

SSRCE-400C-03

400 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.
- Configurable to support LiPo, Lilon, 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
- MIL-SPEC circular connectors
- Operates up to 91% efficiency at peak power.
- Provides automatic switching for DC ground power, and back up battery sources

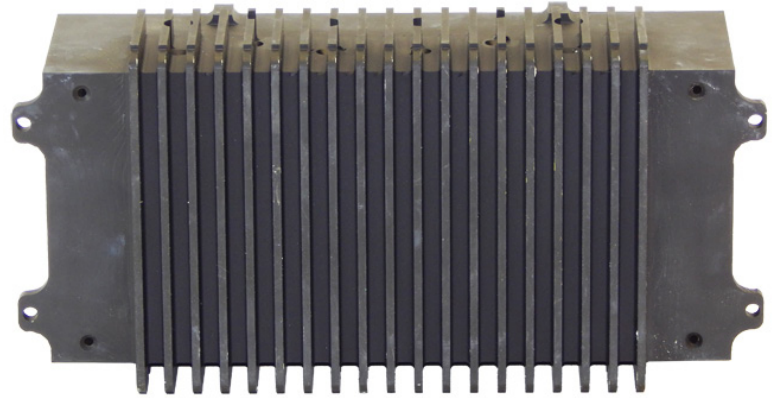


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Specifications



Output:	Conditions	Min	Max	Input:	Conditions	Min	Max
Main Output:	12.5A/320W Max	24 VDC*	28 VDC*	Alternator Input Voltage:	3Ø 0 - 1 KHz	29 VAC	90 VAC
Secondary Output:	9A/100W Max	12 VDC*	15 VDC*	Backup Battery:	LiPO, Lilon, LifePO4, NiCad, NiMH, SLA, Lead Acid*	24 VDC	32 VDC
Tertiary Output:	8A/50W Max	4.8 VDC*	8 VDC*				
Maximum Total Power:			400 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			Mechanical: Conditions			
Maximum Overload Current:	Up to 10mS duration		125%	Enclosure Material:	Black Anodized Aluminum		
Output Ripple, Maximum:	p-p All Outputs		500mV	Dimensions:	231 mm x 117 mm x 67 mm		
Voltage Regulation:	All outputs		+/-500mV	Weight:	1650g		
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 1275E		
Back-up Battery Charging:	LiPO, Lilon, LifePO4, NiCad, NiMH, SLA, Lead Acid*		900mA	Conformal Coating:	MIL-I-46058C Type UR		
				Cooling:	Forced air		
				Operating Temperature:	-20C to 55C Ambient		
				Storage Temperature:	-40C to 85C		

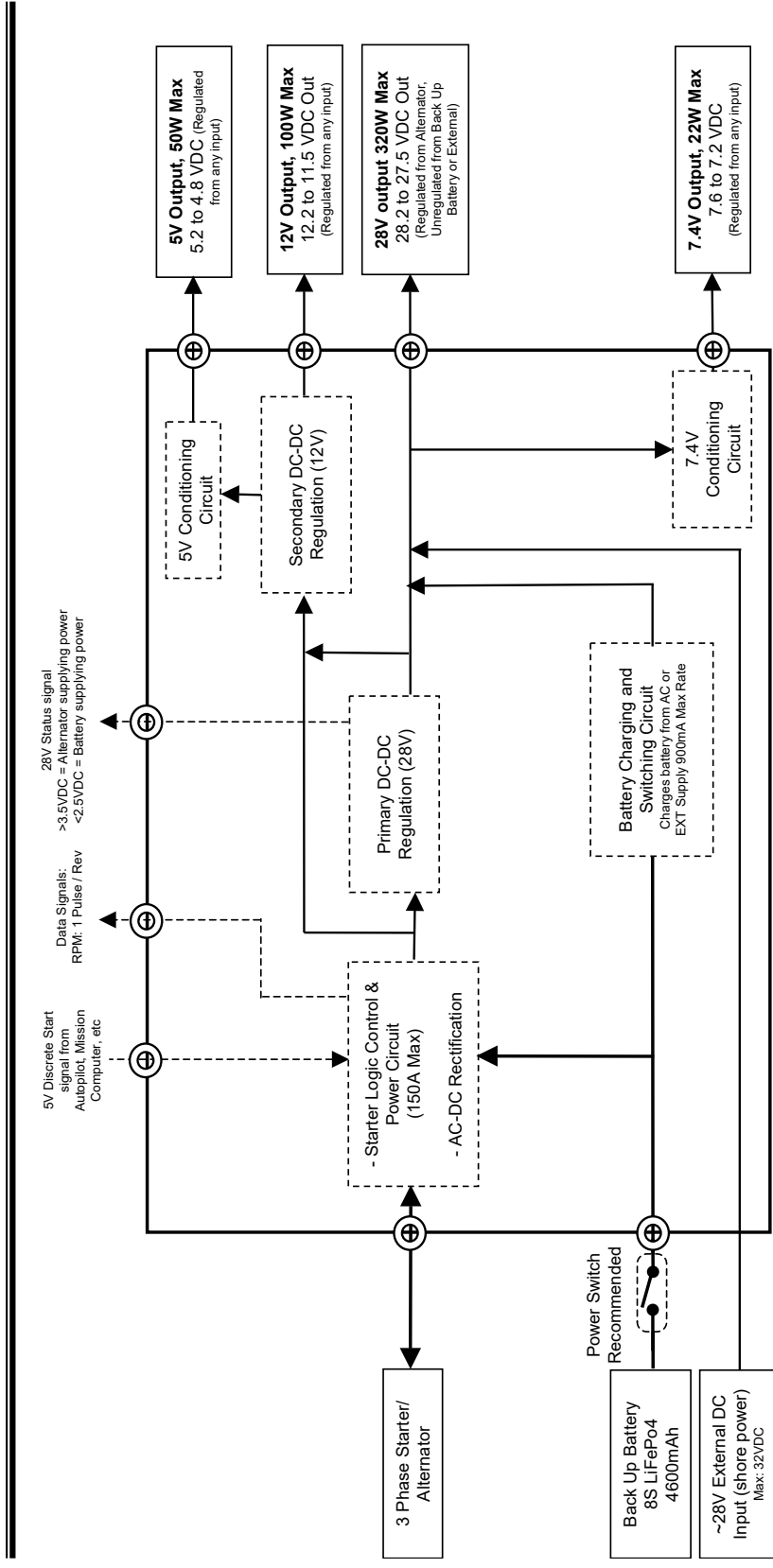
*Factory Adjustable

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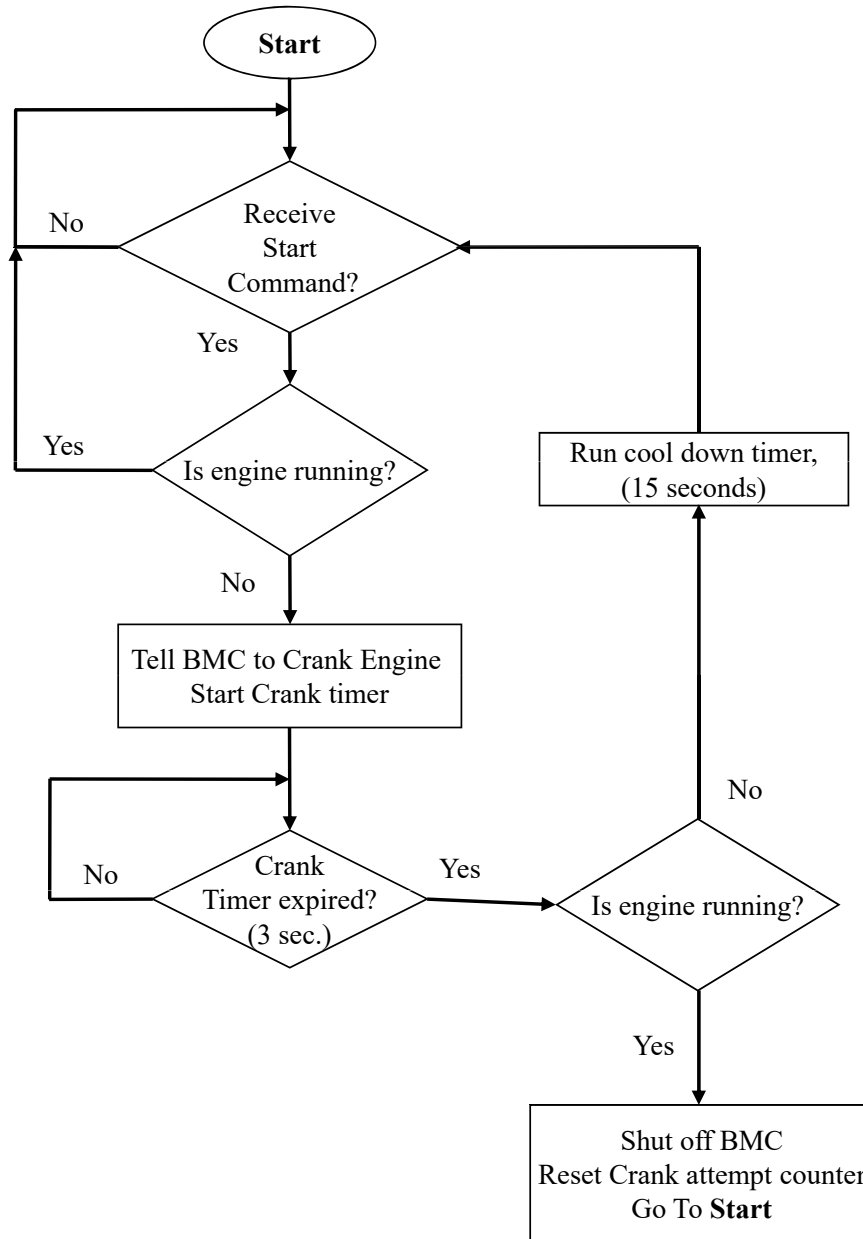


SULLIVAN UV SSRCE-400C-03 Block Diagram



- Fuse Individual Loads
- All outputs are filtered to 100Mhz to 1 Ghz and include protection against Reverse Polarity Transients, Etc

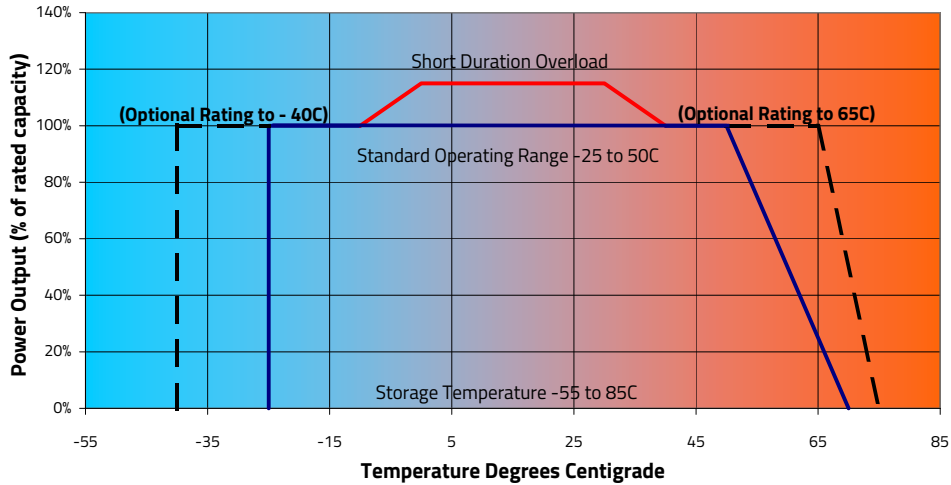
Starter Control Cycle Flow Chart



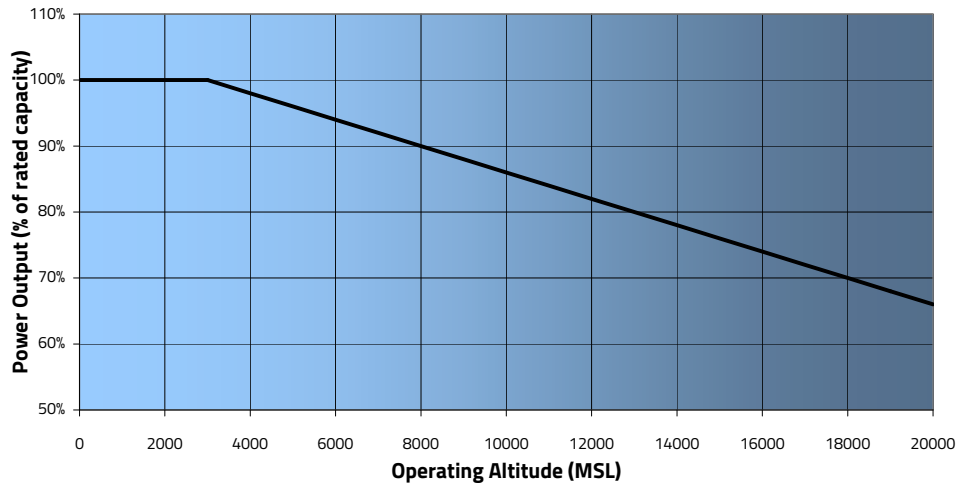
Drawn: 2016-07-06
Revised: 2018-06-18

Performance

Allowable Storage and Operating Temperature Profile

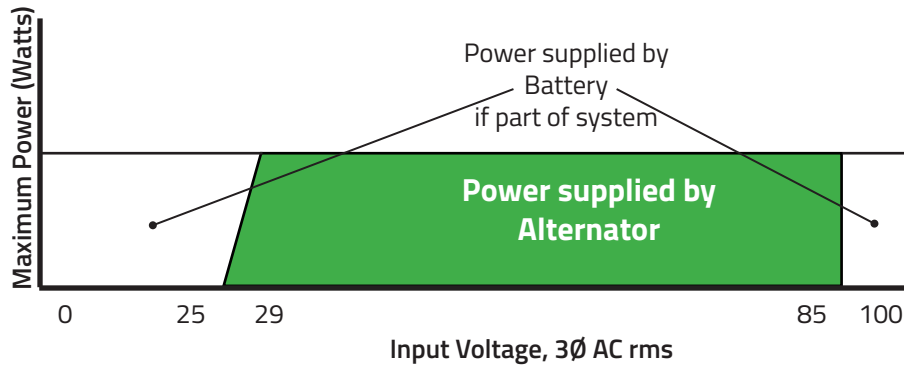


Power Derating due to Altitude



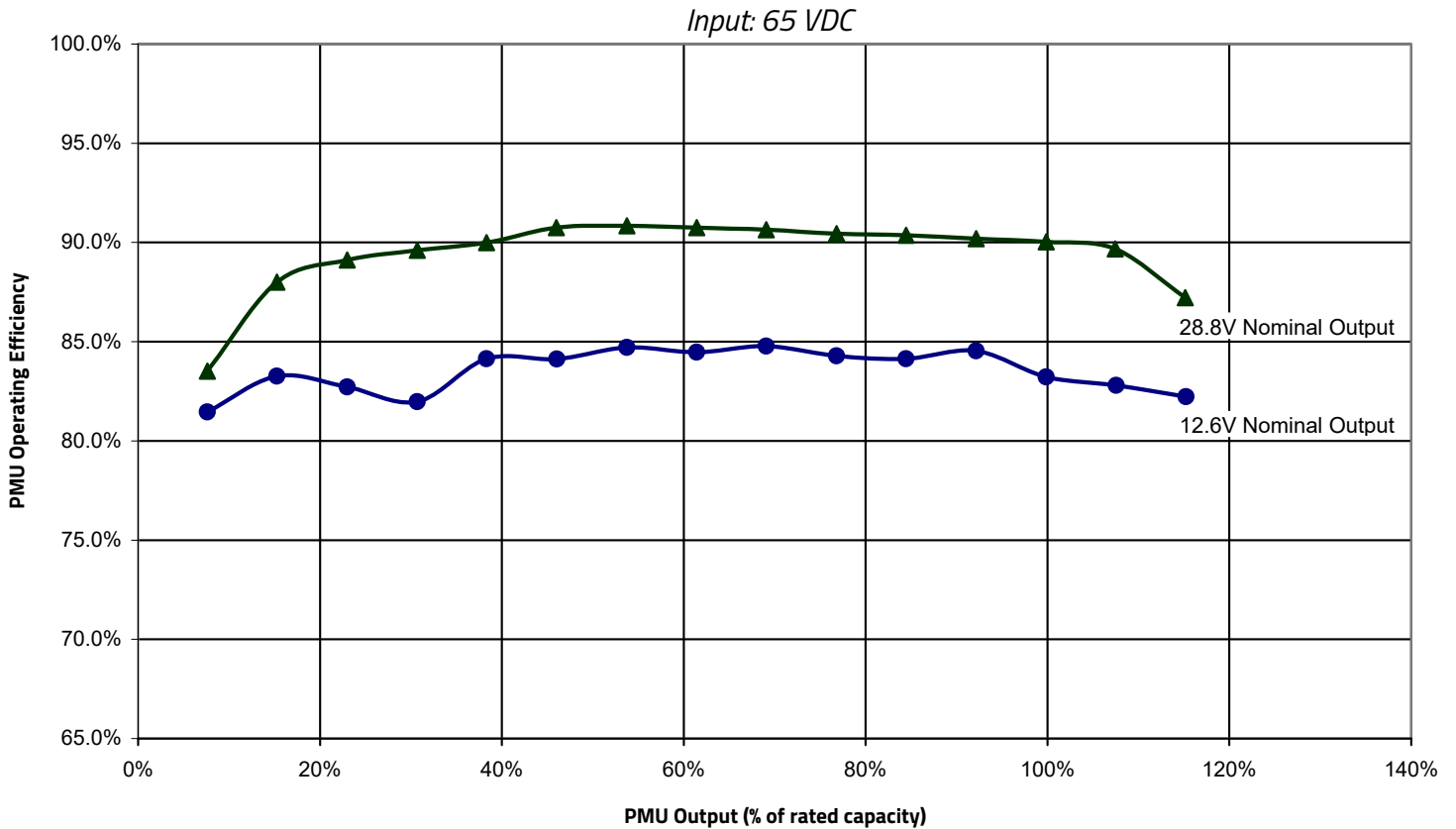
Alternator Input Range

28V Primary Output



Efficiency

Typical PMU Efficiency vs Output Current



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.

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

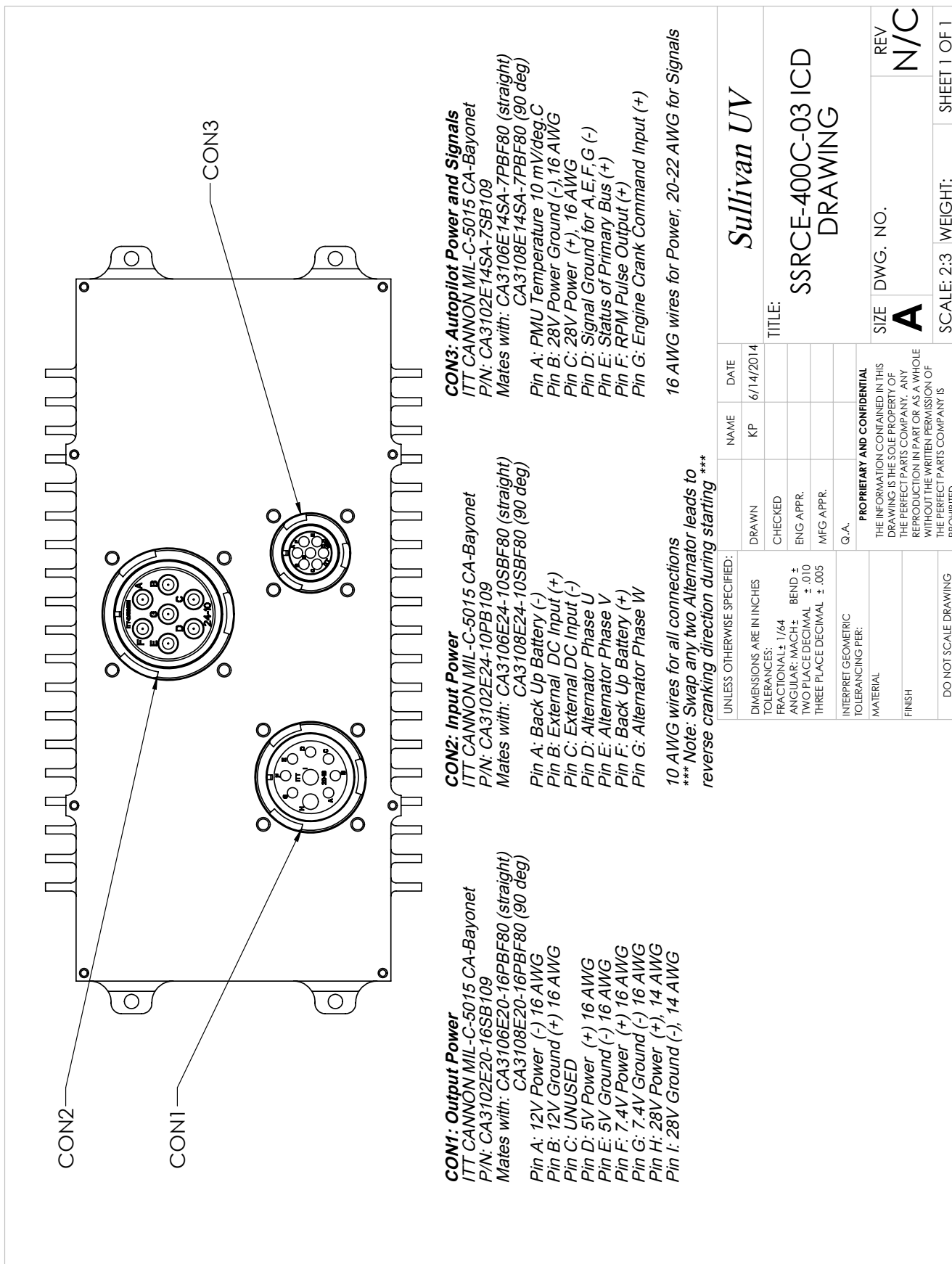
At 3800 RPM, a 225W load with a 90% efficient regulator and 80% efficient alternator, the torque load would be $0.419\text{HP} * 5252 / 3800 = 0.579 \text{ Ft-Lbs}$.

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

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

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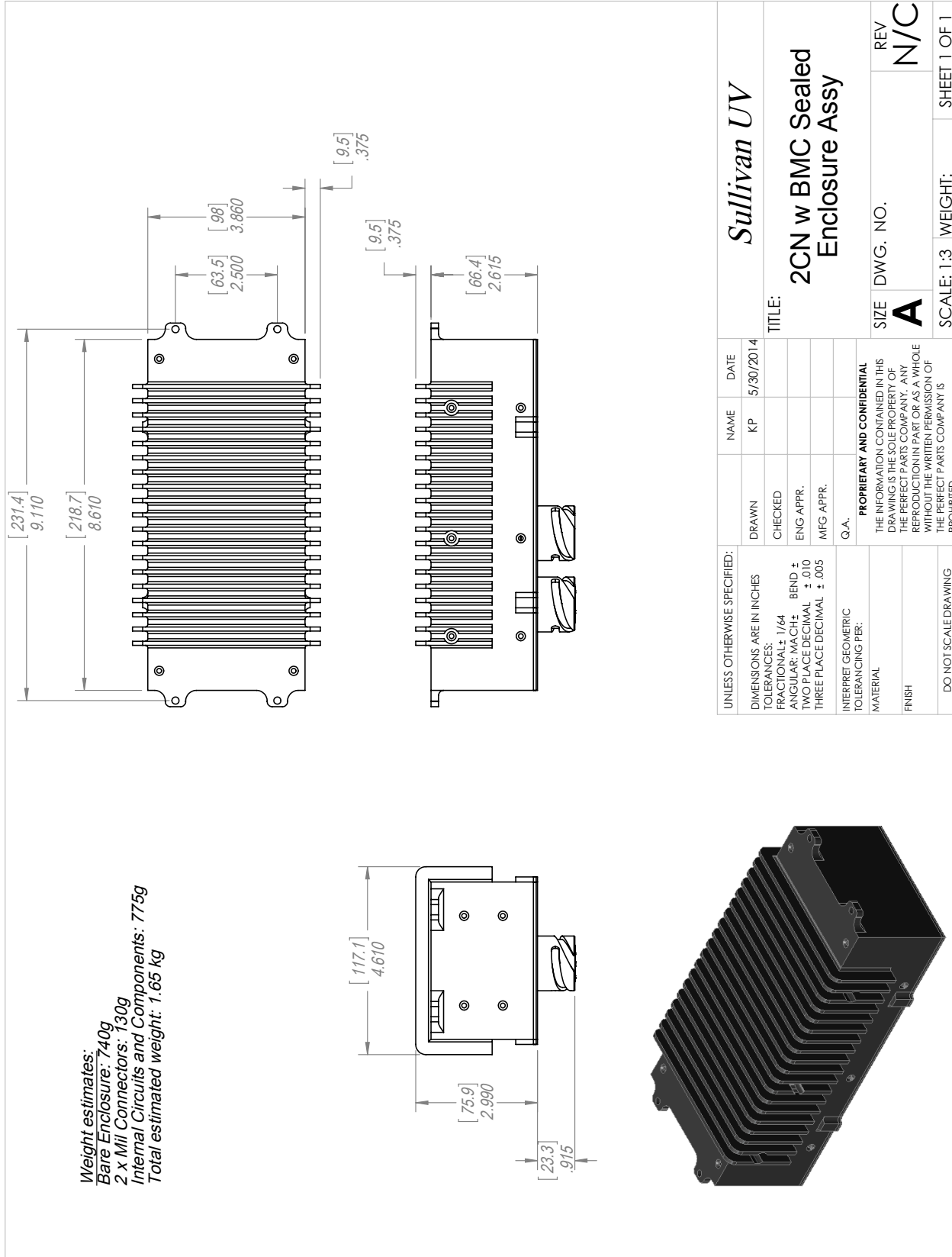
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NAME	DATE	Sullivan UV	
DRAWN	6/14/2014	TITLE: SSRCE-400C-03 ICD DRAWING	
CHECKED		SIZE	REV
ENG APPR.		A	N/C
MFG APPR.		SCALE: 2:3	WEIGHT:
Q.A.		SHEET 1 OF 1	
PROPRIETARY AND CONFIDENTIAL			
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UNLESS OTHERWISE SPECIFIED:		DO NOT SCALE DRAWING	
DIMENSIONS ARE IN INCHES		1	
TOLERANCES:		2	
FRACTIONAL: ± 1/64		3	
ANGULAR: MACH ± .010		4	
TWO PLACE DECIMAL ± .005		5	
THREE PLACE DECIMAL ± .005			
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Sullivan UV	
DIMENSIONS ARE IN INCHES		KP	5/30/2014	2CN w BMC Sealed Enclosure Assy	
TOLERANCES:		TITLE:			
FRACTIONAL ± 1/64		SIZE DWG. NO.			
ANGULAR: MACH ± BEND ±		A			
TWO PLACE DECIMAL ± .010		SCALE: 1:3			
THREE PLACE DECIMAL ± .005		WEIGHT: 1			
INTERPRET GEOMETRIC TOLERANCING PER:		SHEET 1 OF 1			
MATERIAL		REV N/C			
FINISH		DO NOT SCALE DRAWING			
DO NOT SCALE DRAWING		3			
		2			
		1			