

**This compact solid-state power block converter combines an integrated L-band BUC and GaAs IMFET-based output section to provide 40 watts of saturated power over the standard 7.90-8.40 GHz satellite uplink band.**

Housed in a lightweight, weatherized enclosure with integral heatsink and fan, the unit is intended for direct integration on small aperture or field-deployable antenna applications. Remote control and status monitoring functions are provided via a serial link.



*CPXB8040SB-22*

#### FEATURES:

- Integrated block upconverter with L-band input
- 40 W saturated output power
- Excellent linearity
- 60 dB gain
- 15 dB gain adjustment
- Built-in monitor and control
- Temperature-compensated gain from -40 to +60°C
- Serial interface (RS-232/-422/-485)
- Output power monitor
- Internal OXCO, with remote fine frequency adjustment, phase-lockable to external reference
- Extermely light weight, typically 7.5 lb (3.4 kg)
- Mounts on small antennas
- Wide DC input range: 24 VDC; 28 VDC; 48 VDC

#### OPTIONS:

- White, Green, or Tan finish
- AC Power Supply, CPS14000AC
- 1:1 redundant systems

## System Specifications

Parameter	Notes	Specification
Frequency Range, Input		950 MHz min., 1450 MHz max.
Frequency Range, Output		7.9 to 8.4 GHz
Local Oscillator, Frequency		6.95 GHz typical
LO Frequency Adjust Range		±10 KHz
LO Phase Noise (1)	10 Hz 100 Hz 1 KHz 10 KHz 100 KHz 1 MHz	-40 dBc/Hz typical, -33 dBc/Hz max. -70 dBc/Hz typical, -63 dBc/Hz max. -82 dBc/Hz typical, -73 dBc/Hz max. -86 dBc/Hz typical, -83 dBc/Hz max. -96 dBc/Hz typical, -93 dBc/Hz max. -110 dBc/Hz typical, -103 dBc/Hz max.
LO Stability		±1 x 10 <sup>-7</sup> Internal, vs. temperature
Reference Frequency (1)		10 MHz Internal or external
Gain	Minimum	60 dB min., 65 dB typical
Gain Adjustment Range		15 dB min., 0.5 dB steps
Gain Flatness		±1.5 dB over the full band ±0.5 dB per 40 MHz
Gain Stability vs. Temperature	-40 to +60°C, ambient air	±1.5 dB max.
Power Output	Saturated 1 dB compression Linear Power	+46 dBm typ. (40 W) +45.0 dBm min. (32 W) +43.0 dBm min. (20 W)
Spectral Regrowth	Linear P <sub>OUT</sub> 1.5 x SR, QPSK, single carrier	-35 dBc typical, -30 dBc max.
IMD <sub>3</sub>	2 carriers, composite P <sub>OUT</sub> at 3 dB backoff from P <sub>1 dB</sub>	-30 dBc typical, -25 dBc max.
Spurious	Linear P <sub>OUT</sub>	-60 dBc typical, -55 dBc max.
Harmonics, 15.8-16.8 GHz		-50 dBc max. at rated P <sub>1 dB</sub>
LO Leakage		-40 dBm at RF output
Group Delay	Linear Parabolic Ripple	0.03 ns/MHz 0.003 ns/MHz <sup>2</sup> 1.0 ns peak to peak
AM/PM Conversion		2.0°/dB typical, 2.5°/dB max. at (P <sub>1 dB</sub> )
Output Noise Power Density	Transmit, 7.9-8.4 GHz Receive, 7.25-7.75 GHz	-90 dBm/Hz, Transmit -90 dBm/Hz, Receive
Noise Figure		20 dB max. at maximum gain setting
VSWR	Input, (50 ohms) Output	1.35:1 typical, 1.50:1 max. 1.35:1 typical, 1.50:1 max.
Connectors	Input/Ext. Ref. In Output M&C, Serial IO, Fast Mute Power Summary Alarm, Form 'C'	Type N Female CPR112G 10-pin MS, mate supplied 4-pin MS, mate supplied 3-pin MS, mate supplied
Power Requirements	Voltage Power (2)	20 to 56 VDC 185 W typical, 250 W max.
Cooling System		Integrated Heatsink/Forced Air
Temperature Range, Ambient	Ambient air temperature	-40°C to +60°C, Operating -40°C to +100°C, Storage
Humidity		100%, Condensing

System Specifications, continued

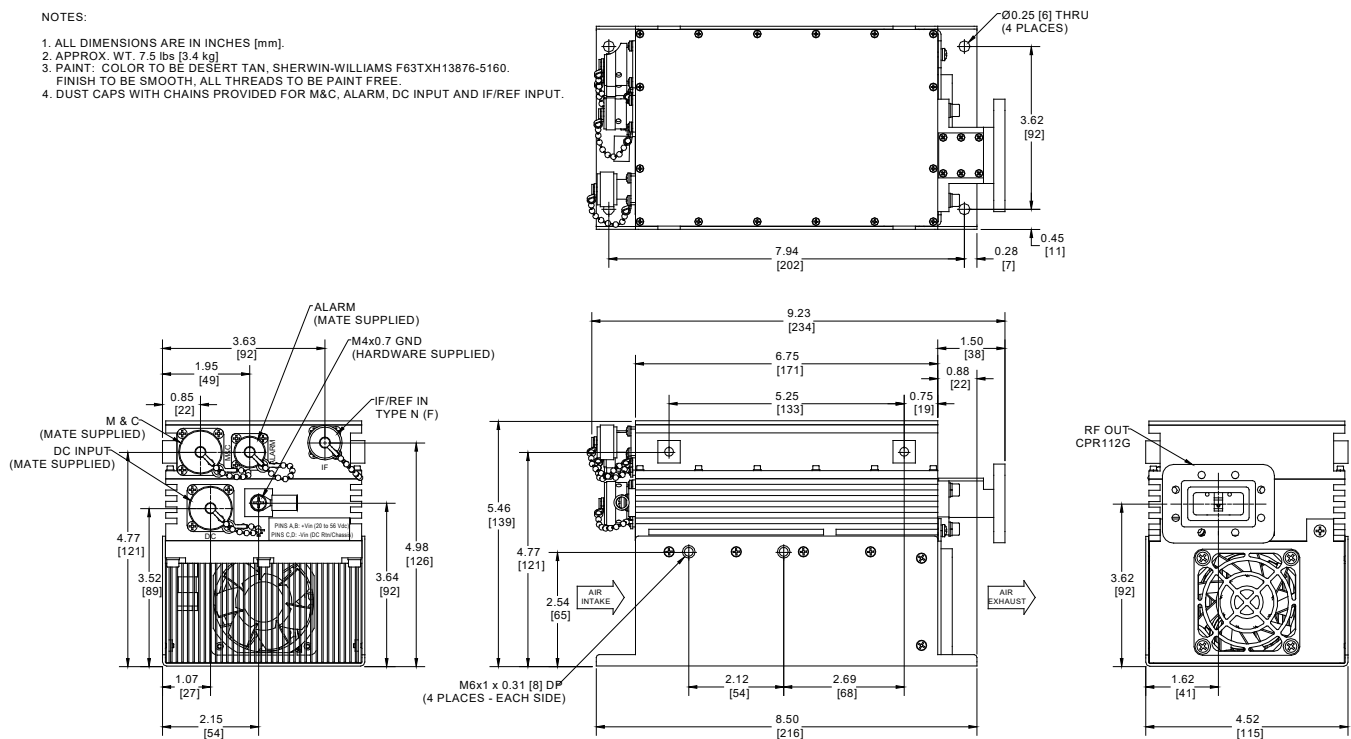
Parameter	Notes	Specification
<b>Dimensions</b>	See outline drawing	9.33" L x 4.52" W x 5.46" H; 237 mm L x 115 mm W x 139 mm H
<b>Weight</b>		7.5 lb, (3.4 kg)
<b>Finish</b>		Available in White, Green, or Tan (refer to part number/ordering information)
(1) External reference phase noise requirement: -105 dBc/Hz @ 10 Hz offset, -135 dBc/Hz @ 100 Hz offset, -145 dBc/Hz @ 1 kHz offset. External reference input level: -5 to +5 dBm		
(2) Typical power consumption at linear power output level. Max. power consumption at cold start, at -40 °C and P <sub>OUT</sub> in saturation.		

Part Number/Ordering Information

<p>Single-Thread SSPBs</p> <p><b>CPXB8040SB-2X</b></p> <p>7.90-8.40 GHz ..... B</p> <p>40 watts ..... 40</p> <p>SSPB Options</p> <p>CPR112G Cover Flange (Standard)..... 2</p> <p>Commercial White..... X</p> <p>Green (Fed. Std. 595B; #34094) ..... 1</p> <p>Tan (Fed. Std. 595B; #33303)..... 2</p> <p>Order optional AC power supply, CPS14000AC, separately (one per SSPB).</p>	<p>1:1 Redundant Systems</p> <p><b>CPRX11040SB</b></p> <p>40 watts ..... 40</p> <p>System includes RSC-1100 Redundant System Controller. Order cable separately.</p>
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Outline Drawing, Single Unit

- NOTES:
- ALL DIMENSIONS ARE IN INCHES [mm].
  - APPROX. WT. 7.5 lbs [3.4 kg].
  - PAIN: COLOR TO BE DESERT TAN, SHERWIN-WILLIAMS F63TXH13876-5160. FINISH TO BE SMOOTH, ALL THREADS TO BE PAINT FREE.
  - DUST CAPS WITH CHAINS PROVIDED FOR M&C, ALARM, DC INPUT AND IF/REF INPUT.

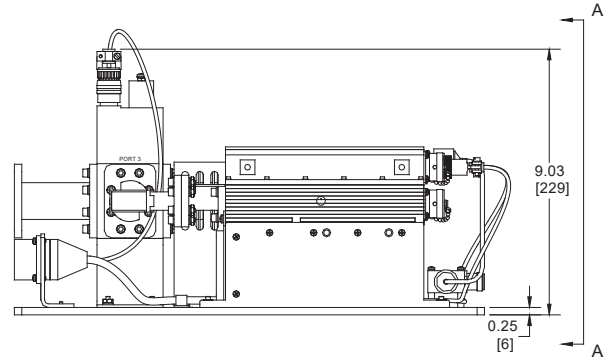
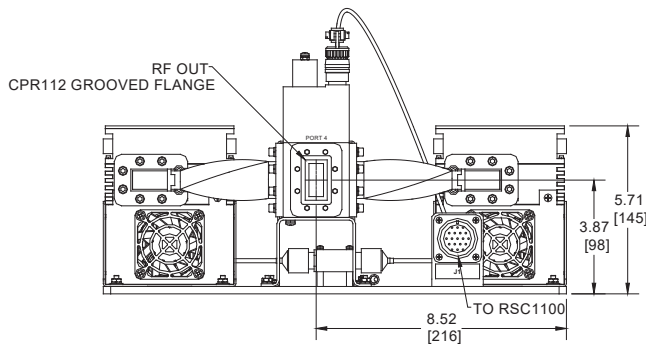
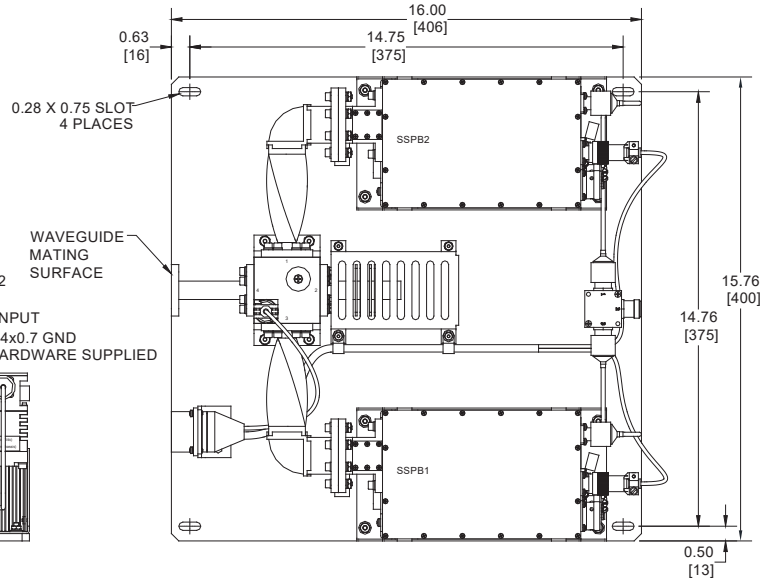
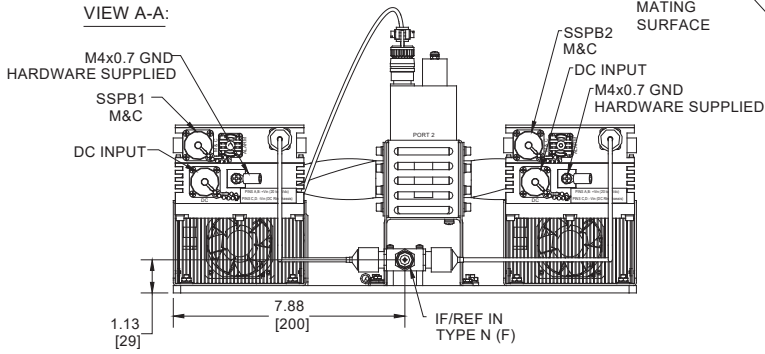


Outline 21239-21

Outline Drawing, 1:1 Redundant Plate

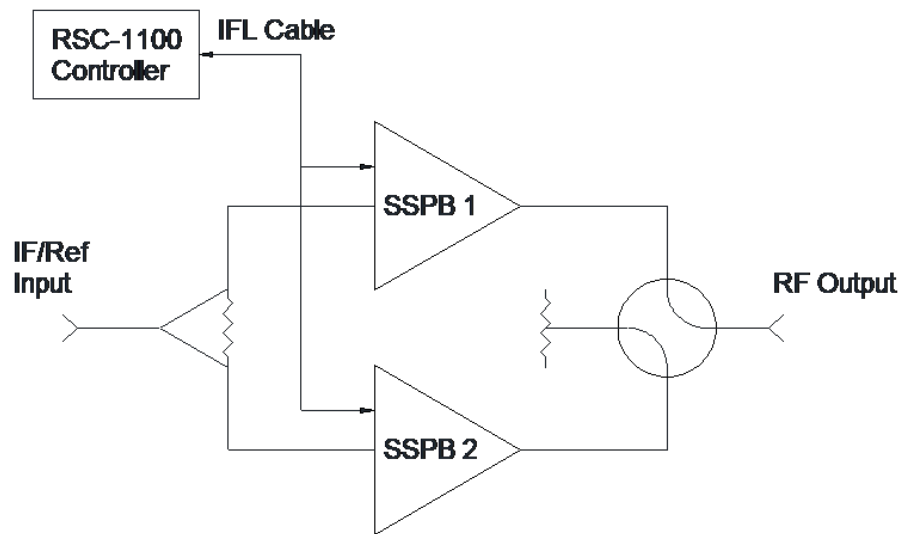
NOTES:

1. DIMENSIONS ARE IN INCHES [mm].
2. CONNECTOR CAPS WITH CHAINS PROVIDED FOR M&C AND DC.
3. OPTIONAL UNIVERSAL INPUT AC POWER SUPPLY MODULE AVAILABLE BUT NOT SHOWN. THIS MODULE CAN BE DIRECTLY ATTACHED TO THE SSPB OR REMOTELY LOCATED (RECOMMENDED).



Simplified 1:1 Redundant System Block Diagram

Outline 27971-1



### AC Power Supply (Optional)

A universal input AC power supply module is available for the CPKx14xxSB product family. This module can be directly attached to the SSPB, or remotely located depending on user preference. Maximum cable length is 130 ft. (40 m); order cable separately. The supply can be factory configured as original equipment, or added as a field upgrade (please specify matching color desired: White, Green, or Tan).

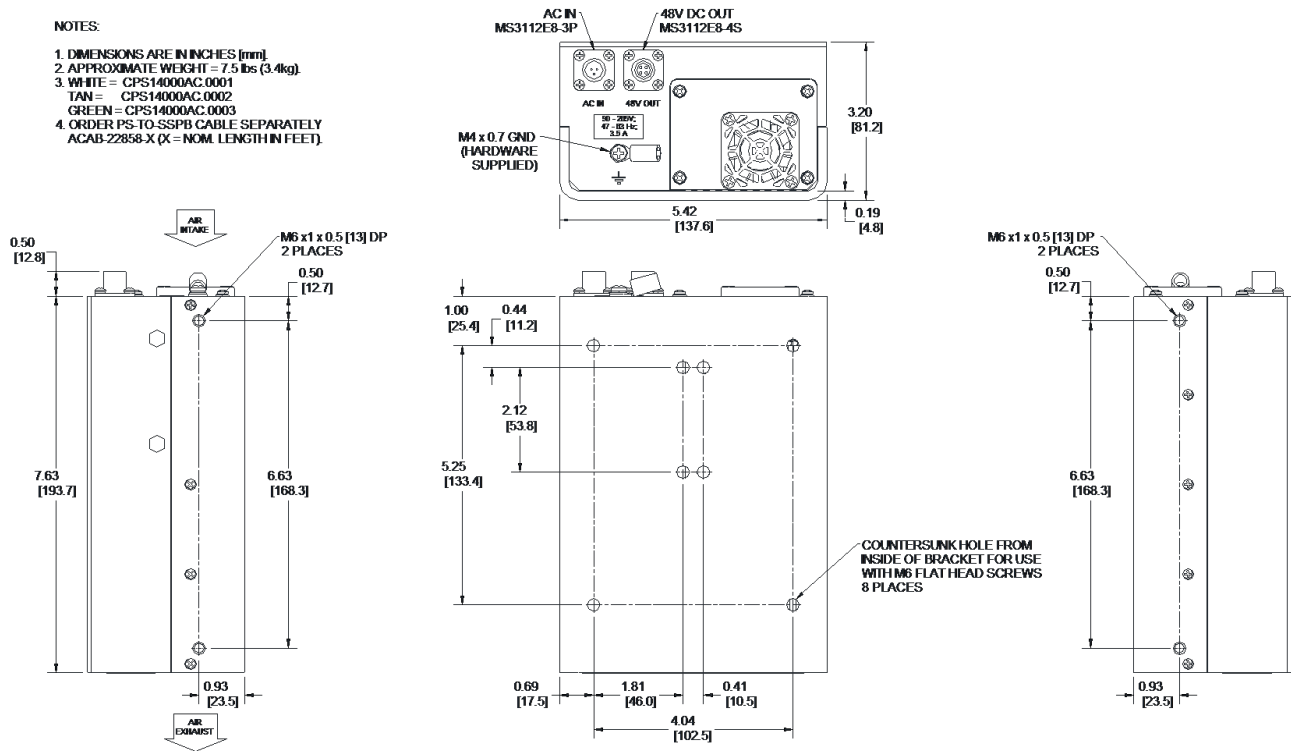
### Specifications

Parameter	Notes	Specification
<b>Input Voltage</b>	Autoranging	90 VAC min., 264 VAC max.
<b>Input Frequency</b>		47 Hz min., 63 Hz. max.
<b>Output Voltage</b>	Factory set	48 VDC
<b>Output Power</b>		500 W max.
<b>Efficiency</b>		85%
<b>Connectors</b>		3-pin MS, AC Input 4-pin MS, DC Output
<b>Cooling System</b>		Integrated heatsink/forced air
<b>Temperature Range, Ambient</b>		-40°C to +60°C, Operating -40°C to +70°C, Storage
<b>Dimensions</b>		7.63" L x 5.42" W x 3.2" H; 194 mm L x 138 mm W x 81 mm H
<b>Weight</b>		7.5 lb (3.4 kg)

### CPS14000AC Outline Drawing

**NOTES:**

1. DIMENSIONS ARE IN INCHES [mm].
2. APPROXIMATE WEIGHT = 7.5 lbs (3.4kg).
3. WHITE = CPS14000AC.0001  
TAN = CPS14000AC.0002  
GREEN = CPS14000AC.0003
4. ORDER PS-TO-SSPB CABLE SEPARATELY  
ACAB-22858-X (X = NOM. LENGTH IN FEET).



Outline 23194



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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