



M115 SERIES

AC/DC CONVERTERS

COMPACT, HIGH DENSITY

HIGH EFFICIENCY

SINGLE OUTPUT

UP TO 500W



Applications

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

Special Features

- Miniature size
- High efficiency
- Wide input range
- Input / Output isolation
- External On/Off Inhibit
- Fixed switching frequency (250 KHz)
- External synchronization capability
- EMI/RFI filters included
- High Density up to 22.9 W/in³
- Power factor 88%-90% (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:
115V (98-150V)VACL-N Vac,
50/60/400 Hz, 3- phase,
per MIL-STD-704A
DC Input range: 220 – 350Vdc

DC Output

Output range – 5V to 50V
Output power – 500W
Output current – max 40A

Isolation

500V between Input and Output
500V between Input and Case
100V between Output and Case

Line/Load regulation

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

Efficiency

90% - Typical
(full load, room temperature)

EMI/RFI

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

Ripple and Noise:

100÷150mVp-p, typical (max. 1%)
without external capacitance.
When connected to system
capacitance ripple drops
significantly.

Load Transient Overshoot and undershoot

Current change from 50%-100%
output voltage change less than 0.7V
(9A-18A step, Tr,Tf = 10µSec) within
100µSec

Turn on Transient

No Voltage over shoot during
power on.



Protections*

Input

- **Inrush Current Limiter** – peak value of 4x I_{in} for less than 300μSec.

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

Altitude

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

Salt Fog

Method 509-4

Humidity

Method 507.4 - Up to 95%.

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 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 (Output connector)

PIN No.	PIN Function
1	+ OUT
2	+ OUT
3	+ OUT
4	+ OUT
5	+ OUT
6	SENSE
7	- OUT
8	- OUT
9	- OUT
10	- OUT

PIN No.	PIN Function
11	INHIBIT
12	SYN
13	SYN RTN
14	N.C.
15	PHASE A
16	N.C.
17	PHASE B
18	N.C.
19	PHASE C
20	+ OUT

PIN No.	PIN Function
21	+ OUT
22	+ OUT
23	+ OUT
24	+ OUT
25	SENSE RTN
26	- OUT
27	- OUT
28	- OUT
29	- OUT
30	- OUT

PIN No.	PIN Function
31	- OUT
32	N.C.
33	PHASE A
34	N.C.
35	PHASE B
36	N.C.
37	PHASE C

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



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 11 and any of the output pin will turn off the power supply.

SYN signal

The SYN signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250KHz \pm 10KHz. When not connected the power supply will work at \sim 250KHz

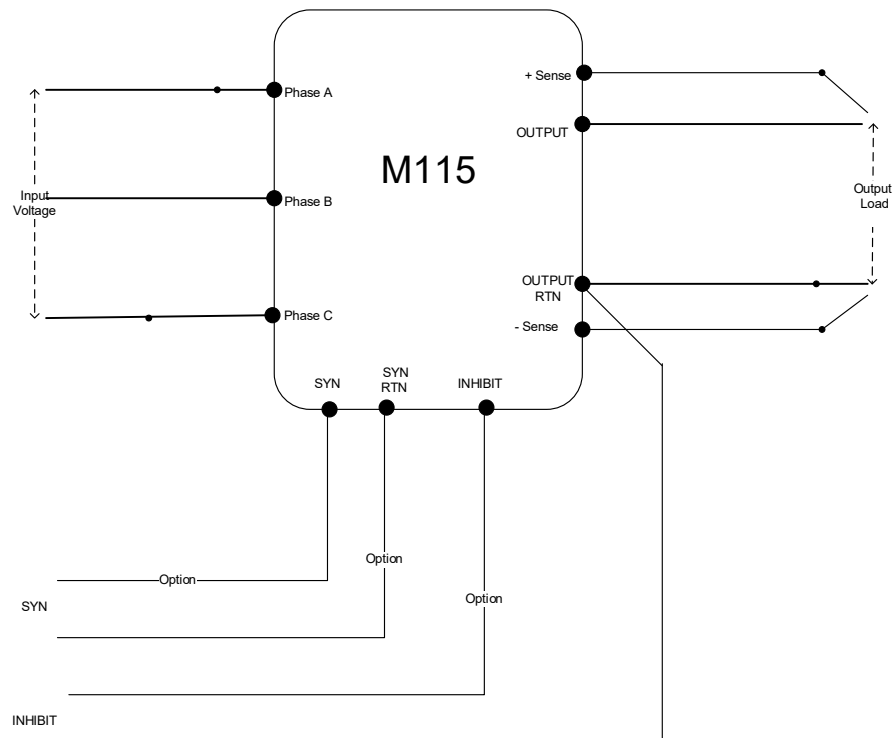
SENSE signals

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).

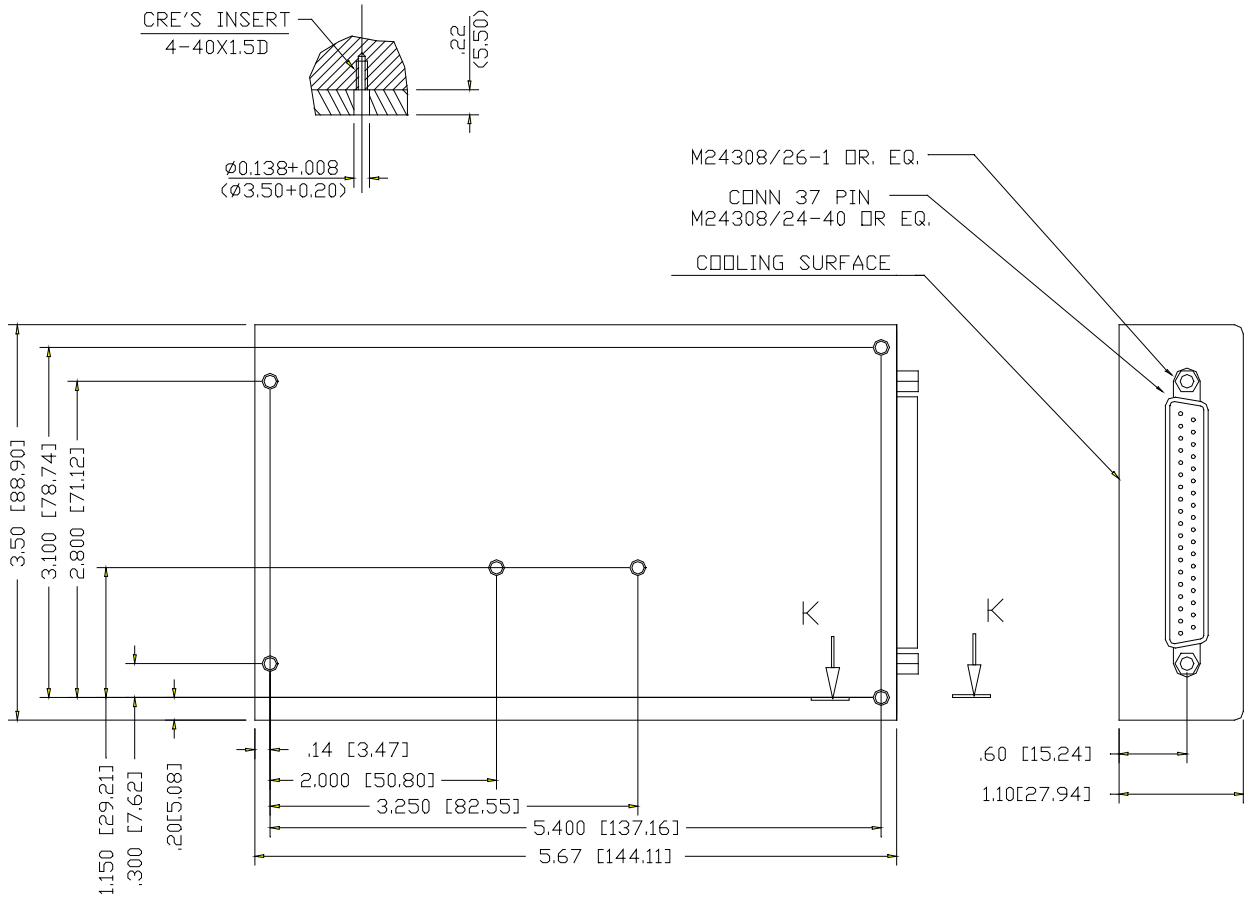
Please note that if Sense lines are not needed short the +SENSE pin to the +OUT pins and the -SENSE pin to the -OUT pins.

Typical Connection





Outline Drawing



Heat Dissipation Surface



Dissipation Area
15.7 in²
(10130 mm²)

Notes

1. Dimensions are in inches [mm]
2. Tolerance is:
.XX ± 0.02 in
.XXX ± 0.01 in
3. Weight: 1.28 lb [580gr]
4. Parasolid 3D model available

*Specifications are subject to change without prior notice by the manufacturer.