



# iPS6000

## HERCULES SERIES

### KEY FEATURES

-  One primary output (factory configurable 28 V or 48 V)
-  High efficiencies of up to 95%, load dependent
-  Software and hardware alerts to system controller
-  Overcurrent and short circuit
-  Onboard battery charging
-  Real-time data monitoring for all voltages, currents, and temperatures
-  Visual status indication for DC output provided through RGB LED

## 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 iPS6000 meets the most stringent demands and UAV design requirements.

### Intelligent Power System

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 iPS6000 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 iPS6000 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

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

## Temperatures Monitored and Logged

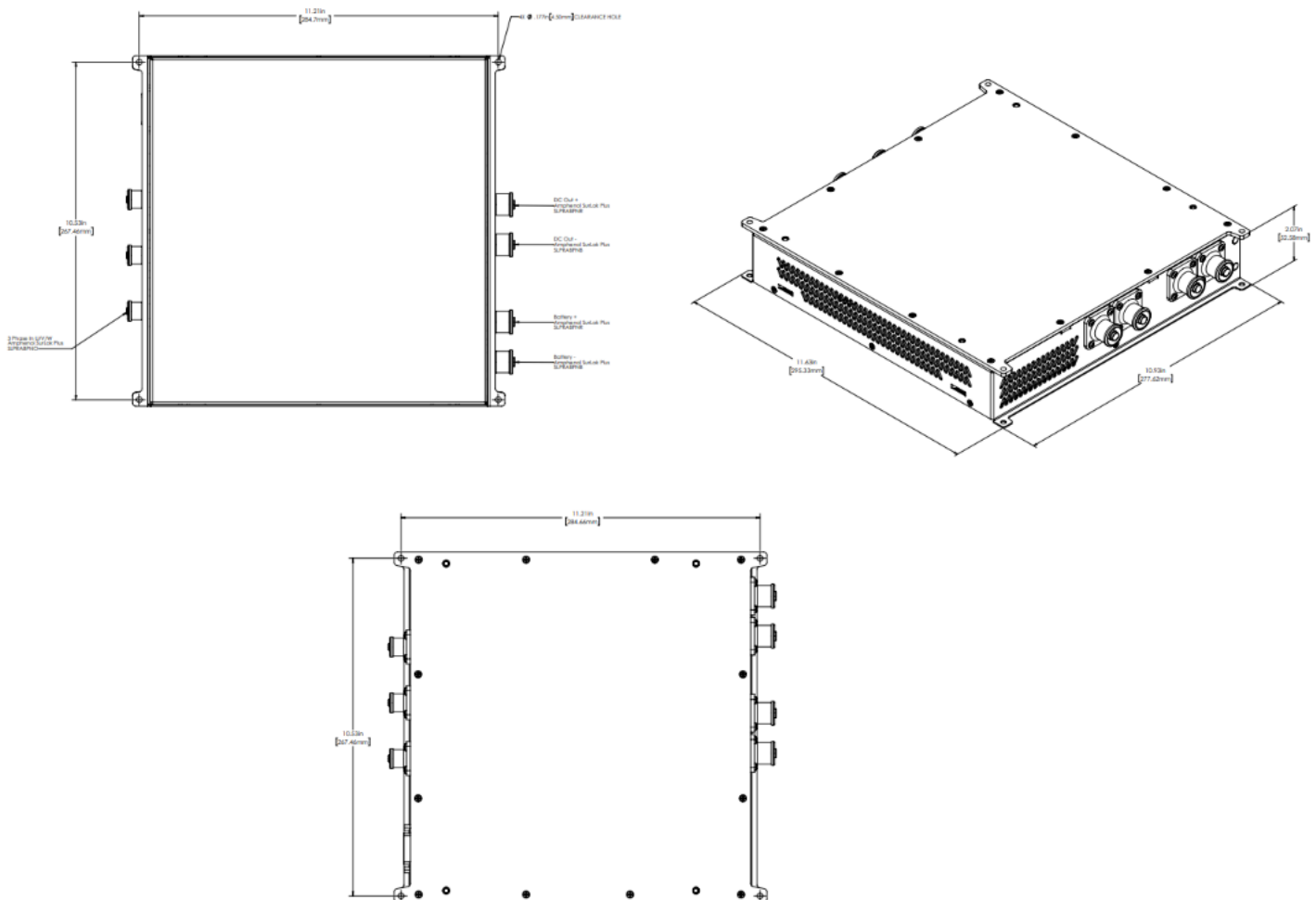
- Synchronous rectifier FETs
- DC converter FETs
- Output or Input FETs

## 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.



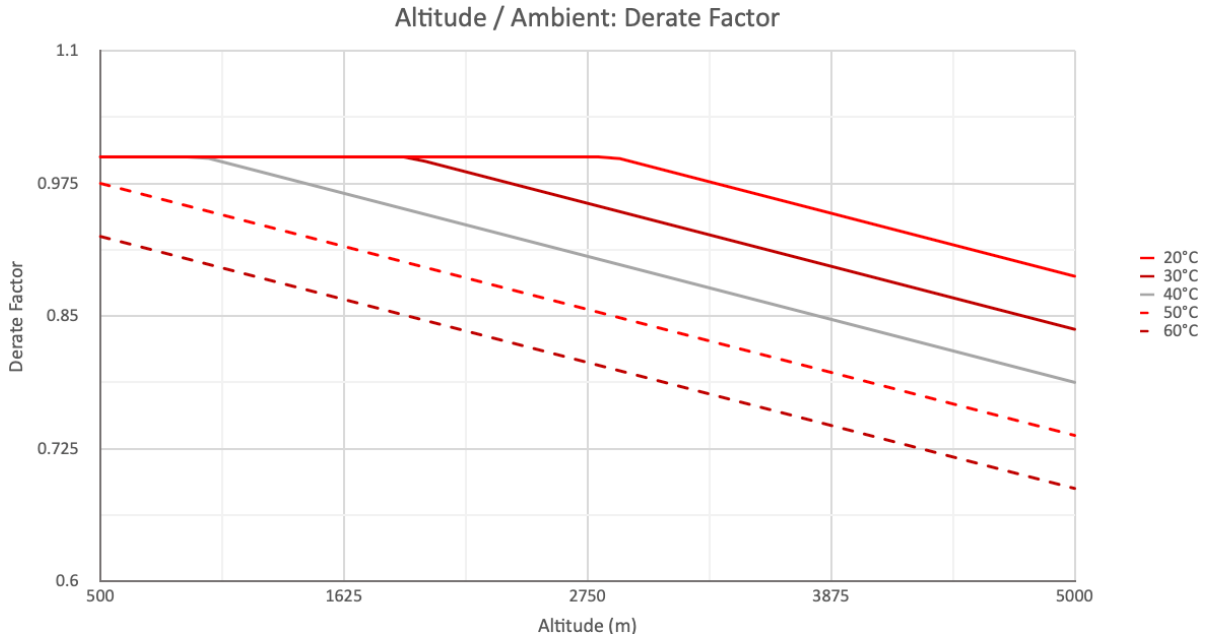
iPS6000 SPECIFICATIONS					
Parameter	INPUT				
	iPS6000-28V		iPS6000-48V		Notes
	Min	Max	Min	Max	
Input voltage range	25 V @ no load 50 V @ full load	95 V	25 V @ no load 50 V @ full load	95 V	Volts RMS No load for system checks only
Onboard battery input	24 V	28 V	44 V	48 V	DC
Maximum total input power	6,300 W				At 40°C ambient [104°F]
Parameter	OUTPUT				
	Value				Notes
Maximum total output power (continuous)	6,000 W				DC at 40°C ambient [104°F]
Primary output voltage	28 V		48 V		DC (216 A, 126 A) factory set
Voltage regulation	±500 mV				Both 28 V / 48 V versions
Voltage ripple P-P	<500 mV				Both 28 V / 48 V versions
Peak efficiency	≥95%				Load dependent
Onboard battery charge voltage (iPS6000-28V)	29.4 V		-		Battery type: 8S LiFePo4 or 7S LiPo
Onboard battery charge voltage (iPS6000-48V)	-		51 V		Battery type: 14S LiFePo4 or 12S LiPo
Onboard battery charges 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	295.3 mm x 277.6 mm x 52.6 mm				
Weight	2,800 grams				
Cooling	Required for operation at 6000 W: 10 m/s airflow perpendicular to the plane of the top cover and through the vents perpendicular to the direction of the connectors				
Ambient operating temperature	-32°C to 40°C at 6,000 W [-26°F to 104°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 250 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.

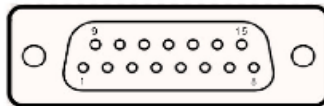
## Derating with Increased Altitude

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



<b>IPS6000 PINOUT</b>	
<b>Name</b>	<b>Description</b>
<b>Power (SurLok Plus 5.7 mm Receptacles)</b>	
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 + (8.00 mm receptacles)	Positive input connection for onboard battery
Battery - (8.00 mm receptacles)	Negative input connection for onboard battery
DC out + ( 8.00 mm receptacles)	Positive output connection for DC load
DC out - (8.00 mm receptacles)	Negative output connection for DC load
<b>Thermocouple (Type-K Mini Connector)</b>	
TC+	Positive type-K thermocouple input
TC-	*Negative type-K thermocouple input
<b>Communications (Female DB-15)</b>	
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: Function is currently not implemented



## 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



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