Amphenol
MILITARY HIGH SPEED

M2701 Series
3-PHASE AC/DC POWER SUPPLY

DESCRIPTION:
The M2701 military power supply is a rugged 3 phase AC to DC converter. It accepts a 115 AC input range from 103 to 127VAC, L-N, 400Hz and provides a single DC output from 100V to 320V, up to 500W, with custom outputs available. Designed to meet military standards, MIL-STD-704, MIL-STD-810, MIL-STD-461

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:
  o Short-circuit
  o Over-temperature

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HOW TO ORDER

PART NUMBER	CF-02EM2701	3-PHASE AC/DC POWER SUPPLY

PRODUCT SPECIFICATIONS:

AC Input	115 VRMS, L-N ± 10%, 400 Hz
Efficiency	Typically: 90% (270VDC output, full load, nominal input voltage, room temperature)
Isolation Low voltage version	Input to Output: 500 VDC Input to Case: 500 VDC Output to Case: 500 VDC
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 VDC 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).
Isolation High voltage version	Input to Output: 1 000 VDC Input to Case: 200 VDC Output to Case: 1 000 VDC
Abnormal surge (no damage)	IAW MIL-STD-704A-F: 0 V to 180V
Ripple & Noise	Less than 100mVp-p, 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.

PROTECTIONS:

Input	Inrush Current Limiter Peak value of 5x IIN for inrush current lasting over 50µsec.	
Output	Passive Over Voltage Protection	Transorb assembled across the output pins, selected at 120% ± 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°C ± 5°C.
	Automatic recovery when baseplate temperature falls below +95°C ± 5°C.	

ENVIRONMENTAL CONDITIONS:

Designed to meet MIL-STD-810G	
Temperature	Operating: –55°C to +85°C (at baseplate) Storage:–55°C to +125°tC
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°C baseplate, Ground Fixed environment.

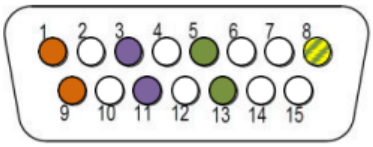
PIN ASSIGNMENT: J1 - INPUT CONNECTOR

J1 - Input Connector
Type: M24308/24-38F 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.



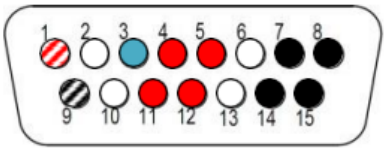
PIN ASSIGNMENT: J2 - INPUT CONNECTOR

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



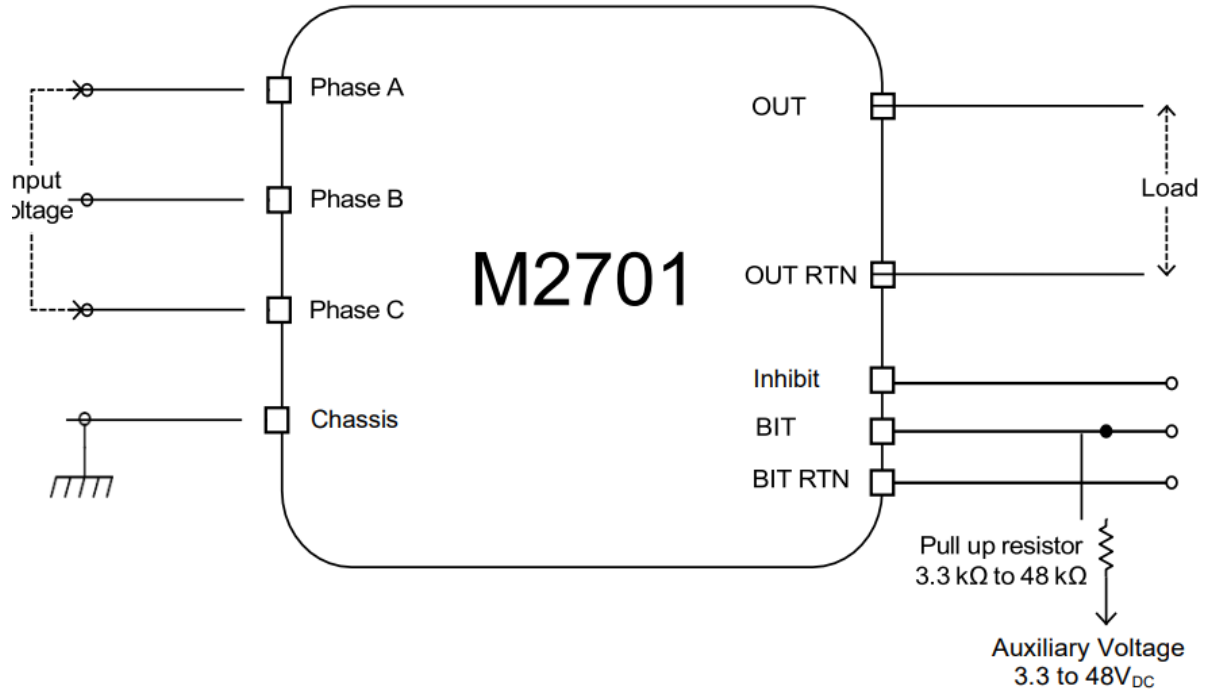
FUNCTIONS AND SIGNALS:

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.

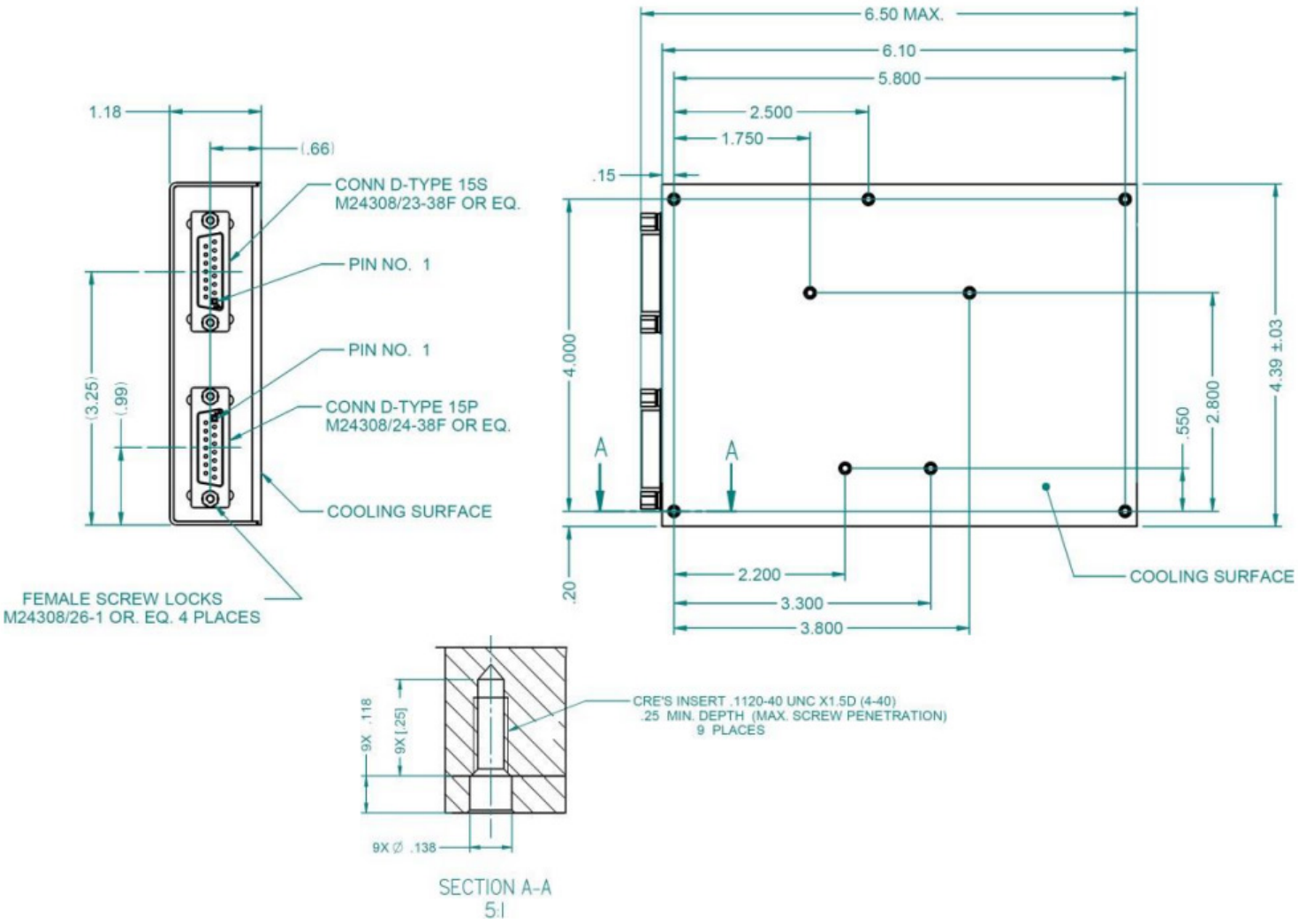
BIT (connector J2, pin 1)
The BIT signal indicates the status of the output voltage.
When output voltage rises above 90% ± 5% of its nominal value, pin 1 will be pulled down to pin 9 through a 20 Ω ± 1%
resistor and a phototransistor.
When output voltage falls below 90% ± 5% of its nominal value, pin 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: 52VDC
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:



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

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