1500 Watt, 400 Hz, 3 Phase Input, Single Output, Military Grade Power Supply

Product Description

This unit is a 400Hz, 3 phase input, military grade power supply providing a 1000 watts in a single output, designed for electronic systems operating in harsh environments (subject to abnormal shock and vibration) and extreme temperature conditions. It is conduction cooled providing a -40° to +85° C operating temperature range. This highly reliable design will meet or exceed all applicable military standards including MIL-STD-810D & MIL-STD-461D.

Features

- Meets MIL-STD-461E
- Meets MIL-STD-810F Environment
- Meets MIL-STD-704E Compatible
- Input: 115Vac, 400Hz, 3 Phase
- 88% Efficiency
- Operating Temperature Range: -40º to +85º C

AC Input

- Voltage Input Range: 95-138VAC (115VAC nominal input, 200Vac L-L)
- Frequency: 50/60/400Hz
- Phase: Three Phase
- Power factor correction: 0.85 min @ Full Load

Output Selection Guide

Model #:	Voltage	Max Current	Regulation	Ripple
M286-X-1	3.3Vdc	60 Amps	±3%	150mV pk-pk
M286-X-2	5.0Vdc	60 Amps	±3%	150mV pk-pk
M286-X-3	9.0Vdc	60 Amps	±3%	150mV pk-pk
M286-X-4	12Vdc	60 Amps	±2%	150mV pk-pk
M286-X-5	15Vdc	60 Amps	±2%	150mV pk-pk
M286-X-6	19Vdc	60 Amps	±2%	150mV pk-pk
M286-X-7	24Vdc	60 Amps	±2%	150mV pk-pk
M286-X-8	28Vdc	54 Amps	±2%	150mV pk-pk
M286-X-9	36Vdc	41 Amps	±2%	150mV pk-pk
M286-X-10	48Vdc	31 Amps	±2%	150mV pk-pk

Note: Alternate output voltages are available, consult factory for availability.

DC Output Characteristics (Floating)

- Output Power: 1500 Watts (maximum continuous power, requires derating for low voltage outputs)
- Line Regulation: ±2.0% Typical
- Load Regulation: ±2.0% Typical (No load to full load; nominal input)

DC Output Characteristics (Cont.)

- Output Ripple/Noise: 1% Typical (pk-pk; nominal input; full load; 20MHz bandwidth)
- Set Point Accuracy: ± 1.0% of Output Voltage (Nominal input; full load; 25°C)
- Transient Response: Output voltage returns to within 1% in less than 2.5mS for a 50% load change and the peak transient does not excess 5%.
- Overshoot: Turn-on and turn-off overshoot should not exceed 5% over nominal voltage.

Electrical Characteristics

- Switching Frequency: 400KHz Fixed
- Efficiency: 88% Typical (Measuring at 115Vac and at full load)
- Turn On Delay:1.5 second maximum at 120 VAC
- Isolation Voltage: 500V between input and output. 500V between input and case.
- Isolation Resistance: 50Mohms (Input to output)
- Temperature Regulation: +/-2.0%/ºC (+/-.005%/ ºC max; over operating temp range)

Protection

- Over Current Limit: ~115 to 120% of maximum rating. Hiccup, continuous.
- Over-Voltage Setpoint: ~115% of nominal main. Unit latched 1 minute, recycle AC input to reset at 25°C.
- Short Circuit: Auto-Recovery after short circuit condition is removed.
- Over temperature Protection: Shutdown at baseplate temperature of +105°C (±5°C) Automatic recovery at baseplate temperature lower than +95°C (±5°C)

Environmental

- Operating Temperature: -40º to +85º C (baseplate)
- Storage Temperature: -55º to 125º C
- Operating Humidity: 5% to 90% RH, Non-condensing
- Storage Humidity: 5% to 95% RH, Non-condensing
- Operating Altitude: Sea-level to 40,000 ft. in pressurized environment
- Conducted EMI: MIL-STD-461E – CE102, CS101, CS114, CS115, CS116, RE102, RS103
- Cooling: Conduction cooled, baseplate mounting

Reliability

- 100,000 hours, calculated per MIL-STD-217F at +85°C baseplate, ground fixed.

Mechanical

- Outline Dimensions: 1.9" X 6.3" X 8.8" (H X W X L) – not including I/O connector
- Weight: ~6.5 lbs. (2948 grams)
- AC Input Connector: D38999/20WD5PN or EQ.
- Output Connector: D38999/20WE35SN or EQ.

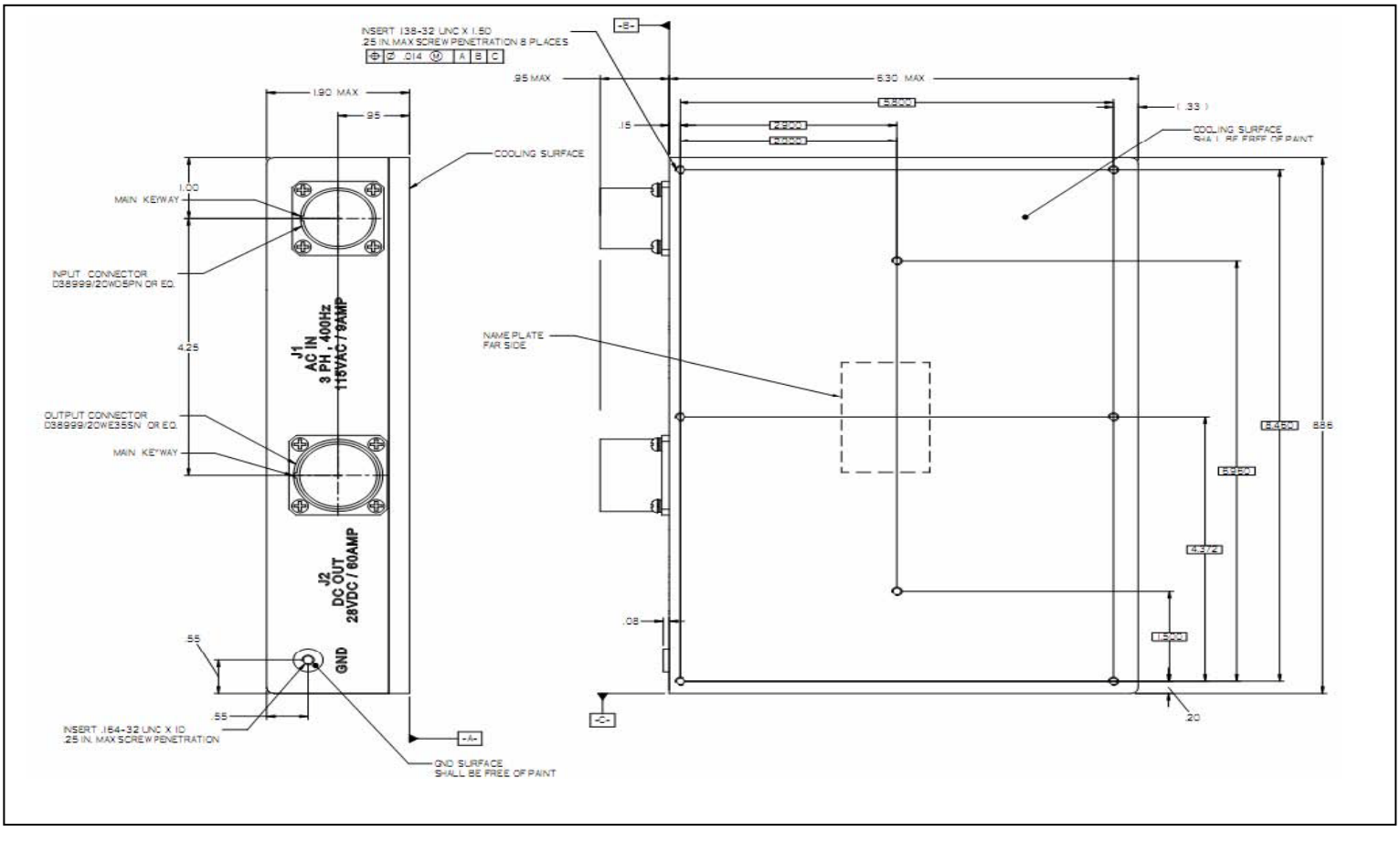
Additional Features, Controls or Alarms

- Inhibit Input - When shorted (<1V @ 2mA) to the -VDC inhibits the DC output voltage. When Open (I<0.1mA at 5Vdc) enables the output voltage.
- Parallel Operation: When using two or more identical M286 units in parallel, all PARALLEL Pins should be connected together.
- BIT Operation: The output side (collector and emitter) of an optoisolator. Active Low (V<0.8V @ 2mA) when DC output voltage is OK, Open (I<0.05mA @ 5V) when DC output fails.

Notes

- Product specifications subject to change without notice. All Rights Reserved.
- The information and specifications contained in this document are believed to be correct and accurate at the time of publication. DSC Power Solutions, Inc. accepts no responsibility for consequences arising from printing errors or inaccuracies pertaining to any use or application of this document.

Outline Drawing



Dimensions are in Inches [mm]

Tolerance is: .XX ±.02 IN .XXX ±.01 IN

Input Pin Assignments

Pin #	Assignment
1	PHASE A
2	PHASE B
3	PHASE C
4	N/C
5	Ground

Output Pin Assignments

Pin #	Assignment	Pin #	Assignment	Pin #	Assignment	Pin #	Assignment	Pin #	Assignment
1	CASE GND	12	+VDC	23	-VDC	34	+VDC	45	-VDC
2	INHIBIT	13	-VDC	24	N/C	35	+VDC	46	-VDC
3	PARALLEL	14	-VDC	25	+VDC	36	-VDC	47	+VDC
4	N/C	15	-VDC	26	+VDC	37	-VDC	48	+VDC
5	N/C	16	N/C	27	+VDC	38	-VDC	49	+VDC
6	+VDC	17	+VDC	28	-VDC	39	-VDC	50	-VDC
7	-VDC	18	+VDC	29	-VDC	40	+VDC	51	-VDC
8	BIT	19	+VDC	30	-VDC	41	+VDC	52	-VDC
9	BIT RTN	20	+VDC	31	-VDC	42	+VDC	53	+VDC
10	+VDC	21	-VDC	32	+VDC	43	-VDC	54	+VDC
11	+VDC	22	-VDC	33	+VDC	44	-VDC	55	-VDC