SSRC-500C-10

500 Watt Power Management Unit w/ Integrated Starter Controls

Typical Applications:

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

Featuring:

- 3 Phase AC primary input, 25 - 95 VACrms.
- Connects directly to the Starter-Alternator allowing reliable onboard starting.
- Configurable to support LiPo, LiIon, LifePO4, NiCad, NiMH, SLA, and Lead Acid Battery Backup.
- Three simultaneous output voltages, 24 - 28 VDC 12.5 Amps, 12 - 15 VDC 9 Amps, and 4.8 - 8 VDC 8 Amps.
- Operates up to 91% efficiency at peak power.
- Provides automatic switching for DC ground power, and back up battery sources.

Sullivan
UNMANNED VEHICLE

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Specifications

Output:	Conditions	Min	Max
Main Output:	12.5A/350W Max	24 VDC*	28 VDC*
Secondary Output:	9A/108W Max	12 VDC*	15 VDC*
Tertiary Output:	8A/42W Max	4.8 VDC*	8 VDC*
Maximum Total Power:			500 Watts
Peak Efficiency:			91%
Self Protection:	Overvoltage, Undervoltage, Overcurrent, Reverse EMF		
Maximum Overload Current:	Up to 10mS duration		125%
Output Ripple, Maximum:	p-p All Outputs		500mV
Voltage Regulation:	All outputs		+/-500mV
Status Signal:	5V High Impedance		
Battery Charger Type:	Basic, Cell monitoring		
Back-up Battery Charging:	LiPO, LiIon, LifePO4, NiCad, NiMH, SLA, Lead Acid*		900mA

*Factory Adjustable

Input:	Conditions	Min	Max
Alternator Input Voltage:	3Ø 0 - 1 KHz	29 VAC	90 VAC
Backup Battery:	LiPO, LiIon, LifePO4, NiCad, NiMH, SLA, Lead Acid*	24 VDC	32 VDC
External Shore Power:	DC	24 VDC	32 VDC
Battery Switch Time:	No interruption of Output		250nS

Mechanical:	Conditions
Enclosure Material:	Black Anodized Aluminum
Dimensions:	23.2 cm x 10.3 cm x 6.8 cm
Weight:	1250g
Connectors:	MIL-SPEC Circular Connectors
Design Standard:	N/A
Conformal Coating:	MIL-I-46058C Type UR
Cooling:	Forced air
Operating Temperature:	-20C to 55C Ambient
Storage Temperature:	-40C to 85C

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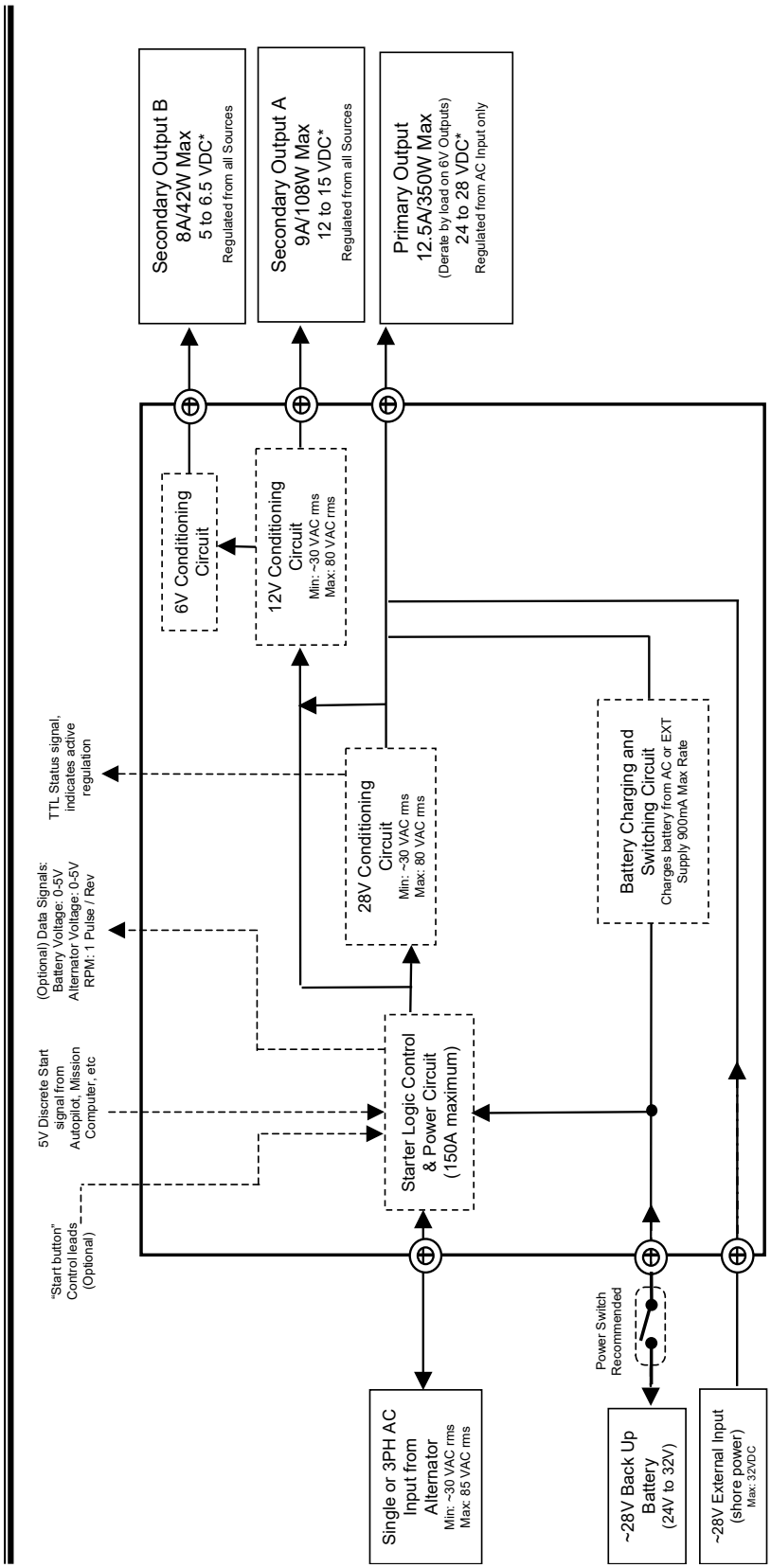
SULLIVAN UV
SSRC-500C-10 Block Diagram

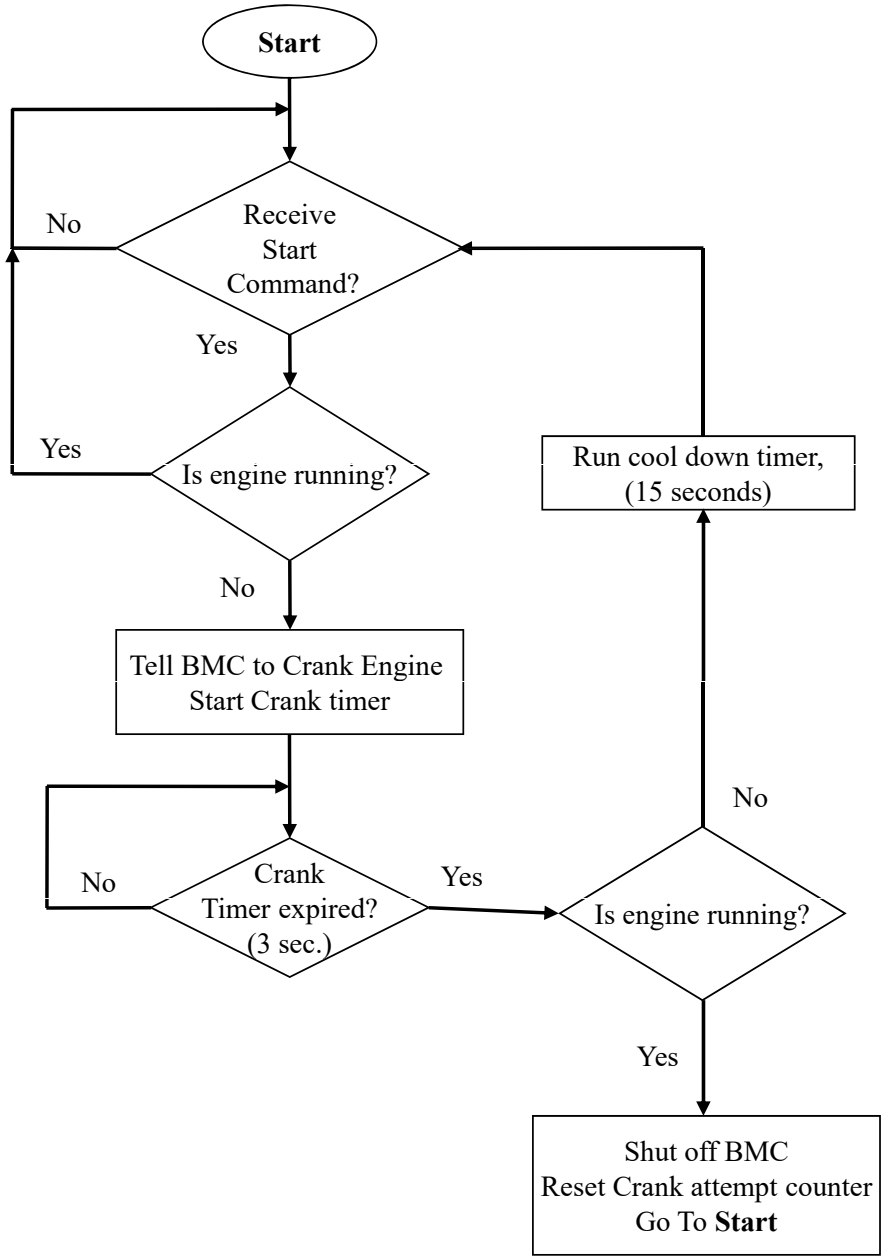


*Output voltages are factory adjustable within the range specified. Other voltage options may be available, enquire with engineering

General Notes:

-Customer responsible for fusing all loads
-Battery recharges from External Input or AC input
-Enclosure type: 3CN Univ – 2CN
-All outputs are filtered to 100Mhz to 1 Ghz and include protection against Reverse Polarity and Transients

Starter Control Cycle Flow Chart



Drawn: 2016-07-06
Revised: 2018-06-18

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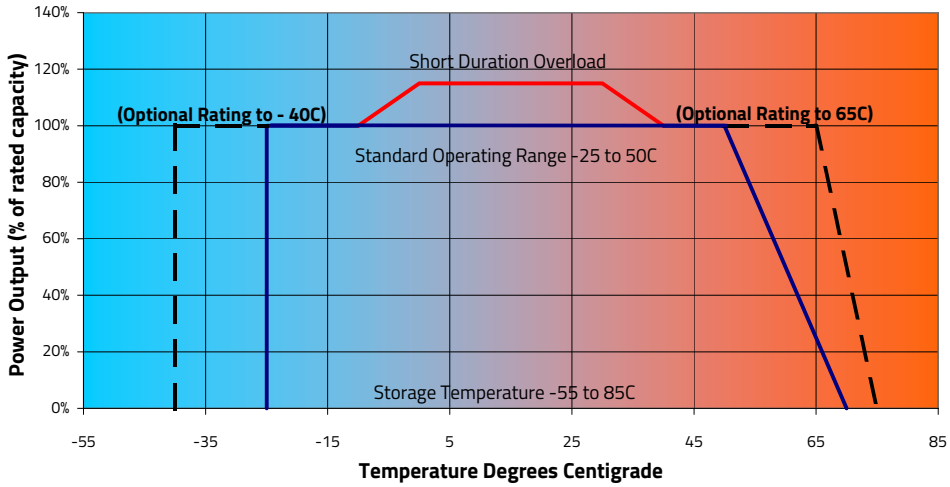
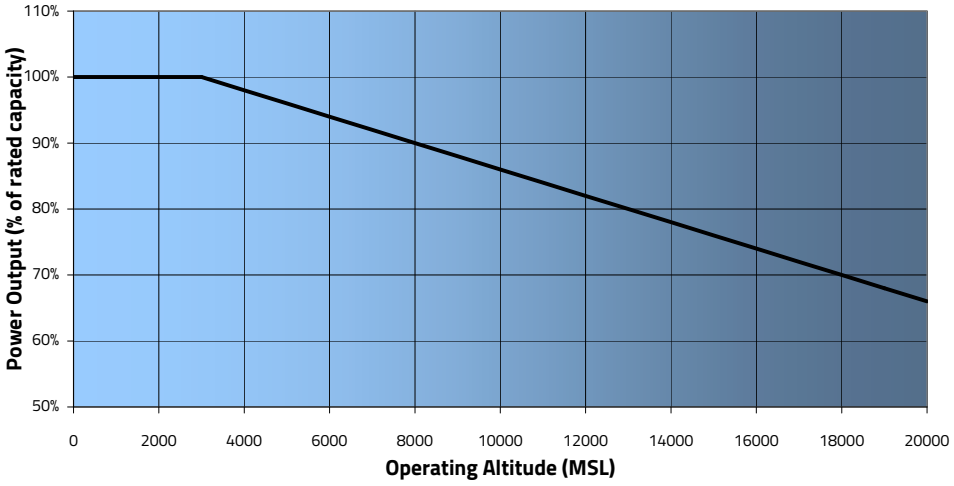
Performance

Allowable Storage and Operating Temperature Profile

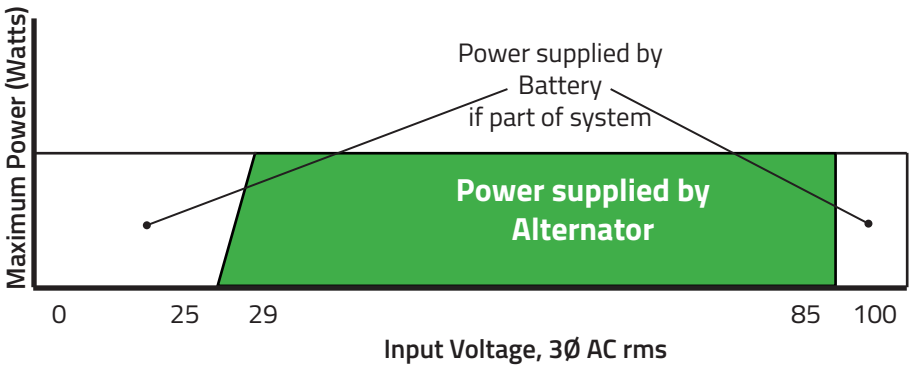


Power Derating due to Altitude



Alternator Input Range

28V Primary Output



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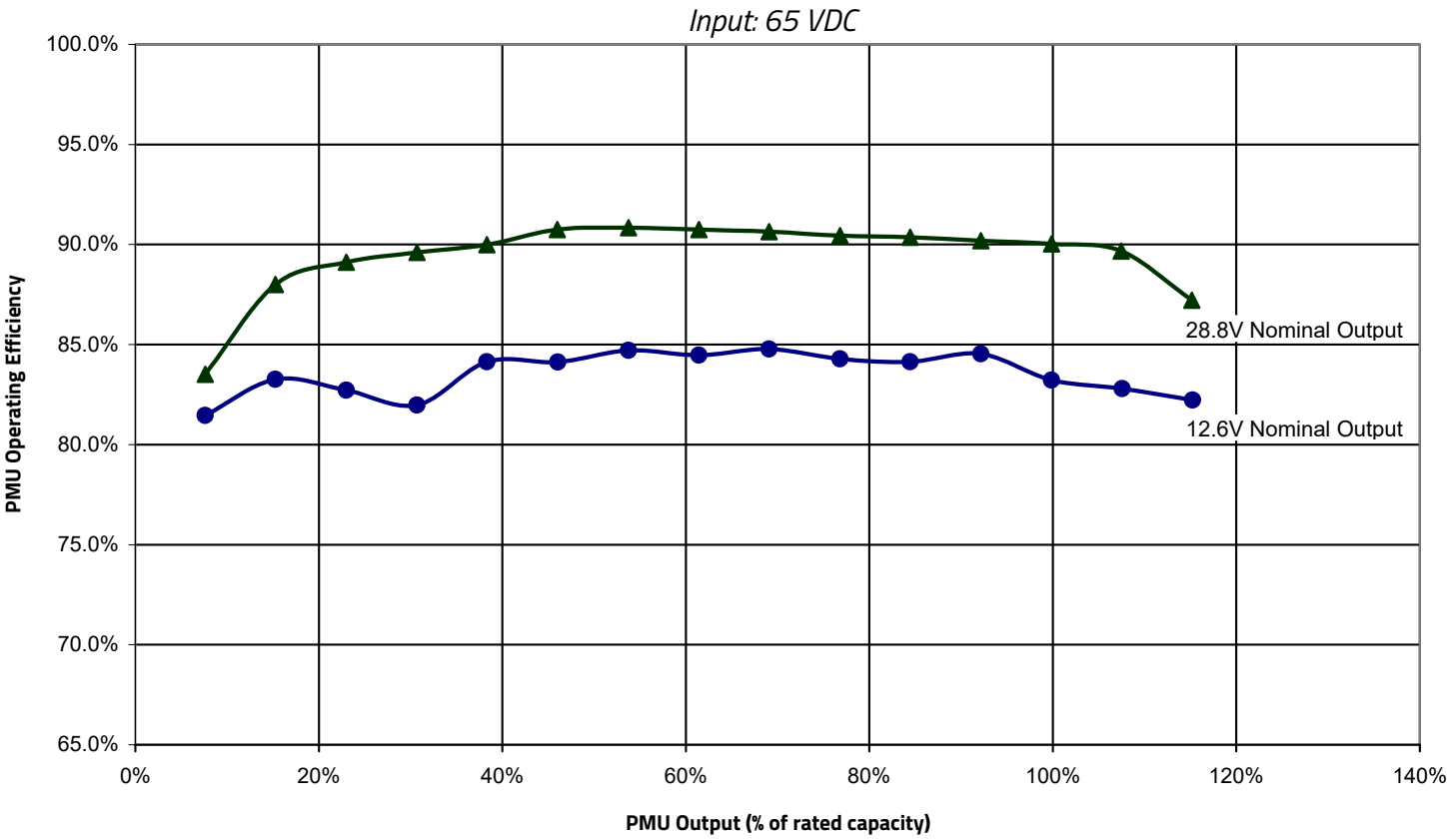
Efficiency

Typical PMU Efficiency vs Output Current



Engine load calculations

Engine load = Output power / Regulator Efficiency / Alternator Efficiency

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

*Ft-Lbs of Torque = Horsepower * 5252 / RPM*

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

1 Ft-Lb = 1.356 N-M

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

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