

# M9111 SERIES

## SINGLE-OUTPUT, UP TO 50W AC/DC POWER SUPPLY

M9111 series designed to universal input voltage (85V ac to 265V ac) and incorporated high power factor stage required in order to meet MIL-STD-461F to CE101 requirements and harmonic content lower than  $1/N$  as required by MIL-STD 1399 (N is the number of the harmonic order).



## M9111 Series– AC/DC Power Supply

### THE MAIN FEATURES OF THE M9111 ARE:

- AC/DC Single output power supply up to 50W
- 85V<sub>AC</sub>-265V<sub>AC</sub>/50-60Hz or 400Hz Standard Input version, single-phase
- High efficiency
- Wide input range
- High power factor (up to 98%)
- Input / Output isolation
- Sealed enclosure
- EMI filters included
- Inrush Current Limiter
- Non-latching protections:
  - Overload/Short-circuit
  - Output Overvoltage

## M9111 Series– AC/DC Power Supply

**Standard Models List** (for other voltages – consult factory)

Part number	Input		Output	
	Voltage range	Frequency	Voltage	Current
M9111100	85-265VAC/Single phase	50/60/400Hz	28V	1.7 A
M9111101	85-265VAC/Single phase	50/60/400Hz	24V	2 A
M9111102	85-265VAC/Single phase	50/60/400Hz	12V	4 A
M9111103	85-265VAC/Single phase	50/60/400Hz	5V	10 A
M9111104	85-265VAC/Single phase	50/60/400Hz	3.3V	15 A

- Additional standard configurations available. **Contact factory for more details.**
- All of our products can be configured to comply with EU REACH regulations. **Contact factory for more details.**

## M9111 Series– AC/DC Power Supply

### SPECIFICATIONS:

<b>AC Input</b>	<b>Voltage Range</b>	Single-phase 85 to 265 VAC 50/60/400 Hz IAW MIL-STD-704F (115V/400Hz) For MIL-STD-1399-300B (Type I 115V/60Hz) - <b>Please consult factory</b>
	<b>Isolation</b>	Input to Output: 4242V DC Input to Case: 4242V DC** ** Safety components support IEC62368 requirements
	<b>Inrush Current Limiter</b>	EMI filter capacitance <1μF
<b>DC Output</b>	<b>Rating</b>	Additional standard configurations available. <b>Contact factory for more details.</b>
	<b>Voltage Regulation</b>	Less than 1% (no load to full load, -40 °C to +85 °C with recommended conduction cooling)
	<b>Ripple and Noise</b>	100 - 150 mVp-p typical (max 1%) with a 1μF ceramic capacitor parallel to the load.
	<b>Isolation</b>	Output to Case: 100 VDC
	<b>Current Limit &amp; Overload</b>	Continuous protection (constant current) for unlimited time.
	<b>Efficiency</b>	82% Typical at 3.3V @ 20W output Vin 110V (appendix a) (at Vin≥110V input voltage, room temperature)
	<b>Overvoltage Protection</b>	Passive transorbs selected at 125% ± 15% of nominal voltage.

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### Specifications (Cont.):

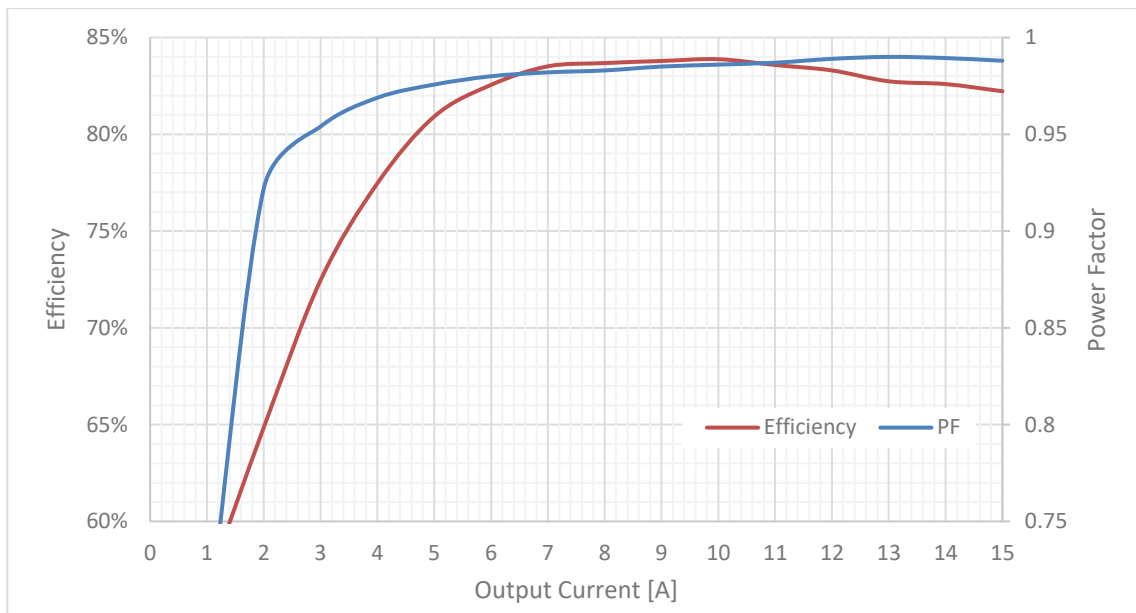
<b>Environment Designed to meet MIL- STD-810F</b>	<b>Temperature</b>	Methods 501.4 & 502.4 Operating: –40 °C to +85 °C (at baseplate) Storage: –55 °C to +125 °C (ambient)
	<b>Humidity</b>	Method 507.4 Procedure I Up to 95% RH
	<b>Salt-fog</b>	Method 509.4
	<b>Altitude</b>	Method 500.4 Procedures I – Storage/Air transport: up to 70,000 ft. (non-operational) Procedure II – Operation/Air Carriage: up to 10,000 ft. (operational, consult factor for higher altitudes)
	<b>Mechanical Shock</b>	Method 516.5 20 g, 11 ms terminal peak saw-tooth
	<b>Vibration</b>	Method 514.5 U. S. highway truck vibration exposure Figure 514.5C-1 1 hour per axis.
<b>IP</b>	<b>IP rating</b>	For IP67 please consult factory
<b>EMI</b>	<b>MIL-STD-461F</b>	Designed to meet* MIL-STD-461F CE101, CE102, CS101, CS114, CS115, CS116, RE102, RS103, (Option for compliance with RE101, RS101)
<b>Reliability</b>	100,000 hours, calculated per MIL-STD-217F Notice 2 at +50°C ambient at sea level, Ground Fixed.	
<b>Form factor</b>	80mm wide, 45mm high and 160mm deep. For detailed dimensions and tolerances see Drawing: M9111001	
<b>ESS</b>	100% of delivered power supplies are tested at low ambient temperature, high baseplate temperature and at standard room temperature. Additional tests, such as random vibration and thermal cycling can be added. Please consult factory for details.	
<b>Weight</b>	700g typical	
<b>Connectors</b>	See Page 7	

## M9111 Series– AC/DC Power Supply

\* Compliance is dependent on specific configuration and is achieved when using a shielded enclosure and interconnection cable.

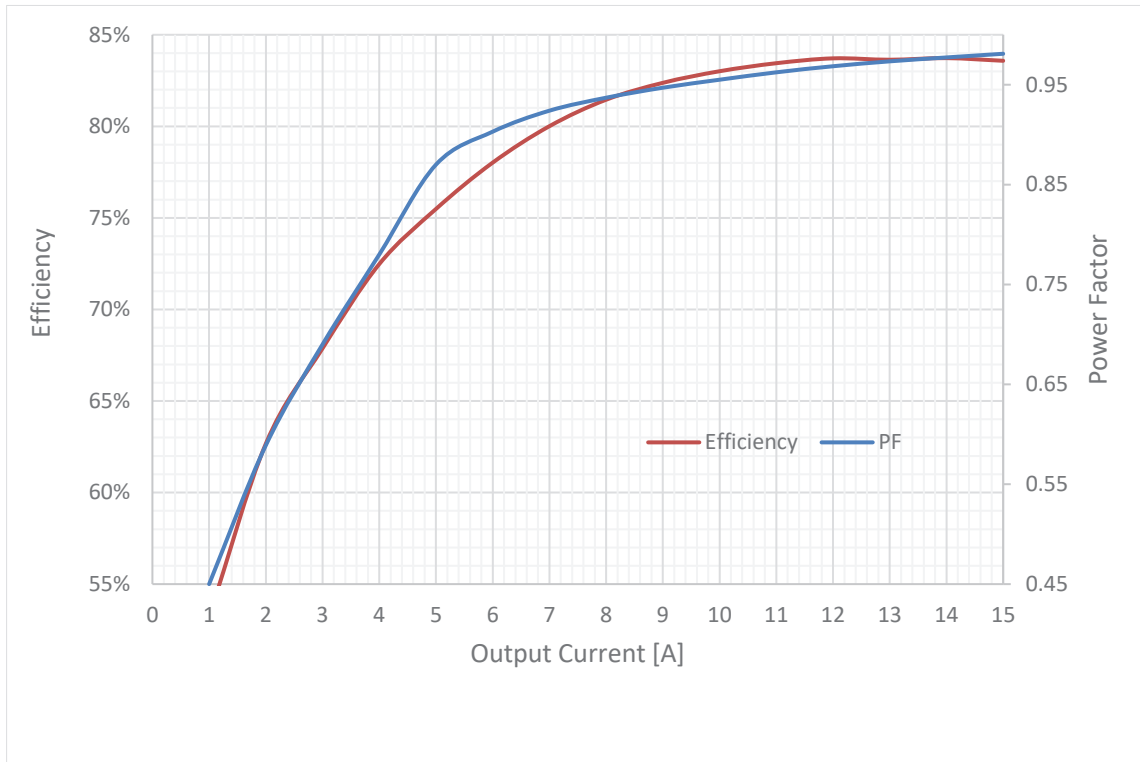
### TEST RESULTS:

**M9111-1 (3.3V<sub>DC</sub>) typical efficiency and Power Factor at 110V<sub>AC</sub> / 50Hz**



**M9111-1 (3.3V<sub>DC</sub>) typical efficiency and Power Factor at 220V<sub>AC</sub> / 50Hz**

## M9111 Series– AC/DC Power Supply



### PIN ASSIGNMENT:

#### J1 - Input connector

Type:

D38999/24WA98PN

Mates with:

D38999/26WA98SN recommended.

Pin No.	Function	
A	PHASE	●
B	NEUTRAL	●
C	CHASSIS	●

#### J2 - Output connector

Type:

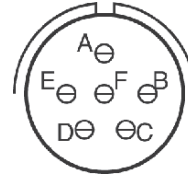
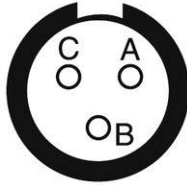
D38999/24WB98SN

Mates with:

D38999/26WB98PN recommended.

Pin No.	Function	
A	OUTPUT	●
B	OUTPUT	●
C	OUTPUT	●
D	OUTPUT RTN	●
E	OUTPUT RTN	●
F	OUTPUT RTN	●

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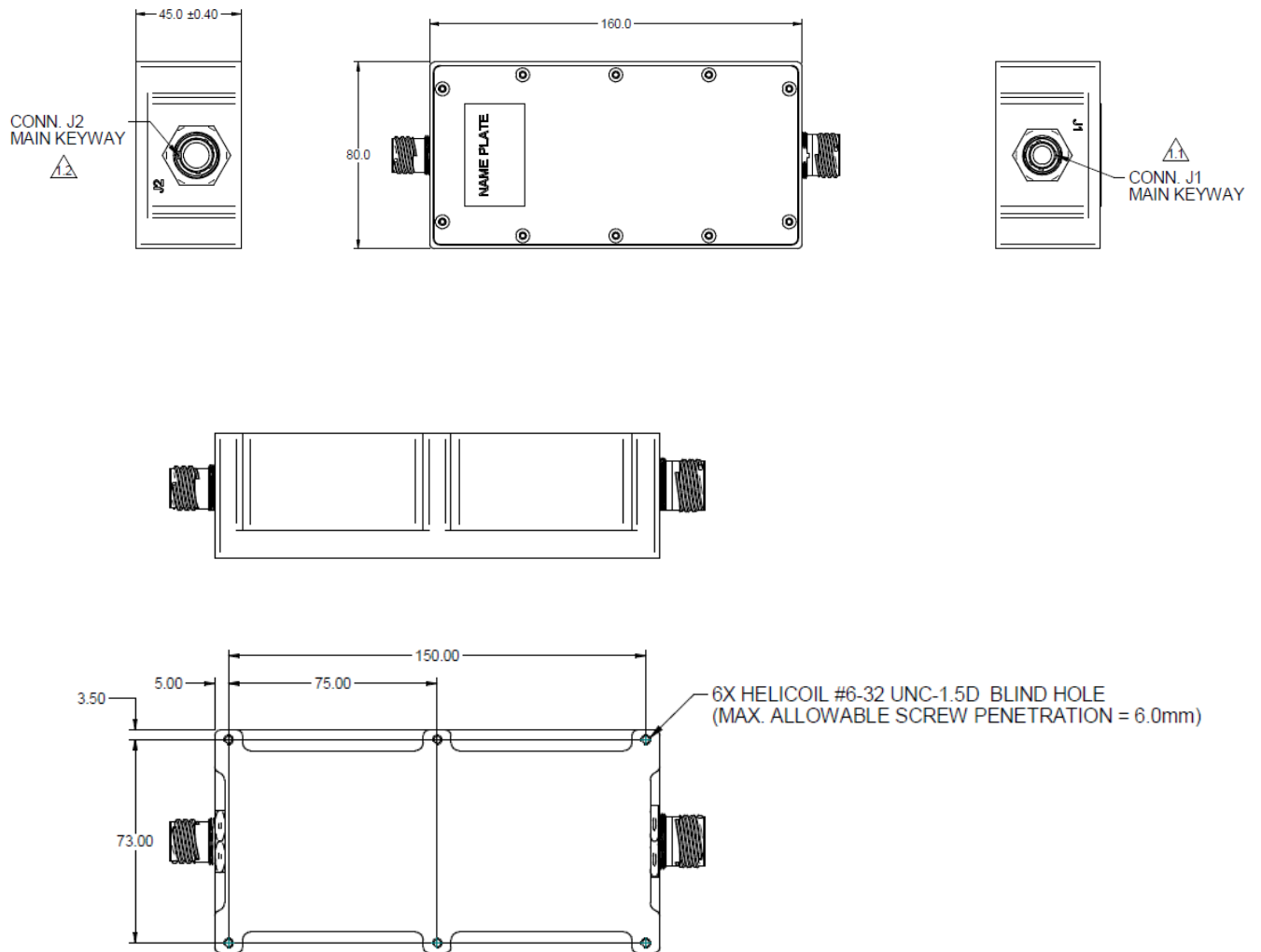
**TYPICAL CONNECTION DIAGRAM**



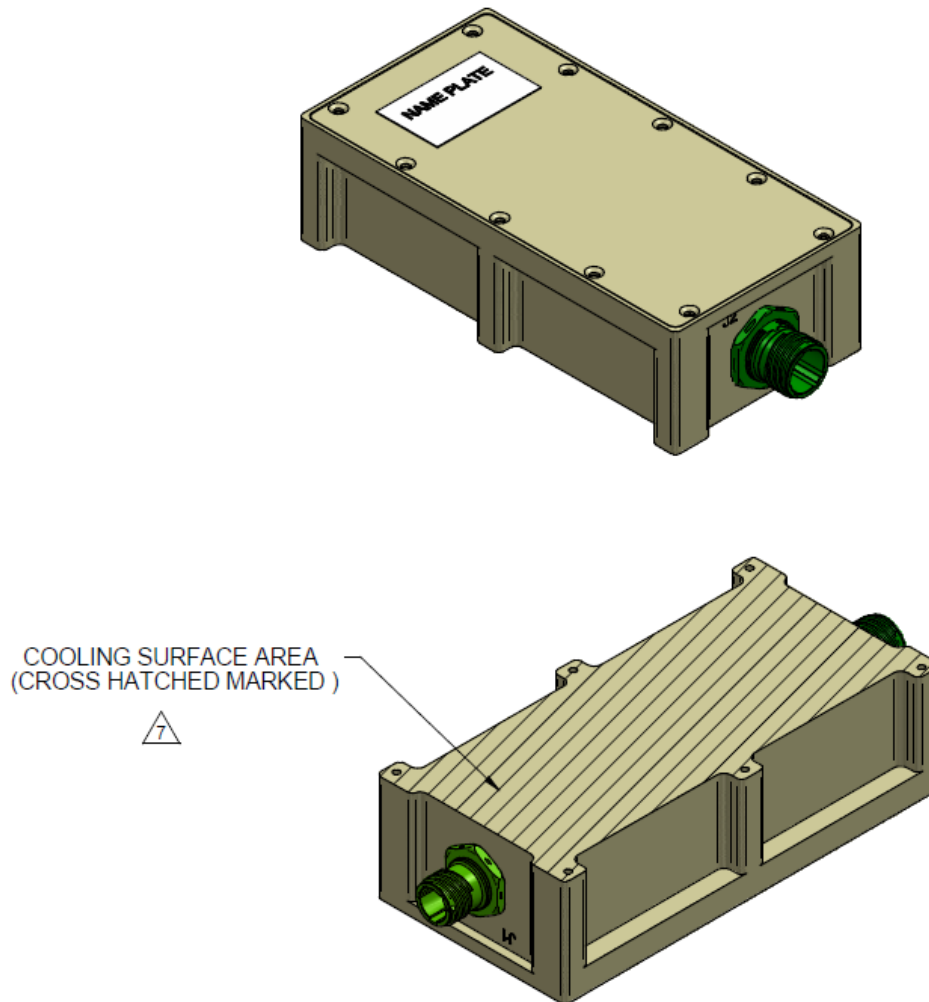
**M9111 Series– AC/DC Power Supply**

**OUTLINE DRAWING:**

*For detailed dimensions and tolerances see Drawing: M9111001*



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### NOTES:

#### △ CONNECTORS:

- 1.1. J1- INPUT CONN 3X#20, P/N D38999/24WA98PN OR EQ.
- 1.2. J2- OUTPUT CONN. 6X#20 ,P/N D38999/24WB98SN OR EQ.

#### △ MATERIALS: AL 6061-T651, AL 5052-H32, OR EQ.

3. COATINGS: CHROMATE CONVERSION COATING PER MIL-DTL-5541 TYPE I CLASS 1A.

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

5. MAX WEIGHT: TBD [kg].

#### 6. ENGRAVING:

- 6.1. CHARACTER HEIGHT: 4.0 mm.
- 6.2. CHARACTER DEPTH: 0.5mm.
- 6.3. FONT: ARIAL.
- 6.4. CHARACTER ARE CENTRALLY LOCATED.
- 6.5. FILL ENGRAVING WITH BLACK LUSTERLESS EPOXY PAINT, COLOR PER FED-STD 595 NO. 37038.

#### △ COOLING: HEAT DISSIPATION AREA- 6,000 [mm<sup>2</sup>]