

M1158 SERIES

AC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

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

Applications

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

Special Features

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> • Miniature size • High efficiency • Wide input range • BIT function • Remote Inhibit (On/Off) | <ul style="list-style-type: none"> • <u>Fixed</u> switching freq. (~250 kHz) • <u>EMI</u> filters included • Power factor 0.86 at full load • Designed for large capacitive loads | <ul style="list-style-type: none"> • Input / Outputs isolation • Indefinite short circuit protection with auto-recovery • Over temperature shutdown with auto-recovery |
|--|---|---|

Electrical Specifications

AC Input

Nominal: 3-ph, 115 V_{AC,L-N}, 60-400 Hz
 Operating range: 100-140 V_{AC,L-N}

DC Output

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

Isolation

Input to Output: 500 V_{DC}
 Input to Case: 500 V_{DC}
 Output to Case: 100 V_{DC}

Line/Load regulation

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

Efficiency

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

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

Ripple and Noise

Less than 50 mV_{p-p} with 9.6 mF load capacitance

Turn on Transient

No voltage over shoot during power on.

Protections

Input

- Inrush current limiter

Output

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

General

- Over temperature protection: Shutdown at base plate temperature of +95 °C ± 5 °C
 Automatic recovery at base plate temperature greater than 85 °C

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 ² /Hz]
2 to 3.7	1x10 ⁻³
4 to 60	2x10 ⁻³
70 to 200	1x10 ⁻³
210	1x10 ⁻⁵
10 000	1x10 ⁻⁶

Low Pressure (Altitude)

IAW MIL-STD-810G
Method 500.5
Procedure I – up to 45 000 ft.
Procedure II – up to 45 000 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.

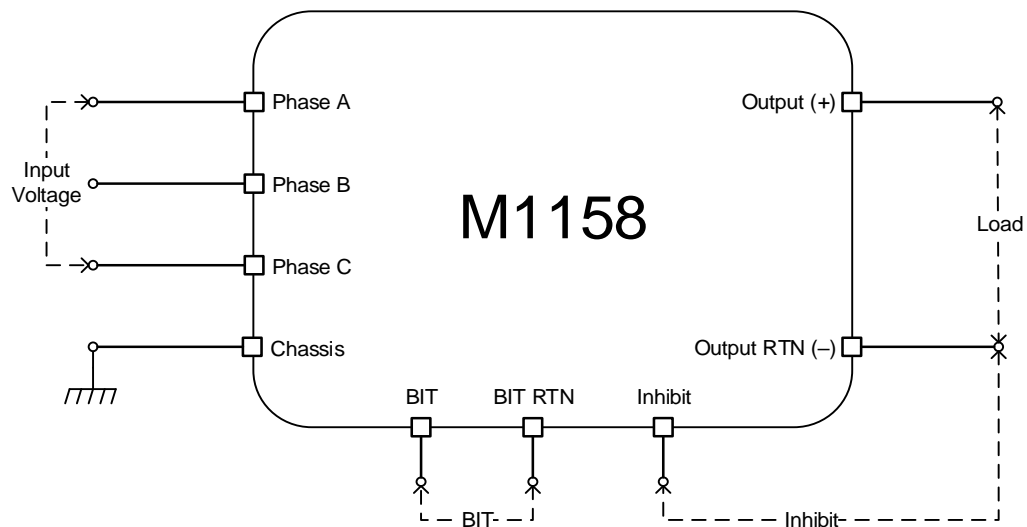
BIT (Built-In Test)

Isolated open-collector transistor (Optocoupler secondary side).

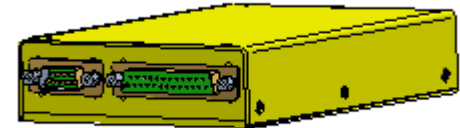
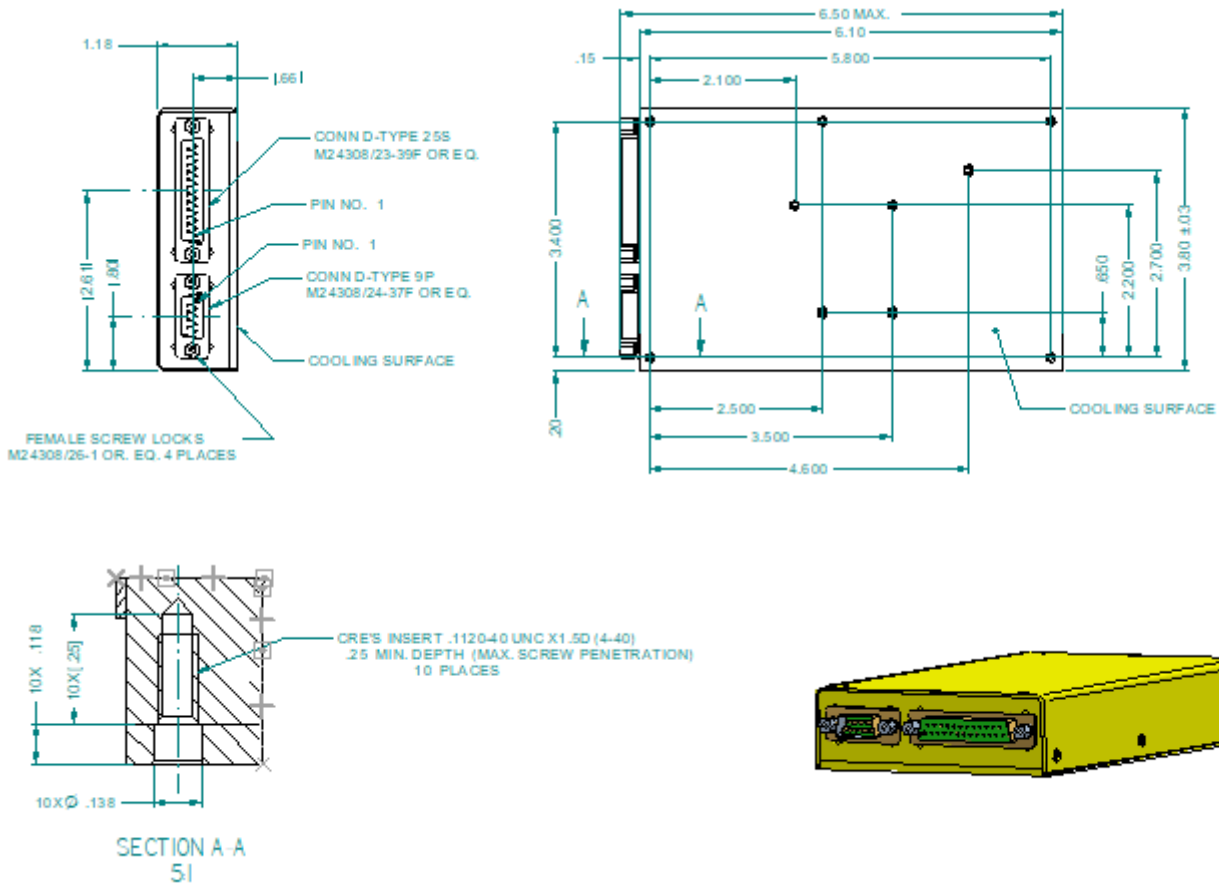
Low ($V < 0.5 \text{ VDC} @ 2 \text{ mA}$): when output voltage rise above $95\% \pm 5\%$ off its nominal value.

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



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