

M186 Series

AC/DC POWER SUPPLY



DESCRIPTION:

The M186 is a rugged 3 phase AC/DC power supply, accepts a 115 AC input range from 103 to 127VAC, L-N, 50/60/400Hz and provides a single DC output from 5V to 60V, up to 2000W, with custom outputs available. Designed to meet military standards, MIL-STD-810, MIL-STD-461.

FEATURES

- Miniature size
- High efficiency
- Wide input range
- High density: up to 30.5 W/in³
- Input / Output isolation
- Limited Inrush Current
- Remote Inhibit (On/Off)
- Fixed switching freq. (400 kHz)
- EMI filters included
- Non-latching protections:
 - o Output overload
 - o Output short-circuit
 - o Output over-voltage
 - o Over temperature

HOW TO ORDER

Part Number	Input		Output	
	Voltage range	Frequency	Voltage	Current
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	12VDC	70A
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	15VDC	70A
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	24VDC	70A
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	28VDC	70A
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	36VDC	55A
CF-02EM186	3-phase, 103 to 127 VAC	400Hz	48VDC	40A

PRODUCT SPECIFICATIONS:

ELECTRICAL SPECIFICATIONS		
Normal Input Voltage	AC variant voltage range:	115 ± 10% VAC, L-N, 400Hz, 3-Phase
Line/Load regulation	Up to ±1% (no load to full load, -55°C to +85°C and over input voltage range).	
Ripple and Noise	100 to 150mVp-p, typical (max. 1% of nominal voltage) measured across a 1µF ceramic capacitor.	
DC Output	Voltage range:	5 to 60VDC
	Current range:	0 to 80 A
	Power range:	0 to 2000W
Efficiency	90% - Typical (nominal line voltage, 28VDC output, full load, standard room temperature)	
Transient Over-and undershoot	Voltage change less than 10% of nominal value for load step from 50% to 100%. Return to regulation in under 1 ms.	
Isolation	Input to Output:	500VDC
	Input to Case:	500VDC
	Output to Case:	100VDC
EMC	Designed to meet MIL-STD461F**: CE102, CS101, CS114, CS115, CS116, RE102, RS101, RS103	
Turn on Transient	No Voltage overshoot during turn on.	

PROTECTIONS:

Input	Inrush Current Limiter	Up to 6 times the maximum input current for less than 50 μ s.
Output	Over-voltage Protection	Passive transorb on output, 120% \pm 10% of nominal voltage.
	Current limiting	Continuous protection (10 to 30% above maximum current) for unlimited time.
General	Over temperature protection	Shutdown at baseplate temperature of +105°C \pm 5°C. Automatic recovery at base plate temperature lower than +95°C \pm 5°C.

ENVIRONMENTAL CONDITIONS:

Designed to meet MIL-STD-810F		
Temperature	Operating:	-55°C to +85°C (at baseplate)
	Storage:	-55°C to +125°C (ambient)
Humidity	Method 507.4 - Up to 95%.	
Altitude	Method 500.4 Procedure I – Storage/Air transport: up to 70,000 ft. (non-operational)	
	Procedure II – Operation/Air Carriage: up to 40,000 ft. (operational)	
Salt Fog	Method 509.4	
Shock	Method 516.5 Procedure I 20 g / 11 ms terminal peak sawtooth shock pulse	
Vibration	Method 514.5 Procedure I, Category 24 General minimum integrity exposure IAW Figure 514.5C-17 1 hour per axis.	
Reliability		
100,000 hours, calculated IAW MIL-HDBK-217F Notice 2 at +85°C baseplate Ground fixed conditions.		

PIN ASSIGNMENT:

Connector type: M24308/24-39F or eq.
Mating connector type M24308/2-3F or eq

Pin No.	Description
4, 5, 17	PHASE A
7, 8, 20	PHASE B
10, 11, 23	PHASE C
15	+ SENSE †
2	- SENSE †
14	INHIBIT
1	SIGNAL RTN
25	CHASSIS

FUNCTIONS AND SIGNALS:

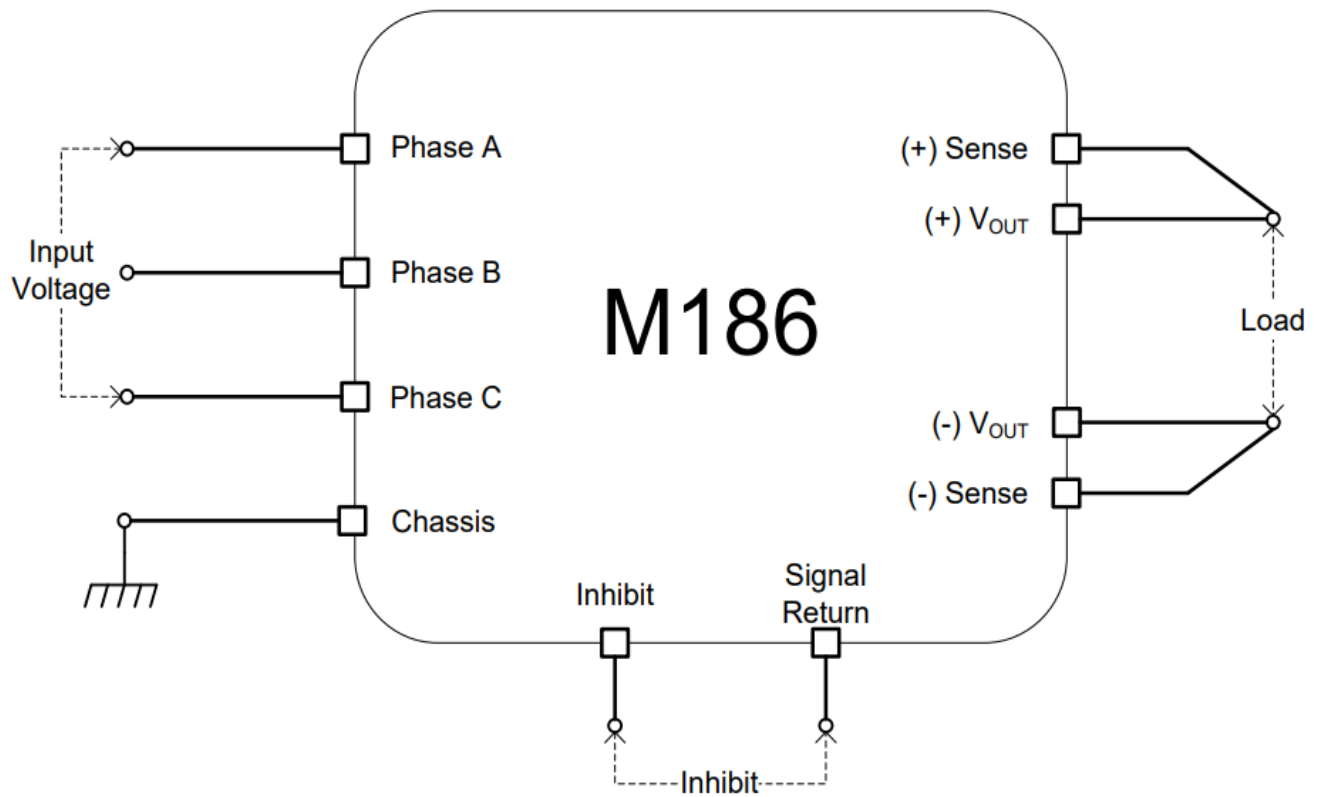
INHIBIT

The INHIBIT signal is used to turn the power supply ON and OFF.
OPEN – will turn on the power supply.
SHORT – between pin 14 and pin 1 will turn off the power supply.
This signal is referenced to the **SIGNAL RTN** pin.

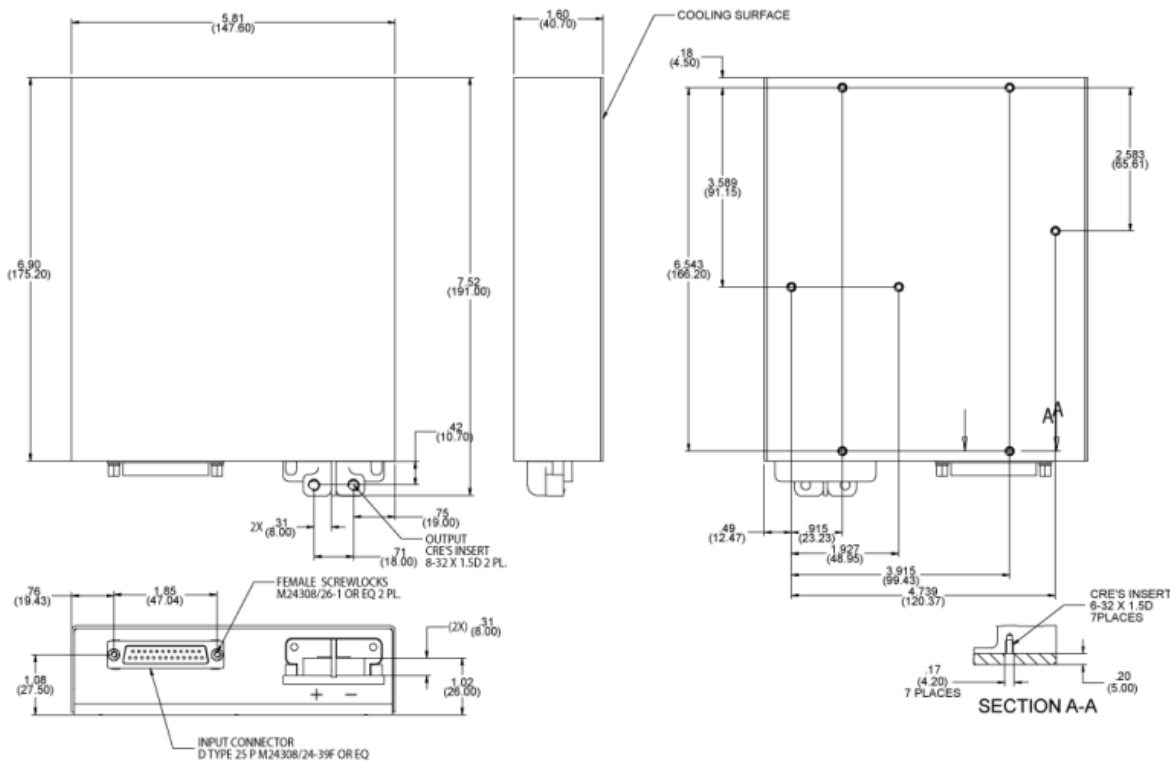
SENSE

The SENSE is used to achieve accurate load regulations at load terminals (this is done by connecting the pins directly to the load's terminals).
The use of remote sense has a limit of voltage dropout between converter's output and load terminals of 2-10% of voltage output (up to 2V).
Please note that if Sense lines are not used the output may rise as much as 2V above nominal outputs.

TYPICAL CONNECTION DIAGRAM:



OUTLINE DRAWING:



HEAT DISSIPATION SURFACE:



Dissipation Area
40.08 in²
(258.6 cm²)

Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
.XX ± 0.025 in
.XXX ± 0.010 in
3. Weight: Approx. 4.4 lbs [2 kg]

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PRELIMINARY

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