

## M333 Series

### DOUBLE-CONVERSION ONLINE UPS



#### FEATURES

- Standard 19" Rack Mounted, 2U high, and 22" deep with slides and rear-panel load-bearing bushings.
- Up to (4) four M333-4 Units can be connected and controlled by a single M362-X UPS.
- Supports very long Holdup time; over 2 hours at 1KW and one hour at 2KW (with four M333-4 Battery Packs).
- An ID Resistor allows the Host UPS (M362-X) to automatically identify the type and number of Battery Packs connected to it.
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- Internal Electronic Switch removes power from the I/O connectors when not connected to the Host UPS or when the UPS is Off.
- Complies with MIL-STD-167-1 (Type I) and MIL-S-901D Shipboard Shocks and Vibration.
- MS Power Connectors.
- J-STD-001B and IPC-610A Class-3 Workmanship.
- Conformal Coating of PWBs per MIL-I-46058C and IPC-CC-830.
- Uses high quality VRLA cells.

## SPECIFICATIONS:

|  |   |            |              |              |
|--|---|------------|--------------|--------------|
| <b>Battery Type</b>  | Valve regulated Lead-Acid (Yuasa NPX-25 or equivalent). |            |              |              |
| <b>Nominal Voltage</b>                                       | 108VDC  |            |              |              |
| <b>Nominal Capacity</b>                                      | 10AH (10hr)   |            |              |              |
| <b>Hold-up Time (Vs. Load on the M362-X Output) at 25°C.</b> | <b>Output (AC) Power</b>                                | <b>1KW</b> | <b>1.8KW</b> | <b>2.4KW</b> |
|  | one M333  | 26 min     | 13 min       | 9.5 min      |
|  | two M333  | 60 min     | 30 min       | 21 min       |
|  | three M333  | 96 min     | 48 min       | 34 min       |
|  | four M333   | 134 min    | 67 min       | 48 min       |

### Notes:

1. For other loads between 1KW to 2.4KW the Hold-up time can be estimated using the following formula: Holdup Time(minutes) = 26.5 x (N/KW)1.17 were KW is the load in KW and N is the number of M333-4 units connected to the UPS.
2. Below 25°C, derate by 1.25% for every 1°C.

|                                   |                               |   |
|-----------------------------------|-------------------------------|---|
| <b>INDICATIONS &amp; CONTROLS</b> | Front panel Visual Indication | A Green LED indicates that the Battery Pack is connected to an operating UPS.   |
|                                   | Safety Switch                 | When the Host UPS is turned Off, or the “Safe to Disconnect” push button on the UPS (M362-X) front panel is depressed, or the cable between the UPS to the Battery Pack is disconnected, power is automatically removed from the I/O connectors of the CF-02EM333 |
| <b>ENVIRONMENT</b>                | Temperature                   | Non-operating: -20 to +70°C<br>Operating: 0 to + 55°C<br>Note: Prolong exposure to temperatures above +40°C will degrade the battery expected life and performances.  |
|                                   | Humidity                      | Up to 95% (MIL-STD-810F, Method 507.4)  |
|                                   | Altitude                      | Operating: Up to 10,000 feet. Non-operating: (Air transport) 50,000 feet  |
|                                   | Orientation                   | May be installed at any orientation.  |
|                                   | Mechanical Shock              | MIL-S-901D (Grade A, Class I &2)  |
|                                   | Vibration                     | Shipboard Vibration Per MIL-STD-167-1 (Type 1)  |
|                                   | Fungus                        | Does not support fungus growth, in accordance with the guidelines of MIL-STD-454, Requirement 4.  |
|                                   | Acoustic Noise                | Less than 28dBA (no fans or any other moving parts are used).   |

|                        |   |   |
|------------------------|---|---|
| <b>EMI</b>             | MIL-STD-461E  | CS114, (Curve 5, Bulk Cable Injection), CS115 (Bulk Cable Injection), RE101, RE102, RS101, RS103. (Surface-Ships and Submarine-Internal application). |
|                        | DC<br>Magnetic Field  | Tolerates 1600 A/m (per MIL-STD-1399 Section 70)  |
| <b>WEIGHT AND SIZE</b> | In accordance with DWG M333004<br>(19" Rack-mount, 2U high, 22" deep, weighs 100 Lbs) |   |

## CONNECTORS AND PIN OUT:

| <b>J2 – TO NEXT BATT</b><br>(To additional M333-4 BATT Pack)<br>MS3452W20-27S or Eq |          |                   |
|---|----------|-------------------|
| Des.  | Signal   | Minimum Wire Size |
| A   | GND      | AWG #16           |
| B   | IDRES-2  | AWG #22           |
| C   | Reserved | AWG #22           |
| D   | Reserved | AWG #22           |
| E   | +BATT    | AWG #16           |
| F   | +BATT    | AWG #16           |
| G   | +24VDC   | AWG #22           |
| H   | BATT-RTN | AWG #16           |
| I   | BATT-RTN | AWG #16           |
| J   | Reserved | AWG #22           |
| K   | 24VDCRTN | AWG #22           |
| L   | IDRES-1  | AWG #22           |
| M   | +BATT    | AWG #16           |
| N   | BATT-RTN | AWG #16           |

| <b>J1 – TO UPS</b><br>(To the M362-X UPS)<br>MS3452W20-27P or Eq |          |                   |
|--|----------|-------------------|
| Des.   | Signal   | Minimum Wire Size |
| A  | GND      | AWG #16           |
| B  | IDRES-2  | AWG #22           |
| C  | TMPSNS-1 | AWG #22           |
| D  | TMPSNS-2 | AWG #22           |
| E  | +BATT    | AWG #16           |
| F  | +BATT    | AWG #16           |
| G  | +24VDC   | AWG #22           |
| H  | BATT-RTN | AWG #16           |
| I  | BATT-RTN | AWG #16           |
| J  | Reserved | AWG #22           |
| K  | 24VDCRTN | AWG #22           |
| L  | IDRES-1  | AWG #22           |
| M  | +BATT    | AWG #16           |
| N  | BATT-RTN | AWG #16           |

**Notes:**

- 1. Caution !!!** When the M333-4 is connected to an operating UPS, high voltage (120VDC) may appear on J2. To avoid safety hazard J2 should never be left open. If unused, it must be sealed by its tethered protection cap.
2. Up to (4) four M333-4 units can be connected to a single M362-X UPS.
3. For proper operation, all pins of J1 and J2 must be connected.
4. If more than one M333-4 is used, connect the units as shown below.

The wire size is the minimum required. All pins will accept up to AWG #16.  
The total cables length between the last M333-4 to the UPS should not exceed 9 feet.



## HOW TO ORDER

|                             |                               |
|-----------------------------|-------------------------------|
| <b>Standard Part Number</b> | (1)(2)(3)<br>CF-02EM333-0-0-0 |
|-----------------------------|-------------------------------|

| Special Options (1) |             |
|---------------------|-------------|
| -0                  | None (STD.) |

| Optional Special Hardware (3) |             |
|-------------------------------|-------------|
| -0                            | None (STD.) |

| Optional Slides & Load Bearing Pins (2) |  |
|---|--|
| -0                                      | None (STD.)  |
| -1                                      | Pins and Slides:<br>Pins: Jonathan P/N 1005-406 or equivalent (mate with the UPS back panel's bushings) Slides: Actron P/N A5520-23 (or eq.) |
| -2                                      | Pins only (same as -1).  |

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 PRELIMINARY

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