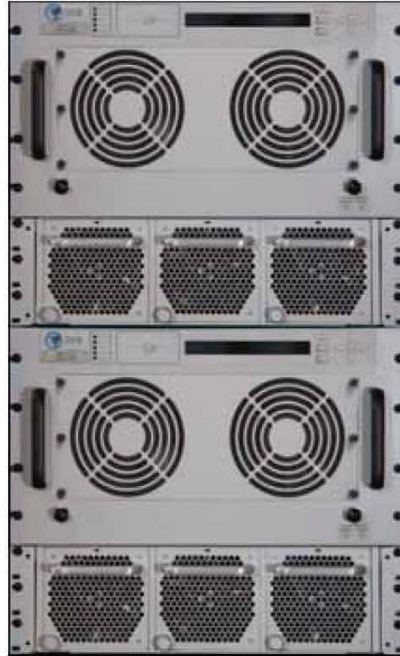




400W C-Band, 1:1 4RUラック・リダンダント・システム、N+1リダンダント電源オプション付。



1.1 kW C-Band, 1:1 6RUラック・リダンダント・システム。



200W Ku-Band, 1:1 3RUラック・リダンダント・システム、N+1リダンダント電源オプション付。

### 概要

パラダイス・データコム of 屋内用ラック組込型シリーズ(-RM) は、業界最高レベルの信頼性の高い、予備系統付地球局を提供します。

このシステムは、パラダイス・データコム of ラック組込型SSPAファミリーを、1:1 あるいは 1:2 リダンダント接続で構成します。

RCP2-1100/1200システム・コントローラーの全面パネルには、ブロック図上に現時点でのSWポジションが図解表示され、どのアンプが現在使われているか、一目瞭然にわかるよう工夫されています。また、内部に不具合が発生した場合、関連するLEDが点灯し、問題箇所を表示します。

この、RCP2-1100/1200は、ローカルでも、リモートでも使用出来、ローカルの場合、LCDディスプレイでメニュー操作されますし、リモートの場合、RS232、又は、RS485インターフェース経由で操作されます。

### 特長

- 余裕ある高出力：
  - 1.1kW S-Band
  - 1.1kW C-Band
  - 1.0kW X-Band
  - 500W Ku-Band
- ユニバーサル電圧電源  
力率補正型
- 出力モニター
- 1:2 システム専用 1RUリダンダント・コントローラー
- 1:1 システムは、コントローラー無しで構築可能

### オプション

- コントローラー無し、1:2リダンダント・システム
- 反射波パワー・アラーム
- L-Band入力
- コールド・スタンドバイ動作
- 外付、排熱（エクゾースト）ダクト・キット
- カスタム機器配置

日本国内総代理店：  
ATコミュニケーションズ（株）  
〒151-0062 東京都渋谷区千駄ヶ谷3-55-14  
TEL：03-5772-9125  
FAX：03-5772-9126



#### **3 RU SSPA Chassis Output Power Levels**

S-Band: 50W - 300W  
C-Band: 25W - 300W  
X-Band: 60W - 200W  
Ku-Band: 10W - 200W

3 RU Chassis includes integral AC-DC power supply



#### **4 RU SSPA Chassis Output Power Levels**

S-Band: 50W - 500W  
C-Band: 50W - 600W  
X-Band: 60W - 500W  
Ku-Band: 25W - 250W

4 RU Chassis includes integral AC-DC power supply

#### **6 RU SSPA Chassis Output Power Levels**

S-Band: 1.1 kW  
C-Band: 750W - 1.1 kW  
X-Band: 700W - 1.0 kW  
Ku-Band: 400W - 500W

6 RU Chassis uses separate, 3RU, power supply chassis.

Power Supply is a redundant, N+1, chassis.

Only 2 of 3 modules required to operate the SSPA with 1 hot standby.

Power Supply modules are front panel hot swappable.



# Redundant Systems

## Indoor Packaged SSPAs

### 3RU, 4RU & 6RU

### Common System Specifications

Gain	minimum	70	dB
Gain Flatness	full band (except Extended C-Band)	±1.0	dB
	Extended C-Band units	±1.5	dB
Gain Slope	per 40 MHz (C-,X-,Ku-bands)	±0.3	dB/40 MHz
	per 10 MHz (S-band)	±0.1	dB/10 MHz
Gain Variation vs. Temperature	0°C to +50°C	±1.0	dB
Gain Adjustment	0.1 dB resolution	20	dB
Intermodulation Distortion	3dB back off relative to P <sub>1dB</sub>	-25	dBc
AM/PM Conversion	(@ rated P <sub>1dB</sub> )	3.5	°/dB
	(@P <sub>1dB</sub> -3dB)	0.5	°/dB
Spurious Harmonics	(@ rated P <sub>1dB</sub> )	-60	dBc
	(@ rated P <sub>1dB,3dB</sub> )(C-,X-,Ku-bands)	-50	dBc
	(@ rated P <sub>1dB,3dB</sub> ) (S-band)	-40	dBc
Input / Output VSWR	All units except Extended C-Band	1.30:1	
	Extended C-Band units	1.50:1	
Noise Figure	at maximum gain	12	dB
Group Delay (per 40 MHz segment)	Linear	0.01	ns/MHz
	Parabolic	0.003	ns/MHz <sup>2</sup>
	Ripple	1.0	ns p-p
Noise Output	TX Band (S-,C-,X- or Ku-bands)	-70	dBW/4 KHz
	RX Band (C- or Ku-bands)	-155	dBW/4 KHz
	RX Band (X-band)	-100	dBW/4 KHz
	RX Band (S-band)	(see below)	
Residual AM Noise	0 - 10 KHz	-45	dBc
	10 KHz - 500 KHz	-20 (1.25 + log F)	dBc
	500 KHz - 1 MHz	-80	dBc
Residual 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

### Mechanical

Size - 3 RU Chassis	width X height X depth	19.0 X 5.22 X 24.13	inches
		483 X 133 X 613	mm
Size - 4 RU Chassis	width X height X depth	19.0 X 7.0 X 28.0	inches
		483 X 178 X 711	mm
Size - 6 RU Chassis	width X height X depth	19.0 X 10.47 X 30.0	inches
		483 X 266 X 762	mm
Power Supply Chassis	width X height X depth	19.0 X 5.25 X 15.44	inches
		483 X 134 X 433	mm
Weight - 3 RU Chassis	≤ 200W Chassis	75 (34)	lbs. (kg)
Weight - 3 RU Chassis	> 200W Chassis	100 (45)	lbs. (kg)
Weight - 4 RU Chassis	≤ 250W Chassis	75 (34)	lbs. (kg)
Weight - 4 RU Chassis	> 250W Chassis	100 (45)	lbs. (kg)
Weight - 6 RU Chassis		180 (82)	lbs. (kg)
Weight - 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	

### S-Band Receive Band Noise and Filter Option

Receive Band Reject Filter	Insertion Loss	-0.3	dB
<i>Filter integrated into SSPA chassis through 400W output; ≥500W SSPAs require external filter</i>	Rx Reject @ 2.200 - 2.300 GHz	-60	dBc
	Rx Reject @ 2.025 - 2.120 GHz	-60	dBc
Receive Band Noise Power Density	Without optional filter	-95	dBW/4 KHz
	With optional filter	-155	dBW/4 KHz

### L-Band Operation

Paradise Datacom offers C-, X-, and Ku-Band amplifiers with an integrated L-Band Block Up Converter. The L-Band units utilize Paradise Datacom's proprietary ZBUC™ technology. The addition of a ZBUC™ to a Rack Mountable SSPA system typically increases the gain by 2-4 dB. The advantages of ZBUC™ technology include:

- ZBUC™ can detect and switch to an externally supplied reference.
- Optional internal high stability (10MHz) reference.
- ZBUC™ can lock to an externally supplied reference of 5, 10, 20, 25, or 50 MHz without modification.
- ZBUC™ can accept a wide range of external reference power (-10dBm to +5 dBm)
- ZBUC™ can accept FSK monitor and control signal via the IFL for complete amplifier remote control.

### Available Frequency Plans

Band	Frequency Band	IF Input	LO Frequency	RF Output	Gain Change
C	Standard C-Band	950 - 1525 MHz	4.900 GHz	5.850 - 6.425 GHz	0-4 dB
C	Extended C-Band	950 - 1825 MHz	4.900 GHz	5.850 - 6.725 GHz	0-4 dB
C	Palapa Band	950 - 1250 MHz	5.475 GHz	6.425 - 6.725 GHz	0-4 dB
C	Insat Band	950 - 1250 MHz	5.775 GHz	6.725 - 7.025 GHz	0-4 dB
C	Extended C-Band 2	950 - 1675 MHz	4.800 GHz	5.750 - 6.475 GHz	0-4 dB
X	Standard X-Band	950 - 1450 MHz	6.950 GHz	7.900 - 8.400 GHz	0-2 dB
Ku	Standard Ku-Band	950 - 1450 MHz	13.050 GHz	14.00 - 14.50 GHz	0-2 dB
Ku	Extended Ku-Band	950 - 1700 MHz	12.800 GHz	13.75 - 14.50 GHz	0-2 dB

### Electrical Specifications for RM SSPA System with ZBUC™

PARAMETER	NOTES	LIMITS				UNITS
Gain	Nominal setting	75				dB
Gain Flatness	full band (C-,X-,Ku-bands)	±2.0				dB
Gain Slope	per 40 MHz (C-,X-,Ku-bands)	±0.5				dB/40 MHz
Gain Adjusted Range	Typical C-Band Adj. Range	20				dB
	Typical Ku-Band Adj. Range	60 - 80				dB
Gain Stability	-40 to +60 °C	57 - 77				dB
		±1.5				dB
Phase Noise	Offset frequency from carrier	<u>Absolute max.</u>	<u>C-band (typ.)</u>	<u>X-band (typ.)</u>	<u>Ku-band (typ.)</u>	
	10 Hz	-30	-60	-60	-50	dBc/Hz
	100 Hz	-60	-80	-75	-65	dBc/Hz
	1 KHz	-70	-80	-75	-72	dBc/Hz
	10 KHz	-80	-85	-100	-90	dBc/Hz
	100 KHz	-90	-120	-110	-110	dBc/Hz
	1 MHz	-90	-125	-122	-120	dBc/Hz
Spurious	In-Band Signal Related (C-/Ku-Band) (Extended C-Band)	-50				dBc
	Close to Carrier Spurious (≤ 20 MHz)	-40				dBc
	Local Oscillator	-50				dBc
	Non-Signal Related	-30				dBm
		-40				dBm
Noise Figure	At 75 dB gain setting	20				dB
Input VSWR	L-Band	1.5 : 1				
Internal Reference Option	Reference accuracy @ 25 °C	±1 • 10 <sup>-8</sup>				
	Reference Stability over Temperature (-40 to +40 °C)	±1 • 10 <sup>-9</sup>				



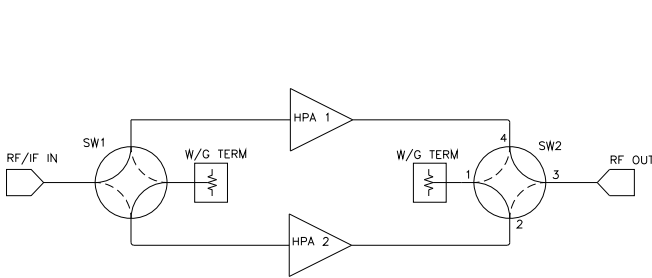
### Indoor Redundant System Physical Configurations



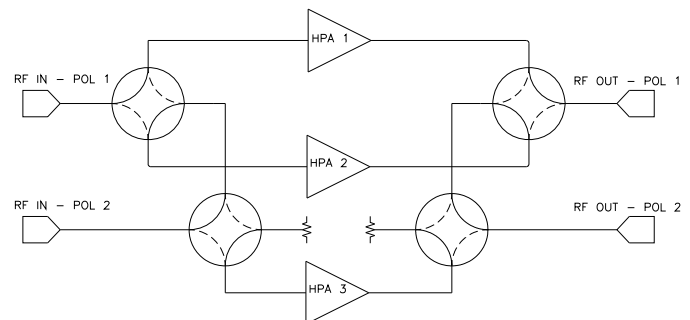
### Optional 1RU Remote Control Panels



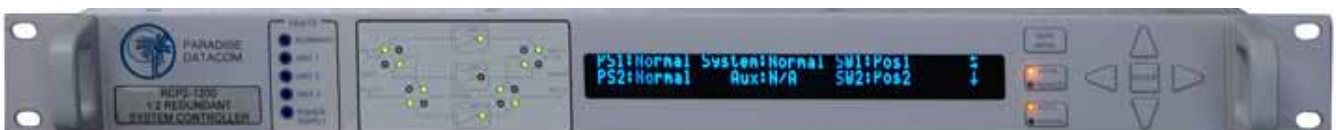
**RCP2-1100 1:1 Redundant Controller**



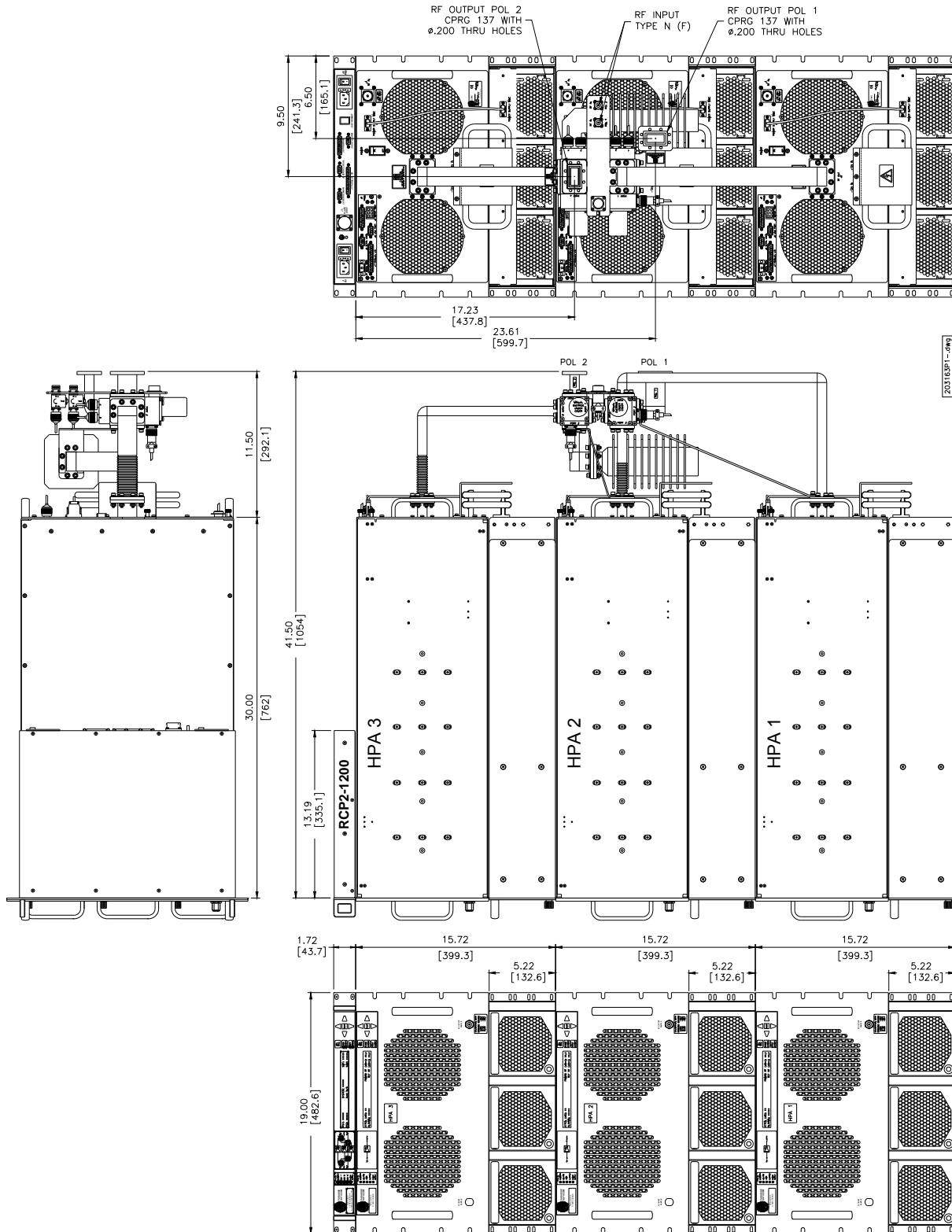
**Block Diagram, 1:1 Redundant System**



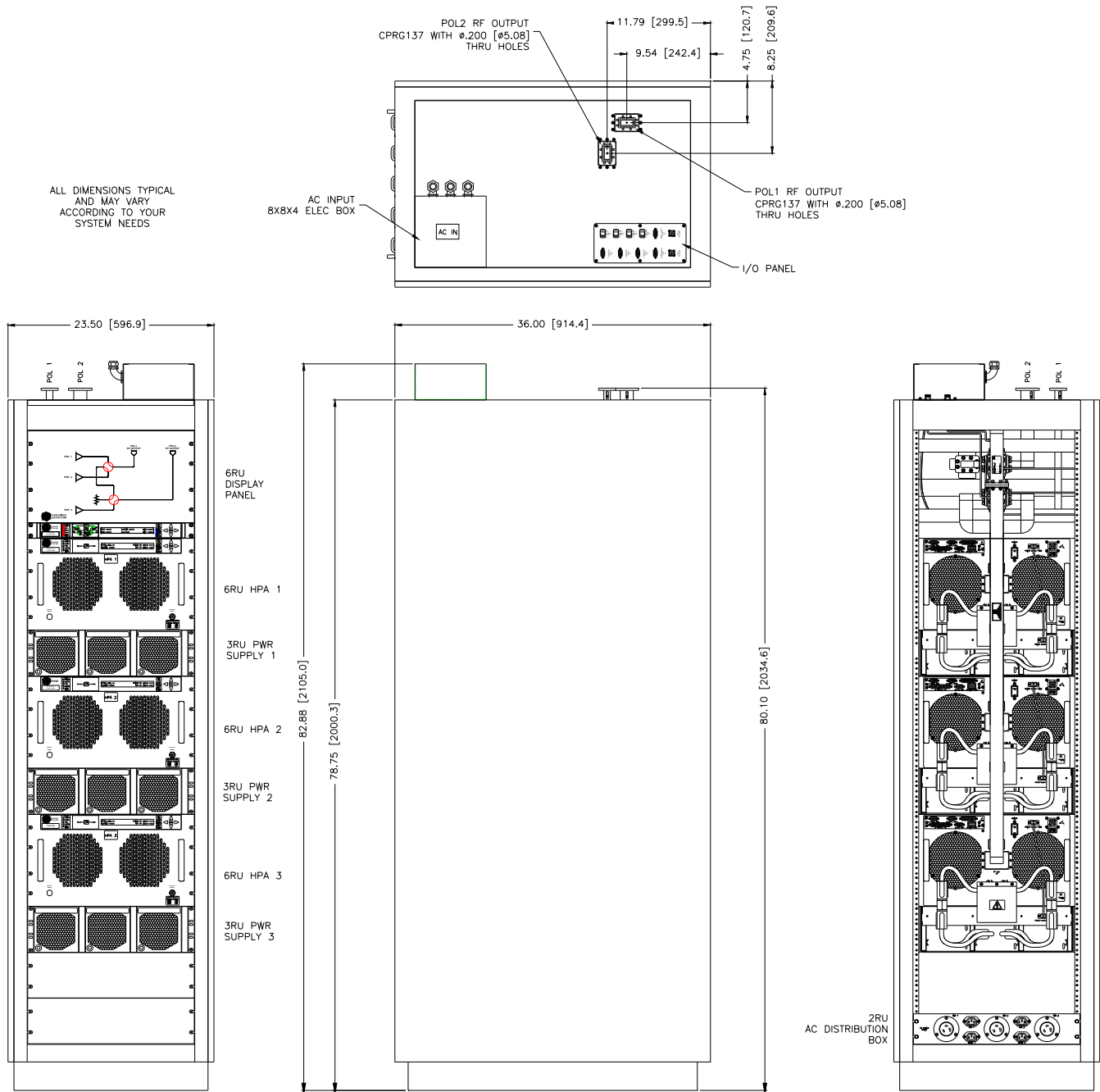
**Block Diagram, 1:2 Redundant System**



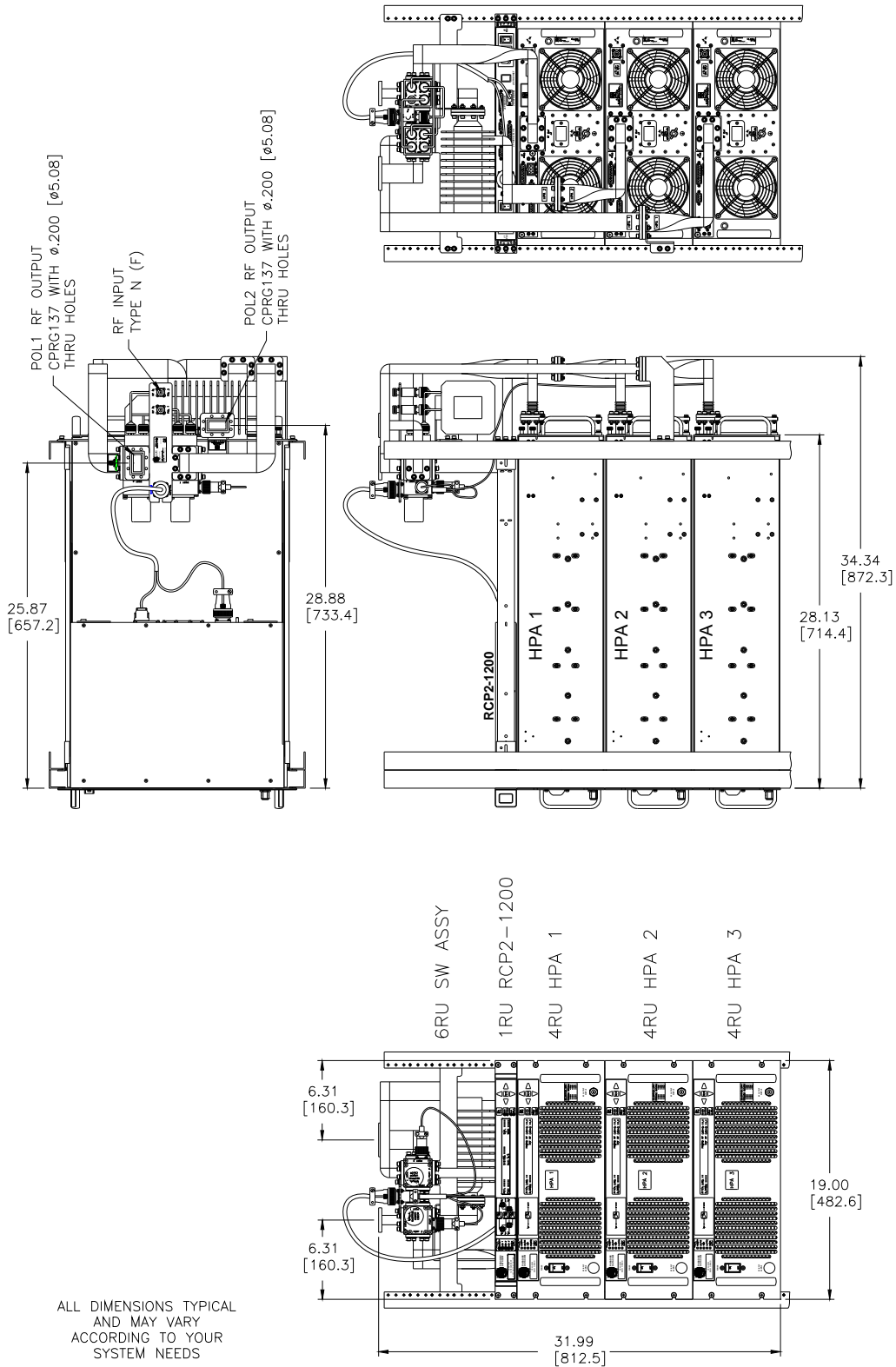
**RCP2-1200 1:2 Redundant Controller**



**Outline Drawing, 1:2 Redundant System, C-Band, using 6RU SSPAs and 3RU Power Supplies, with RCP2-1200 and Rear Mounted Waveguide Switching, Cabinet not included**

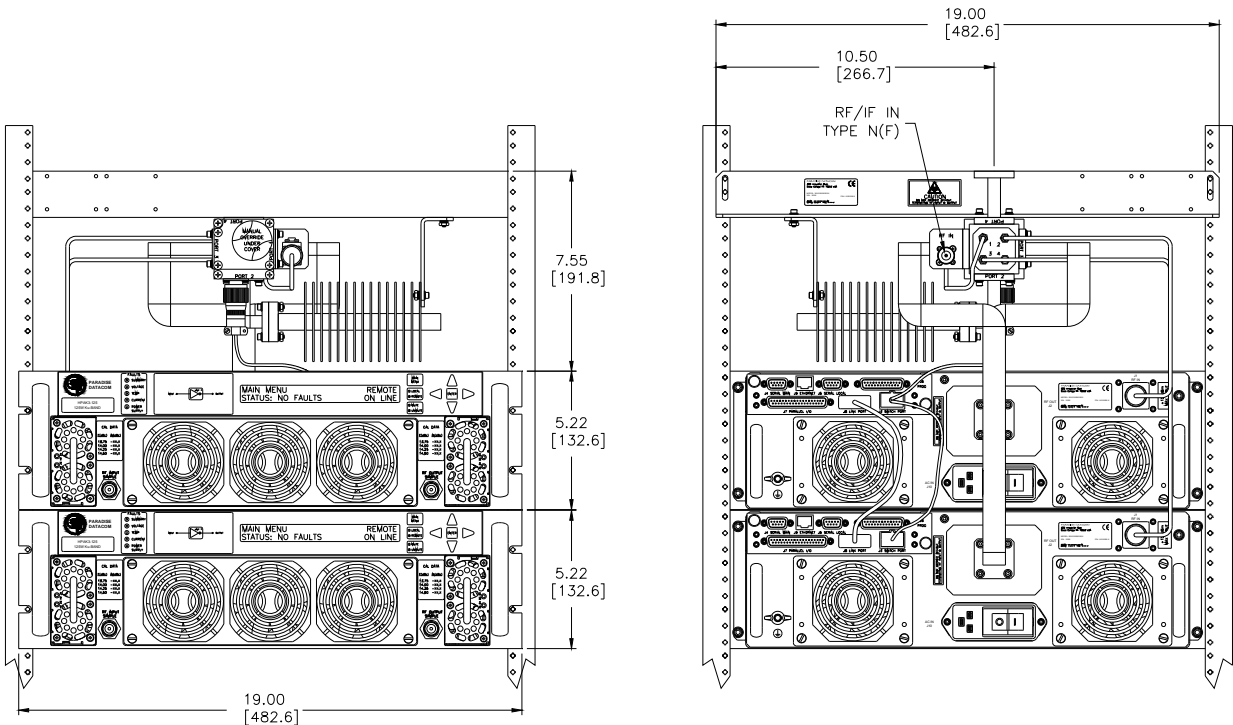
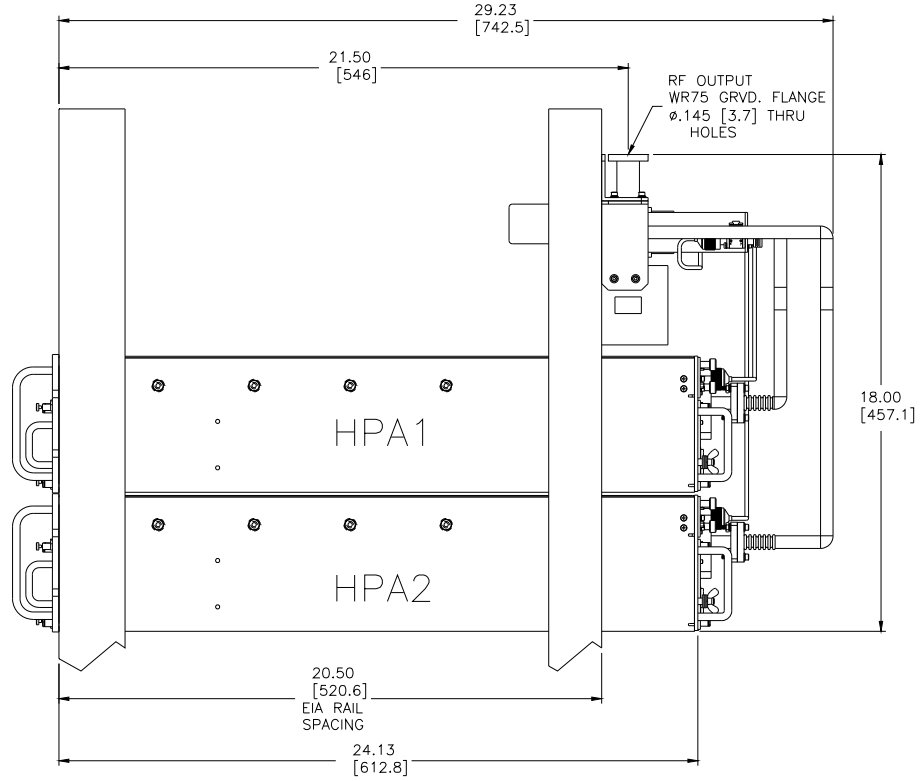


**Outline Drawing, 1:2 Redundant System, C-Band, using 6RU SSPAs and 3RU Power Supplies, with RCP2-1200 and Top Mounted Waveguide Switching with Cabinet**

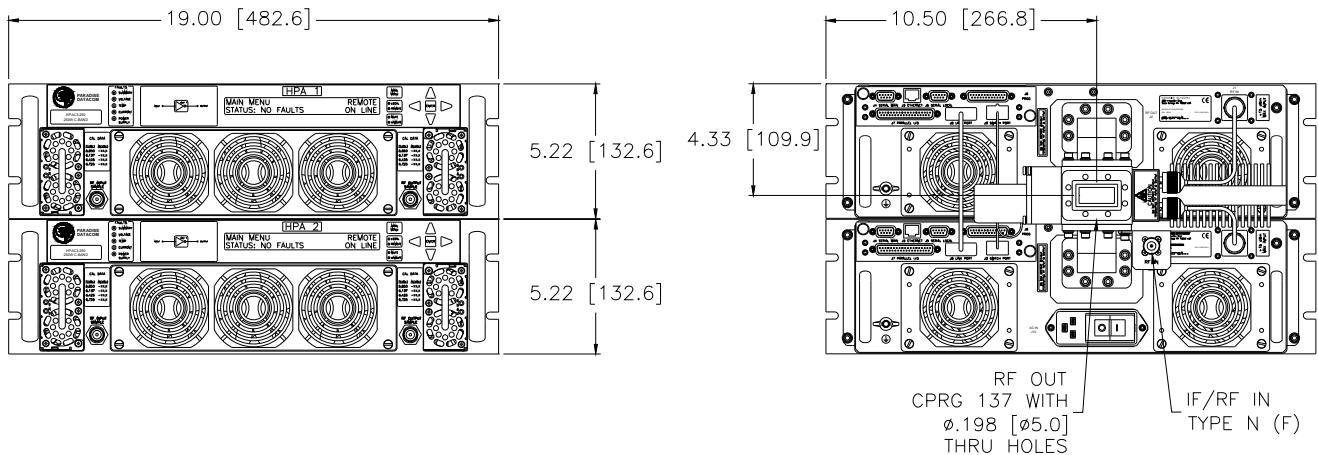
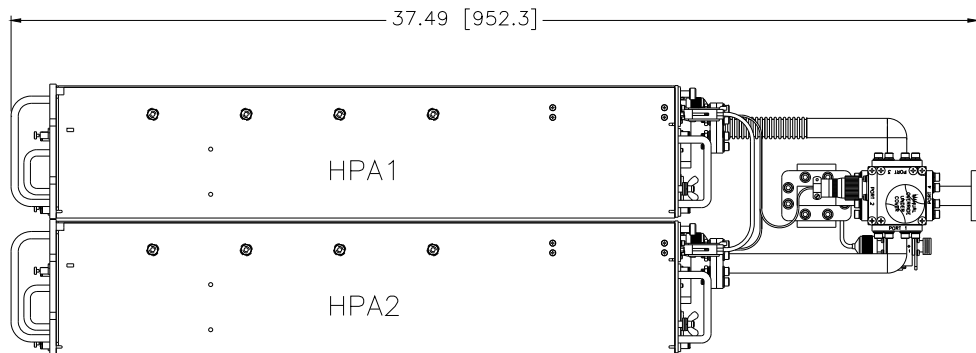
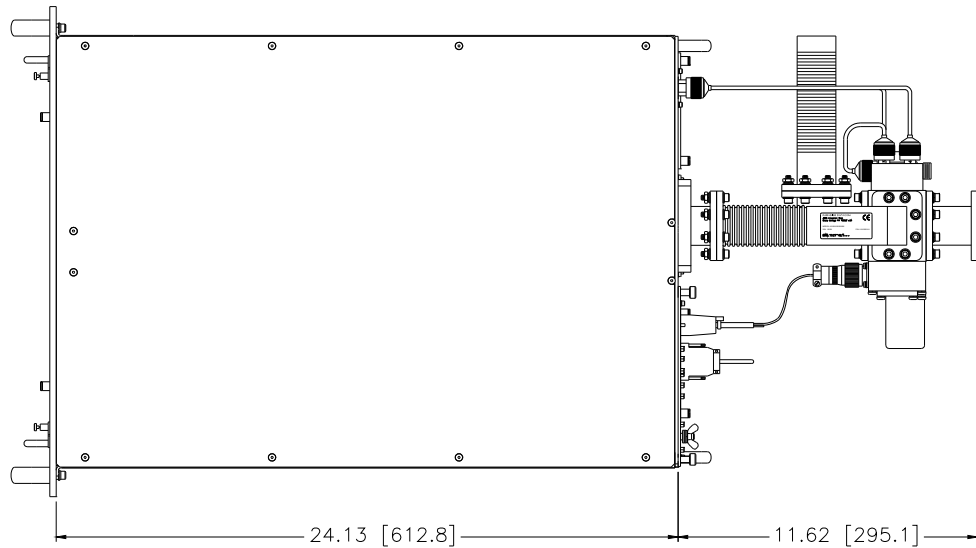


**Outline Drawing, 1:2 Redundant System, C-Band, using 4RU SSPAs,  
with Top Mounted Waveguide Switching, Cabinet not included**





**Outline Drawing, 1:1 Redundant System, Ku-Band, using 3RU SSPAs, with Top Mounted Waveguide Switching, Cabinet not included**



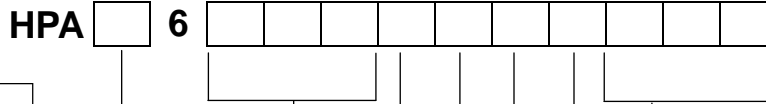
**Outline Drawing, 1:1 Redundant System, C-Band, using 3RU SSPAs,  
with Rear Mounted Waveguide Switching, Cabinet not included**







### Part Number Configuration, 6 RU Chassis



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

**Power Level (in Watts)**  
S-Band  
 1100 (11K)  
C-Band  
 750, 1100 (11K)  
X-Band  
 700, 1000 (10K)  
Ku-Band  
 400, 500

**Frequency Sub Band**  
S-Band  
 A - 2.02 to 2.12 GHz  
 B - 2.20 to 2.30 GHz  
C-Band  
 A<sup>1</sup> - 5.850 to 6.425 GHz  
 B<sup>1</sup> - 5.850 to 6.725 GHz  
 C - 5.750 to 6.670 GHz  
 E<sup>1</sup> - 6.425 to 6.725 GHz (Palapa)  
 F<sup>1</sup> - 6.725 to 7.025 GHz (Insat)  
 G<sup>1</sup> - 5.750 to 6.475 GHz  
 V<sup>1,2</sup> - 5.850 to 6.725 GHz  
X-Band  
 A<sup>1</sup> - 7.90 to 8.40 GHz  
 B - 7.50 to 8.50 GHz  
 C - 9.50 to 10.50 GHz  
 D - 7.70 to 8.40 GHz  
Ku-Band  
 A<sup>1</sup> - 14.00 to 14.50 GHz  
 B<sup>1</sup> - 13.75 to 14.50 GHz

<sup>1</sup> Available with optional BUC.  
<sup>2</sup> With 1.3:1 VSWR.

**Package**  
 S = Rack Mount, Top Mounted Waveguide Switching, with Cabinet  
 T = Rack Mount, Top Mounted Waveguide Switching, without Cabinet  
 Y = Rack Mount, Rear Mounted Waveguide Switching, with Cabinet  
 Z = Rack Mount, Rear Mounted Waveguide Switching, without Cabinet

**Configuration Modifier**  
 XXX = Standard  
 DXX<sup>1</sup> = Non-redundant 1RU Power Supply  
 EXX<sup>1</sup> = Non-redundant 1RU Power Supply & Input Sample Port  
 FXX = (2) 1RU Power Supplies, Non-redundant<sup>2</sup>  
 GXX = (2) 1RU Power Supplies, Non-redundant<sup>2</sup> & Input Sample  
 HXX = (2) 1RU Power Supplies, Redundant  
 JXX = (2) 1RU Power Supplies, Redundant & Input Sample Port  
 SXX = Input Sample Port  
 VX = Reflected Power Monitor  
 XXE<sup>3</sup> = Rear Panel Exhaust Adapters

<sup>1</sup> Only available with 750W C-Band; 400W Ku-Band.  
<sup>2</sup> Redundant with 750W C-Band; 400W Ku-Band.  
<sup>3</sup> Not available with Package options Y or Z.

**System Configuration**  
 S = Custom  
 A<sup>1</sup> = 1:1 System w/ Input Switching  
 B = 1:1 System w/ Input Splitter  
 C<sup>1</sup> = 1:2 System w/ Input Switching & RCP2-1200<sup>2</sup>  
 D<sup>1</sup> = 1:2 System w/ Input Switching, Internal Redundancy Control  
 F = 1:1 System w/ Input Splitter & RCP2-1100<sup>2</sup>  
 H<sup>1</sup> = 1:1 System w/ Input Switching & RCP2-1100<sup>2</sup>

<sup>1</sup> Not available with BUC option P

**Block Up Converter**  
 B = BUC (Custom)  
 M = Internal Reference ZBUC  
 P = External Reference ZBUC  
 X = N/A

Specifications in this document are subject to change.