

FEATURES

- Wide Input Range: 103.5-126.5VAC, L-N, 3-Phase
- Input Transient Protection
- Two High Power DC Outputs:
+28V/71A, +12V/33.3A
- Low Noise & Ripple
- Input-Output isolation
- Excellent Load Regulation
- Overcurrent, Overvoltage, Over temperature protection
- Efficiency of 85% Typical
- High Power Density
- Air Cooled Front to Rear
- Conformal Coating on PCBs
- MIL-STD-461F Compliance:
CE-102, CS-101, CS-114, CS-115
CS-116, RS-103, and RE-102 at system level
- 0-95% RH Non-Condensing
- Designed to Meet MIL-STD-810F Vibe and Shock
- Input OK, Output OK and Fault LED Indications



OVERVIEW

The Behlman DCR2U-2000D-6-(28,71)-(12,33.3) series COTS AC to DC power supply is a rugged, highly reliable, air cooled, switch mode unit built for high-end industrial and military applications. The DCR2U-6 is a 2U rack mount power supply that delivers 2400 Watts of DC power via two outputs. The DCR2U-6 accepts 115/200 VAC input, 3-Phase, IAW MIL-STD-704F.

The DCR2U-6 power supply has no minimum load requirement and has overvoltage and short circuit protection as well as over current and thermal protection. The power supply is designed to support the rigors of mission critical airborne, shipboard, vehicle and mobile applications.

Absolute Maximum Ratings:

(Stresses above those listed below may cause permanent damage to the unit)

Parameter	Notes	Min	Typical	Max	Units
Input Voltage	L-N	103.5	115	126.5	VAC
Input Current				10	A
Operating Temperature	Ambient	-15		55	°C
Storage Temperature	Ambient	-40		100	°C
Isolation Voltage	Input to Output			1000	V
Isolation Voltage	Input to Case			1000	V
Isolation Voltage	Output to Case			500	V

Input Characteristics:

Parameter	Notes	Min	Typical	Max	Units
Operating Input Voltage Range		103.5	115	126.5	VAC
Turn-On Threshold			76.8		VAC
Turn-Off Threshold			75.3		VAC
Input No Load Current	Circuit Breaker Off (Reactive Current)		2.5		A
Inrush Current			10	15	Apeak

Output Characteristics, +28V/71A Output:

Parameter	Notes	Min	Typical	Max	Units
Output Voltage Set Point		27.92	28.00	28.08	V
Line Regulation	(103.5-126.5VAC input range, 100% Output Load)		0.05	0.3	%
Load Regulation	(115VAC input)		0.07	0.3	%
Output Ripple/Noise Peak to Peak	See Note 1		50	100	mVp-p
Output Current Range		0		71.0	A
Output Overvoltage Protection				33.6	V
Output Overcurrent Protection		72.8	91.9	96.8	A

Output Characteristics, +12V /33.3A Output:

Parameter	Notes	Min	Typical	Max	Units
Output Voltage Set Point		11.96	12.00	12.04	V
Line Regulation	(103.5-126.5VAC input range, 100% Output Load)		0.08	0.3	%
Load Regulation	(115VAC input)		0	0.3	%
Output Ripple/Noise Peak to Peak	See Note 1		66	100	mVp-p
Output Current Range		0		33.3	A
Output Overvoltage Protection				14.4	V
Output Overcurrent Protection		33.9	37.8	45	A

General Characteristics:

Parameter	Notes	Min	Typical	Max	Units
Power				2400	W
Power Factor 100% Load	+28V@71A, +12V@33.3A		.93		
Efficiency 100% Load	+28V@71A, +12V@33.3A		85		%
Efficiency 50% Load	+28V@35.5A, +12V@16.65A		84.8		%
Turn-On Delay, 28V Output	From application of input power (Circuit Breaker Enabled). See Figures 2 & 3		1.26		s

Indicators:

Indicator	Description
Input OK	Green LED located on the front panel of the unit, illuminated when the 3-Phase AC input is present and within specified limits.
Output OK	Green LED located on the front panel of the unit, illuminated when all the DC outputs are present and within specified limits.
Fault	Red LED located on the front panel of the unit, illuminated during any output DC fault, output power fault, over temperature fault, and/or fan fault.

Note 1: Ripple and noise measured at output connector, across parallel connection of 0.1uF ceramic capacitor, 20MHz Bandwidth

Note 2: All measurements are performed at Nominal Input (115VAC) and at ambient temperature of 25°C, unless otherwise specified.

Inrush Current Waveform:

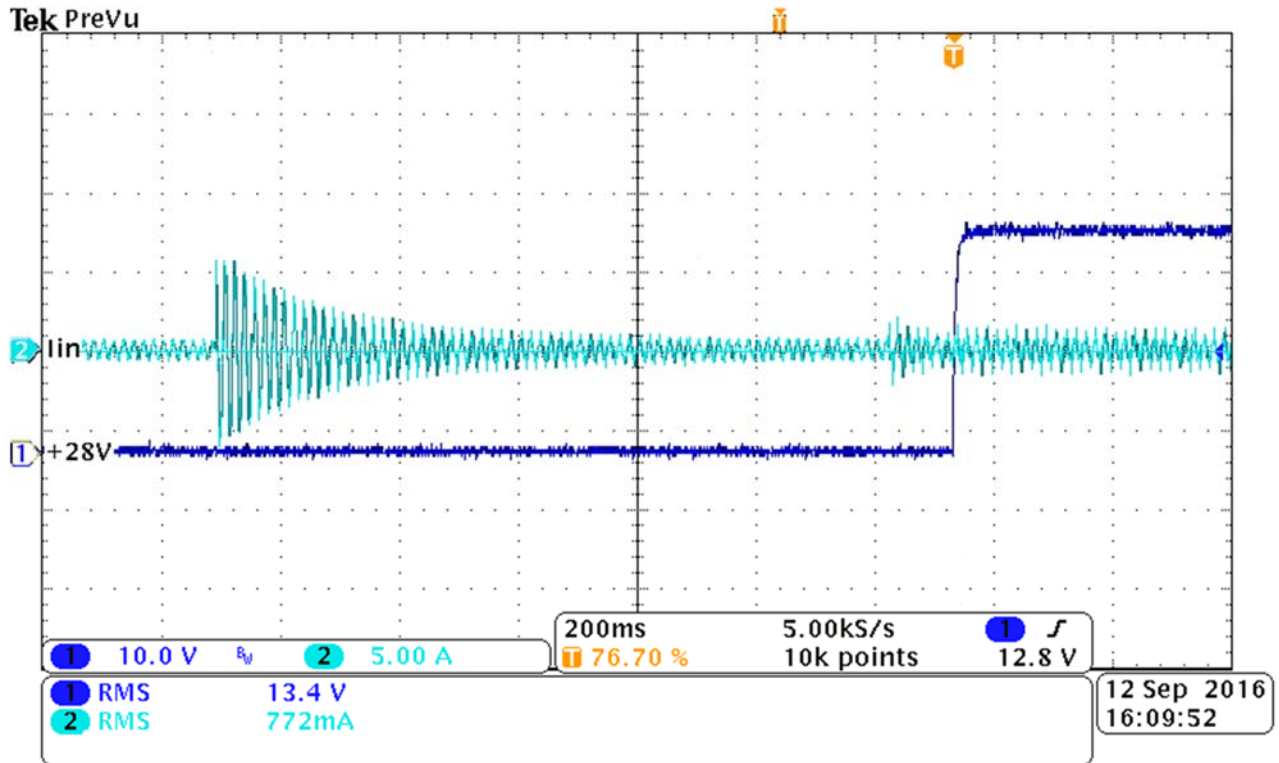


Figure 1: +28V start up delay and inrush current waveform

Output Voltages/Fan Start Up Sequence:

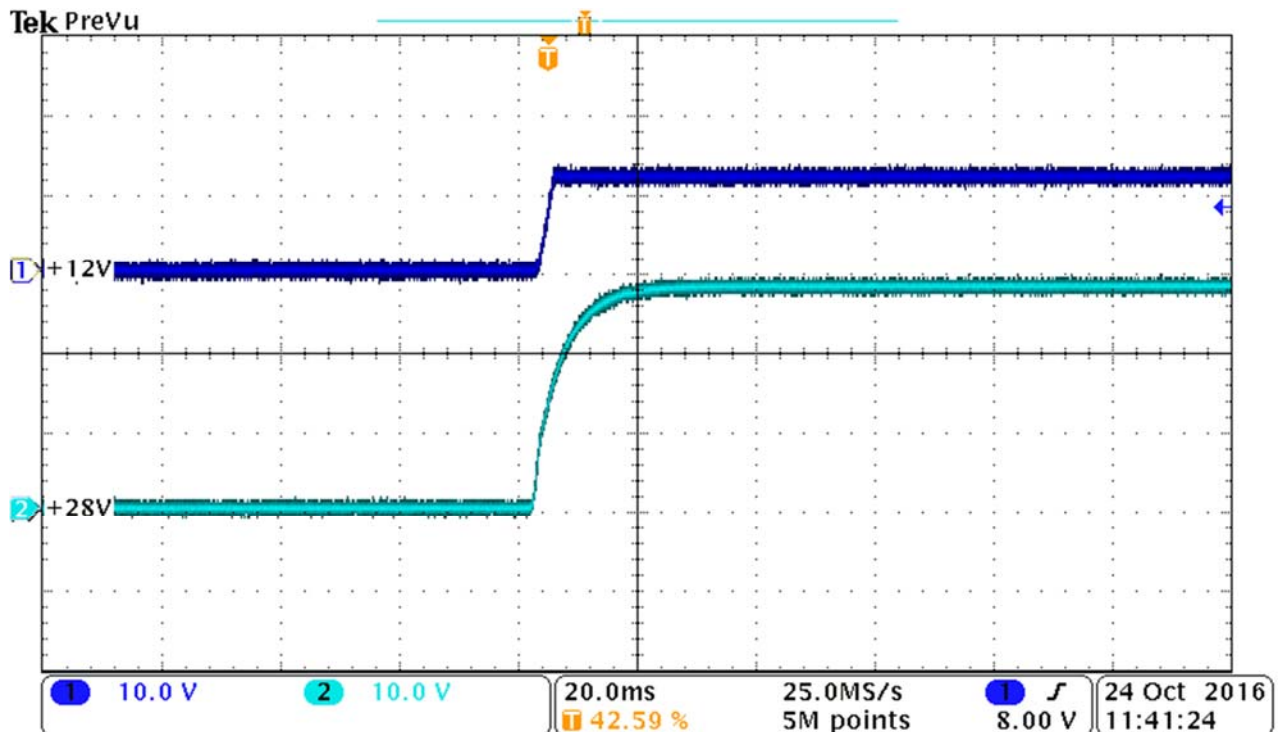


Figure 1: Output voltage turn sequencing and internal fan turn-on

Efficiency and Power Factor Graphs:

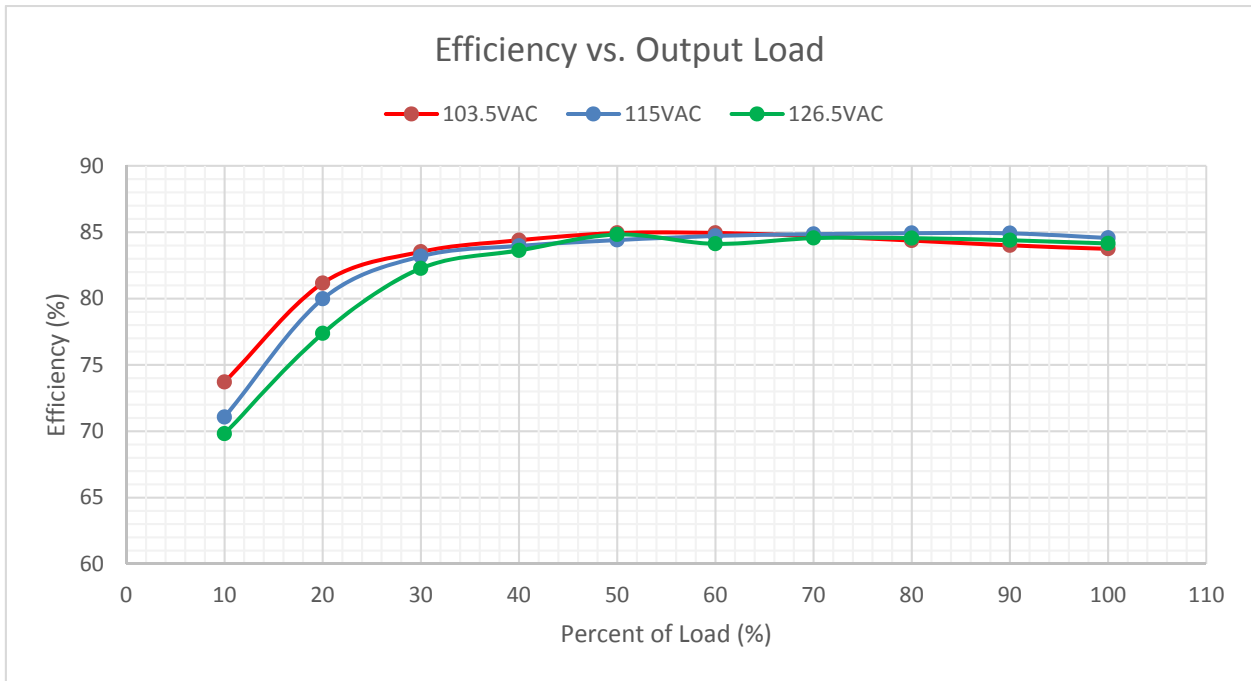


Figure 4: Efficiency Regulation

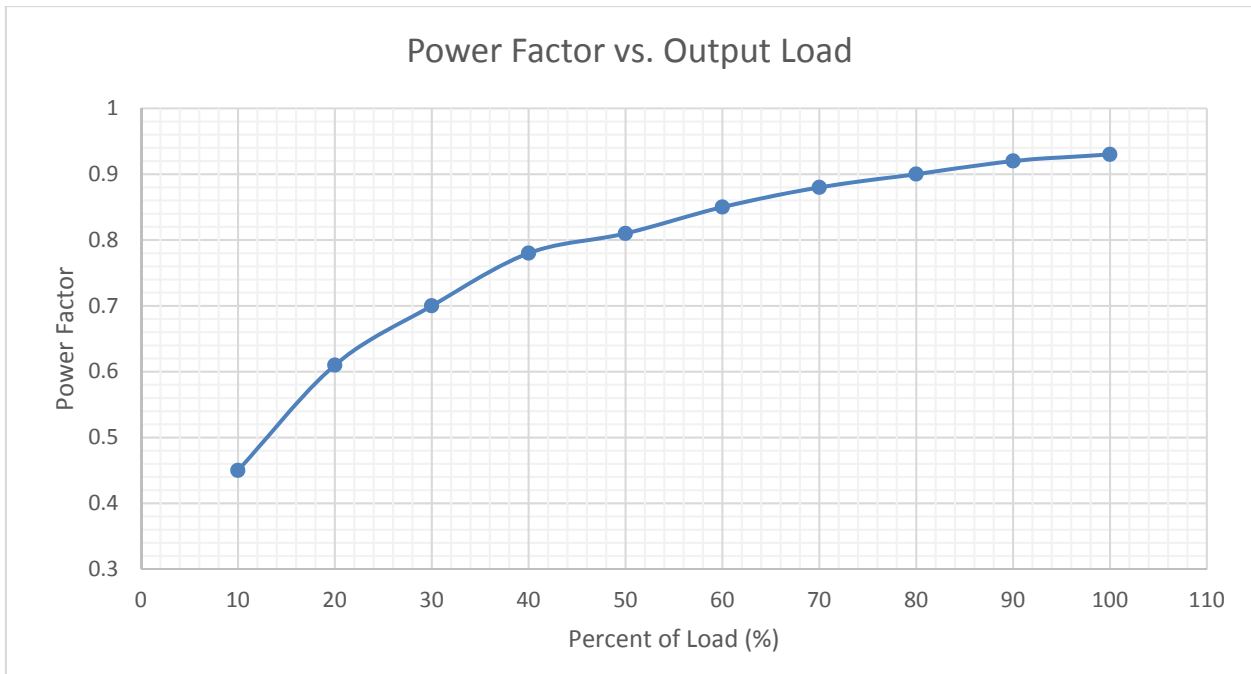


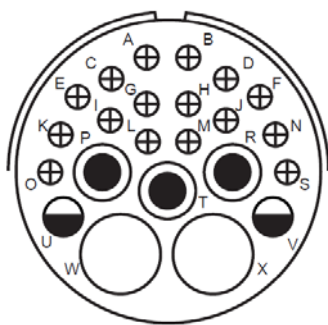
Figure 5: Power Factor at 115VAC

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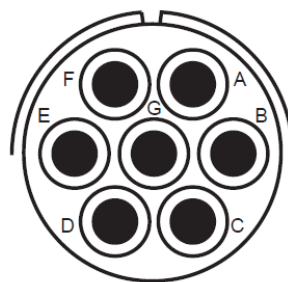
Connector Pin Out and Descriptions:

Output Connector Pin Assignment		
PS Connector: MS3452L32-6S		
Mating Connector: MS3456L32-6P		
Pin Number	Rated Current (A)	Pin Name
A	13A	N/C
B	13A	N/C
C	13A	N/C
D	13A	N/C
E	13A	N/C
F	13A	N/C
G	13A	N/C
H	13A	N/C
I	13A	N/C
J	13A	N/C
K	13A	N/C
L	13A	+12V Sense
M	13A	+12V Sense Return
N	13A	N/C
O	13A	+28V Sense
P	46A	+12V Out
R	46A	+12V Return
S	13A	+28V Sense Return
T	46A	N/C
U	23A	N/C
V	23A	N/C
W	80A	+28V Out
X	80A	+28V Return

Input Connector Pin Assignment		
PS Connector: MS3452L24-10P		
Mating Connector: MS3456L24-10S		
Pin Number	Rated Current (A)	Pin Name
A	46A	N/C
B	46A	Phase A
C	46A	Phase B
D	46A	Phase C
E	46A	Neutral (N/C)
F	46A	Earth GND (Chassis)
G	46A	N/C



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Mechanical Dimensions:

