

# M1158 SERIES

## AC/DC POWER SUPPLY



### PRODUCT HIGHLIGHTS

- COMPACT
- HIGH DENSITY
- HIGH EFFICIENCY
- SINGLE OUTPUT
- AC/DC POWER SUPPLY
- UP TO 500 W

## M1158 Series– AC/DC Power Supply

### **Applications**

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

### **Special Features**

- Miniature size
- High efficiency
- Wide input range
- BIT function
- Remote Inhibit (On/Off)
- Fixed switching freq. (~250 kHz)
- EMI filters included
- Power factor 0.86 at full load
- Designed for large capacitive loads
- Input / Outputs isolation
- Indefinite short circuit protection with auto-recovery

### **Electrical Specifications**

#### **AC Input**

Nominal: 3-ph, 115 V<sub>AC,L-N</sub>,  
60-400 Hz  
Operating range: 100-  
140 V<sub>AC,L-N</sub>

#### **Line/Load regulation**

Up to ±1% (no load to full load, with load capacitance of 9.6 mF ± 25%)

#### **Ripple and Noise**

Less than 50 mV<sub>p-p</sub> with 9.6 mF load capacitance

#### **DC Output**

Voltage range: 5 to 50 VDC  
Current: 0 to 25 A  
Power output: 0 to 500 W

#### **Efficiency**

89% minimum (at nominal line voltage, full load, room temperature)

#### **Turn on Transient**

No voltage over shoot during power on.

#### **Isolation**

Input to Output: 500 V<sub>DC</sub>  
Input to Case: 500 V<sub>DC</sub>  
Output to Case: 100 V<sub>DC</sub>

#### **EMC**

Designed to meet MIL-STD-461F with static resistive load and shielded cables: CE102 (with 12 dB relaxation below 30 kHz), CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103

### **Protections**

#### **Input**

- Inrush current limiter

#### **Output**

- **Passive transorb on outputs.**
- **Current limiting**  
Continuous protection for unlimited time.

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### Environmental Conditions

#### Temperature

Operating: –55 °C to +85 °C (at baseplate)  
Storage: –55 °C to +125 °C

#### Fungus

IAW MIL-STD-810G  
Method 508.6

#### Random Vibration

Frequency [Hz]	Amplitude [g <sup>2</sup> /Hz]
2 to 3.7	1x10 <sup>-3</sup>
4 to 60	2x10 <sup>-3</sup>
70 to 200	1x10 <sup>-3</sup>
210	1x10 <sup>-5</sup>
10 000	1x10 <sup>-6</sup>

#### Low Pressure (Altitude)

IAW MIL-STD-810G  
Method 500.5  
Procedure I – up to 50 000 ft.  
Procedure II – up to 50 000 ft.

#### Sand and Dust

IAW MIL-STD-810G  
Method 510.5  
Procedure I

#### Vibration of Shipboard

Equipment  
IAW MIL-STD-167-1A  
Below Deck

#### Humidity

IAW MIL-STD-810G  
Method 507.5  
Up to 95%.

#### Shock

IAW MIL-STD-810G  
Method 516.6  
Procedure I, Figure 516.6-10  
20 g, 11 ms terminal peak saw-tooth (all directions)

#### Reliability

150 000 hours, calculated per MIL-STD-217F at +80°C base plate, Ground fixed.

### Environmental Stress Screening (ESS)

Random vibration and thermal cycles ESS is available upon request. **Please consult factory for details.**

**Pin Assignment**

**Input Connector**

**Connector type:** M24308/24-37F or eq.

**Mates with:** M24308/2-1F or eq.

Pin No.	Function
1	Phase A
2	N.C.
3	Phase B
4	Phase C
5	Chassis
6	Phase A
7	N.C.
8	Phase B
9	Phase C

**Output Connector**

**Connector type:** M24308/23-39F or eq.

**Mates with:** M24308/4-3F or eq.

Pin No.	Function
1	N/C
2	BIT (+)
3	INHIBIT (+)
4	VOUT RTN (-)
5	VOUT RTN (-)
6	VOUT RTN (-)
7	VOUT RTN (-)
8	VOUT RTN (-)
9	VOUT (+)

Pin No.	Function
10	VOUT (+)
11	VOUT (+)
12	VOUT (+)
13	VOUT (+)
14	N/C
15	BIT RTN (-)
16	VOUT RTN (-)
17	VOUT RTN (-)
18	VOUT RTN (-)

Pin No.	Function
19	VOUT RTN (-)
20	VOUT RTN (-)
21	VOUT (+)
22	VOUT (+)
23	VOUT (+)
24	VOUT (+)
25	VOUT (+)

Note: For best performance; all output pins of the same designation should be connected together.

## Functions and Signals

### INHIBIT

The INHIBIT signal turns the Outputs of the power supply ON and OFF.

OPEN ( $I < 0.03 \text{ mA}$  @  $V = 6.2 \text{ V}$ ) – Output power available.

SHORT ( $V < 2 \text{ V}$  @  $I = 2 \text{ mA}$ ) to VOUT RTN – Output power is inhibited.

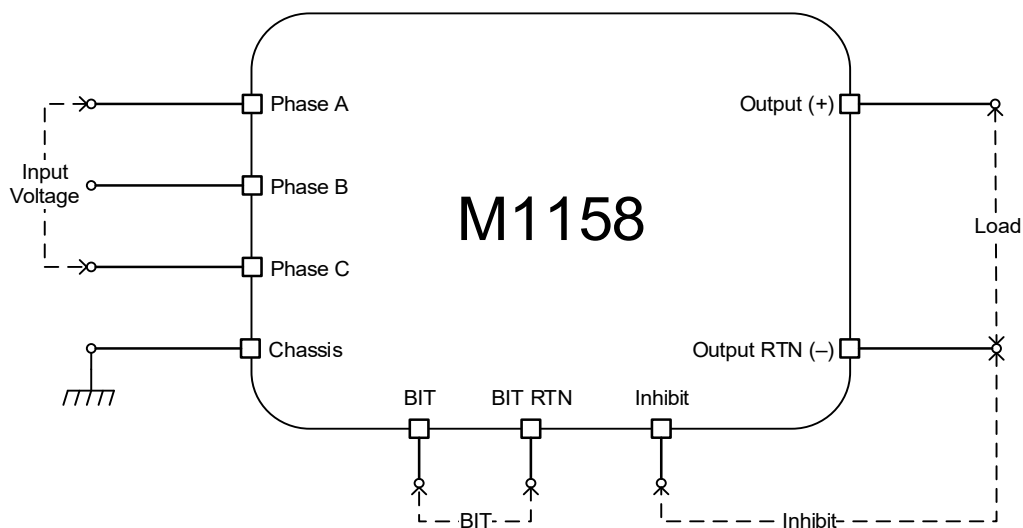
### BIT (Built-In Test)

Isolated open-collector transistor (Optocoupler secondary side).

Low ( $V < 0.5 \text{ VDC}$  @  $2 \text{ mA}$ ): when output voltage rise above  $95\% \pm 5\%$  off its nominal value.

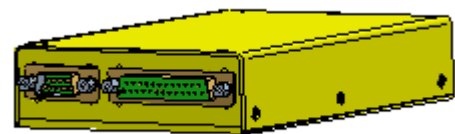
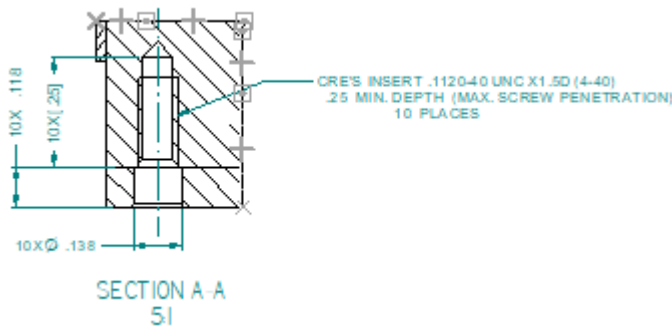
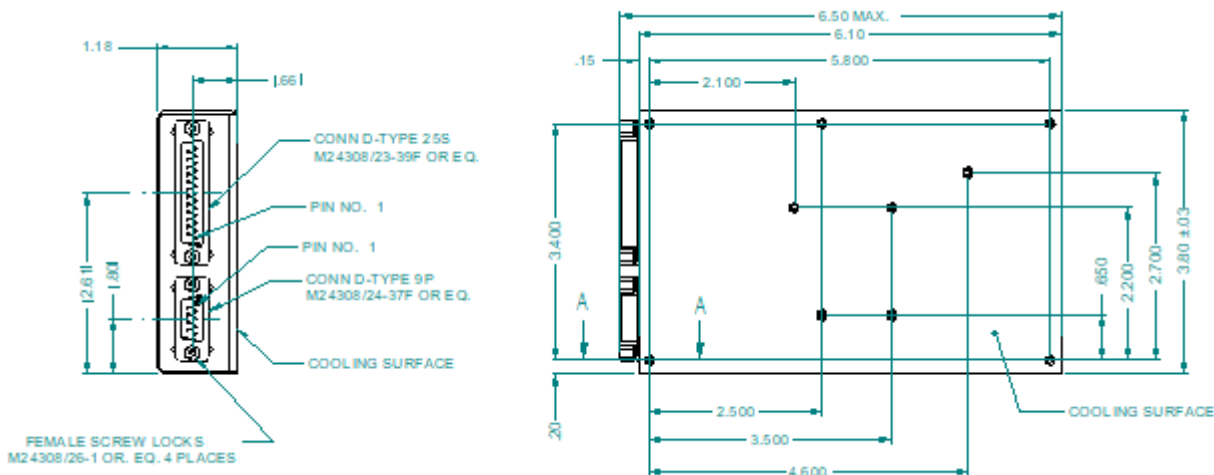
Open ( $I < 0.1 \text{ mA}$  @  $20 \text{ VDC max}$ ): when output voltage falls below  $90\% \pm 5\%$  off its nominal value.

## Typical Connection Diagram



# M1158 Series– AC/DC Power Supply

## Outline Drawing:



- NOTES :
1. MATERIAL CHASSIS : AL 6061-T651 OR EQ.  
COVER : AL 5052-H32 OR EQ.
  2. FINISH : CHROMATE CONVERSION COATING PER MIL-DTL-5541F,  
TYPE I CLASS 1A OR EQ.

Weight: Approx. 1.6 lbs Typical

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

## M1158 Series– AC/DC Power Supply

### Standard configuration table:

Part Number	Input	Output		Power	Special features
	Voltage range	Voltage	Current		
M1158-100	103 126-Vac / 50/60/400Hz /3 phase	5 V <sub>DC</sub>	20 A	100W	
M1158-101	103 126-Vac / 50/60/400Hz /3 phase	12 V <sub>DC</sub>	20 A	240W	
M1158-102	103 126-Vac / 50/60/400Hz /3 phase	15 V <sub>DC</sub>	20 A	300W	
M1158-103	103 126-Vac / 50/60/400Hz /3 phase	24 V <sub>DC</sub>	20 A	480W	
M1158-104	103 126-Vac / 50/60/400Hz /3 phase	28 V <sub>DC</sub>	18A	504W	
M1158-105	103 126-Vac / 50/60/400Hz /3 phase	48 V <sub>DC</sub>	10.4A	499W	
*M1158-800	103 126-Vac / 50/60/400Hz /3 phase	5 V <sub>DC</sub>	20 A	100W	<ul style="list-style-type: none"> <li>• This Product is REACH Compliant</li> <li>• The aluminum parts comprising this converter are chromate conversion coated per MIL-DTL-5541F, Type II CLASS 1A or eq.</li> <li>• Pin Assignment: Input connector: M24308/24-37Z or eq. Output connector: M24308/23-39Z or eq.</li> </ul>
*M1158-801	103 126-Vac / 50/60/400Hz /3 phase	12 V <sub>DC</sub>	20 A	240W	
*M1158-802	103 126-Vac / 50/60/400Hz /3 phase	15 V <sub>DC</sub>	20 A	300W	
*M1158-803	103 126-Vac / 50/60/400Hz /3 phase	24 V <sub>DC</sub>	20 A	480W	
*M1158-804	103 126-Vac / 50/60/400Hz /3 phase	28 V <sub>DC</sub>	18A	504W	
*M1158-805	103 126-Vac / 50/60/400Hz /3 phase	48 V <sub>DC</sub>	10.4A	499W	

- 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.**

**Note: Specifications are subject to change without prior notice**