

This compact solid-state power block converter combines an integrated L-band BUC and GaAs IMFET-based output section to provide 25, 35 or 40 watts of saturated power over the standard 14.00-14.50 GHz or extended 13.75-14.50 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.



CPKO1435SB-2X shown with optional AC power supply

FEATURES:

- Integrated block upconverter with L-band input
- 25/35/40 W saturated output power in standard or extended bands
- 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
- Extremely light weight, typically 7.5 lb (3.4 kg)
- Mounts on small antennas
- Wide DC input range: 24 VDC; 28 VDC; 48 VDC

OPTIONS:

- Coaxial Type N (F) or WR75 waveguide RF output
- White, Green, or Tan finish
- AC Power Supply, CPS14000AC
- 1:1 redundant systems

System Specifications

Parameter	Notes	Specification
Frequency Range, Output	Band "M" Band "O"	14.00 to 14.50 GHz 13.75 to 14.50 GHz
Frequency Range, Input	Band "M" Band "O"	950 MHz min., 1450 MHz max. 950 MHz min., 1700 MHz max.
Local Oscillator, Frequency	Band "M" Band "O"	13.05 GHz typical 12.80 GHz typical
LO Frequency Adjust Range		±10 KHz
LO Phase Noise (1)	100 Hz 1 KHz 10 KHz 100 KHz 1 MHz	-70 dBc/Hz typical, -60 dBc/Hz max. -78 dBc/Hz typical, -70 dBc/Hz max. -82 dBc/Hz typical, -80 dBc/Hz max. -92 dBc/Hz typical, -90 dBc/Hz max. -110 dBc/Hz typical, -100 dBc/Hz max.
LO Stability		±1 × 10 ⁻⁷ Internal, vs. temperature
Reference Frequency (1)		10 MHz Internal or external
Gain	Minimum	60 dB min., 65 dB typical
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.
Gain Adjustment Range		15 dB min., 0.5 dB steps
Saturated Power Output	25 W 35 W 40 W	+44 dBm typ. (25 W) +45.4 dBm typ. (35 W) +46 dBm typ. (40 W)
Power Output at 1dB compression (P _{1dB})	25 W 35 W 40 W	+43.5 dBm min. (22 W) +44.4 dBm min. (27.5 W) +45 dBm min. (32 W)
Linear Power Output	25 W 35 W 40 W	+42 dBm min. (16 W) +43 dBm min. (20 W) +43.5 dBm min. (22 W)
Spectral Regrowth	Linear P _{OUT} 1.5 x SR, QPSK, single carrier	-32 dBc typical, -30 dBc max.
IMD _i	2 carriers, composite P _{OUT} at 3 dB backoff from P _{1dB}	-30 dBc typical, -25 dBc max.
Spurious _o	Linear P _{OUT}	-60 dBc typical, -55 dBc max.
LO Leakage		-50 dBm at RF output
Group Delay	Linear Parabolic Ripple	0.03 ns/MHz 0.003 ns/MHz ² 1.0 ns peak to peak
AM/PM Conversion		2.0°/dB typical, 2.5°/dB max. at (P _{1dB})
Noise Power Density		-95 dBm/Hz, Transmit -135 dBm/Hz, Receive
Noise Figure		20 dB max. at maximum gain setting
VSWR	Input, (50 ohms) Output, (50 ohms, Option 1)	1.35:1 typical, 1.50:1 max. 1.35:1 typical, 1.50:1 max.
Connectors	IF In/Ext. Ref. In Output, Option 1 (2) Output, Option 2 M&C, Fast Mute Summary Alarm, Form 'C' Power	Type N Female Type N Female WR75G with #6-32 tapped holes 10-pin MS, mate supplied 3-pin MS, mate supplied 4-pin MS, mate supplied
Power Requirements	Voltage Power, 25 W (3) Power, 35 W (3) Power, 40 W (3)	20 to 56 VDC 195 W typical, 240 W max. 215 W typical, 260 W max. 225 W typical, 275 W max.
Cooling System		Integrated Heatsink/Forced Air
Temperature Range, Ambient	Ambient air temperature	-40°C to +60°C, Operating -40°C to +70°C, Storage

System Specifications, continued

Parameter	Notes	Specification
Dimensions	See outline drawing	8.63" L x 4.52" W x 5.46" H; 219 mm L x 115 mm W x 139 mm H
Weight		7.5 lb, (3.4 kg)
Finish		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) Type N (F) output not available for 40 W unit (3) Typical power consumption at linear power output level. Max. power consumption at cold start, at -40 °C and P _{OUT} in saturation.		

Part Number/Ordering Information

Single-Thread SSPBs
CPK 14 SB-XX

14.00-14.50 GHz M
 13.75-14.50 GHz O

25 watts 25
 35 watts 35
 40 watts 40

SSPB Options

Output Connector, Type N (F) * 1
 WR75G Cover Flange 2
 Commercial White X
 Green (Fed. Std. 595B; #34094) 1
 Tan (Fed. Std. 595B; #33303) 2

Order optional AC power supply, CPS14000AC, separately (one per SSPB).

* Type N (F) output not available for 40 W unit.

1:1 Redundant Systems
CPRK110 SB

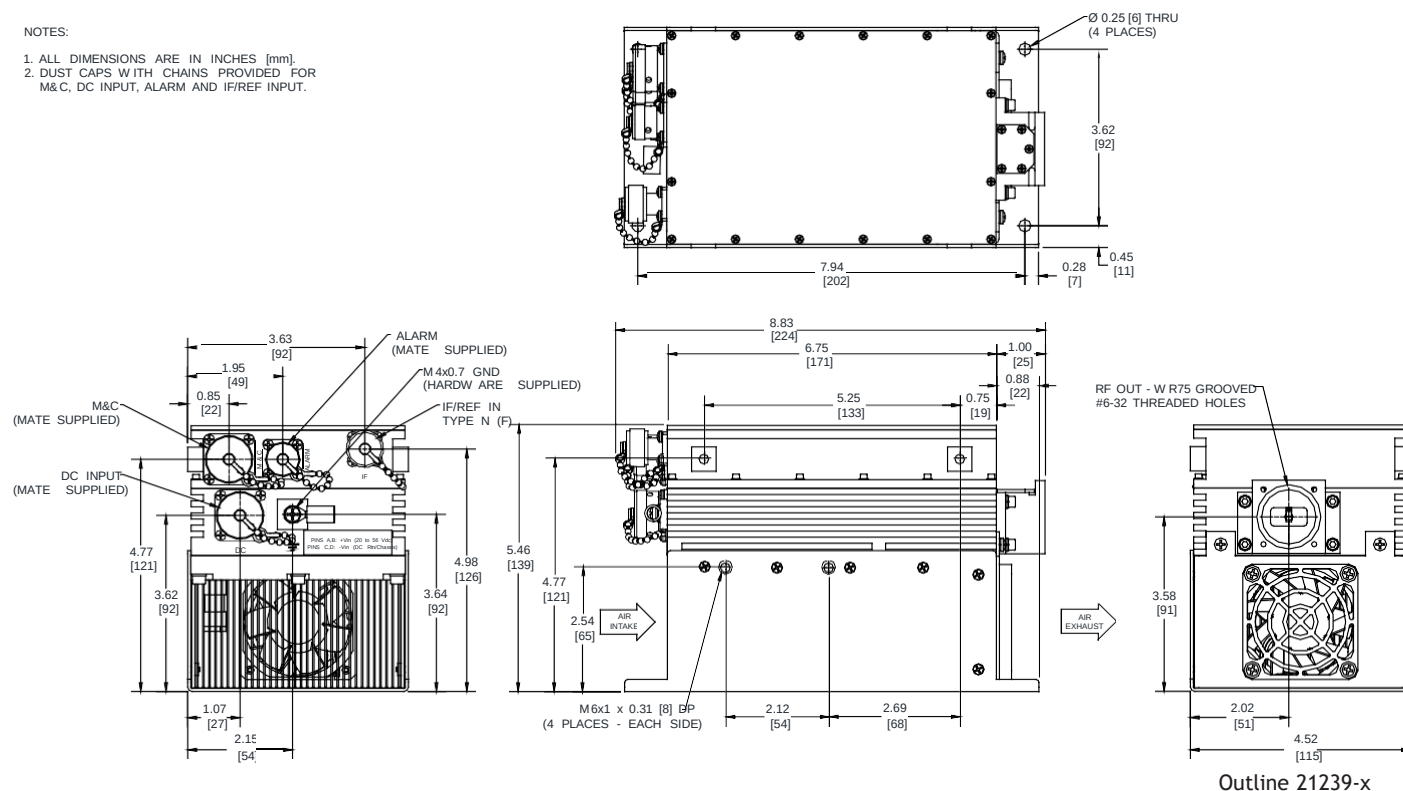
25 watts 25
 35 watts 35
 40 watts 40

Specify frequency band (CPKM, CPKO) at the SSPB level. WR-75G Flange is standard.
 System includes Redundant System Controller.
 Order cable separately.

Outline Drawing, Single Unit

NOTES:

1. ALL DIMENSIONS ARE IN INCHES [mm].
2. DUST CAPS WITH CHAINS PROVIDED FOR M&C, DC INPUT, ALARM AND IF/REF INPUT.

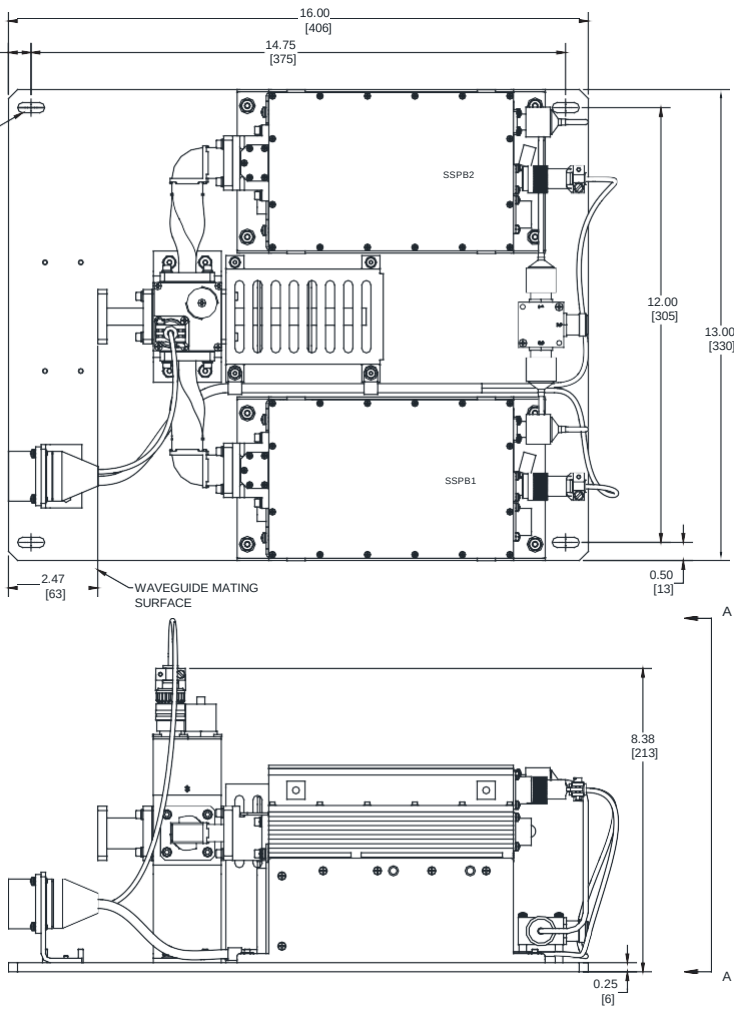
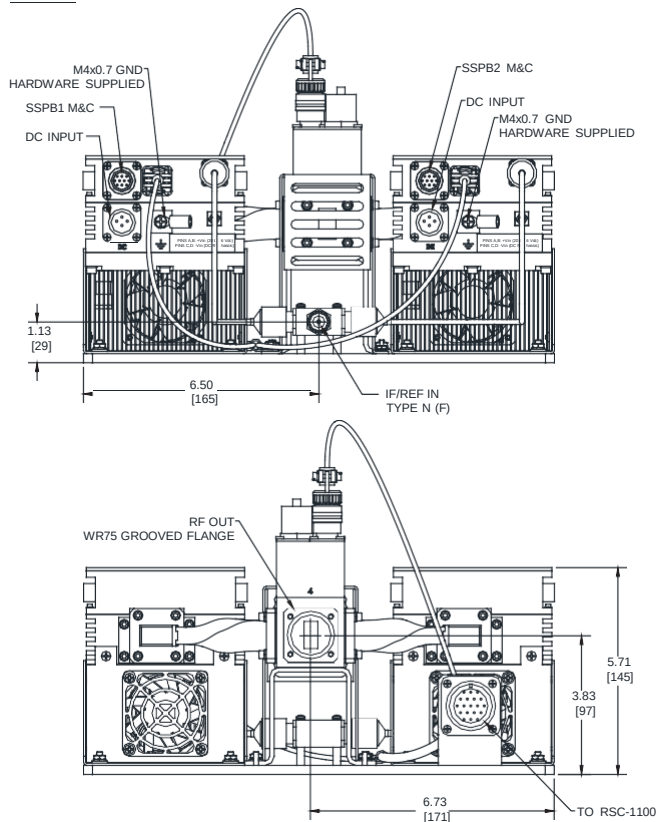


Outline Drawing, 1:1 Redundant Plate

NOTES:

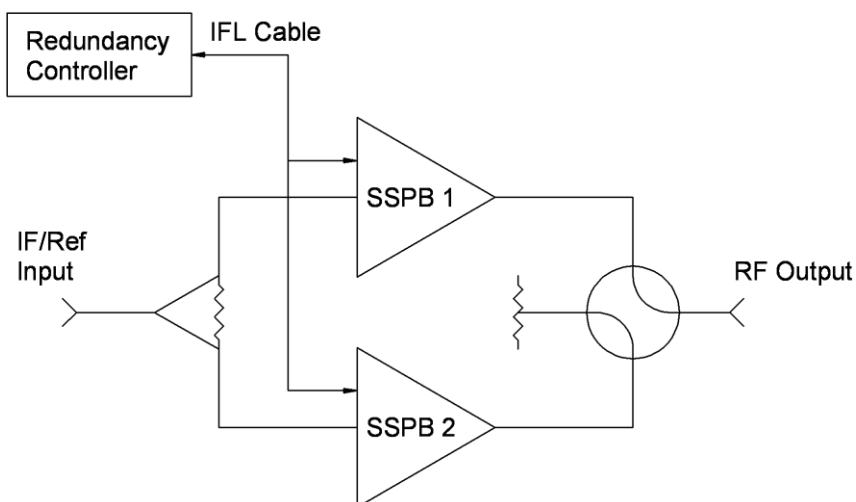
1. DIMENSIONS ARE IN INCHES [mm].
2. CONNECTOR CAPS WITH CHAINS PROVIDED FOR M&C AND DC.
3. OPTIONAL UNIVERSAL INPUT AC POWER SUPPLY MODULE AVAILABLE, BUT NOT SHOWN. THIS MODULE CAN BE DIRECTLY ATTACHED TO THE SSPB OR REMOTELY LOCATED (RECOMMENDED).

VIEW A-A:



Outline 23939-1

Simplified 1:1 Redundant System Block Diagram



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).

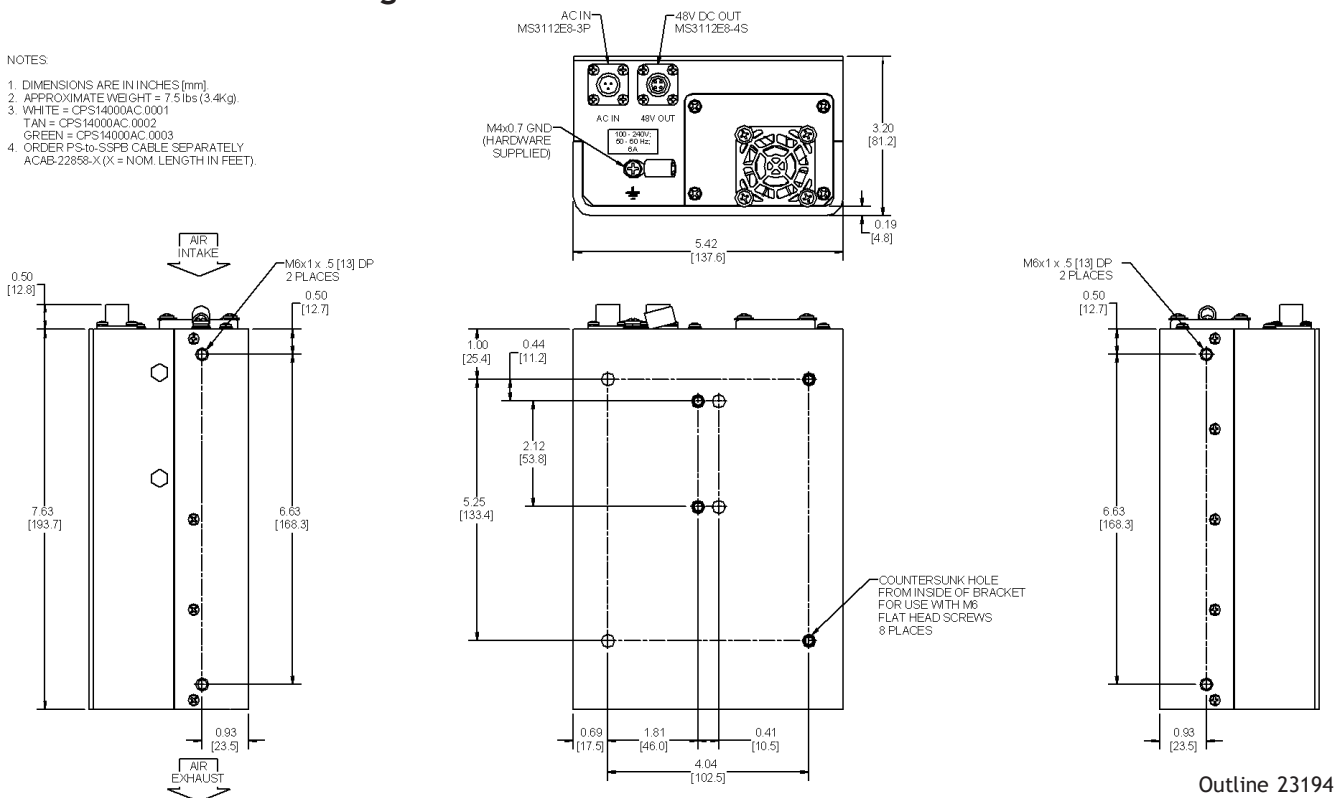
Specifications

Parameter	Notes	Specification
Input Voltage	Autoranging	100 VAC min., 240 VAC max.
Input Frequency		50 Hz min., 60 Hz. max.
Output Voltage	Factory set	48 VDC
Output Power		500 W max.
Efficiency		85%
Connectors		3- pin MS, AC Input 4- pin MS, DC Output
Cooling System		Integrated heatsink/forced air
Temperature Range, Ambient		-40°C to +60°C, Operating -40°C to +70°C, Storage
Dimensions		7.63"L x 5.42" W x 3.2" H; 194 mm L x 138 mm W x 81 mm H
Weight		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-22856-X (X = NOM. LENGTH IN FEET).



Outline 23194