



1 kW C-Band High Power SSPA

DESCRIPTION

Paradise Datacom's Indoor, High Power Rack Mount (-R) series SSPAs represent the industry's highest power density and most reliable high power amplifier systems. These high power amplifiers are accompanied with a separate power supply chassis.

The power supply is configured as an N+1 redundant, hot swappable, power supply comprised of three modules. Only two modules are required to operate the HPA, therefore one module is redundant. In the event of a power supply module failure, the amplifier system will not fail. The module can then be changed without ever taking the HPA out of service. The microwave amplifier architecture is also designed for maximum soft fail redundancy.

FEATURES

- Extremely High Power Density:
1.1 kW C-Band
1000W X-Band
500W Ku-Band
- Hot Swap, N+1 Redundant Power Supply
- Power Factor Corrected Power Supply
- Modular (soft-fail) Architecture
- Ethernet Port
- RF Output Sample Port (-40 dB)
- Built-in 1:1 Redundancy Control

OPTIONS

- Extended Frequency Band
- L-Band Input operation
- Reflected Power Monitor
- Phase Combined Systems
- Remote Control Panel
- RF Input Sample Port (-10 dB)
- Rear Panel Air Intake and Exhaust

SPECIFICATIONS

- SSPA Chassis housing:
19.0 X 10.47 X 30.0 in
483 X 266 X 762 mm
180 lbs / 82 kg
- Power Supply housing:
19.0 X 5.25 X 15.44 in
483 X 134 X 433 mm
50 lbs / 23 kg
- Gray powder coat finish
- Operating temperature:
0 to +50 °C



6RU Rack Mountable C-/X-/Ku-Band Solid State Power Amplifiers

C-Band Power Levels

PARAMETER	NOTES	LIMITS	UNITS
Frequency Range	(see options for extended band)	5.850 to 6.425	GHz
Output Power @: Saturation/ P_{1dB} (Typical/Guaranteed minimum)	HPAC2750ARXXXXX HPAC2900ARXXXXX HPAC211KARXXXXX	P_{sat} / P_{1dB} 58.7 / 58.0 (750 / 630) 59.5 / 59.0 (900 / 800) 60.4 / 60.0 (1100 / 1000)	dBm (W) dBm (W) dBm (W)
Power Requirements Line Voltage Line Frequency Power Factor Line Power	HPAC2750ARXXXXX HPAC2900ARXXXXX HPAC211KARXXXXX	180 to 265 47 to 63 .90 4150 4850 6000	VAC Hz W W W

X-Band Power Levels

PARAMETER	NOTES	LIMITS	UNITS
Frequency Range		7.9 to 8.4	GHz
Output Power @: Saturation/ P_{1dB} (Typical/Guaranteed minimum)	HPAX2600ARXXXXX HPAX2700ARXXXXX HPAX210KARXXXXX	P_{sat} / P_{1dB} 58.0 / 57.2 (630 / 525) 58.5 / 58.1 (700 / 650) 60.0 / 59.5 (1000 / 900)	dBm (W) dBm (W) dBm (W)
Power Requirements Line Voltage Line Frequency Power Factor Line Power	HPAX2600ARXXXXX HPAX2700ARXXXXX HPAX210KARXXXXX	180 to 265 47 to 63 .90 5000 5500 6000	VAC Hz W W W

Ku-Band Power Levels

PARAMETER	NOTES	LIMITS	UNITS
Frequency Range	(see options for extended band)	14.0 to 14.5	GHz
Output Power @: Saturation/ P_{1dB} (Typical/Guaranteed minimum)	HPAK2400ARXXXXX HPAK2500ARXXXXX	P_{sat} / P_{1dB} 56.0 / 55.0 (400 / 300) 57.0 / 56.0 (500 / 400)	dBm (W) dBm (W)
Power Requirements Line Voltage Line Frequency Power Factor Line Power	Power Factor Corrected HPAK2400ARXXXXX HPAK2500ARXXXXX	180 to 265 47 to 63 .90 4600 5100	VAC Hz W W

Options

Extended C Band 5.850 to 6.725 GHz 5.750 to 6.670 GHz	De-rate power by 1.0 dB linearly from 6.425 to 6.725 GHz De-rate power by 1.0 dB linearly from 6.425 to 6.670 GHz and by 0.5 dB from 5.750 to 5.850	Model: HPAC2XXXBRXXXXX HPAC2XXXCRXXXXX
Extended Ku Band 13.75 to 14.5 GHz	De-rate power by 1.0 dB linearly from 13.75 to 14.0 GHz	Model: HPAK2XXXBRXXXXX
Reflected Power Monitor		
Block Up Converter (BUC)		
RF Input Sample Port (-10 dB)		



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General Specifications: 6RU RM Series

PARAMETER	NOTES	LIMITS	UNITS
Gain	minimum	75	dB
Gain Flatness	full band	±1.0	dB
Gain Slope	per 40 MHz	±0.3	dB/40 MHz
Gain Variation vs. Temperature	0°C TO +55°C	±1.0	dB
Gain Adjustment	0.1 dB resolution adjustable by either serial or analog voltage input: 0.5 to 2.5 VDC	20	dB
Intermodulation Distortion	3dB back off relative to P _{1dB}	-25	dBc
AM/PM Conversion	(@ rated P _{1dB}) (@ P _{1dB} -3dB)	3.5 0.5	°/dB °/dB
Spurious Harmonics	(@ rated P _{1dB}) (@ rated P _{1dB} -3dB)	-60 -50	dBc dBc
Input/Output VSWR		1.3:1	
Noise Figure	at maximum gain	12	dB
Group Delay (per 40 MHz segment)	Linear Parabolic Ripple	0.01 0.003 1.0	ns/MHz ns/MHz ² ns p-p
Noise Output	TX Band (C-, X- or Ku-Band) RX Band (C- or Ku-Band) RX Band (X-Band)	-75 -150 -100	dBW/4 KHz dBW/4 KHz dBW/4 KHz
Residual AM Noise	0 - 10 KHz 10 KHz - 500 KHz 500 KHz - 1 MHz	-45 -20 (1.25 + log F) -80	dBc dBc dBc
Phase Noise		IESS -308/309 - 10 dB	

Mechanical

Size		19.0 X 10.47 X 30.0	inches
HPA Chassis	width X height X depth	483 X 266 X 762	mm
Power Supply Chassis	width X height X depth	19.0 X 5.25 X 15.44 483 X 134 X 433	inches mm
Weight			
HPA Chassis		180 (82)	lbs.(kg)
Power Supply Chassis		50 (23)	lbs.(kg)
Finish		powder coat	Gray

Environmental

Operating Temperature	Ambient	0 to +50	°C
Relative Humidity	Condensing	95	%
Cooling System	Integrated	Forced air	

Specifications are subject to change.

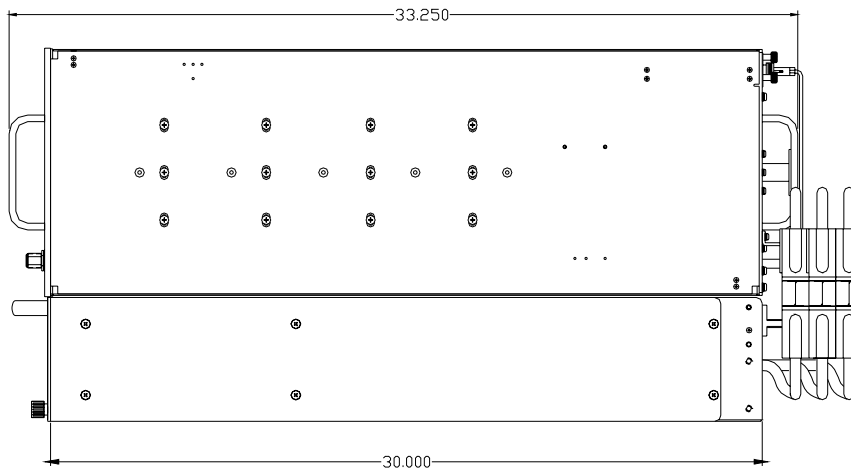
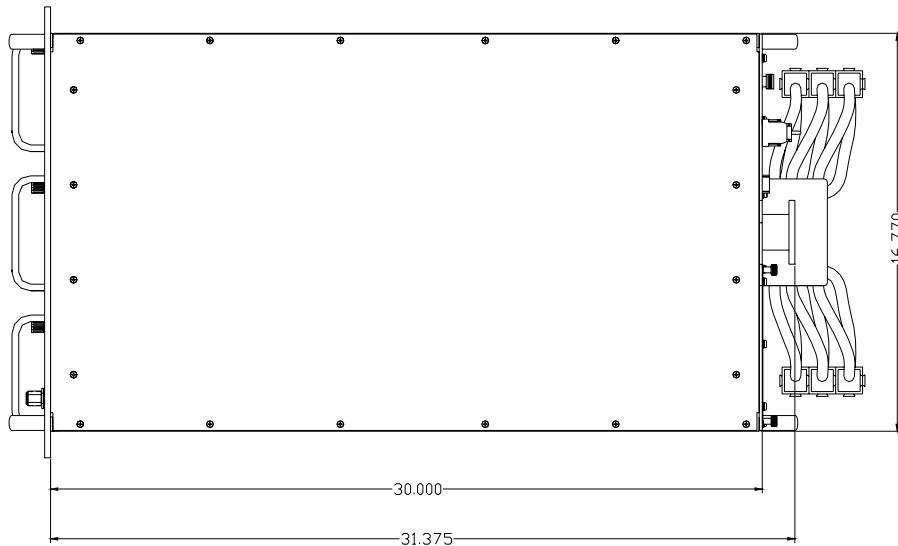
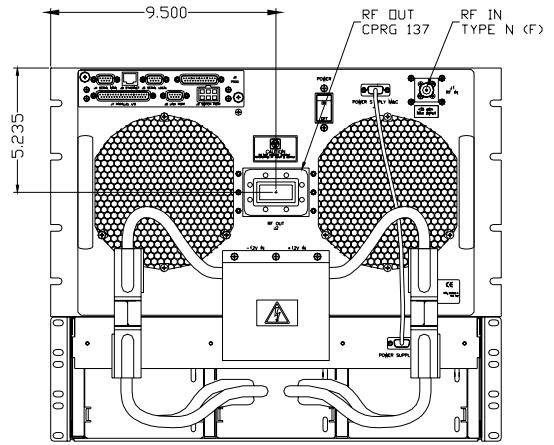
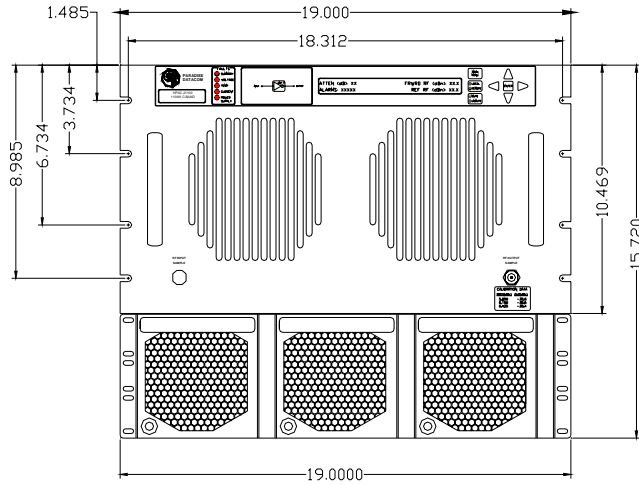


Interface Specifications; 6RU RM Series

PORT	NOTES	LIMITS	PIN-OUT
Monitor & Control (J7) Parallel Port Outputs	Parallel Port Outputs	Power Supply Fault Auxiliary Fault Mute BUC Fault Temperature Fault Voltage Fault DC Current Fault Low RF Fault	Form C relay Form C relay Form C relay Form C relay Form C relay Form C relay Form C relay Form C relay
Monitor & Control (J7) Parallel Port Inputs	Parallel Port Inputs	Mute Input Local / Remote Fault Clear Standby Select Auxiliary Fault Ground	Opto Isolator Opto Isolator Opto Isolator Opto Isolator Opto Isolator
Main Serial Port (J4)	RS232 / RS485 DB9 (F)	RS232 Out, RS485 TX- RS232 In, RS485 RX- RS485 RX+ RS485 TX+ Service Request 1 Service Request 2 Service Request Common Termination Ground	Pin 2 Pin 3 Pin 4 Pin 1 Pin 6 Pin 8 Pin 7 Pin 9 Pin 5
Auxiliary Serial Port (J5)	RS232 / RS485 DB9 (F)	RS232 In, RS485 RX- RS232 Out, RS485 TX- RS232 DTR, RS485 TX+ RS485 RX+ Termination Ground	Pin 2 Pin 3 Pin 4 Pin 1 Pin 9 Pin 5
Link Port (J8)	1:1 Redundant System Control Link DB9 (F)	RS485+ RS485- Link Out Link In Ground	Pin 1,4 Pin 2,3 Pin 6,7 Pin 8,9 Pin 5
Switch Port (J3)	Redundant Switch Control Molex (43810-0002)	+28 VDC RF Switch 1, pos 1 RF Switch 1, pos 2 RF Switch 2, pos 1 RF Switch 2, pos 2	Pin 1,4 Pin 3 Pin 2 Pin 6 Pin 5
Program Port (J6)	Flash Firmware Program Port	DB25(F)	-
Connectors	RF Input, Input & Output Sample RF Output HPAK-2XXX-RM HPAC-2XXX-RM HPAX-2XXX-RM Line Power	Type N WR75 Waveguide WR137 Waveguide WR112 Waveguide (3) IEC feeds	Female Grooved (PBR-120) CPR137G flange CPR112G (PDR-84) Plug

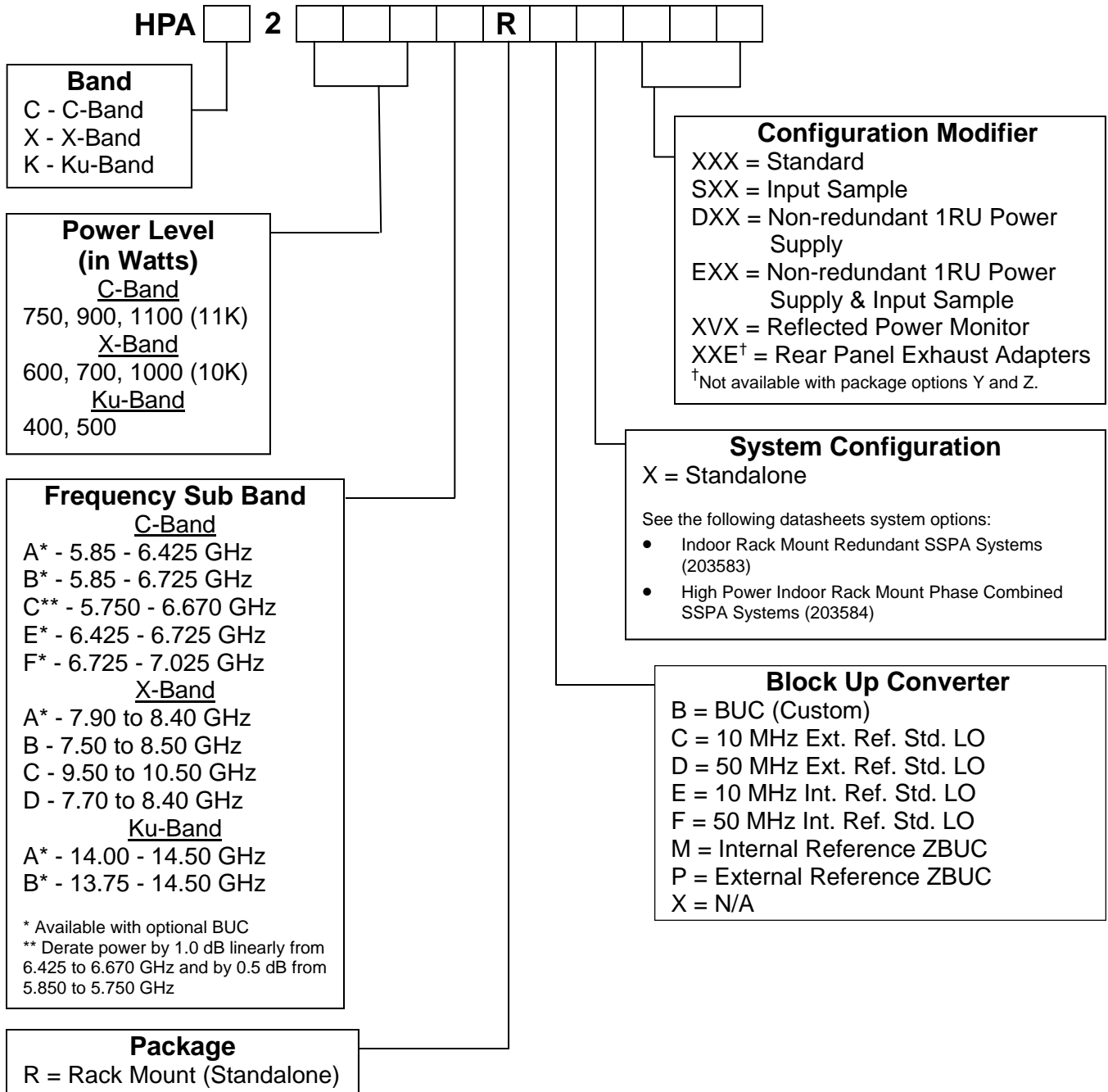


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Outline Drawing, 6RU RM SSPA Chassis and Power Supply

Part Number Configuration



Example - A standalone 500W Extended Ku-Band high power rack mount SSPA with an optional input sample port and no block up converter is part number: **HPAK2500BRXXSXX**.