

M167 SERIES

3-PHASE AC/DC
POWER SUPPLY



PRODUCT HIGHLIGHTS

- COMPACT
- HIGH DENSITY
- HIGH EFFICIENCY
- SINGLE OUTPUT
- AC/DC POWER SUPPLY
- UP TO 1600 W



Cham, Switzerland
www.enercon-europe.com
enercon@enercon-europe.com
+41 41 740 4554

Global Headquarters

Netanya, Israel
www.enercon.co.il
sales@enercon.co.il
+972-73-246 9200



Gurgaon, India
www.mpsindia.in
sales@mpsindia.in
+91-124-651 0010

| | | | | | |
|---|---|--|---|---|--|
| <p>Applications</p> <p>Military (Airborne, ground-fix, shipboard), Ruggedized, Telecom, Industrial</p> | | | | | |
| <p>Special Features</p> <ul style="list-style-type: none"> • High efficiency • Wide input range • Input / Output isolation • Limited Inrush Current • <u>Fixed</u> switching frequency • <u>EMI</u> filters included • Indefinite short circuit protection with auto-recovery • Over-voltage shutdown with auto-recovery • Over temperature shutdown with auto-recovery | | | | | |
| <p>Electrical Specifications</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <p><u>AC Input Range:</u> 115V/400 Hz (320-520Hz), 3-phase per MIL-STD-704A/D</p> <p><u>Line/Load regulation:</u> Less than 1% (no load to full load, -40°C to +71°C).</p> <p><u>Ripple and Noise:</u> 100÷150mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.</p> </td> <td style="width: 33%; vertical-align: top;"> <p><u>DC Output:</u> Voltage: 3.3V to 50V Current: Up to 55A Power: Up to 1.6kW</p> <p><u>Efficiency:</u> 85% - minimum (full load, room temperature)</p> <p><u>Turn on Transient</u> No Voltage over shoot during power on.</p> </td> <td style="width: 33%; vertical-align: top;"> <p><u>Isolation:</u> 500V between Input and Output 500V between Input and Case 100V between Output and Case</p> <p><u>EMC:</u> Designed to meet MIL-STD-461F at 45A: CE102, CS101, CS114, CS115, CS106, RE101, RE102, RS101, RS103</p> </td> </tr> </table> | | | <p><u>AC Input Range:</u> 115V/400 Hz (320-520Hz), 3-phase per MIL-STD-704A/D</p> <p><u>Line/Load regulation:</u> Less than 1% (no load to full load, -40°C to +71°C).</p> <p><u>Ripple and Noise:</u> 100÷150mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.</p> | <p><u>DC Output:</u> Voltage: 3.3V to 50V Current: Up to 55A Power: Up to 1.6kW</p> <p><u>Efficiency:</u> 85% - minimum (full load, room temperature)</p> <p><u>Turn on Transient</u> No Voltage over shoot during power on.</p> | <p><u>Isolation:</u> 500V between Input and Output 500V between Input and Case 100V between Output and Case</p> <p><u>EMC:</u> Designed to meet MIL-STD-461F at 45A: CE102, CS101, CS114, CS115, CS106, RE101, RE102, RS101, RS103</p> |
| <p><u>AC Input Range:</u> 115V/400 Hz (320-520Hz), 3-phase per MIL-STD-704A/D</p> <p><u>Line/Load regulation:</u> Less than 1% (no load to full load, -40°C to +71°C).</p> <p><u>Ripple and Noise:</u> 100÷150mV_{p-p}, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.</p> | <p><u>DC Output:</u> Voltage: 3.3V to 50V Current: Up to 55A Power: Up to 1.6kW</p> <p><u>Efficiency:</u> 85% - minimum (full load, room temperature)</p> <p><u>Turn on Transient</u> No Voltage over shoot during power on.</p> | <p><u>Isolation:</u> 500V between Input and Output 500V between Input and Case 100V between Output and Case</p> <p><u>EMC:</u> Designed to meet MIL-STD-461F at 45A: CE102, CS101, CS114, CS115, CS106, RE101, RE102, RS101, RS103</p> | | | |
| <p>Protections *</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; vertical-align: top;"> <p><u>Input</u></p> <ul style="list-style-type: none"> • Inrush Current Limiter peak value of 6 x I_{IN} </td> <td style="width: 33%; vertical-align: top;"> <p><u>Output</u></p> <ul style="list-style-type: none"> • Passive transorb on outputs 20% above nominal voltage. • Current limiting Continuous protection (10-30% above maximum current) for unlimited time. </td> <td style="width: 33%; vertical-align: top;"> <p><u>General</u></p> <ul style="list-style-type: none"> • 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) </td> </tr> </table> | | | <p><u>Input</u></p> <ul style="list-style-type: none"> • Inrush Current Limiter peak value of 6 x I_{IN} | <p><u>Output</u></p> <ul style="list-style-type: none"> • Passive transorb on outputs 20% above nominal voltage. • Current limiting Continuous protection (10-30% above maximum current) for unlimited time. | <p><u>General</u></p> <ul style="list-style-type: none"> • 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) |
| <p><u>Input</u></p> <ul style="list-style-type: none"> • Inrush Current Limiter peak value of 6 x I_{IN} | <p><u>Output</u></p> <ul style="list-style-type: none"> • Passive transorb on outputs 20% above nominal voltage. • Current limiting Continuous protection (10-30% above maximum current) for unlimited time. | <p><u>General</u></p> <ul style="list-style-type: none"> • 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

Designed to meet MIL-STD-810E

Temperature:

Operating: -40°C to +71°C (at 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 - Sow-tooth, 20g peak, 11mS.

Vibration - method 514.6, proc. I. and method 519.6, proc. I

Salt Fog:

Method 509-4

Reliability

Min 50,000 hours, calculated per MIL-STD-217F at +70°C base plate, Ground fixed.

Note: at 100°C base plate MTBF will be lower

Environmental Stress Screening (ESS)

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

Pin Assignment (Input Connector)

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

Pin Assignment (Output Connector)

| Pin No. | Function | Pin No. | Function | Pin No. | Function | Pin No. | Function |
|---------|----------|---------|----------|---------|----------|---------|----------|
| 1 | - OUT | 12 | - OUT | 23 | + OUT | 34 | + OUT |
| 2 | INHIBIT | 13 | - OUT | 24 | - OUT | 35 | + OUT |
| 3 | + OUT | 14 | - OUT | 25 | - OUT | 36 | + OUT |
| 4 | + OUT | 15 | - OUT | 26 | - OUT | 37 | + OUT |
| 5 | + OUT | 16 | + OUT | 27 | - OUT | 38 | + OUT |
| 6 | + OUT | 17 | + OUT | 28 | - OUT | 39 | - OUT |
| 7 | + OUT | 18 | + OUT | 29 | - OUT | 40 | - OUT |
| 8 | + OUT | 19 | + OUT | 30 | - OUT | 41 | - OUT |
| 9 | - OUT | 20 | + OUT | 31 | -INHIBIT | 42 | - OUT |
| 10 | - OUT | 21 | + OUT | 32 | + OUT | 43 | - OUT |
| 11 | - OUT | 22 | + OUT | 33 | + OUT | 44 | - OUT |

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

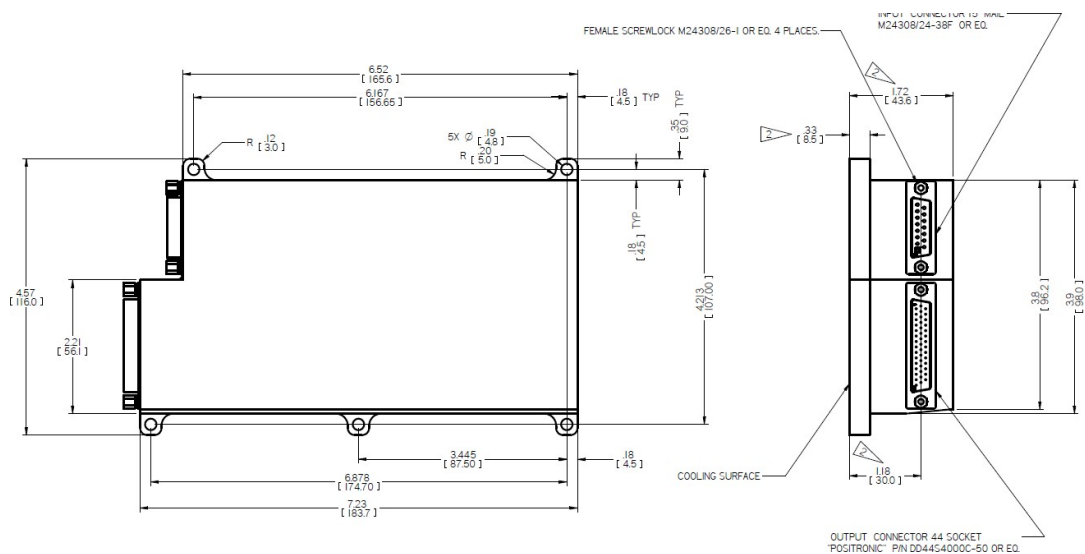
Functions and Signals

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 2 and pin 31 will turn off the power supply.

Outline Drawing



- Dimensions are in Inches [mm]
- Tolerance is:
 XX ±.02 IN
 .XXX ±.01 IN
- Weight: 1,600gr (preliminary)
- Parasolid 3D module is available

• Specifications are subject to change without prior notice by the manufacturer