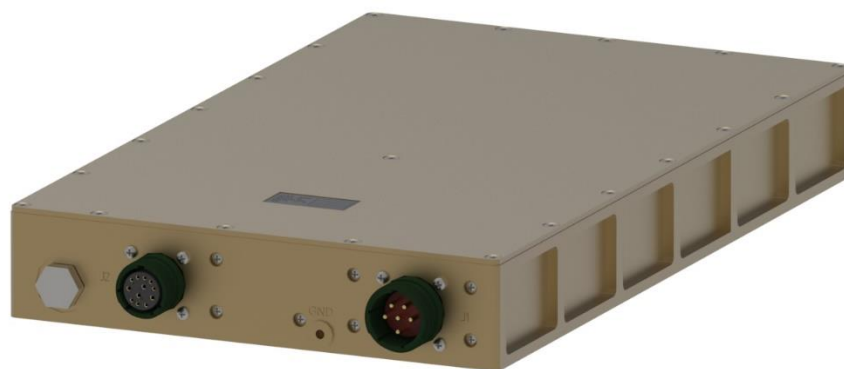


# M2705 SERIES

## SINGLE-OUTPUTS, 1.5KW AC TO DC POWER SUPPLY

The M2705 is a baseplate-mount, conduction-cooled, 3-phase AC/DC power supply designed for rugged airborne applications requiring a lagging power factor presented to the 115Vac, 3-phase bus. The unit can tolerate the normal transients of MIL-STD-704F as well as ride through the power interrupt (50mS) required in MIL-STD-704.

This unit is sealed to protect against fluids, with a breather valve for condensation exhaust. M2705 is based upon field proven M2703, with a front end that provides a lagging power factor and additional hold circuitry.



### THE MAIN FEATURES OF THE M2705 ARE:

- AC/DC POWER SUPPLY Up to 1.5kW
- 115VAC/400Hz 3 phase input
- Lagging Power Factor
- 270V/1.5kW Output
- Holdup Output: 50mS @ 1500W (75J)
- Full galvanic isolation between Input, Chassis and Outputs
- EMI Filter Included
- High efficiency
- Fixed switching frequency
- Logic Inhibit
- Limited Inrush Current
- Indefinite short circuit protection with auto-recovery
- Over temperature shutdown with auto-recovery

## M2705 Series– AC/DC Power Supply

### SPECIFICATIONS:

<b>AC Input</b>	<b>Voltage Range</b>	103 to 125 VAC/ 400 Hz 3-Phase						
	<b>Power Factor</b>	See page 5						
	<b>Isolation</b>	Input to Output: 500 VDC Input to Case: 500 VDC						
	<b>Input Transient Protection</b>	Rides through transients IAW MIL-STD-704F (180V/ 0.010 sec and 80V/ 0.010 sec)						
<b>DC Output</b>	<b>Rating</b>	270V/1.5kW						
	<b>Voltage Regulation</b>	Less than ±1%						
	<b>Ripple</b>	≤300 mVp-p, typical (max. 1%)						
	<b>Isolation</b>	Output to Case: 500 VDC						
	<b>Current Limit &amp; Overload</b>	Continuous protection for unlimited time						
	<b>Efficiency</b>	≥ 87%						
	<b>Temperature protection</b>	Shutdown, baseplate temperature exceeds 105±5 °C.						
	<b>Output Hold UP</b>	50mS @ 1500W (75J)						
<b>Control &amp; Indication</b>	<b>ON/OFF Input</b>	<p>The INHIBIT signal is used to turn the power supply ON and OFF. The internal pullup voltage is to 3.3V and the pull-down current that required to turn off the unit is typical 3mA</p> <p>Table 1 – Inhibit Functionality</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Inhibit logic</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">'ON'</td> <td style="text-align: center;">V &gt; 2.4V – P.S 'ON' or Inhibit = 'OPEN' – P.S 'ON'</td> </tr> <tr> <td style="text-align: center;">'OFF'</td> <td style="text-align: center;">Inhibit = 'SHORT' – P.S 'OFF' or V &lt; 0.8V – P.S 'OFF'</td> </tr> </tbody> </table> <p>The INHIBIT signal is floating form output and input.</p> <p><u>SIGNAL RTN</u> This signal is used as grounding for INHIBIT signal. Signal RTN is isolated from output and input.</p> <p>Additional optional ON/OFF inputs: Enable OR 28V between Inhibit pin to signal RTN to active the power supply (output turned on) - <b>Please consult factory.</b></p>	Inhibit logic		'ON'	V > 2.4V – P.S 'ON' or Inhibit = 'OPEN' – P.S 'ON'	'OFF'	Inhibit = 'SHORT' – P.S 'OFF' or V < 0.8V – P.S 'OFF'
Inhibit logic								
'ON'	V > 2.4V – P.S 'ON' or Inhibit = 'OPEN' – P.S 'ON'							
'OFF'	Inhibit = 'SHORT' – P.S 'OFF' or V < 0.8V – P.S 'OFF'							

## M2705 Series– AC/DC Power Supply

	<p><b><i>Power Good Signal</i></b></p>	<p>The POWER GOOD signal indicates the status of the output voltage.</p> <p>When output voltage rises above <math>95\% \pm 5\%</math> of its nominal value, pin J will be pulled down to pin H through a resistor and a phototransistor.</p> <p>When output voltage falls below <math>90\% \pm 5\%</math> of its nominal value, pin J will be in high impedance mode.</p> <p>If not used, leave the signal unconnected.</p> <p>This signal is referenced to PWR GOOD RTN (connector J2, pin H)</p> <p>Both pins J and H are isolated from all other parts of the circuitry.</p>
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## M2705 Series– AC/DC Power Supply

### SPECIFICATIONS (CONT.):

<b>Environment Designed to meet MIL-STD-810F</b>	<b>Temperature</b>	-51 °C to 93 °C baseplate
	<b>Humidity</b>	Method 507.4 Up to 95% RH
	<b>Salt-fog</b>	Method 509.4
	<b>Altitude</b>	Flight: up to 70,000 ft. (operational)
	<b>Mechanical Shock</b>	Method 516.5 Procedure I 20 g / 11 ms terminal peak half-sine shock pulse
	<b>Vibration</b>	Method 514.5 Procedure I 5 grms 20-2000 Hz for 500 seconds at each of 3 perpendicular axes.
	<b>Fungus</b>	Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.
	<b>Rain &amp; Blowing rain</b>	Per MIL-STD-810G, Method 506.5, Procedure I (108 mm/hour, 40mph)
<b>EMI</b>	<b>MIL-STD-461F</b>	CE102, CS101, CS114, CS115, CS116, RE102, RS101,RS103 <b>(Shielded output cable)</b>
<b>Reliability</b>	100,000 hours, calculated per MIL-STD-217F at +70°C baseplate, Ground Fixed.	
<b>Cooling Requirements</b>	The M2705 is a baseplate cooled unit. The base of the M2705 should be thermally attached to a suitable heatsink that maintains it below +93 °C.	
<b>Form factor</b>	9.12" wide, 1.96" high and 14.88" deep. For detailed dimensions and tolerances see Drawing: M2705001	
<b>Weight</b>	17.6lb *	
<b>Connectors</b>	See page 5	

\*Based upon analysis and of mechanical parts and M2703.

## M2705 Series– AC/DC Power Supply

### POWER FACTOR:

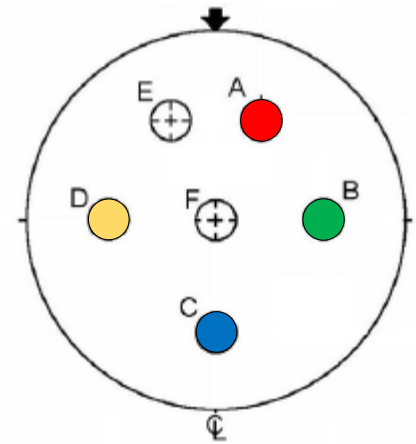
Input Power [W]	Power Factor (Lagging)
500	> 0.65
1000	≤ 0.9
1500	≤ 0.9

### PIN ASSIGNMENT

#### INPUT CONNECTOR-J1

Connector type: D38999/20WE06PN OR EQ.

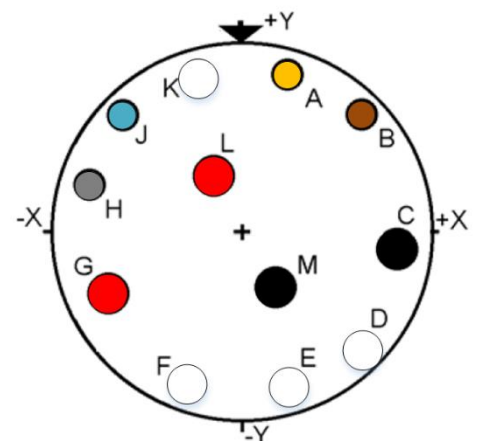
Function	Pin No.	
Phase A	A	
Phase B	B	
Phase C	C	
Chassis	D	
SPARE	E,F	



#### OUTPUT CONNECTOR-J2

Connector type: D38999/20WD97SN OR EQ.

Function	Pin No.	
OUTPUT	G,L	
OUTPUT RTN	C,M	
ON/OFF	A	
Signal RTN	B	
Power Good	J	
Power Good RTN	H	
SPARE	E, F,D,K	



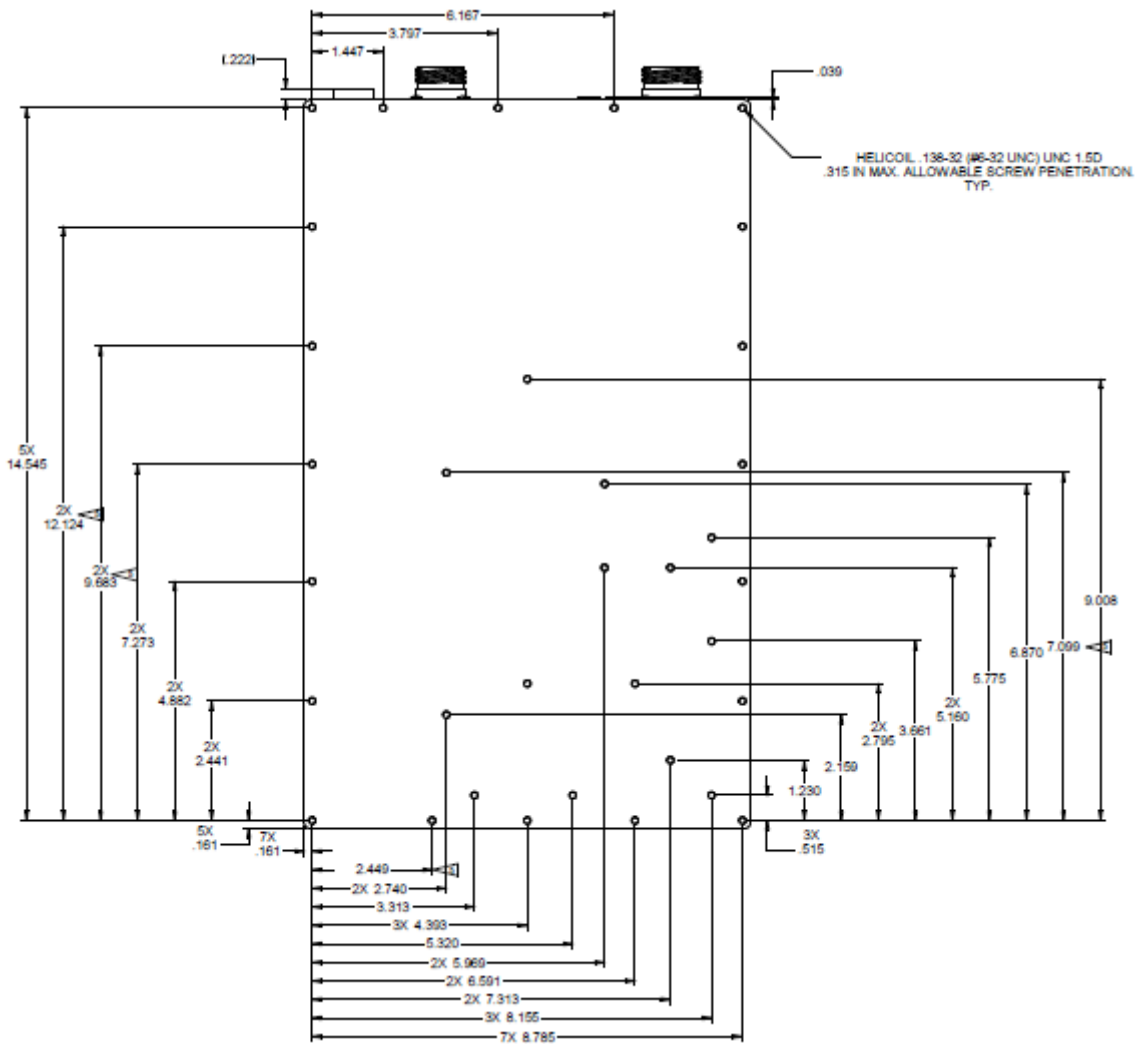
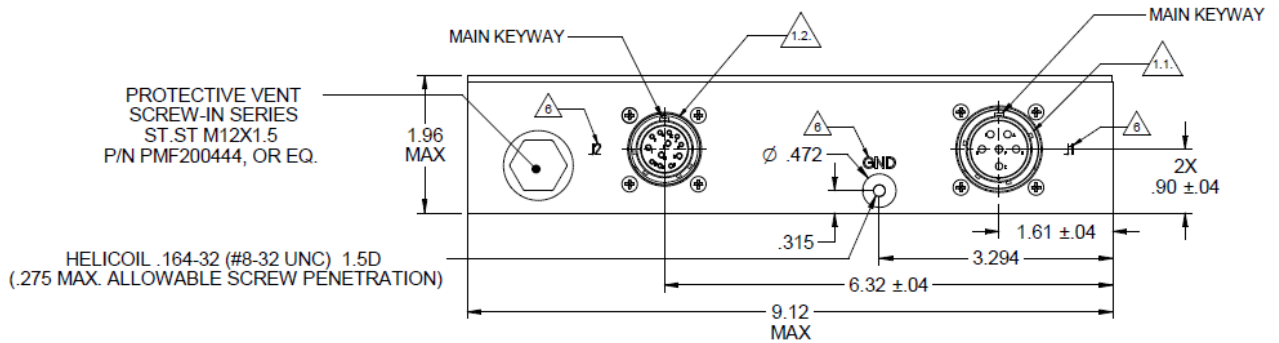
#### CHASSIS Note: Chassis PIN

This pin is connected to the converter's chassis.

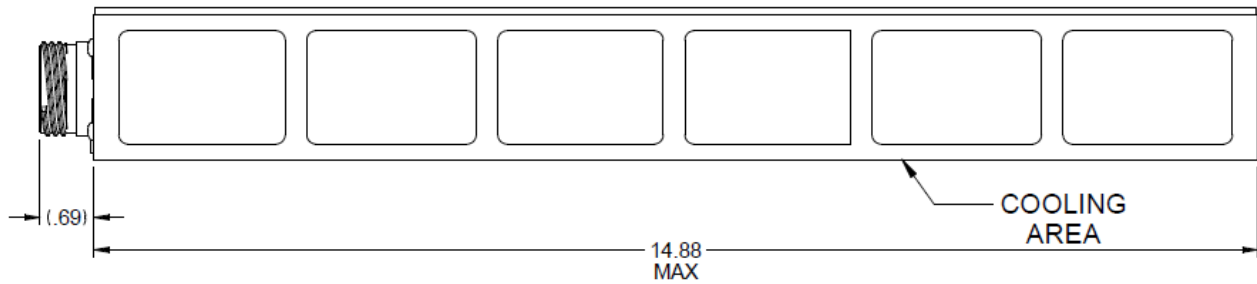
**M2705 Series– AC/DC Power Supply**

**OUTLINE DRAWING**

For detailed dimensions and tolerances see Drawing: M2705001



**M2705 Series– AC/DC Power Supply**



**NOTES :**

**1. CONNECTORS LIST:**

1.1. J1- INPUT: D38999/20WE06PN OR EQ.

1.2. J2- OUTPUT: D38999/20WD97SN OR EQ.

2. MTL. AL 6061-T651 & AL 5052-H32.

3. FINISH: CONVERSION COATING PER MIL -C-5541, TYPE 1, CL 1A.

4. COOLING: HEAT DISSIPATION AREA- 132.1 [IN<sup>2</sup>].

5. WORKMANSHIP SHALL BE MIL-STD-454, REQT. 9

6. ENGRAVING:

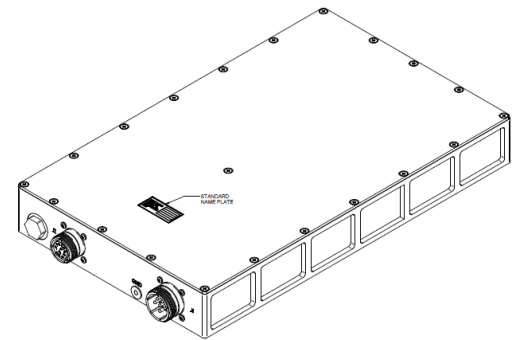
6.1. CHARACTER HEIGHT: .16 IN.

6.2. CHARACTER DEPTH: .02 IN.

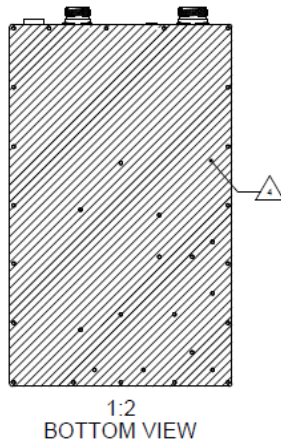
6.4. CHARACTER ARE CENTRALLY LOCATED.

6.5. FILL ENGRAVING WITH BLACK LUSTERLESS EPOXY PAINT, COLOR PER FED-STD 595 N0: 37038.

7. MAX WEIGHT: T.B.D.



**HEAT DISSIPATION SURFACE AREA**



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