# M185 SERIES

## *AC/DC POWER SUPPLY*

### PRODUCT HIGHLIGHTS

- **MINIATURE**
- **HIGH DENSITY**
- **AC/DC CONVERTER**
- **QUAD OUTPUT**
- **UP TO 150W**

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## Applications

Military, Ruggedized, Telecom, Industrial

## Special Features

- Four (4) DC outputs
- High efficiency
- Wide input range
- Input / Output isolation
- Fixed internal switching frequency (250 kHz)
- External synchronization ability
- EMI filters included
- Input undervoltage lockout (< 75 VAC)

## Environmental Conditions

Meets or exceeds MIL-STD-810D
Temperature:
Operating -40°C to +90°C (baseplate)
Storage -55°C to +125°C

## Reliability

150,000 hours, calculated per MIL-STD-217F Notice 2 at +85°C baseplate, ground fixed.

## Protections

Current limiting (indefinite):
Outputs 1 through 3: Foldback
Output 4: Hiccup
Over Voltage Protection:
Outputs 1 through 3: Passive transorb.
Output 4: Crowbar.
Over Temperature Protection:
Shutdown at baseplate temperature above +105°C ±5°C. Automatic recovery at baseplate temperature below +95°C ±5°C

## Electrical Specifications

**AC INPUT**

Input range:
140-190$V_{AC}$, 400Hz, Single-Phase (85-265$V_{AC}$, 50/60/400Hz Single-Phase option available)

Power Factor: 0.98

Efficiency: up to 75%

EMC:

Meet MIL-STD-461F*: CE101, CE102, CS101, CS114, CS115, CS116, RE101, RE102, RS101, RS103

Isolation:
Input to Outputs: 500 $V_{DC}$
Input to Case: 500 $V_{DC}$

**DC OUTPUT (floating from each other)**

Outputs range:

| Output | Voltage | Current | Power |
|---|---|---|---|
| 1 | 3.3 to 24$V_{DC}$ | 0 to 5A | 0 to 30W |
| 2 | 3.3 to 24$V_{DC}$ | 0 to 5A | 0 to 30W |
| 3 | 3.3 to 24$V_{DC}$ | 0 to 10A | 0 to 60W |
| 4 | 1.8 to 15$V_{DC}$ | 0 to 30A | 0 to 100W |

Line/Load regulation:
Up to ±1% (no load to full load, –40°C to +85°C)

Ripple and Noise: 50m$V_{p-p}$, typical (max. 1%)

Isolation:
Outputs to Case: 100$V_{DC}$

- Compliance achieved with shielded harness and static resistive load.

## *Pin Assignment*

***Input Connector (P1):***
**Connector type:** M24308/24-37F or eq.
**Mates with:** M24308/4-1F or M24308/23-7 or eq.

| Pin No. | Function |
|---|---|
| 1 | CHASSIS |
| 2 | N.C. |
| 3 | NEUTRAL |
| 4 | N.C. |
| 5 | PHASE |

| Pin No. | Function |
|---|---|
| 6 | N.C. |
| 7 | NEUTRAL |
| 8 | N.C. |
| 9 | PHASE |
| | |

***Output Connector (J2):***
**Connector type:** M24308/23-46F or eq.
**Mates with:** M24308/2-4F or eq.

| Pin No. | Function |
|---|---|
| 1 | INHIBIT |
| 2 | SYNC |
| 3 | OUT #3 RTN (–) |
| 4 | OUT #3 (+) |
| 5 | OUT #3 (+) |
| 6 | OUT #2 (+) |
| 7 | N.C. |
| 8 | OUT #1 (+) |
| 9 | OUT #4 RTN (–) |
| 10 | OUT #4 RTN (–) |
| 11 | OUT #4 RTN (–) |
| 12 | OUT #4 RTN (–) |
| 13 | OUT #4 RTN (–) |

| Pin No. | Function |
|---|---|
| 14 | OUT #4 (+) |
| 15 | OUT #4 (+) |
| 16 | OUT #4 (+) |
| 17 | OUT #4 (+) |
| 18 | OUT #4 (+) |
| 19 | SENSE OUT #4 |
| 20 | INHIBIT RTN |
| 21 | SYNC RTN |
| 22 | OUT #3 RTN (–) |
| 23 | OUT #3 RTN (–) |
| 24 | OUT #3 (+) |
| 25 | OUT #2 RTN (–) |
| 26 | OUT #1 RTN (–) |

| Pin No. | Function |
|---|---|
| 27 | SENSE RTN OUT #4 |
| 28 | OUT #4 RTN (–) |
| 29 | OUT #4 RTN (–) |
| 30 | OUT #4 RTN (–) |
| 31 | OUT #4 RTN (–) |
| 32 | OUT #4 RTN (–) |
| 33 | OUT #4 (+) |
| 34 | OUT #4 (+) |
| 35 | OUT #4 (+) |
| 36 | OUT #4 (+) |
| 37 | OUT #4 (+) |
| | |
| | |

**Note:** All pins with identical function/designation 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.
TTL "1" or OPEN will turn on the power supply (For normal operation leave the signal not connected). TTL "0" or SHORT will turn off the power supply.
This signal is referenced to ***INHIBIT RTN*** pin and is isolated from all other pins.

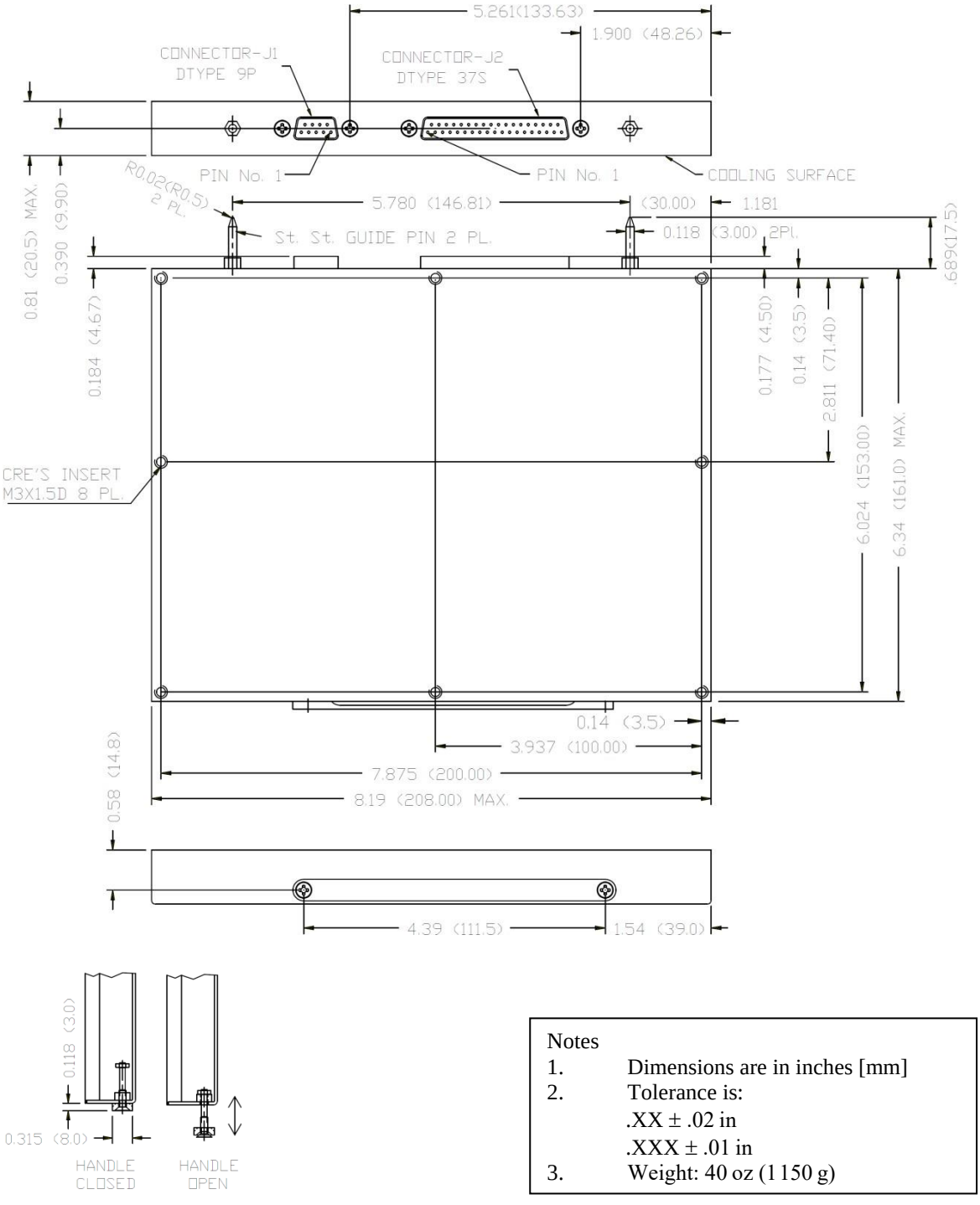
**SYNC signal**

The ***SYNC*** signal is used to allow the power supply frequency to sync with the system frequency. The system frequency should be 250 kHz ± 10 kHz.
When not connected the power supply will work at 250 kHz ± 10 kHz.
This signal is referenced to ***SYNC RTN*** pin and is isolated from all other pins.

**SENSE**

The ***SENSE*** is used to achieve accurate load regulation at load terminals of **output #4**. This is done by connecting the pins directly to the load terminals. The remote sense correction function is limited to voltage drop between converter's output and load terminals of 2% to 5%, or up to 0.5V, the least of the two.
When not used, connect ***SENSE*** to ***OUT #4*** and ***SENSE RTN*** to ***OUT #4 RTN.***
Do not leave ***SENSE*** and ***SENSE RTN*** pins unconnected. These pins can be tied internally to avoid external connection, if function is not required – *consult factory.*

## *Outline Drawing*




Notes
1. Dimensions are in inches [mm]
2. Tolerance is:
   .XX ± .02 in
   .XXX ± .01 in
3. Weight: 40 oz (1 150 g)

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