

M186 SERIES

COMPACT, HIGH DENSITY,
HIGH EFFICIENCY, SINGLE
OUTPUT,
UP TO 2000W, AC/DC CONVERTERS



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 frequency (400 KHz)
- EMI/RFI filters included
- High Density up to 30.5 W/in³
- power factor 92%-93% (75-100% load)
- Indefinite short circuit protection with auto-recovery
- Over-voltage shutdown with auto-recovery
- Over temperature shutdown with auto-recovery

Electrical Specifications

AC Input / DC Input Range:
AC Input range:
115 ±10%V_{ACL-N} Vac,
50/60/400 Hz, 3- phase
Per MIL-STD-704A.

DC Input range: 220-380V_{DC}

Line/Load regulation:
Less than 1% (no load to full load, -55°C to +85°C).

Ripple and Noise:
100±150mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

DC Output:
Output range – 5V to 60V
Output power – 2000W
Output current – max 80A.

Efficiency :
90% - Typical (full load, room temperature)

Load Transient Overshoot and undershoot
Current change from 50%-100% output voltage change less than 0.1-0.3V within 200-300µSec

Isolation:
1000V between Input and Output
1000V between Input and Case
100V between Output and Case

EMI/RFI:
Design to meet MIL-STD-461D:
CE102, CS101, CS114, CS115,
CS116, RE101, RE102, RS101, RS103

Turn on Transient
No Voltage over shoot during power on.

Protections *

Input
• **Inrush Current Limiter** – peak value of 6x I_{in} for less than 50µSec.

Output
• **Passive tranzorb on outputs** – 20% above nominal voltage.
• **Current limiting** – Continuous protection (10-30% above maximum current) for unlimited time.

General
• **Over temperature protection:** Shutdown at base plate temperature of +105°C (±5°C) Automatic recovery at base plate temperature lower than +95°C (±5°C)

* Thresholds and protections can be modified / removed – please consult factory.

Environmental

Design to Meet MIL-STD-810F

Temperature:

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

Storage: -55°C to +125°C

Humidity:

Method 507.4 - Up to 95%.

Altitude:

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

Vibration and Shock:

Shock - Saw-tooth, 20g peak, 11mS.

Vibration - Figure 514.5C-17. General
minimum integrity exposure. (1 hour per
axis.)

Salt Fog:

Method 509-4

Reliability

150,000 hours, calculated per
MIL-STD-217F at +85°C base plate,
Ground fixed.

Environmental Stress Screening (ESS)

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

Pin Assignment

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	-Inhibit
25	Chassis

* If sense lines are not in use, please inform factory.

Functions and Signals

INHIBIT signal

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.

SENSE signals

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.

If sense lines are not to be used please inform factory.

Typical connection



