



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

## PROGRAMMABLE FREQUENCY CONVERTER

# PS-94-444-31

## 50Hz • 60Hz • 400Hz

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 (≤ 10% ABOVE 600 HZ)	≤ 5% AT NOMINAL INPUT VOLTAGE AND FULL RATED LOAD
PHASE ROTATION	ANY
PROTECTION	OVER/UNDER VOLTAGE, LOSS OF PHASE, OVERCURRENT
RIDE-THROUGH*	150MS AT FULL RATED LOAD

### OUTPUT

PROGRAMMABLE	SEE FIGURE 1
VOLTAGE****	115 VRMS 1Ø, 115/230 VRMS 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 CONDITIONS OF LOAD CHANGE
POWER FACTOR RANGE	0.8 LAGGING TO 0.8 LEADING
EFFICIENCY	89% TYPICAL AT FULL LOAD
PROTECTION	OVER/UNDER VOLTAGE, 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 J2 OUTPUT: MS3102R20-15S J3 CONTROL: D38999 / 20WD35SN
COOLING	SELF-CONTAINED FAN (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-94-444-31 Series Configurations**

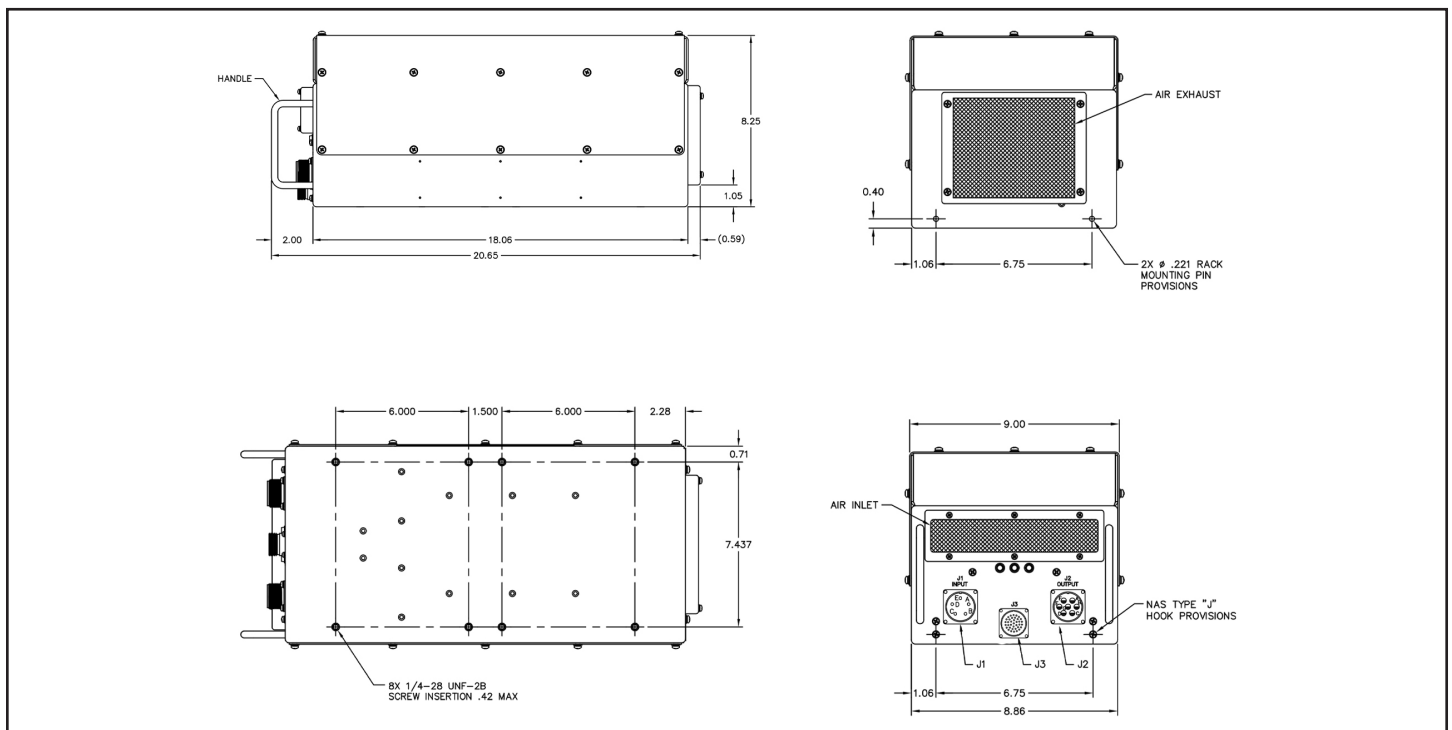
MODEL NUMBER	Multi Unit	EMI		Input Circuit Breaker
		MIL-STD-461E	RTCA/DO-160F	
PS-94-444-31A	See Notes	X		
PS-94-444-31B		X		X
PS-94-444-31C			X	
PS-94-444-31D			X	X

**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-94-444-31**

WEIGHT 30 LBS (DEPENDENT ON OPTIONS SELECTED)



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

REV B

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