



## PROGRAMMABLE FREQUENCY CONVERTER

# PS-94-444-29

## 50Hz • 60Hz • 400Hz

U.S. PATENT No. 6,178,101

The PS Series programmable frequency converter provides precise AC Power and is used in many applications such as research laboratories, production line testing, onboard aircraft, ships and has seen extensive military and commercial use. Additionally, it can be operated in conjunction with Unitron's Programming Paralleling Control Box (PCB Series) as an N+1 redundant, Hot-Swap System rated up to 17.5 kVA. This unit is capable of providing MIL-STD-704 power while operating off of current and legacy aircraft.

### INPUT

|  |  |
|--|--|
| VOLTAGE  | 115/200 VRMS ±10%                                    |
| CONFIGURATION                                    | 3Ø, WYE, GROUNDED NEUTRAL                            |
| FREQUENCY RANGE                                  | 30 TO 800 HZ   |
| POWER FACTOR                                     | ≥ 0.99   |
| INPUT CURRENT DISTORTION<br>(≤ 10% ABOVE 600 HZ) | ≤ 5% AT NOMINAL INPUT VOLTAGE<br>AND FULL RATED LOAD |
| PHASE ROTATION                                   | ANY  |
| PROTECTION                                       | OVER/UNDER VOLTAGE,<br>LOSS OF PHASE, OVERCURRENT    |
| RIDE-THROUGH*                                    | 50MS AT FULL RATED LOAD                              |

### OUTPUT

|                           |  |
|---------------------------|--|
| PROGRAMMABLE              | SEE FIGURE 1   |
| VOLTAGE****               | 115 VRMS 1Ø, 115/230 VRMS<br>SPLIT Ø, OR 115/200 VRMS 3Ø |
| VOLTAGE TOLERANCE         | ±1.0%  |
| FREQUENCY                 | 50, 60, OR 400HZ   |
| FREQUENCY TOLERANCE       | ±0.1%  |
| POWER / OVERLOAD          | SEE FIGURE 1   |
| SHORT CIRCUIT             | 180% FOR 10 SECONDS                                      |
| DISTORTION                | 2% THD MAXIMUM   |
| OUTPUT VOLTAGE TRANSIENTS | IAW MIL-STD-704 FOR ALL<br>CONDITIONS OF LOAD CHANGE     |
| POWER FACTOR RANGE        | 0.8 LAGGING TO 0.8 LEADING                               |
| EFFICIENCY                | 89% TYPICAL AT FULL LOAD                                 |
| PROTECTION                | OVER/UNDER VOLTAGE,<br>OVERLOAD, SHORT CIRCUIT           |

\*OTHER RIDE-THROUGH OPTIONS AVAILABLE, CONTACT FACTORY.

\*\*FACTORY VOLTAGE ADJUSTMENT OF ±10% (SPECIFY)

\*\*\*IAW MIL-STD-704

### FEATURES

- LOW INPUT CURRENT DISTORTION
- HIGH INPUT POWER FACTOR
- WIDE INPUT FREQUENCY RANGE
- PROGRAMMABLE 50, 60, OR 400HZ OUTPUT FREQUENCIES
- PARALLELING OPTION FOR POWER GRID EXPANSION (SEE NOTE 2)
- STOPLITE BITE™ SELF-DIAGNOSTIC SYSTEM
- (N+1) / HOT-SWAP SYSTEM (SEE NOTE 3)
- INPUT CIRCUIT BREAKER OPTION
- SMALL SIZE AND LIGHT WEIGHT
- REMOTE CONTROL

### MECHANICAL

|            |  |
|------------|--|
| MOUNTING   | HARD MOUNT OR ATR MOUNT  |
| CONNECTORS | J1 INPUT: MS3102R18-11P<br>J2 OUTPUT: MS3102R20-15S<br>J3 CONTROL: D38999 / 20WD35SN |
| COOLING    | SELF-CONTAINED FAN<br>(SLOW SPEED FOR LOW AMBIENT NOISE)                             |

### ENVIRONMENTAL

|                      | MIL-STD-810 | RTCA-DO-160 |
|----------------------|-------------|-------------|
| TEMPERATURE          | ✓           | ✓           |
| ALTITUDE             | ✓           | ✓           |
| EXPLOSIVE ATMOSPHERE | ✓           | ✓           |
| SHOCK                | ✓           | ✓           |
| VIBRATION            | ✓           | ✓           |
| HUMIDITY             | ✓           | ✓           |
| FUNGUS               | ✓           | ✓           |
| SALT SPRAY           | ✓           | ✓           |
| SAND AND DUST        | ✓           | ✓           |
|                      | MIL-STD-461 | RTCA-DO-160 |
| EMI                  | ✓           | ✓           |

This product was manufactured in a plant whose quality management system is registered to ISO 9001:2015.

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**FIGURE 1: Output Plug Selection (PP Series) & Power/Overload Ratings**

| Plug Number | kVA | Hz  | Voltage VRMS | Phase | Overload |       |     |        |     |         |
|-------------|-----|-----|--------------|-------|----------|-------|-----|--------|-----|---------|
|             |     |     |              |       | %        | Time  | %   | Time   | %   | Time    |
| PP-050-S*   | 3.5 | 50  | 115          | 1     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |
| PP-050-T*   | 3.5 | 50  | 115/200      | 3     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |
| PP-050-C    | 3.0 | 50  | 115/230      | 1     | 110      | 2 hr. | 125 | 5 min. | 135 | 10 sec. |
| PP-060-S    | 3.5 | 60  | 115          | 1     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |
| PP-060-T    | 3.5 | 60  | 115/200      | 3     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |
| PP-060-C    | 3.0 | 60  | 115/230      | 1     | 110      | 2 hr. | 125 | 5 min. | 135 | 10 sec. |
| PP-400-S    | 3.5 | 400 | 115          | 1     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |
| PP-400-T    | 3.5 | 400 | 115/200      | 3     | 110      | 2 hr. | 125 | 5 min. | 175 | 10 sec. |

\* Special Applications Only

**FIGURE 2: PS-94-444-29 Series Configurations**

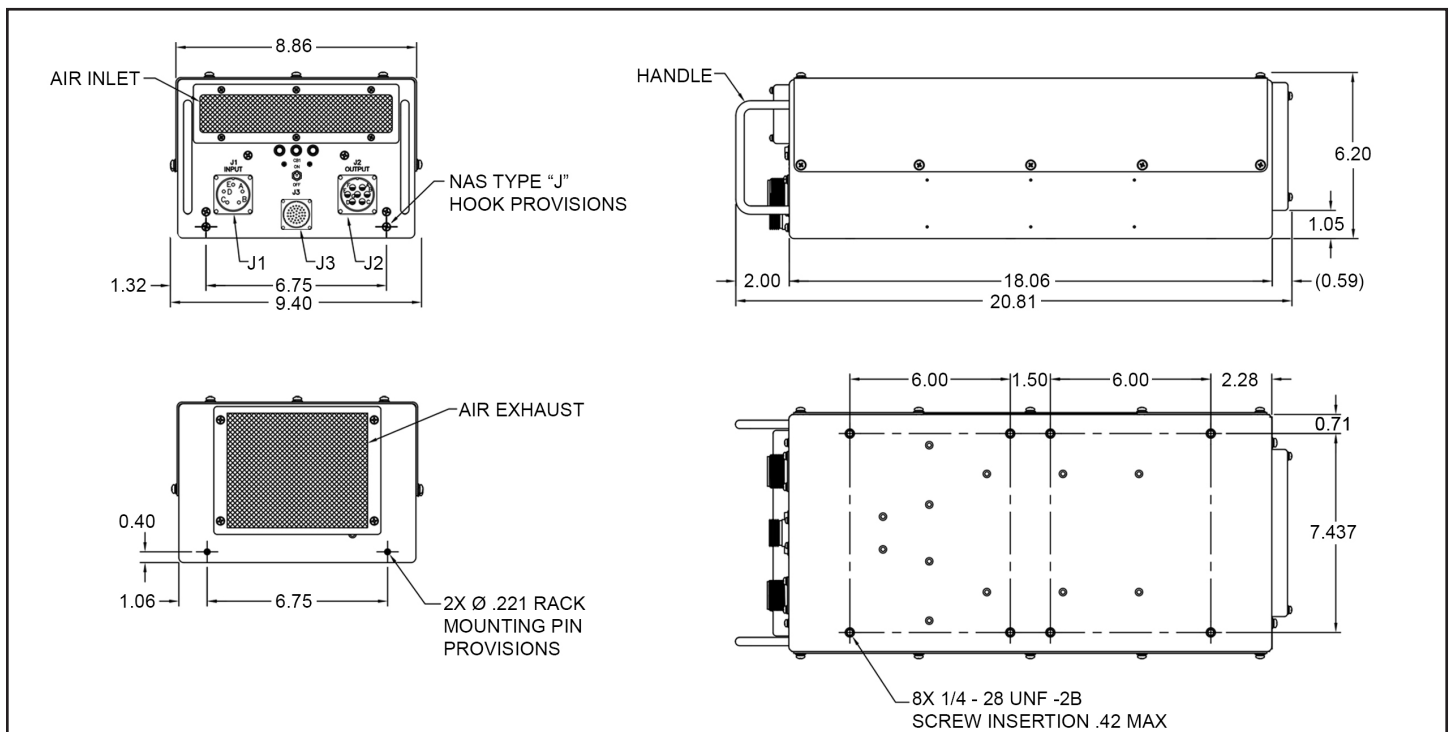
| MODEL NUMBER  | Multi Unit | EMI          |              | Input Circuit Breaker |
|---------------|------------|--------------|--------------|-----------------------|
|               |            | MIL-STD-461E | RTCA/DO-160F |                       |
| PS-94-444-29A | See Notes  | X            |              |                       |
| PS-94-444-29B |            | X            |              | X                     |
| PS-94-444-29C |            |              | X            |                       |
| PS-94-444-29D |            |              | X            | X                     |

**NOTES:**

1. TWO UNITS PARALLELED FOR GRID EXPANSION ONLY, UP TO 7.0 kVA, REQUIRE ONE PROGRAMMING PARALLEL CABLE (PPC SERIES) ONLY.
2. THREE OR MORE UNITS PARALLELED FOR GRID EXPANSION ONLY, UP TO 17.5 kVA, REQUIRE A PROGRAMMING PARALLEL BOX (PB SERIES) IN ADDITION TO ONE PROGRAMMING PARALLEL CABLE (PPC SERIES) FOR EACH UNIT.
3. TWO OR MORE UNITS PARALLELED FOR (N+1) REDUNDANCY / HOT-SWAP, UP TO 17.5 kVA, REQUIRE A PARALLELING CONTROL BOX (PCB SERIES) IN ADDITION TO ONE PARALLELING BOX CABLE (PBC SERIES) AND ONE INTERCONNECT POWER CABLE (IPC SERIES) FOR EACH UNIT.

**PS-94-444-29**

WEIGHT 30 LBS (DEPENDENT ON OPTIONS SELECTED)



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

REV E

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