

## **M2701 SERIES**

*3-PHASE AC/DC POWER SUPPLY*



### **PRODUCT HIGHLIGHTS**

- **3-PHASE AC/DC POWER SUPPLY**
- **HIGH EFFICIENCY**
- **HIGH VOLTAGE**
- **SINGLE OUTPUT**
- **UP TO 500 W**

## M2701 SERIES 3-PHASE AC/DC POWER SUPPLY

### Applications

Military (ground-fix, shipboard), Ruggedized, Telecom, Industrial

### Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output Isolation
- Inrush Current Limiter
- Fixed switching freq. (250 kHz)
- External Inhibit
- EMI filters included
- Non-latching automatic recovery protections:
  - Short-circuit
  - Over-temperature

### Electrical Specifications

#### AC Input

115 V<sub>RMS, L-N</sub> ± 10%, 400 Hz  
3-Phase

#### Efficiency

Typically: 90%  
(270V<sub>DC</sub> output, full load, nominal input voltage, room temperature)

#### Isolation

Input to Output: 500 V<sub>DC</sub>

Input to Case: 500 V<sub>DC</sub>  
Output to Case: 500 V<sub>DC</sub>

#### Transient over-and-

undershoot Output resistance at load change of 50% to 100% is 1.5 Ω, typical.

#### DC Output

Voltage range: 100 to 320 V<sub>DC</sub>  
Current range: 0 to 5 A  
Power range: 0 to 500 W

#### Output voltage regulation

Less than ±1%  
(No load to full load, -55°C to +85°C and over normal input voltage range).

#### Abnormal surge (no damage)

IAW MIL-STD-704A-F:  
0 V to 180V

#### Ripple & Noise

Less than 100mV<sub>p-p</sub>, typical (max. 1%) without external capacitance. When connected to the system capacitance ripple drops significantly.

#### EMC\*

Designed to meet MIL-STD-461F:  
CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103.

\*Depending on configuration, an external filter may be required to comply with EMI requirements.

## M2701 SERIES 3-PHASE AC/DC POWER SUPPLY

### Protections \*

#### Input

- **Inrush Current Limiter**  
Peak value of  $5x I_{IN}$  for inrush current lasting over 50 $\mu$ sec.

#### Output

- **Passive Over-Voltage Protection** Transorb assembled across the output pins, selected at  $120\% \pm 10\%$  of nominal voltage.
- **Current Limiting**  
Continuous protection (10-30% above maximum current) for unlimited time (Hiccup).

#### General

- **Over Temperature Protection** Unit shuts down if baseplate temperature rises above  $+105^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .  
Automatic recovery when baseplate temperature falls below  $+95^{\circ}\text{C} \pm 5^{\circ}\text{C}$ .

### Environmental Conditions

Designed to meet MIL-STD-810G

#### Temperature

Operating:  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  (at baseplate)  
Storage:  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

#### Humidity

Method 507.4  
Procedure I

Up to 95% RH

#### Altitude

Method 500.4  
Procedures I & II – Up to 33 kft.  
Higher altitude option.

#### Vibration (random)

Method 514.5  
Category 4 - General minimum integrity exposure  
IAW Figure 514.5C-17  
1 hour per axis.

#### Salt Fog

Method 509.4

#### Shock

Method 516.5  
Procedure I

20 g, 11 ms terminal peak saw-tooth,

### Reliability

150 000 hours, calculated IAW MIL-HDBK-217F Notice 2 at  $+85^{\circ}\text{C}$  baseplate, Ground Fixed environment.

#### **Notes:**

\* Thresholds and protections can be modified / removed – please consult factory.




## M2701 SERIES 3-PHASE AC/DC POWER SUPPLY



### Pin Assignment †



#### J1 - Input Connector

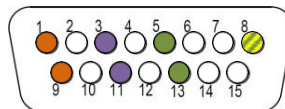
Type: M24308/24-38F or eq.

Mates with: M24308/2-2F or eq.

Pin No.	Function	
1	PHASE A	
2	N.C.	
3	PHASE B	
4	N.C.	
5	PHASE C	

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





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










#### J2 - Output Connector

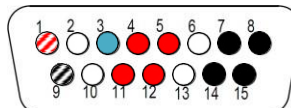
Type: M24308/23-38F or eq.

Mates with: M24308/4-2F or eq.

Pin No.	Function	
1	BIT	
2	N.C.	
3	INHBIT	
4	OUT	
5	OUT	

Pin No.	Function	
6	N.C.	
7	OUT RTN	
8	OUT RTN	
9	BIT RTN	
10	N.C.	

Pin No.	Function	
11	OUT	
12	OUT	
13	N.C.	
14	OUT RTN	
15	OUT RTN	



† All pins with identical function/designation should be connected for best performance

## M2701 SERIES 3-PHASE AC/DC POWER SUPPLY

### Functions and Signals

#### **INHIBIT** (connector J2, pin 3)

The INHIBIT signal is used to turn the power supply ON and OFF. "1" or OPEN – Power supply active (output turned on).  
 "0" or SHORT to OUT RTN – Power supply inhibited (output turned off). If this function is not required, leave this pin unconnected.

#### **BIT** (connector J2, pin 1)

The BIT signal indicates the status of the output voltage.

When output voltage rises above  $90\% \pm 5\%$  of its nominal value, pin 1 will be pulled down to pin 9 through a  $20\ \Omega \pm 1\%$  resistor and a phototransistor.

When output voltage falls below  $90\% \pm 5\%$  of its nominal value, pin 1 will be in high impedance mode. If not used, leave this pin open.

This signal is referenced to **BIT RTN** pin (**connector J2, pin 9**)

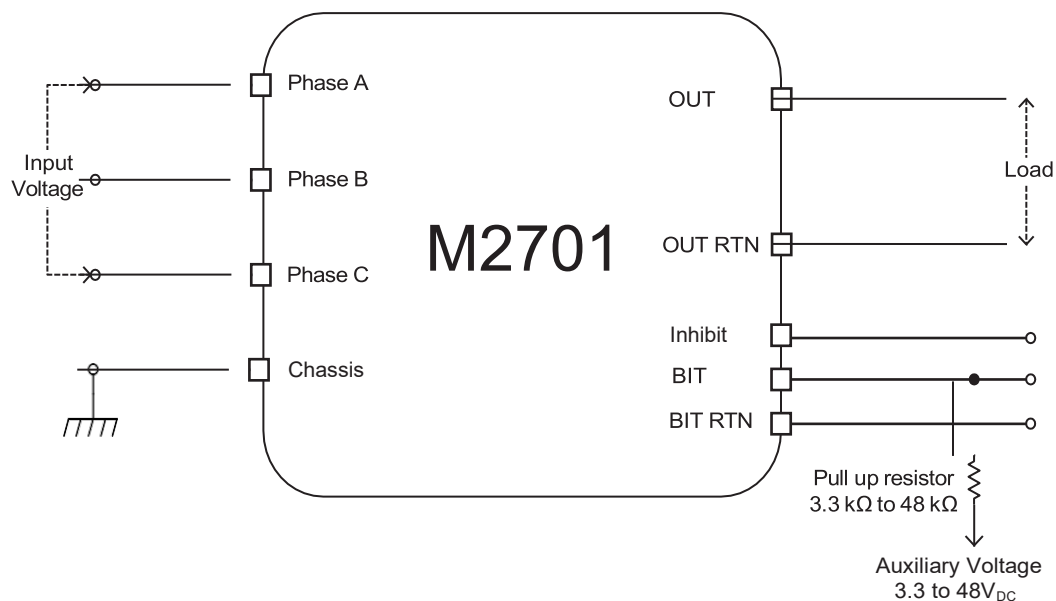
Absolute maximum voltage between BIT and BIT RTN:  $52\ V_{DC}$

Absolute maximum current into BIT pin: 2 mA (connect external voltage to this pin via an external resistor) Both pins 1 and 9 are isolated from all other parts of the circuitry.

#### **CHASSIS** (connector J1, pin 8)

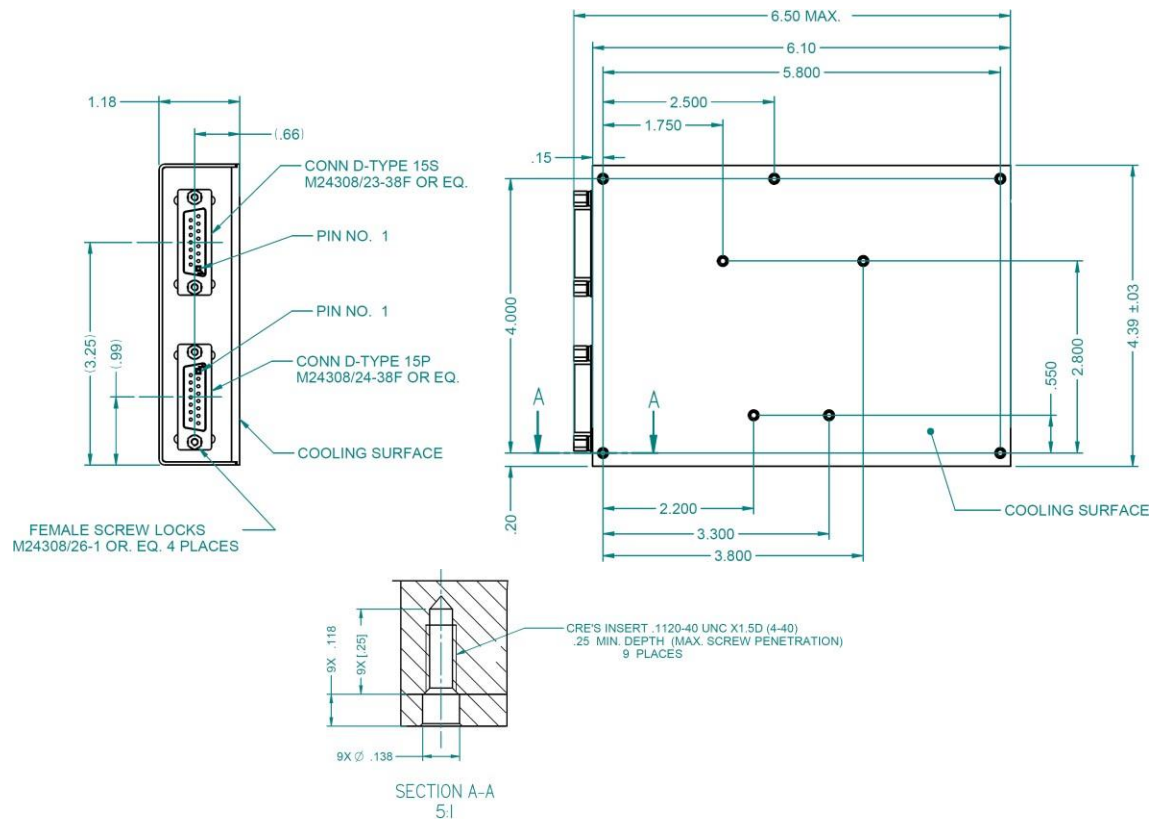
The CHASSIS pin allows additional connection of unit's chassis to the system ground.

### Typical Connection Diagram



## M2701 SERIES 3-PHASE AC/DC POWER SUPPLY

### Outline Drawing



### Notes

1. Dimensions are in inches [mm]
2. Tolerance is:  
.XX ± 0.02 in  
.XXX ± 0.010 in
3. Weight: approx. 900 gr

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