

M183 Series– AC/DC Power Supply

M183 SERIES
AC/DC POWER SUPPLY



PRODUCT HIGHLIGHTS

- AC/DC POWER SUPPLY
- 115VAC, 50/60/400Hz, 3- phase
- HIGH EFFICIENCY
- HIGHT DENSITY
- SINGLE DC OUTPUT
- UP TO 1000 W

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Standard Models List (for other voltages – consult factory)

Part number	Input		Output	
	Voltage range	Frequency	Voltage	Current
M183100	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	5 V _{DC}	40 A
M183101	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	12 V _{DC}	40 A
M183102	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	15 V _{DC}	40 A
M183103	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	24 V _{DC}	40 A
M183104	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	28 V _{DC}	36 A
M183105	103V _{AC} -127V _{AC} / 3-phase	50/60/400Hz	48 V _{DC}	20 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.**

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Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- Limited Inrush Current
- External On/Off Inhibit
- Fixed switching freq. (400 kHz)
- External sync. capability
- EMI filters included
- Up to 28 W/in³
- Power Factor 85%-90% at 75-100% load.
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

Input Voltage Range

AC Input range:
103 -127V_{AC}, 50/60/400Hz, 3-phase.

DC Output

Voltage range: 5V to 50V
Output power: Up to 1000W
Output current: Up to 42A

Isolation

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

Optional: Can be configured for continuous work during 80 V_{AC} transient IAW MIL-STD-704F.

Line/Load regulation

Less than 1% (Low line to high line, no load to full load, -55°C to +85°C).

Efficiency

90% typical (full load, nominal line voltage, room temperature)

EMC**

Designed to meet MIL-STD-461F: CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103

Ripple and Noise

100-150mV_{p-p}, typical (max. 1%) without external capacitance.

Turn on Transient

No Voltage over shoot during power on.

Protections ***

Input

- **Inrush Current Limiter**
Peak value of 6 x I_{nom} for inrush currents lasting over 50μs.

Output

- **Passive Over-Voltage Protection** Transorb on outputs, chosen at 120% ± 10% of nominal voltage.
- **Overload / Short-circuit** Continuous protection (10 to 30% above maximum current) for unlimited time.

General

- **Over Temperature Protection**
Shutdown if baseplate temperature rises above +105°C ± 5°C.
Automatic recovery upon cool down when baseplate temperature drops below +95°C ± 5°C.

* Available on special versions. Contact factory for further details.

** Depending on configuration, an external filter may be required to comply with EMI requirements.

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Environmental Conditions

Designed to meet MIL-STD-810F

Temperature

Operating: –55°C to +85°C (base plate)

Storage: –55°C to +125°C

Altitude

Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft.

Operational

Salt Fog

Method 509

Fungus Resistance

Method 508

Humidity

Method 507.4 - Up to 95%.

Salt and Dust

Method 510, Procedure I

Vibration and Shock

Shock: Saw-tooth, 20g peak, 11ms.

Vibration: Figure 514.5C-17. General minimum integrity exposure, 1 hour per axis.

Reliability

150,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85 °C (at baseplate), Ground Fix conditions.

Environmental Stress Screening (ESS)

Including random vibration and thermal cycles is also available. Please consult factory for details.

[†] Thresholds and protections can be modified / removed – please consult factory

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Pin Assignment

Connector Input

Connector type: M24308/24-38F or eq.

Mating connector: M24308/2-2F or eq.

Pin No.	Pin Function	Pin No.	Pin Function
1	N.C.	9	PHASE C
2	PHASE C	10	PHASE C
3	N.C.	11	N.C.
4	PHASE B	12	PHASE B
5	PHASE B	13	N.C.
6	N.C.	14	PHASE A
7	PHASE A	15	PHASE A
8	N.C.		

Connector Output

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

Mating connector: M24308/4-3F or eq.

Pin No.	Pin Function	Pin No.	Pin Function	Pin No.	Pin Function
1	SENSE	10	OUT RTN (–)	19	OUT (+)
2	SENSE RTN	11	OUT RTN (–)	20	OUT RTN (–)
3	INHIBIT	12	OUT RTN (–)	21	OUT RTN (–)
4	OUT (+)	13	OUT RTN (–)	22	OUT RTN (–)
5	OUT (+)	14	OUT (+)	23	OUT RTN (–)
6	OUT (+)	15	OUT (+)	24	OUT RTN (–)
7	OUT (+)	16	OUT (+)	25	OUT RTN (–)
8	OUT (+)	17	OUT (+)		
9	OUT RTN (–)	18	OUT (+)		

* All output parallel pins should be connected together for best performance.

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Functions and Signals

INHIBIT signal

The INHIBIT signal is used to turn the power supply ON and OFF.

TTL “1” or OPEN – Power supply active (output turned on).

TTL “0” or SHORT to Output RTN – Power supply inhibited (output turned off).

If this function is not required, leave this pin unconnected.

SENSE

The SENSE line is used to achieve accurate voltage regulation at load terminals.

To use this feature, connect this pin directly to load's positive terminal.

If this function is not required, short SENSE pin to OUTPUT pins as close as possible to the unit.

SENSE RTN

The SENSE RTN line is used to achieve accurate voltage regulation at load terminals.

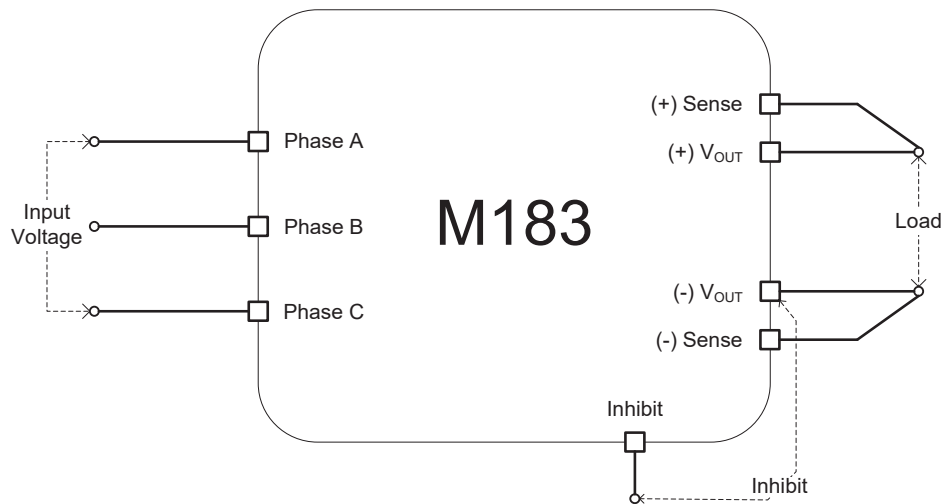
To use this feature, connect this pin directly to load's negative terminal.

If this function is not required, short SENSE RTN pin to OUTPUT RTN pins as close as possible to the unit.

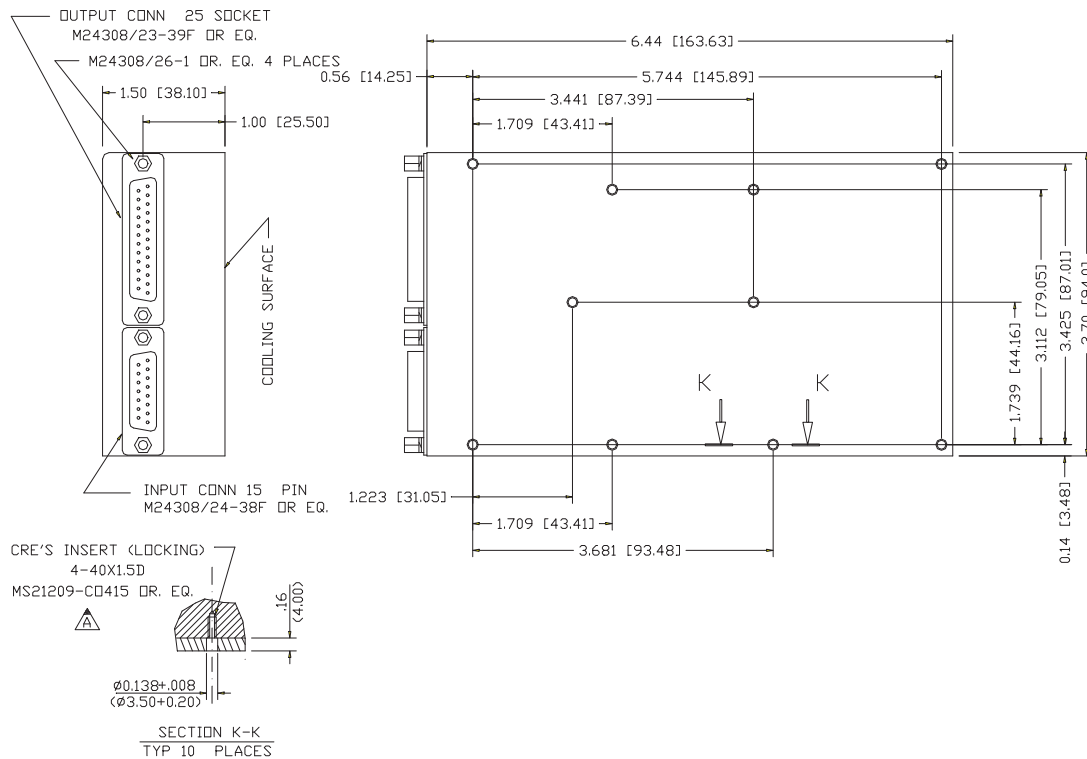
Note: The use of remote sense has a limit of voltage dropout between the converter's output and the load's terminals of approximately 5% of nominal output voltage.

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Typical Connection

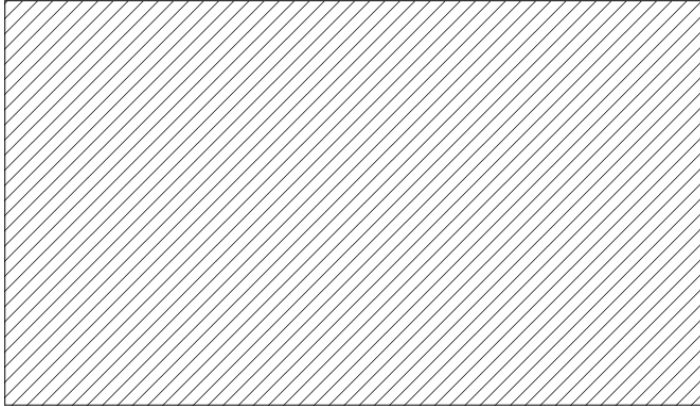


Outline Drawing



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Heat Dissipation Surface

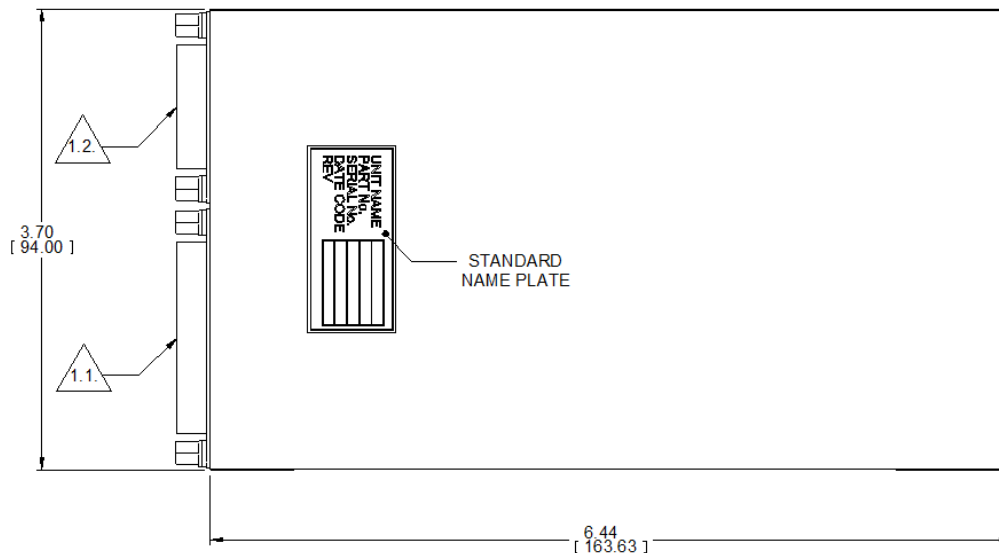


Dissipation Area
23.84 in²
(15380 mm²)

Notes

1. Dimensions are in Inches [mm]
2. Tolerance is:
.XX ±.02 IN
.XXX ±.01 IN
1. Weight: 37.4 oz (1075 g)
2. Parasolid 3D model available

Label location:



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