



**SNG-mount 1:1 Redundant Compact Outdoor System
with side-mount AC input**



**600W C-Band High Power Outdoor
1:1 Redundant System**

DESCRIPTION

Paradise Datacom's Outdoor series of redundant amplifier systems provide the highest degree of earth station redundancy and reliability. Based on Paradise Datacom's family of rugged and robust SSPAs, these systems provide the highest MTBFs possible.

These systems can be configured in either 1:1 or 1:2 redundant configurations using any of the Paradise Datacom family of Outdoor SSPAs. The RCP2-1100/1200 Redundant Controller provides an extremely user-friendly interface for complete monitor and control of the high power amplifiers in either 1:1 or 1:2 configurations.

The RCP front panel mimic display shows the on-line amplifiers and the current switch positions. Dedicated fault lights provide easy indication of system status. All RCP2-1X00 monitor and control is available locally, at the front panel LCD display, as well as remotely by the RS232 or RS485 interface ports.

FEATURES

- System Output Power to:
600W S-Band;
600W C-Band;
500W X-Band;
250W Ku-Band
- Universal Input, Power Factor Corrected Power Supply
- Output Power Monitoring
- Separate 1RU Redundant Controller or Controller-less configurations

OPTIONS

- System Output Power Monitor
- Reflected Power Alarm
- L-Band Input operation
- Cold Standby Amplifier Operation
- Custom Configurations



High Power Outdoor Output Power Levels

S-Band: 400W - 600W
 C-Band: 400W - 600W
 X-Band: 350W - 500W
 Ku-Band: 200W - 250W



Compact Outdoor Output Power Levels

S-Band: 50W - 300W
 C-Band: 30W - 300W
 X-Band: 60W - 250W
 Ku-Band: 10W - 125W

Typical C-Band System Output Power

Single Thread Amplifier Model	1:1 Redundant Output Power	
	P _{sat} dBm (W)	P _{1dB} dBm (W)
HPAC2100AC	49.8 (96)	49.3 (85)
HPAC2140AC	51.3 (135)	50.8 (120)
HPAC2200AC	52.8 (191)	52.1 (162)
HPAC2250AC	53.8 (240)	52.8 (191)
HPAC2300AC	54.5 (282)	53.8 (240)
HPAC2400AW	55.8 (380)	54.8 (302)
HPAC2500AW	56.8 (479)	55.8 (380)
HPAC2600AW	57.6 (575)	56.8 (479)

Typical Ku-Band System Output Power

Single Thread Amplifier Model	1:1 Redundant Output Power	
	P _{sat} dBm (W)	P _{1dB} dBm (W)
HPAK2040AC	45.8 (38)	44.8 (30)
HPAK2050AC	46.8 (48)	45.8 (38)
HPAK2070AC	48.3 (68)	47.3 (54)
HPAK2100AC	49.8 (96)	48.8 (76)
HPAK2125AC	50.8 (123)	49.8 (96)
HPAK2200AW	52.8 (191)	51.8 (151)
HPAK2250AW	53.8 (240)	52.8 (191)

General Specifications

PARAMETER	NOTES	LIMITS	UNITS
Gain	minimum	70	dB
Gain Flatness	full band (all except Extended C-Band)	±1.0	dB
	Extended C-Band units	±1.5	dB
Gain Slope	per 40 MHz	±0.3	dB/40 MHz
Gain Variation vs. Temperature	-40 to +60°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})	3.5	°/dB
	(@P _{1dB} -3dB)	1.0	°/dB
Spurious	(@ rated P _{1dB})	-60	dBc
Harmonics	(@ rated P _{1dB,3dB}) (C-,X-,Ku-bands)	-50	dBc
	(@ rated P _{1dB,3dB}) (S-band)	-30	dBc
Input/Output VSWR	All units except Extended C-Band Extended C-Band units	1.30:1 1.50:1	
Noise Figure	at maximum gain (C-,X-,Ku-bands)	10	dB
	at maximum gain (S-band)	8	dB
Group Delay (per 40 MHz segment)	Linear	0.01	ns/MHz
	Parabolic	0.003	ns/MHz ²
	Ripple	1.0	ns p-p
Transmit Band Noise	TX Band	-75	dBW/4 KHz
Output Power Density	RX Band (C- or Ku-bands)	-150	dBW/4 KHz
	RX Band (X-Band)	-100	dBW/4 KHz
	RX Band (S-Band)	See options	
Receive Band Noise	S-Band, with optional filter	-155	dBW/4 KHz
Output Power Density	S-Band, without optional filter	-95	dBW/4 KHz
Residual AM Noise	0 - 10 KHz	-45	dBc
	10 KHz - 500 KHz	-20 (1.25 + log F)	dBc
	500 KHz - 1 MHz	-80	dBc
Phase Noise	Offset frequency from carrier		
	10 Hz	-90	dBc/Hz
	100 Hz	-100	dBc/Hz
	1 KHz	-110	dBc/Hz
	10 KHz	-120	dBc/Hz
	100 KHz	-125	dBc/Hz
	1 MHz	-130	dBc/Hz

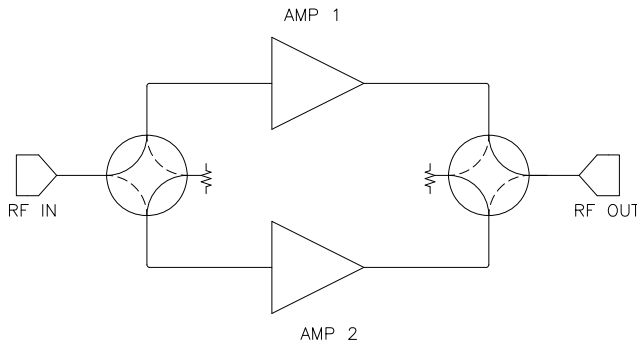
Environmental

Operating Temperature	Ambient	-40 to +60	°C
Relative Humidity	condensing	100	%
Cooling System	Integrated	Forced air	

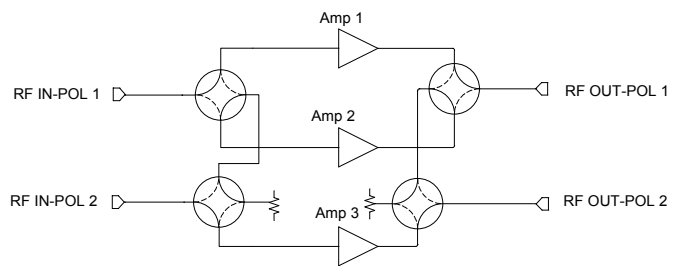
Mechanical

Size, High Power Outdoor	width X length X height	21.0 X 27.95 X 13.5	inches
		533 X 710 X 343	mm
Size, Compact Outdoor	width X length X height	10.0 X 19.5 X 6.50	inches
		254 X 495 X 165	mm
Weight, High Power Outdoor		125 (57)	lbs.(kg)
Weight, Compact Outdoor	S-/C-/X-Band to 200W / Ku-Band to 70W 250W C,X-Band / 100, 125 W Ku-Band	36 (16.4)	lbs.(kg)
		44 (20.0)	lbs.(kg)
Finish		Paint	White; powder coat

Specifications are subject to change.

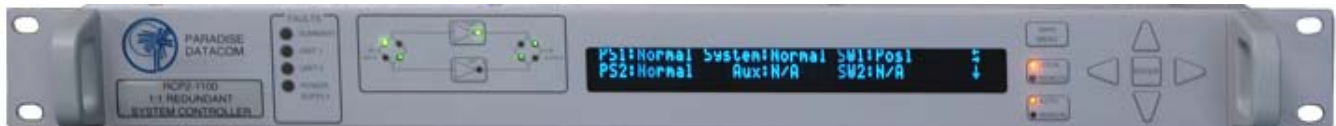


1:1 Redundant HPA System



1:2 Redundant HPA System

Paradise Datacom's Outdoor Packaged Redundant Systems are designed with built-in redundancy for 1:1 systems, so all system-level monitor and control is internal and no separate controller is required, although an optional RCP2-1100 1:1 Redundant Controller is available. Either Ethernet or RS485 communications are selectable for user monitor and control. All 1:2 redundant systems require a separate RCP2-1200 Redundant Controller.



RCP2-1100 1:1 Redundant Controller



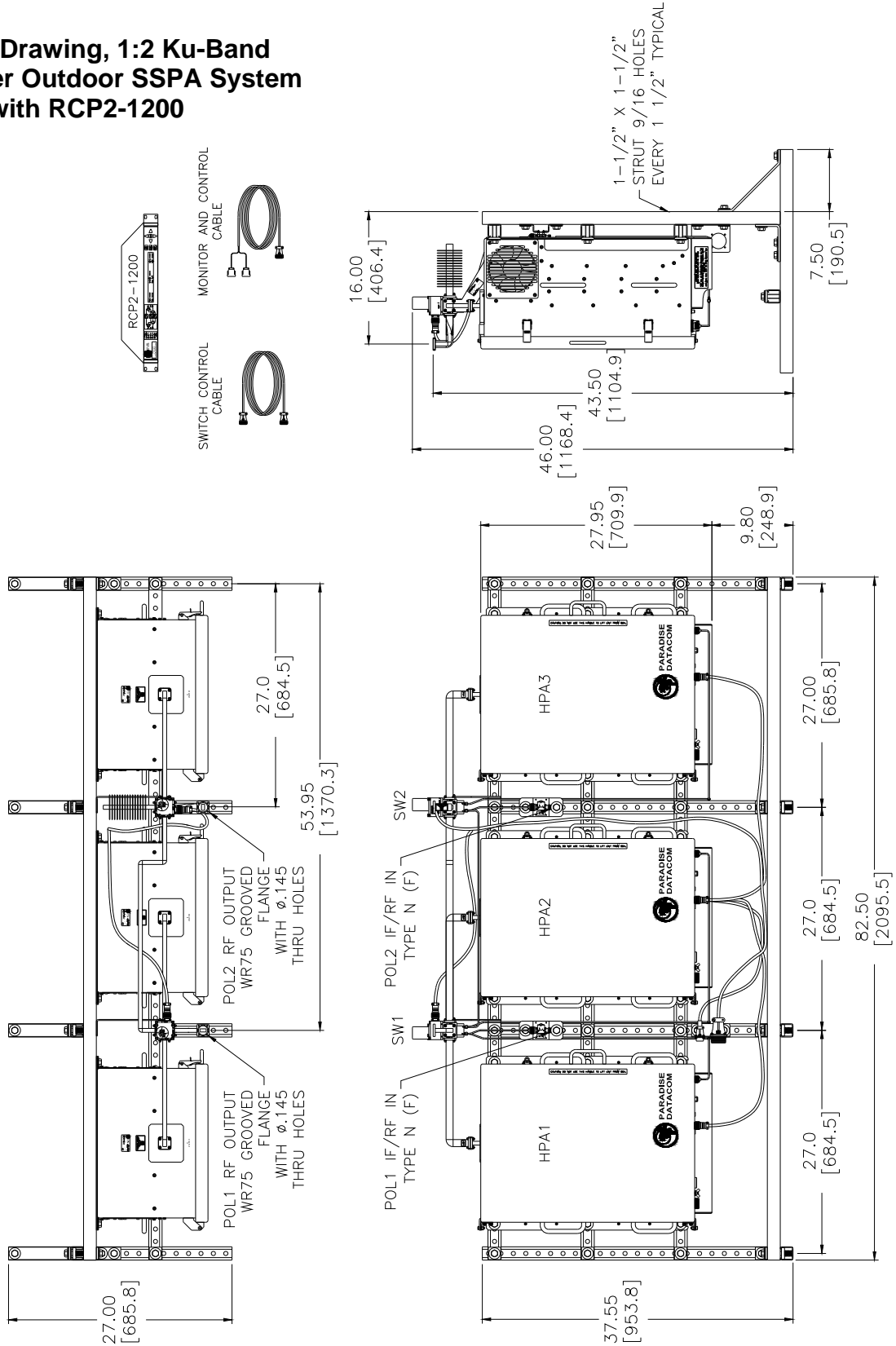
RCP2-1200 1:2 Redundant Controller

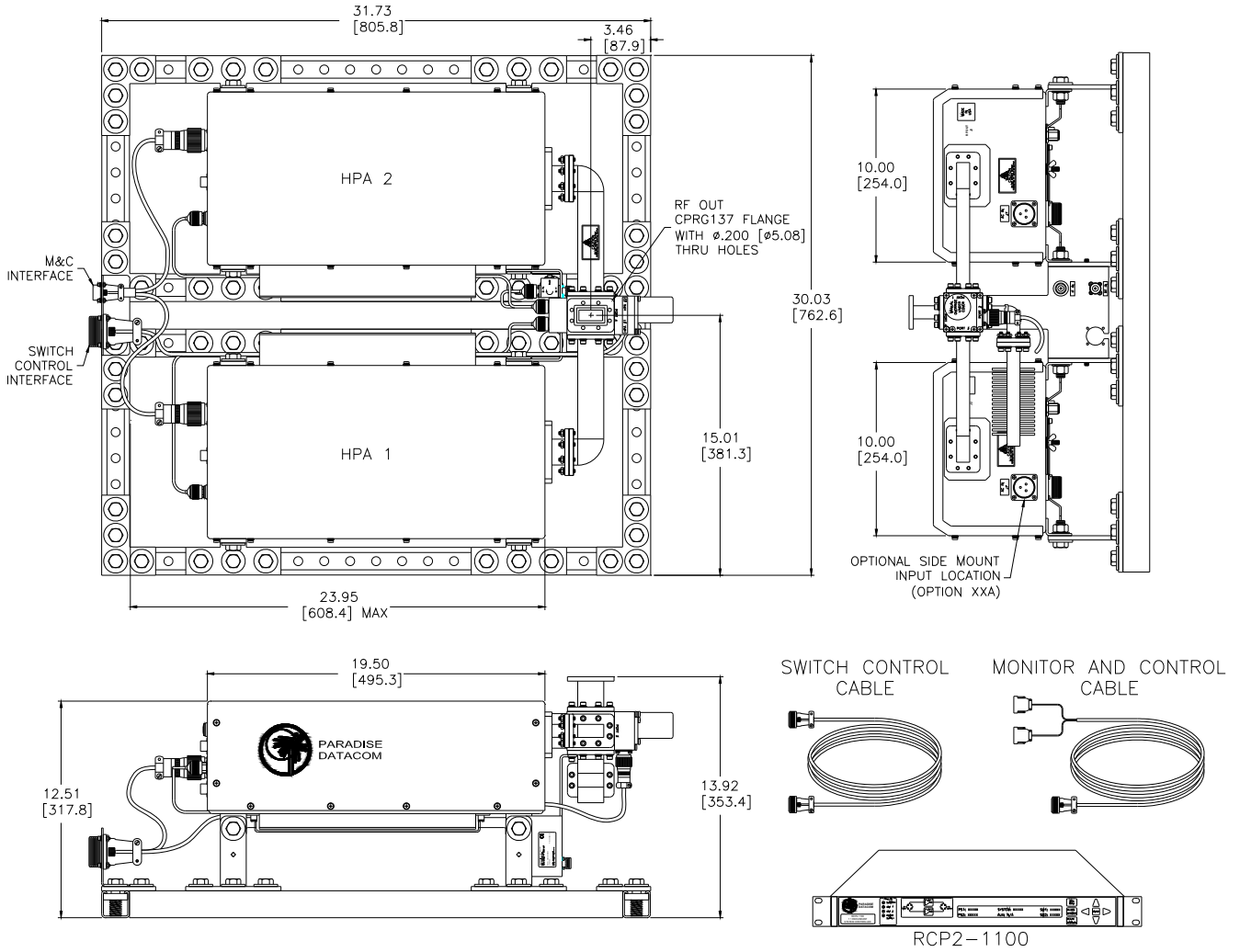
The RCP2-1X00 is the heart of the Redundant System. It provides an extremely user friendly interface for complete monitor and control of the high power amplifiers. The front panel mimic display shows the on-line amplifiers and the current switch positions. Dedicated fault lights are provided for easy indication of system status.

All RCP2-1X00 monitor and control is available locally, at the front panel LCD display, as well as remotely by the RS232 or RS485 interface ports. Audible alarms and a full compliment of parallel I/O signal are available at the rear panel of the RCP2-1X00.



**Outline Drawing, 1:2 Ku-Band
High Power Outdoor SSPA System
with RCP2-1200**





Outline Drawing, 1:1 C-Band Compact Outdoor SSPA System with RCP2-1100

Part Number Configuration, High Power Outdoor System

HPA 2 **W**

Band
S - S-Band
C - C-Band
X - X-Band
K - Ku-Band

Power Level (in Watts)
S-Band
400, 500, 600
C-Band
400, 500, 600
X-Band
350, 500
Ku-Band
200, 250

Frequency Sub Band
S-Band
A - 2.020 - 2.120 GHz
B - 2.200 - 2.300 GHz
C-Band
A¹ - 5.85 - 6.425 GHz
B¹ - 5.85 - 6.725 GHz
C - 5.75 - 6.670 GHz
E^{1,2} - 6.425 - 6.725 GHz (Palapa)
F^{1,2} - 6.725 - 7.025 GHz (Insat)
G¹ - 5.750 - 6.475 GHz
V^{1,3} - 5.85 - 6.725 GHz
X-Band
A¹ - 7.90 to 8.40 GHz
B - 7.50 to 8.50 GHz
D - 7.70 to 8.40 GHz
E - 7.75 to 8.50 GHz
Ku-Band
A¹ - 14.00 - 14.50 GHz
B¹ - 13.75 - 14.50 GHz

¹ Available with optional ZBUC.
² Available in 400W and 500W power levels.
³ With 1.3:1 VSWR.

Configuration Modifier
XXX = Standard
SXX = Input Sample
XVX = Reflected Power Monitor
XXR* = Receive Band Reject Filter

* S-Band only. 500W & 600W units require an external filter.

System Configuration
A¹ = 1:1 w/ Input Switching, Internal control
B = 1:1 w/ Input Splitter, Internal control
C¹ = 1:2 w/ Input Switching & RCP2-1200²
D = 1:2 w/ Input Switching, Internal control
F = 1:1 w/ Input Splitter & RCP2-1100²
H¹ = 1:1 w/ Input Switching & RCP2-1100²
S = System (Custom)

¹ Not available with BUC option P.
² Standard Cable Length of 100 ft. (30m) with RCP unit.

Block Up Converter
B = BUC (Custom)
M = Internal Reference ZBUC
P = External Reference ZBUC
X = None

Package
W = Weather proof (NEMA)

Example - A 400W S-Band 1:1 Redundant High Power Outdoor SSPA System with input splitter is part number: **HPAS2400AWXBXXX**.



Part Number Configuration, Compact Outdoor Systems

HPA 2 **C**

Band
S - S-Band
C - C-Band
X - X-Band
K - Ku-Band

Power Level (in Watts)
S-Band
050, 100, 200 or 300
C-Band
030, 040, 050, 075, 100, 140,
200, 250 or 300
X-Band
060, 075, 100, 140, 200, or 250
Ku-Band
010, 020, 025, 035, 040, 050,
070, 100, or 125

Frequency Sub Band
S-Band
A - 2.020 - 2.120 GHz
B - 2.200 - 2.300 GHz
C-Band
A¹ - 5.85 - 6.425 GHz
B¹ - 5.85 - 6.725 GHz
C - 5.75 - 6.670 GHz
E^{1,2} - 6.425 - 6.725 GHz (Palapa)
F^{1,2} - 6.725 - 7.025 GHz (Insat)
G¹ - 5.750 - 6.475 GHz
V^{1,3} - 5.85 - 6.725 GHz
X-Band
A¹ - 7.90 to 8.40 GHz
B - 7.50 to 8.50 GHz
D - 7.70 to 8.40 GHz
E - 7.75 to 8.50 GHz
Ku-Band
A¹ - 14.00 - 14.50 GHz
B¹ - 13.75 - 14.50 GHz

¹ Available with optional ZBUC.
¹ Available in 400W and 500W power levels.
³ With 1.3:1 VSWR.

Configuration Modifier
XXX = Standard
KXX* = 110 VAC Option
XMX = MS-Connector Covers
XXA = Side-mount AC Input,
Location 'A'
XXD = 48V Input
XXF = Side-mount 48V Input,
Location 'A'

* Available in C- and X-Band models ≥140W
and Ku-band models ≥100W.

System Configuration
A¹ = 1:1 w/ Input Switching, Internal control
B = 1:1 w/ Input Splitter, Internal control
C¹ = 1:2 w/ Input Switching & RCP2-1200²
D¹ = 1:2 w/ Input Switching, Internal control
F = 1:1 w/ Input Splitter & RCP2-1100²
H¹ = 1:1 w/ Input Switching & RCP2-1100²
S = System (Custom)

¹ Not available with BUC option P.
² Standard Cable Length of 100 ft. (30m) with RCP unit.

Block Up Converter
B = BUC (Custom)
M = Internal Reference ZBUC
P = External Reference ZBUC
R = Internal Reference ZBUC with Bypass Switch
S = External Reference ZBUC with Bypass Switch
X = None

Package
C = Standard Compact Outdoor

Refer to specification sheet 205489 for Fiber options.

Example - A 1:1 standard frequency 70W Ku-Band Compact Outdoor SSPA system with input splitter and internal control with an external reference BUC is part number: **HPAK2070ACBPXXX**.