M391 SERIES

AC/DC POWER SUPPLY

MINIATURE, HIGH DENSITY, HIGH EFFICIENCY, SEVEN OUTPUTS, THREE-PHASE AC / DC CONVERTERS UP TO 300 W

STANDARD CONFIGURATIONS

Part number	Input	Output						
		#1	#2	#3	#4	#5	#6	#7
M391-102	103-127VAC / 400Hz / 3-Phase	+5V/15A	+3.3V/6A	+8.5V/6.5A	-8.5/2A	+13V/9A	-13V/3A	-5V/2.5A
M391-103	103-127VAC / 400Hz / 3-Phase	6V/0.8A	N/A	15V/2.3A	15V/2A	12V/1.5A	12V/0.1A	24V/2.3A

* Additional standard configurations available. **Contact factory for more details**.

THE MAIN FEATURES OF THE M391 SERIES ARE:

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Output groups float from each other
- Fixed switching frequency
- Remote inhibit (TTL Level, Floating)
- Turn-on sequencing (option)
- EMI filters included
- Limited inrush current
- Indefinite short-circuit protection with auto-recovery
- Over Temperature shutdown with auto-recovery
- BIT signal indicates outputs status

Electrical Specifications

INPUT

AC version input voltage range:
Steady-state: 103 to 127 V_{AC}, 400 Hz, 3-Phase
Transients: 80 $V_{AC,l-n}$ / 100 ms; 180 $V_{AC,l-n}$ / 100 ms

DC version input voltage range:
Steady-state: 220 V_{DC} to 350 V_{DC}
Transients: 160 V_{DC} / 100 ms; 440 V_{DC} / 100 ms

Efficiency: up to 82%

EMC: Designed to meet MIL-STD-461D
CE102, CS101, CS114, CS115, RS102, RS103

Isolation:
Input to Output: > 10 MΩ @ 500 V_{DC}
Input to Chassis: > 10 MΩ @ 500 V_{DC}

DC OUTPUTS

Line/Load/Temperature regulation:

Less than ±2% (0 to full load, –55 °C to +85 °C)

Ripple and Noise: 50 mV_{p-p}, typical (max. 1% of typical ouput voltage)

Current limiting:
Continuous protection for unlimited time

Over-Voltage Protection:
Passive transorbs on outputs.

Isolation:
Output to Chassis: > 1 MΩ @ 100 V_{DC}

Environmental Specifications

Meets or exceeds MIL-STD-810D

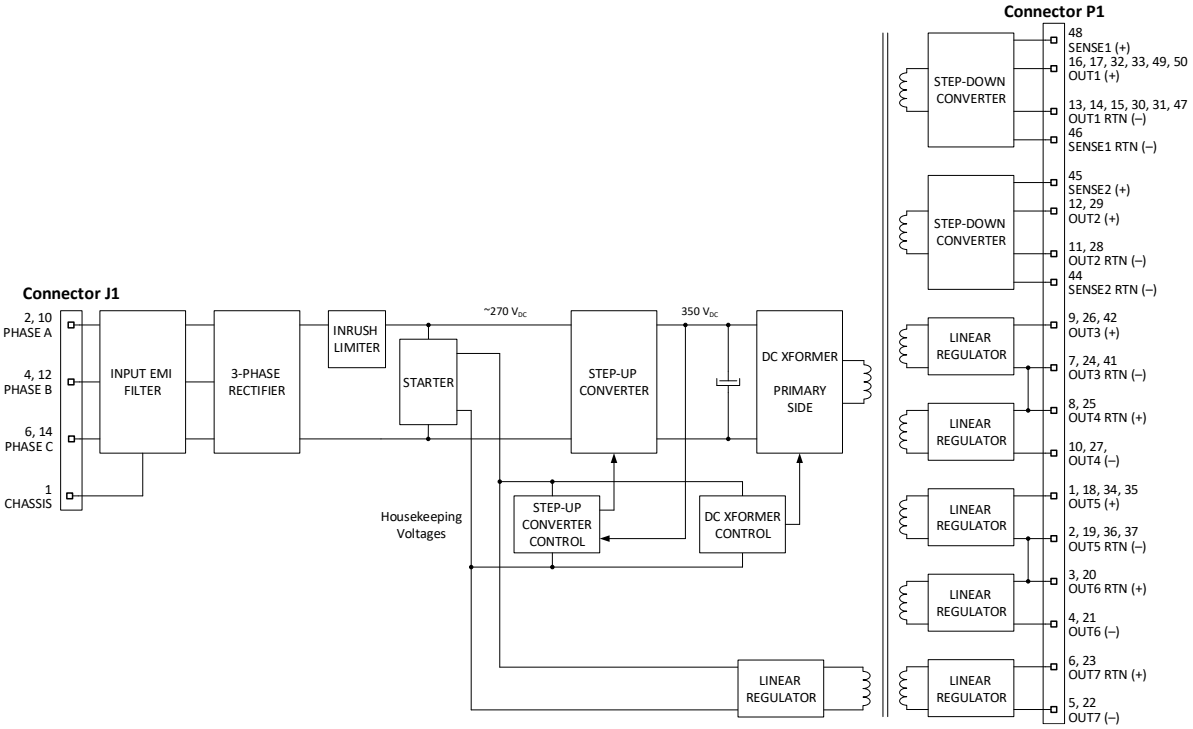
- Temperature:
  Operating: –55 °C to +85 °C (baseplate)
  Storage: –55 °C to +85 °C
- Random Vibration IAW MIL-STD-810D
  Method 514.3, Procedure I, Category 7B Fig. D

Frequency [Hz]	PSD [g^2/Hz]	Remarks
15 to 120	0.04	
120 to 300	Rise to 0.04	4dB/oct
300 to 1000	0.14	
1000 to 200	Decrease by 6dB/oct	

Reliability

100 000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85°C baseplate, Ground Fix environmental.

Block Diagram



Pin Assignment

Input Connector (J1)

Connector type: M24308/24-38F or eq.
Mating connector type: M24308/2-2F or eq.

Pin No.	Function
1	Chassis†
2	Phase A
3	N.C.
4	Phase B
5	N.C.

Pin No.	Function
6	Phase C
7	N.C.
8	N.C.
9	N.C.
10	Phase A

Pin No.	Function
11	N.C.
12	Phase B
13	N.C.
14	Phase C
15	N.C.

Output Connector (P1)

Connector type: M24308/23-41F or eq.
Mating connector type: M24308/4-5F or eq.

Pin No.	Function	P	Pin No.	Function	P	Pin No.	Function	P
1	OUT 5	+	18	OUT 5	+	35	OUT 5	+
2	OUT 5 RTN**	–	19	OUT 5 RTN**	–	36	OUT 5 RTN**	–
3	OUT 6 RTN**	+	20	OUT 6 RTN**	+	37	OUT 5 RTN**	–
4	OUT 6	–	21	OUT 6	–	38	BIT****	
5	OUT 7	–	22	OUT 7	–	39	INHIBIT***	+
6	OUT 7 RTN	+	23	OUT 7 RTN	+	40	INHIBIT RTN***	–
7	OUT 3 RTN*	–	24	OUT 3 RTN*	–	41	OUT 3 RTN*	–
8	OUT 4 RTN*	+	25	OUT 4 RTN*	+	42	OUT 3	+
9	OUT 3	+	26	OUT 3	+	43	BIT RTN****	
10	OUT 4	–	27	OUT 4	–	44	SENSE 2 RTN	–
11	OUT 2 RTN	–	28	OUT 2 RTN	–	45	SENSE 2	+
12	OUT 2	+	29	OUT 2	+	46	SENSE 1 RTN	–
13	OUT 1 RTN	–	30	OUT 1 RTN	–	47	OUT 1 RTN	–
14	OUT 1 RTN	–	31	OUT 1 RTN	–	48	SENSE 1	+
15	OUT 1 RTN	–	32	OUT 1	+	49	OUT 1	+
16	OUT 1	+	33	OUT 1	+	50	OUT 1	+
17	OUT 1	+	34	OUT 5	+			

† On some variants pin 1 in connector J1 is not connected.

* OUT 3 RTN (–) and OUT 4 RTN (+) are shorted together, and serve as the return for OUT 3 (+) and OUT 4 (–) respectively.

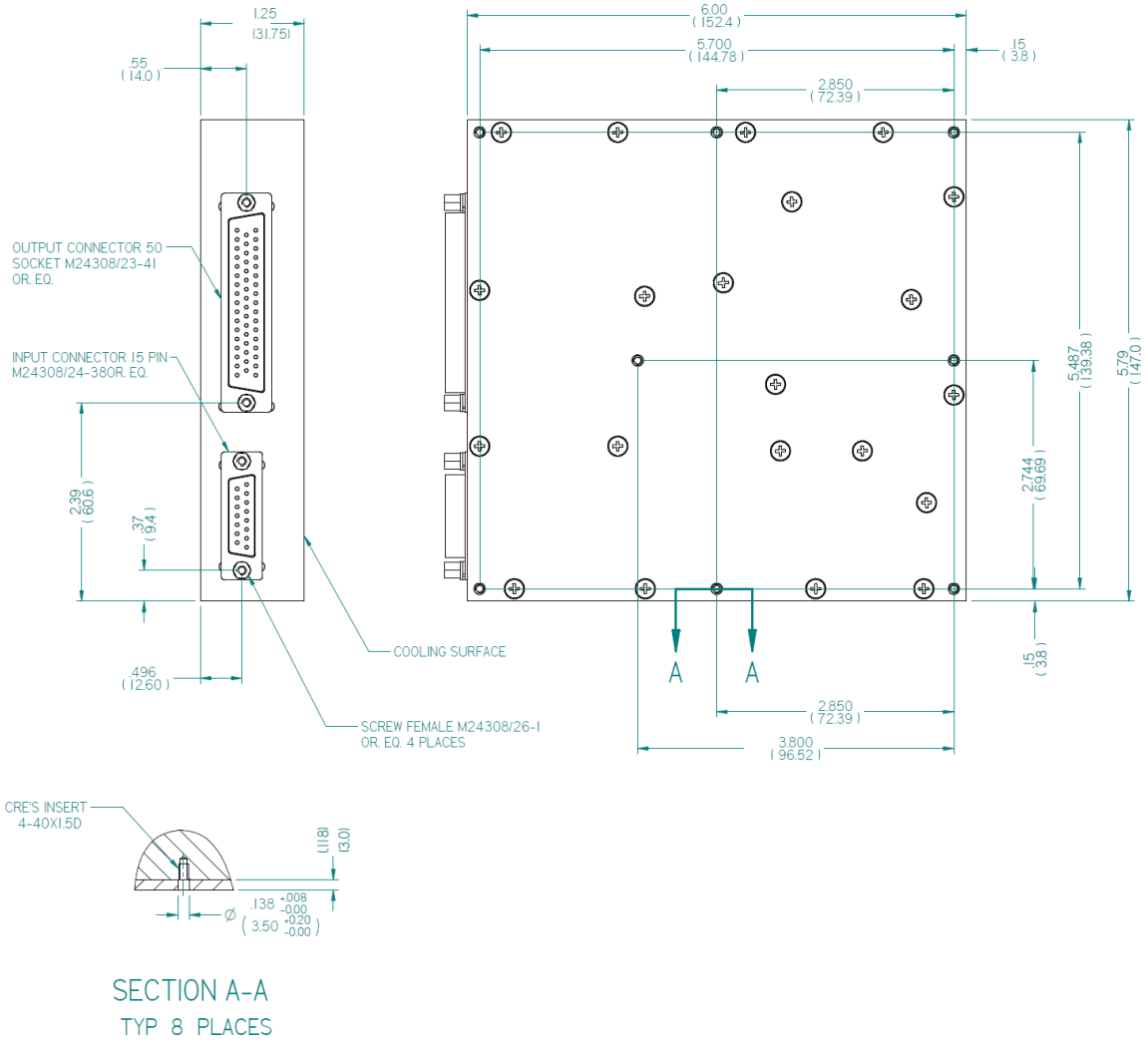
** OUT 5 RTN (–) and OUT 6 RTN (+) are shorted together, and serve as the return for OUT 5 (+) and OUT 6 (–) respectively.

*** INHIBIT signal is floating from input and outputs.
INHIBIT pin shorted to INHIBIT RTN: Unit is ON ; INHIBIT pin open: Unit is OFF

**** BIT pin shorted through a 3.3kΩ resistor to BIT RTN when outputs are within normal range. Open when fault occurs.

Note: All pins with identical function and/or designation shuold be connected together for best performance.

Outline Drawing



SECTION A-A
TYP 8 PLACES

Notes

1. Dimensions are in inches (mm)
2. Tolerance is:
   .XX ± .02 in
   .XXX ± .010 in
3. Weight: Approx. 4.4 lbs [2 kg]

NOTE: Specifications are subject to change without prior notice by the manufacturer