



# SREGS-700U-01

## 700 Watt Power Management Unit

### Typical Applications:

- Unmanned Air Vehicles (UAV's) and Unmanned Ground Vehicles (UGV's)
- Remote Power Generation
- Power Regulation from Alternative sources, ex. wind or solar

### Featuring:

- 3 Phase AC primary input, 25 - 95 VACrms.
- Configurable to support LiPo, Lilon, LifePO4, NiCad, NiMH, SLA, and Lead Acid Battery Backup.
- Two simultaneous output voltages, 24 - 30 VDC 25 Amps and 4.8 - 8 VDC 7 Amps
- MIL-SPEC circular connectors
- Operates up to 91% efficiency at peak power.
- Provides automatic switching for DC ground power, and back up battery sources



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## Specifications



Output:	Conditions	Min	Max	Input:	Conditions	Min	Max
Main Output:	25A/700W Max	24 VDC*	30 VDC*	Alternator Input Voltage:	3Ø 0 - 1 KHz	25 VAC	95 VAC
Secondary Output:	7A/42W Max	4.8 VDC*	8 VDC*	Backup Battery:	LiPO, Lilon, LifePO4, NiCad, NiMH, SLA, Lead Acid*	24 VDC	32 VDC
Maximum Total Power:			700 Watts	External Shore Power:	DC	24 VDC	32 VDC
Peak Efficiency:			91%	Battery Switch Time:	No interruption of Output		250nS
Self Protection:	Overvoltage, Undervoltage, Overcurrent, Reverse EMF			<b>Mechanical: Conditions</b>			
Maximum Overload Current:	Up to 10mS duration		125%	Enclosure Material:	Black Anodized Aluminum		
Output Ripple, Maximum:	p-p All Outputs		500mV	Dimensions:	192 mm x 80 mm x 80 mm		
Voltage Regulation:	All outputs		+/-500mV	Weight:	650g		
Status Signal:	5V High Impedance			Connectors:	MIL-SPEC Circular Connectors		
Battery Charger Type:	Basic, Cell monitoring, or Full balance charging options available			Design Standard:	MIL-STD 1275D		
Back-up Battery Charging:	LiPO, Lilon, LifePO4, NiCad, NiMH, SLA, Lead Acid*		900mA	Conformal Coating:	MIL-I-46058C Type UR		
				Cooling:	20 CFM Fan, may be replaced by forced air		
				Operating Temperature:	-20C to 55C Ambient		
				Storage Temperature:	-40C to 85C		

\*Factory Adjustable

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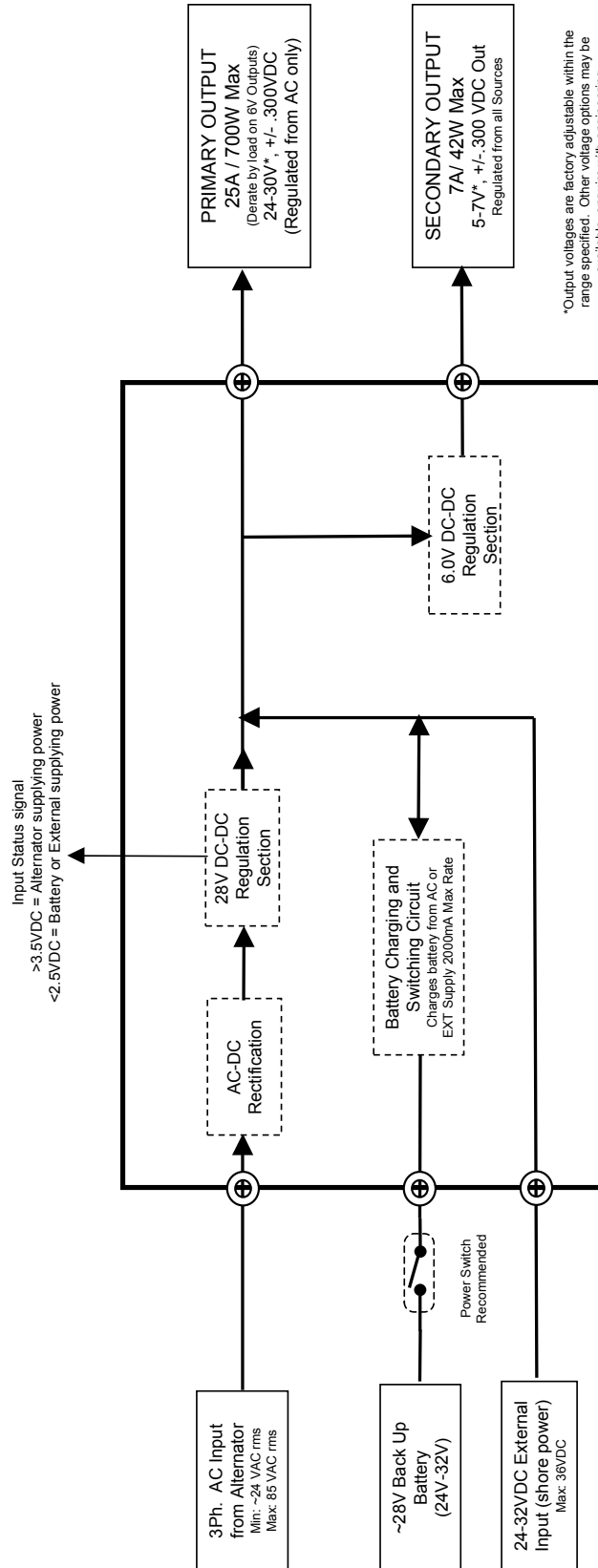
## 700 Watt Power Management Unit



8950 Yellow Brick Rd  
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### SULLIVAN UV SREGS-700U-01 PMU Block Diagram

Created: March, 19, 2015  
Revised: N/A



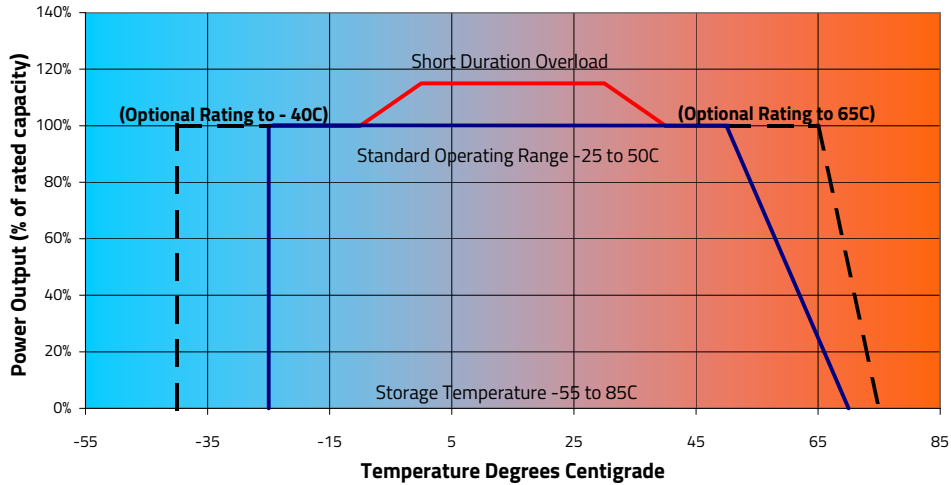
#### General Notes:

- Customer responsible for fusing all loads
- Battery recharges from External Input or AC input
- Enclosure type: 2CN SREGS V2
- All connections are MIL-5051 Circular Connectors
- All outputs are filtered from 100Mhz to 1 Ghz and include protection against Reverse Polarity Transients, Etc

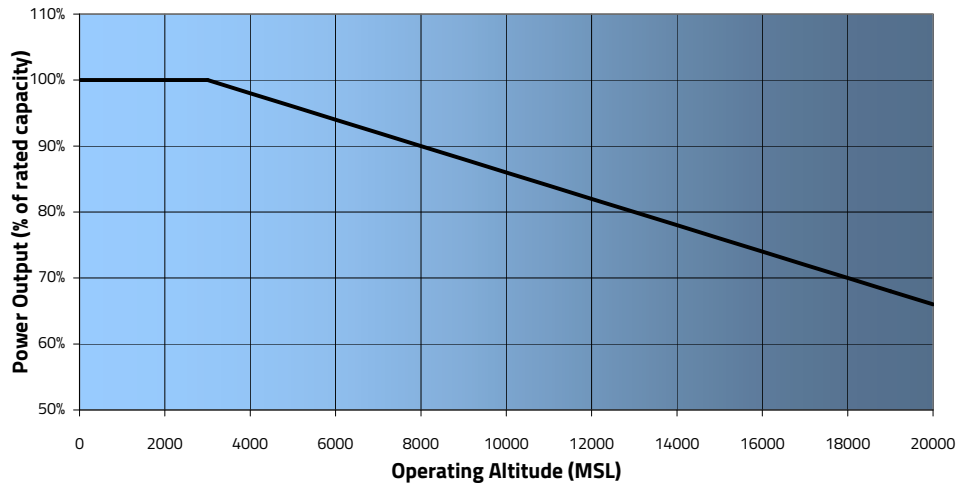
For engineering use only.  
For further information contact:  
Sullivan Products  
(410) 732-3500  
www.sullivanuv.com

# Performance

### Allowable Storage and Operating Temperature Profile

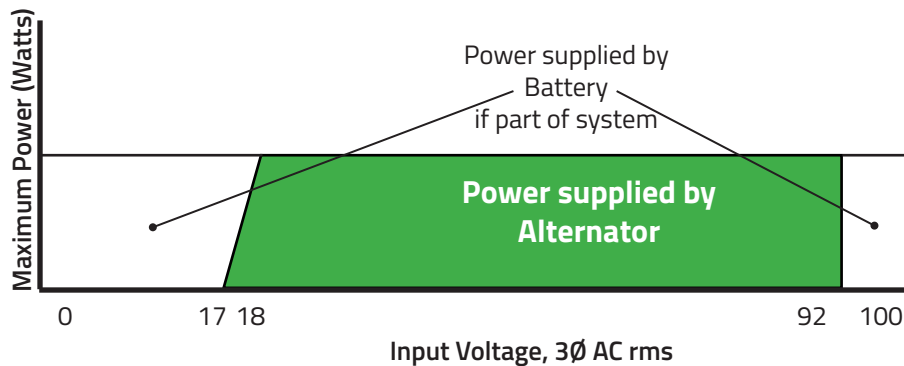


### Power Derating due to Altitude



### Alternator Input Range

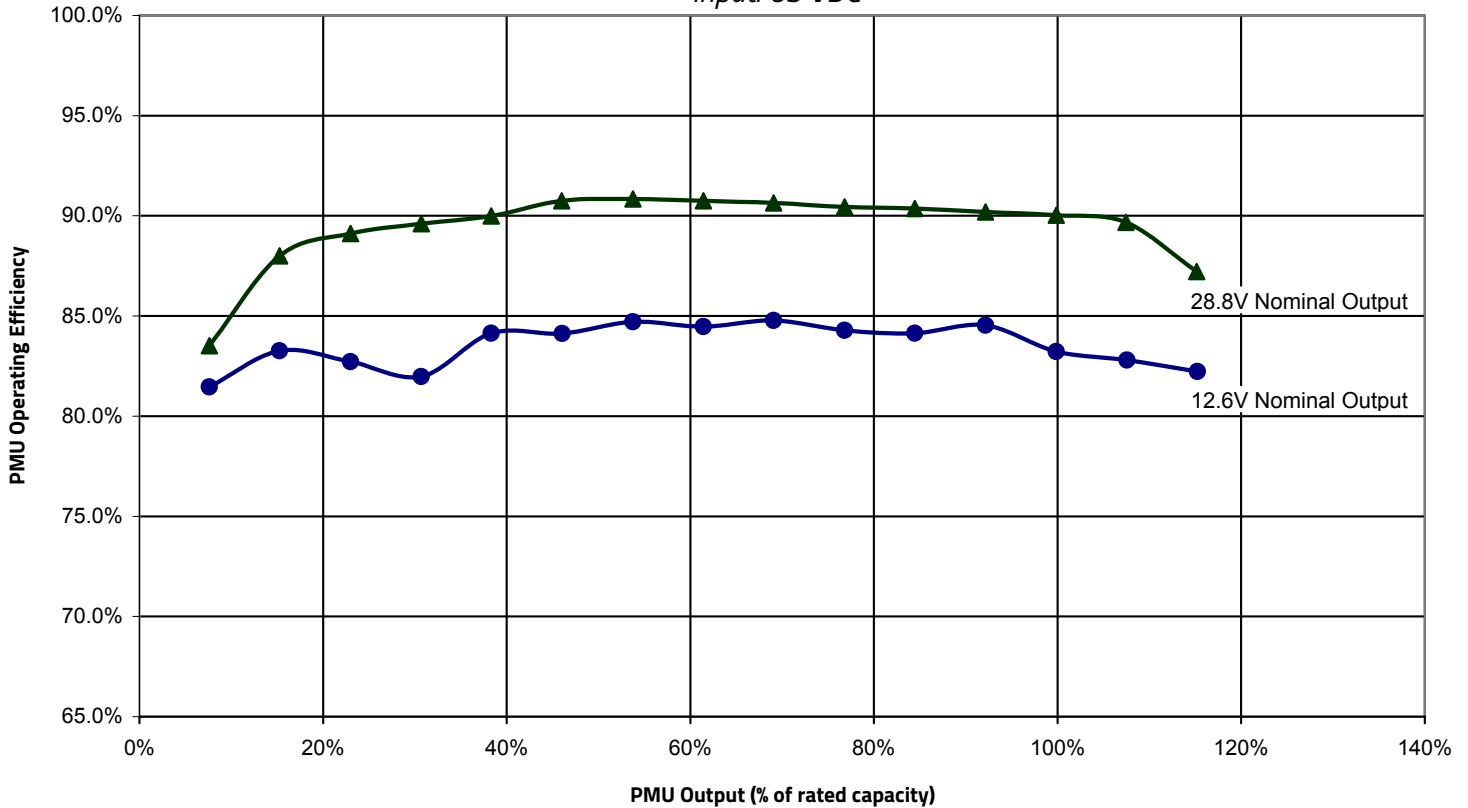
12V Primary Output



# Efficiency

Typical PMU Efficiency vs Output Current

Input: 65 VDC



## Engine load calculations

$$\text{Engine load} = \text{Output power} / \text{Regulator Efficiency} / \text{Alternator Efficiency}$$

Example: A 225W electrical load at 90% regulator efficiency and 80% alternator efficiency requires  $225 / 0.90 / 0.80 = 312.5\text{W}$  of engine power. At 746W/HP, this is 0.419 HP.

$$\text{Ft-Lbs of Torque} = \text{Horsepower} * 5252 / \text{RPM}$$

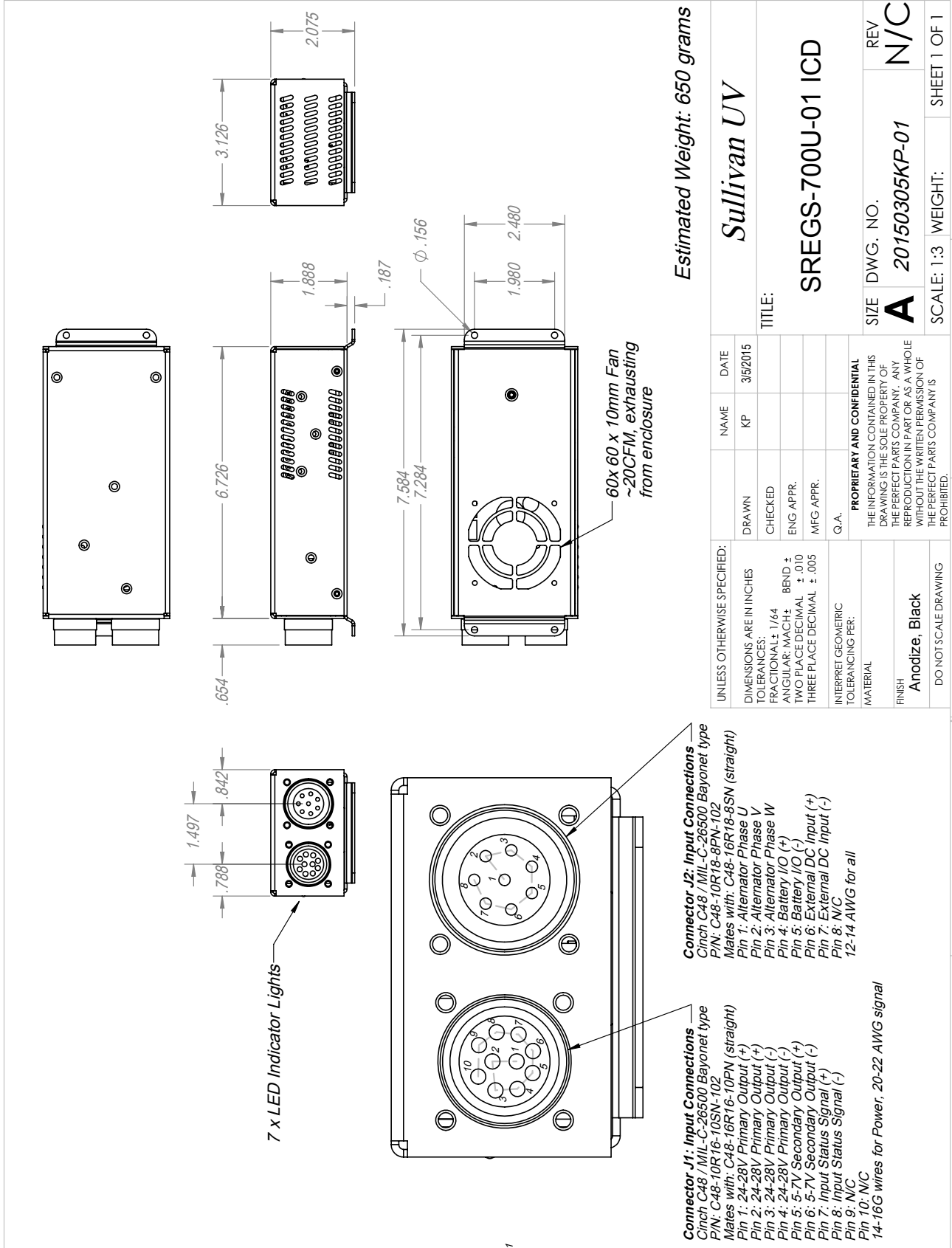
At 3800 RPM, a 225W load with a 90% efficient regulator and 80% efficient alternator, the torque load would be  $0.419\text{HP} * 5252 / 3800 = 0.579 \text{ Ft-Lbs}$ .

$$1 \text{ Ft-Lb} = 1.356 \text{ N-M}$$

0.579 Ft-Lbs of torque is 0.785 N-M.

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- Connector J1: Input Connections**  
 Cinch C48 / MIL-C-26500 Bayonet type  
 P/N: C48-10R16-10SN-102  
 Mates with: C48-16R16-10PN (straight)  
 Pin 1: 24-28V Primary Output (+)  
 Pin 2: 24-28V Primary Output (+)  
 Pin 3: 24-28V Primary Output (-)  
 Pin 4: 24-28V Primary Output (-)  
 Pin 5: 5-7V Secondary Output (+)  
 Pin 6: 5-7V Secondary Output (-)  
 Pin 7: Input Status Signal (+)  
 Pin 8: Input Status Signal (-)  
 Pin 9: N/C  
 Pin 10: N/C  
 14-16G wires for Power, 20-22 AWG signal
- Connector J2: Input Connections**  
 Cinch C48 / MIL-C-26500 Bayonet type  
 P/N: C48-10R18-8PN-102  
 Mates with: C48-16R18-8SN (straight)  
 Pin 1: Alternator Phase U  
 Pin 2: Alternator Phase V  
 Pin 3: Alternator Phase W  
 Pin 4: Battery I/O (+)  
 Pin 5: Battery I/O (-)  
 Pin 6: External DC Input (+)  
 Pin 7: External DC Input (-)  
 Pin 8: N/C  
 12-14 AWG for all

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		KP	3/5/2015
TOLERANCES:			
FRACTIONAL: 1/64	BEND ±		
ANGULAR: MACH ±	TWO PLACE DECIMAL ± .010		
THREE PLACE DECIMAL ± .005			
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL:			
FINISH:			
DO NOT SCALE DRAWING			
PROPRIETARY AND CONFIDENTIAL			
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