

# M1467 SERIES

## AC+DC/DC POWER SUPPLY



### PRODUCT HIGHLIGHTS

- DUAL INPUT
- FIVE OUTPUT
- WIDE INPUT RANGE
- HIGH DENSITY
- AC+DC/DC POWER SUPPLY
- UP TO 380 W

## M1467 SERIES AC+DC/DC POWER SUPPLY

### Applications

Military (Airborne, Mobile, Ground-Fix), Ruggedized, Telecom, Industrial

### Special Features

- Quad (5) DC output
- Dual (2) input
- High efficiency
- High power factor ( > 0.95)
- Inputs to Outputs isolation
- Inrush current limiting (AC & DC)
- Reverse voltage protection (DC)
- Remote Inhibit (ON/OFF)
- Fixed switching freq. (250 kHz)
- EMI filters included
- Indefinite short circuit protection with auto-recovery
- Over-voltage protection
- Over temperature shutdown with auto-recovery

### Electrical Specifications

#### AC Input

Voltage range: 90–132V<sub>RMS</sub>  
Frequency range: 400Hz  
Single phase

#### DC Input

Voltage Range: 18-70V  
IAW MIL-STD-704A

Surge protection: 80V / 0.1s  
IAW MIL-STD-704A

#### Isolation

AC input to outputs: 500V  
DC input to outputs: 200V  
AC input to chassis: 500V  
DC input to chassis: 200V  
Outputs to chassis: 100V

#### Outputs

| #                         | Voltage | Current | Power |
|---------------------------|---------|---------|-------|
| 1                         | 2.5-50V | 25A     | 80W   |
| 2                         | 2.5-50V | 16A     | 140W  |
| 3                         | 2.5-50V | 18A     | 240W  |
| 4                         | 2.5-50V | 6A      | 20W   |
| 5                         | 2.5-50V | 3A      | 20W   |
| Total output power – 380W |         |         |       |

#### Line/Load regulation

Up to ±2% (No load to full load, -40°C to +85°C).

#### Ripple and Noise

100mV<sub>p-p</sub>, typical (max. 1%) without external capacitance. When connected to system capacitance ripple drops significantly.

#### Efficiency

AC input: Up to 73%  
DC input: Up to 79%  
Typical (Full load, nominal line voltage, room temperature)

#### Load Transient Overshoot and undershoot

Current change from 50%-100% output voltage change less than 10% within 200-300μSec

#### Turn on Transient

No output voltages overshoot during startup.

### Protections \*

#### Input

- Inrush Current Limiter
- Peak value of up to twice I<sub>IN</sub>

#### Output

- Active Over Voltage Protection
- Internal control protects unit (no

#### General

- Over Temperature Protection
- Shutdown at base plate

|                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                         |                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| for AC and DC Inputs.                                                                                                                                                                                                                                    | damage) ~10% above nominal voltage.                                                                                                                                                                                                                                                                     | temperature of +105°C ± 5°C.                                         |
| <ul style="list-style-type: none"> <li>• <b>Under Voltage Lock Out</b><br/>Unit shuts down (no damage) below 75V<sub>AC</sub> or 16V<sub>DC</sub>.</li> <li>• <b>Reverse Polarity Protection</b><br/>(On DC input).<br/>No damage up to -36V.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Passive Over Voltage Protection</b><br/>Transorbs on outputs protect loads ~20% above nominal voltage.</li> <li>• <b>Overload/Short Circuit Protection</b><br/>Continuous protection (10-50% above maximum current) for unlimited time (Hiccup).</li> </ul> | Automatic recovery at base plate temperature lower than +95°C ± 5°C. |

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

|                                         |                                                                                      |                                                                               |
|-----------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Environmental</b>                    |                                                                                      |                                                                               |
| Designed to meet or exceed MIL-STD-810F |                                                                                      |                                                                               |
| <b>Temperature</b>                      | <b>Altitude</b>                                                                      | <b>Salt Fog</b>                                                               |
| Operating: -40°C to +85°C (base plate)  | Method 500.4, Procedure I & II, 40,000 ft. and 70,000 ft.                            | Method 509-4                                                                  |
| Storage: -55°C to +125°C                | Operational                                                                          |                                                                               |
| <b>Humidity</b>                         | <b>Vibration and Shock</b>                                                           | <b>Reliability</b>                                                            |
| Method 507.4 - Up to 95%.               | Shock - Saw-tooth, 20g peak, 11mS.                                                   | 150,000 hours, calculated per MIL-STD-217F at +85°C base plate, Ground fixed. |
|                                         | Vibration - Figure 514.5C-17. General minimum integrity exposure. (1 hour per axis.) |                                                                               |

|                                                                      |
|----------------------------------------------------------------------|
| <b>EMC</b>                                                           |
| Designed to meet MIL-STD-461F*:                                      |
| CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103 |

\* Compliance achieved with shielded harness and static resistive load. Depending on actual configuration, an external filter may be required for full compliance.

### Environmental Stress Screening (ESS)

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

### Pin Assignment – Input (Connector J1)

**Connector type:** Eq. to M24308/3-13Z.

**Mating connector type:** M24308/2-2Z or eq.

| Pin # | Function |
|-------|----------|
| 1     | DC IN    |

| Pin # | Function     |
|-------|--------------|
| 6     | DC IN RETURN |

| Pin # | Function |
|-------|----------|
| 11    | DC IN    |

|   |              |    |              |    |              |
|---|--------------|----|--------------|----|--------------|
| 2 | DC IN        | 7  | INPUT STATUS | 12 | DC IN RETURN |
| 3 | DC IN        | 8  | PHASE        | 13 | DC IN RETURN |
| 4 | DC IN RETURN | 9  | DC IN        | 14 | DC IN RETURN |
| 5 | DC IN RETURN | 10 | DC IN        | 15 | NEUTRAL      |

### Pin Assignment – Output (Connector J2)

**Connector type:** Eq. to M24308/1-27Z.

**Mating connector type:** M24308/4-5Z or eq.

| Pin # | Function       |
|-------|----------------|
| 1     | OUT2           |
| 2     | N.C.           |
| 3     | REMOTE ON/OFF  |
| 4     | OUT2 SENSE     |
| 5     | OUTPUT STATUS  |
| 6     | SIGNAL RETURN  |
| 7     | OUT3           |
| 8     | OUT3 RTN       |
| 9     | SENSE OUT3     |
| 10    | SENSE OUT3 RTN |
| 11    | OUT1           |
| 12    | OUT1 RTN       |
| 13    | OUT1 RTN       |
| 14    | OUT1 SENSE     |
| 15    | OUT1           |
| 16    | OUT1 RTN       |
| 17    | OUT4 (+)       |

| Pin # | Function       |
|-------|----------------|
| 18    | OUT2           |
| 19    | OUT2 RTN       |
| 20    | OUT2 RTN       |
| 21    | OUT2 SENSE RTN |
| 22    | OUT3           |
| 23    | OUT3           |
| 24    | OUT3 RTN       |
| 25    | OUT3 RTN       |
| 26    | OUT1           |
| 27    | OUT1           |
| 28    | OUT1 RTN       |
| 29    | OUT1 RTN       |
| 30    | OUT1 SENSE RTN |
| 31    | OUT1           |
| 32    | OUT1 RTN       |
| 33    | OUT4/5 RTN     |
| 34    | OUT2           |

| Pin # | Function   |
|-------|------------|
| 35    | OUT2       |
| 36    | OUT2 RTN   |
| 37    | OUT2 RTN   |
| 38    | OUT3       |
| 39    | OUT3       |
| 40    | OUT3 RTN   |
| 41    | OUT3 RTN   |
| 42    | OUT1       |
| 43    | OUT1       |
| 44    | OUT1       |
| 45    | OUT1 RTN   |
| 46    | OUT1 RTN   |
| 47    | OUT4 (+)   |
| 48    | OUT4/5 RTN |
| 49    | OUT5 (-)   |
| 50    | OUT4/5 RTN |
|       |            |

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

## **Functions and Signals**

### **SENSE**

## **M1467 SERIES AC+DC/DC POWER SUPPLY**

The SENSE is used to achieve accurate load regulation 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% to 5% of voltage output.

When not used, connect +OUT1 SENSE to +OUT1 and + *OUT1 SENSE RTN* to OUT1 RETURN.

When not used connect +OUT2 SENSE to +OUT2 and + *OUT2 SENSE RTN* to OUT2 RETURN.

When not used connect +OUT3 SENSE to +OUT3 and + *OUT3 SENSE RTN* to OUT3 RETURN.

### **REMOTE ON/OFF Signal (Connector J2, Pin #3)**

The remote on/off signal is used to turn the power supply ON and OFF.

OPEN – will turn off the power supply.

SHORT - For normal operation short the signal to signal return.

This signal is referenced to SIGNAL RETURN on connector J2 (Pin #6).

### **INPUT STATUS Signal (Connector J1, Pin #7)**

This signal shows the status of the input voltage.

Logic '1' – DC input

Logic '0' – AC input

This signal is referenced to SIGNAL RETURN on connector J2 (Pin #6).

### **OUTPUT STATUS Signal (Connector J2, Pin #5)**

This signal shows the status of all outputs.

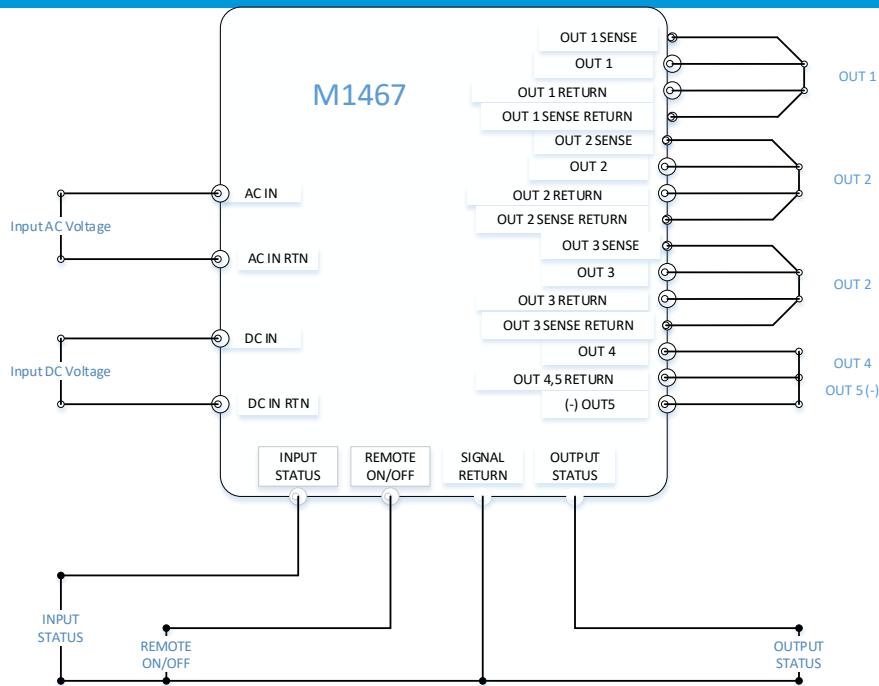
Logic '1' - all outputs are within the tolerance of +/-5% of nominal values.

Logic '0' – One output signal is outside the tolerance of +/-5% of nominal value.

This signal is referenced to SIGNAL RETURN on connector J2 (Pin #6).

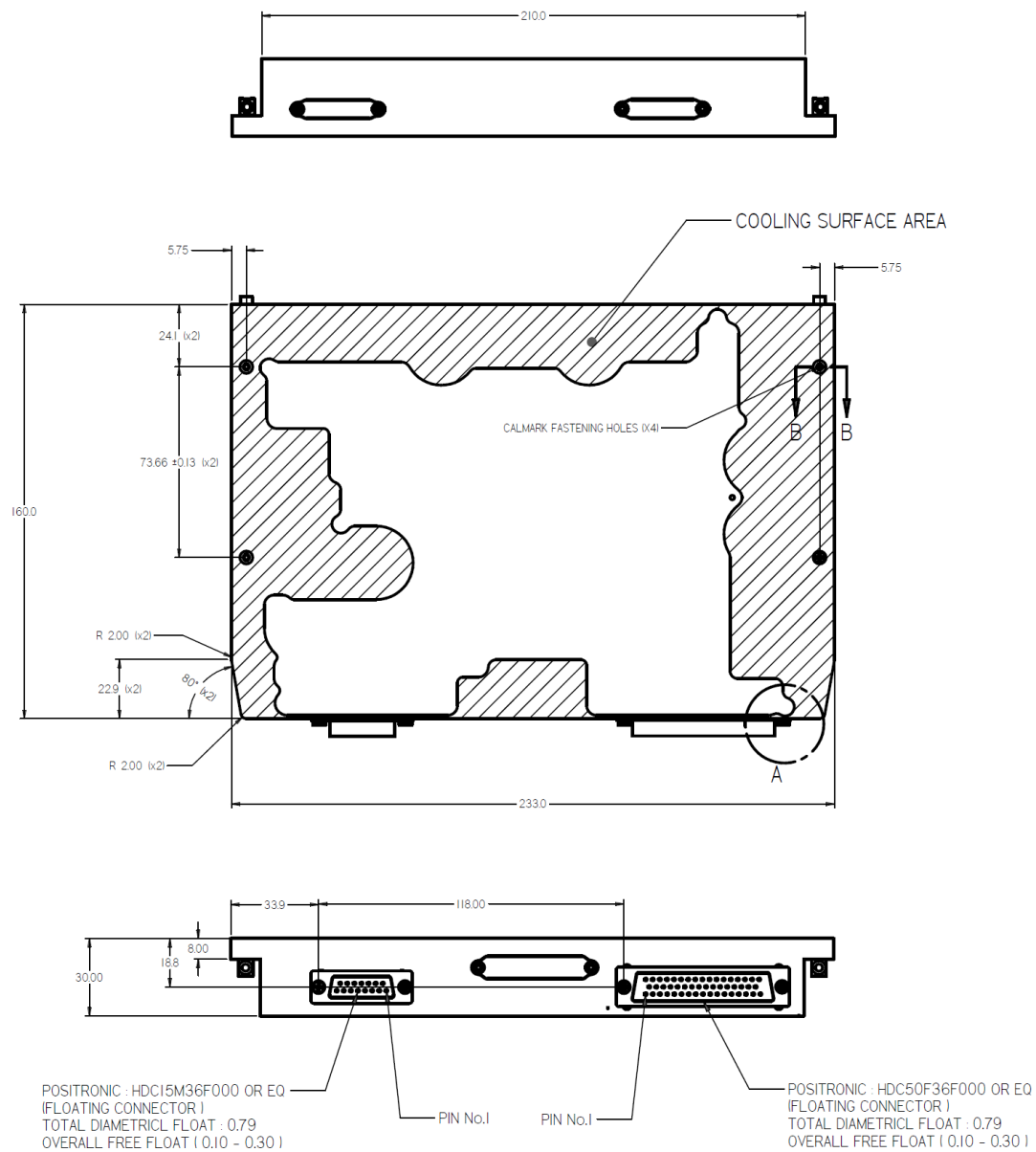
## Typical Connection

## M1467 SERIES AC+DC/DC POWER SUPPLY



## Outline Drawing

## M1467 SERIES AC+DC/DC POWER SUPPLY



### Notes

- Dimensions are in mm
- Tolerances are:
  - .X ± 0.4 mm
  - .XX ± 0.20 mm
- Weight: Approx. 1,720 g.

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