals, the short circuit protection will force the unit into a switchover state when the output is shorted. **This will cause damage to the circuit that is responsible for handling the switchover and it will void the warranty.**

⚠ ***WARNING:** The onboard battery must be fused with a **120 A fast blow in-line fuse**. Failure to add the specified in-line fuse will result in damage to the unit and void the warranty.

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.

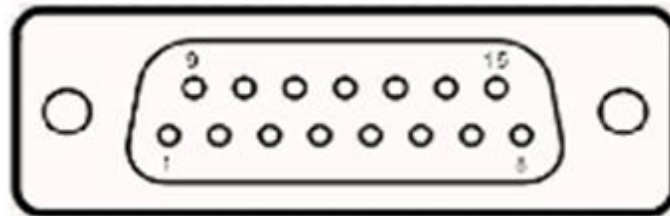


Recommended Applications

- Aircraft power systems
- Unmanned vehicle power systems
- Power conditioning
- Stand-alone power systems (SAPS) for remote area power supply
- Voltage regulation in the renewable power generation system

iPS3000 PINOUT	
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 onboard battery
Battery-	Negative input connection for onboard battery
DC out+	Positive output connection for DC load
DC out-	Negative output connection for DC load
Thermocouple (type-K mini connector)	
TC+	Positive type-K thermocouple input*
TC-	Negative type-K thermocouple input*
Communications (female DB-15)	
1-5	Not to be used by customer
6	Ground
7	CAN high
8-13	Not to be used by customer
14	CAN low
15	Not to be used by customer

***Note:** Thermocouple input used for SG temperature measurement is not yet implemented.



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