

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 output 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

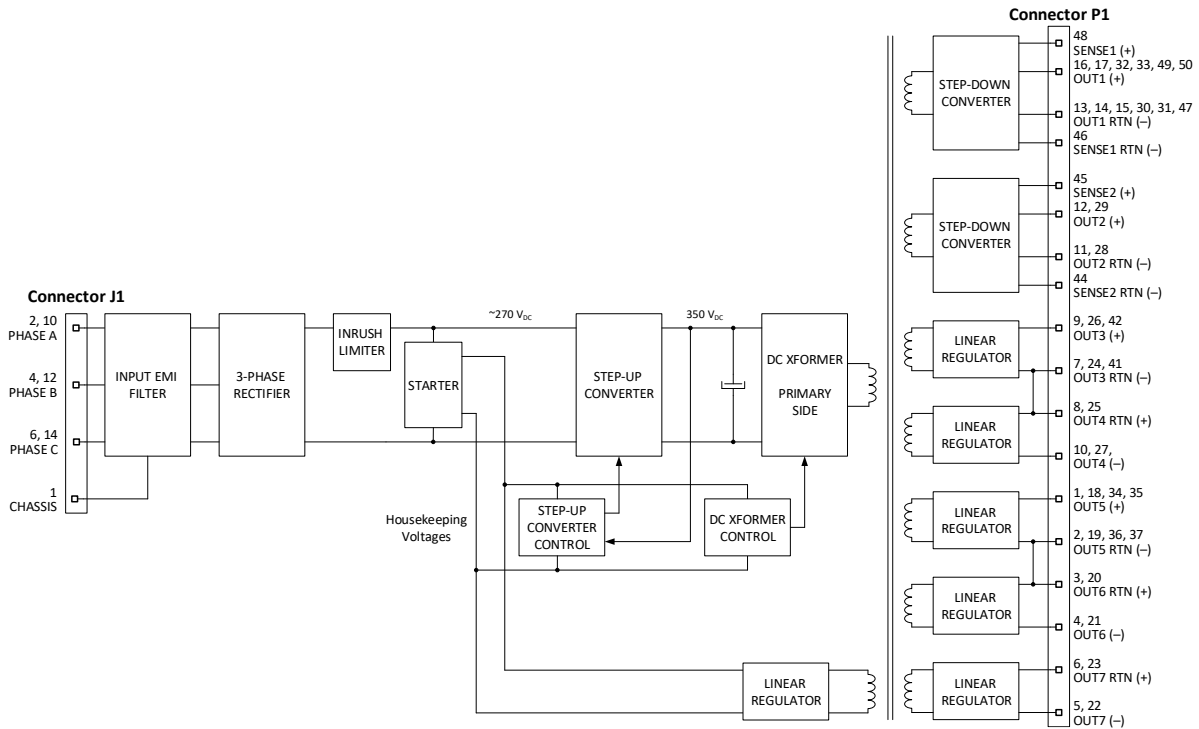
| Frequency [Hz] | PSD [g^2/Hz] | Remarks |
|----------------|---------------------|---------|
| 15 to 120 | 0.04 | |
| 120 to 300 | Rise to 0.04 | 4dB/oct |
| 300 to 1000 | 0.14 | |
| 1000 to 200 | Decrease by 6dB/oct | |

Reliability

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

M391 Series– AC/DC Power Supply

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 |
|---------|-------------|---|
| 1 | OUT 5 | + |
| 2 | OUT 5 RTN** | - |
| 3 | OUT 6 RTN** | + |
| 4 | OUT 6 | - |
| 5 | OUT 7 | - |
| 6 | OUT 7 RTN | + |
| 7 | OUT 3 RTN* | - |
| 8 | OUT 4 RTN* | + |
| 9 | OUT 3 | + |
| 10 | OUT 4 | - |
| 11 | OUT 2 RTN | - |
| 12 | OUT 2 | + |
| 13 | OUT 1 RTN | - |
| 14 | OUT 1 RTN | - |
| 15 | OUT 1 RTN | - |
| 16 | OUT 1 | + |
| 17 | OUT 1 | + |

| Pin No. | Function | P |
|---------|-------------|---|
| 18 | OUT 5 | + |
| 19 | OUT 5 RTN** | - |
| 20 | OUT 6 RTN** | + |
| 21 | OUT 6 | - |
| 22 | OUT 7 | - |
| 23 | OUT 7 RTN | + |
| 24 | OUT 3 RTN* | - |
| 25 | OUT 4 RTN* | + |
| 26 | OUT 3 | + |
| 27 | OUT 4 | - |
| 28 | OUT 2 RTN | - |
| 29 | OUT 2 | + |
| 30 | OUT 1 RTN | - |
| 31 | OUT 1 RTN | - |
| 32 | OUT 1 | + |
| 33 | OUT 1 | + |
| 34 | OUT 5 | + |

| Pin No. | Function | P |
|---------|----------------|---|
| 35 | OUT 5 | + |
| 36 | OUT 5 RTN** | - |
| 37 | OUT 5 RTN** | - |
| 38 | BIT**** | |
| 39 | INHIBIT*** | + |
| 40 | INHIBIT RTN*** | - |
| 41 | OUT 3 RTN* | - |
| 42 | OUT 3 | + |
| 43 | BIT RTN**** | |
| 44 | SENSE 2 RTN | - |
| 45 | SENSE 2 | + |
| 46 | SENSE 1 RTN | - |
| 47 | OUT 1 RTN | - |
| 48 | SENSE 1 | + |
| 49 | OUT 1 | + |
| 50 | OUT 1 | + |

† 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.

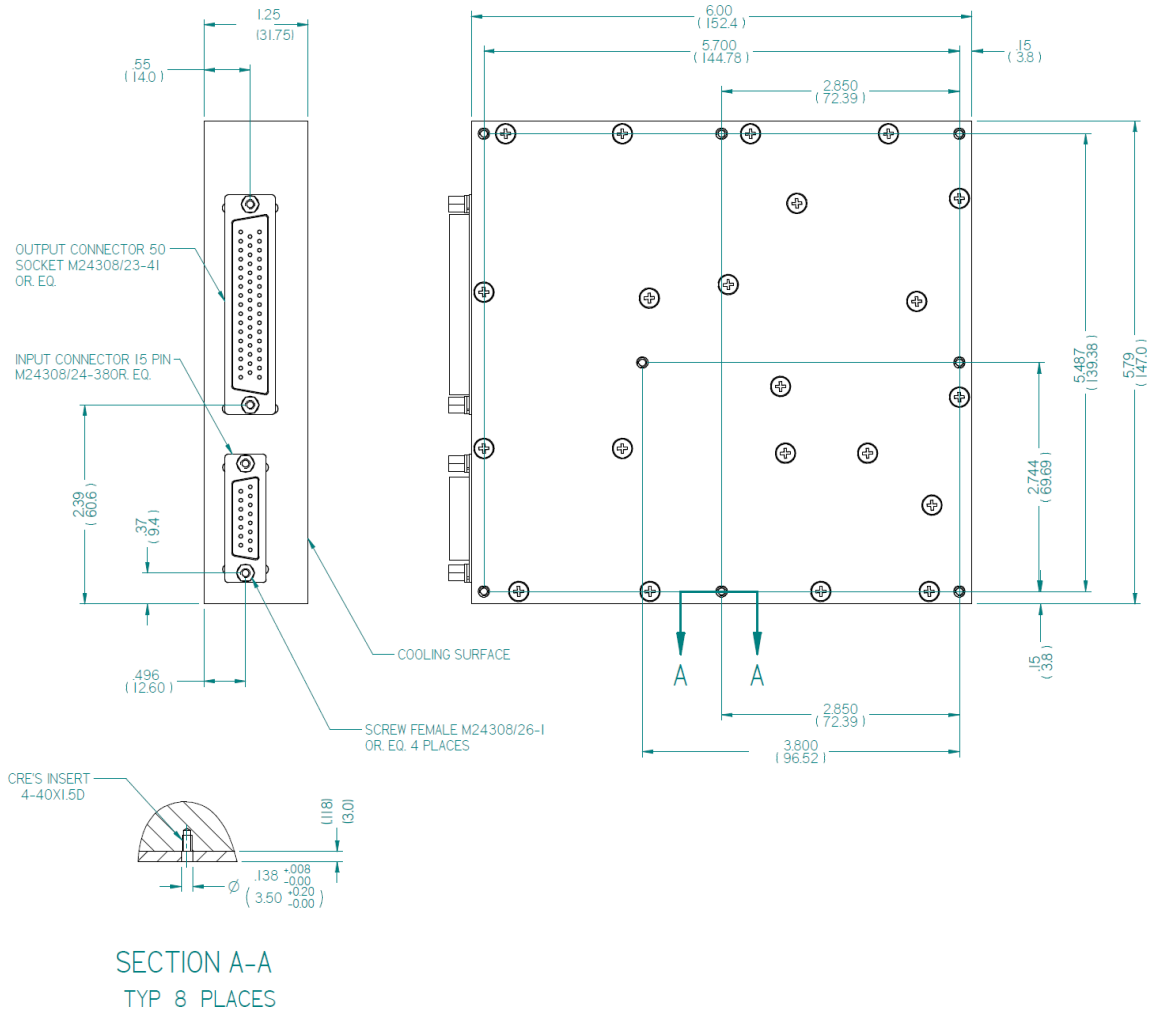
*** INHIBIT signal is floating from input and outputs.
INHIBIT pin shorted to INHIBIT RTN: Unit is ON ; INHIBIT pin open: Unit is OFF

**** 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 should be connected together for best performance.

M391 Series– AC/DC Power Supply

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