6 GHz Solid-State Power Amplifiers

Using technology developed for VertexRSI's ModuMAX™ amplifiers, these outdoor SSPAs feature a modular architecture with field-replaceable RF assemblies and offer an output power of 400 watts across the standard 5.850–6.425 GHz or extended 5.850–6.725 GHz satellite uplink bands. Housed in a weatherproof NEMA 4X enclosure, the amplifiers can be mounted in an antenna hub or outdoors in applications where it is desirable to reduce cable losses by mounting the SSPA close to the antenna. Built for reliable, trouble-free service, the amplifiers incorporate a microprocessor-based monitor and control system.

Features

- Field-replaceable RF assembly
- 400 W saturated output power
- Microprocessor-based monitor and control
- Serial interface (RS-232/-422/-485)
- Output isolator for high load VSWR protection
- 20 dB range digital gain adjustment
- RF output sample port
- Reflected power monitoring
- External mute input

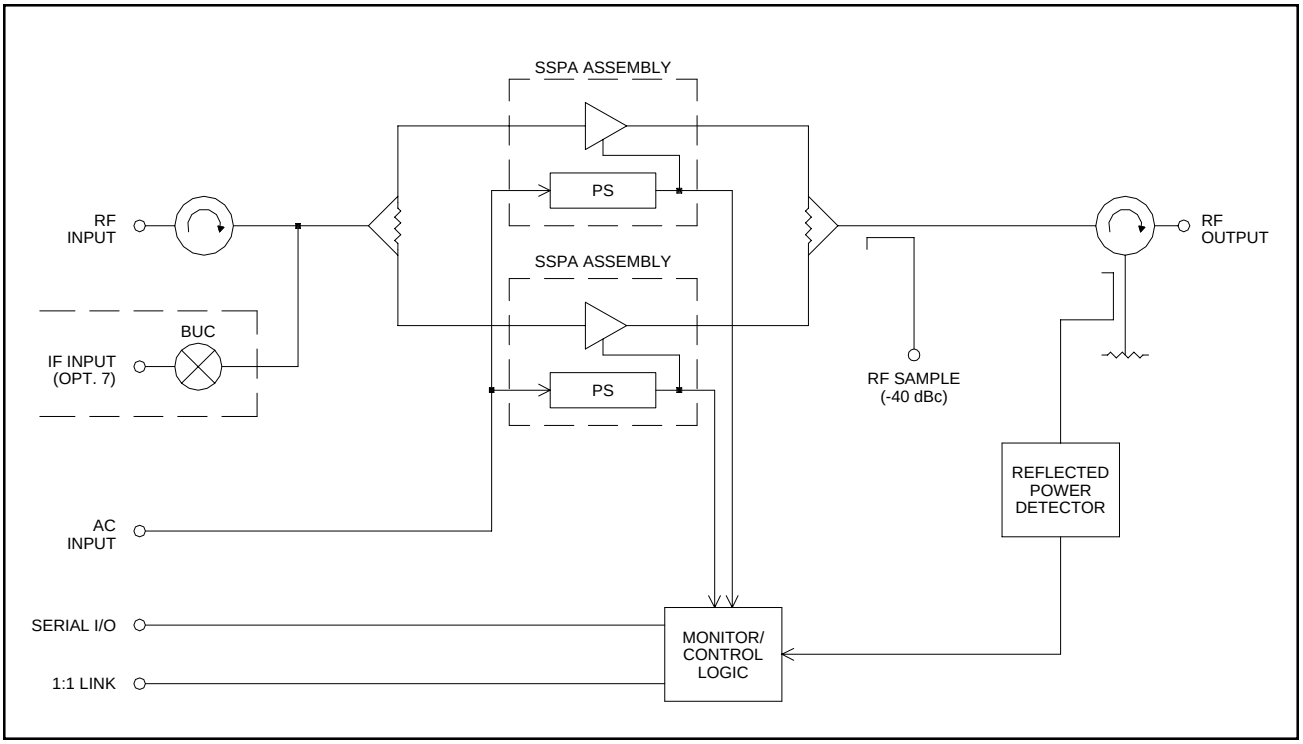
Applications

- Stand-alone SSPA
- 1:1 redundancy
- Commercial, Government, and Military systems

Options

- Block upconverter

Block Diagram



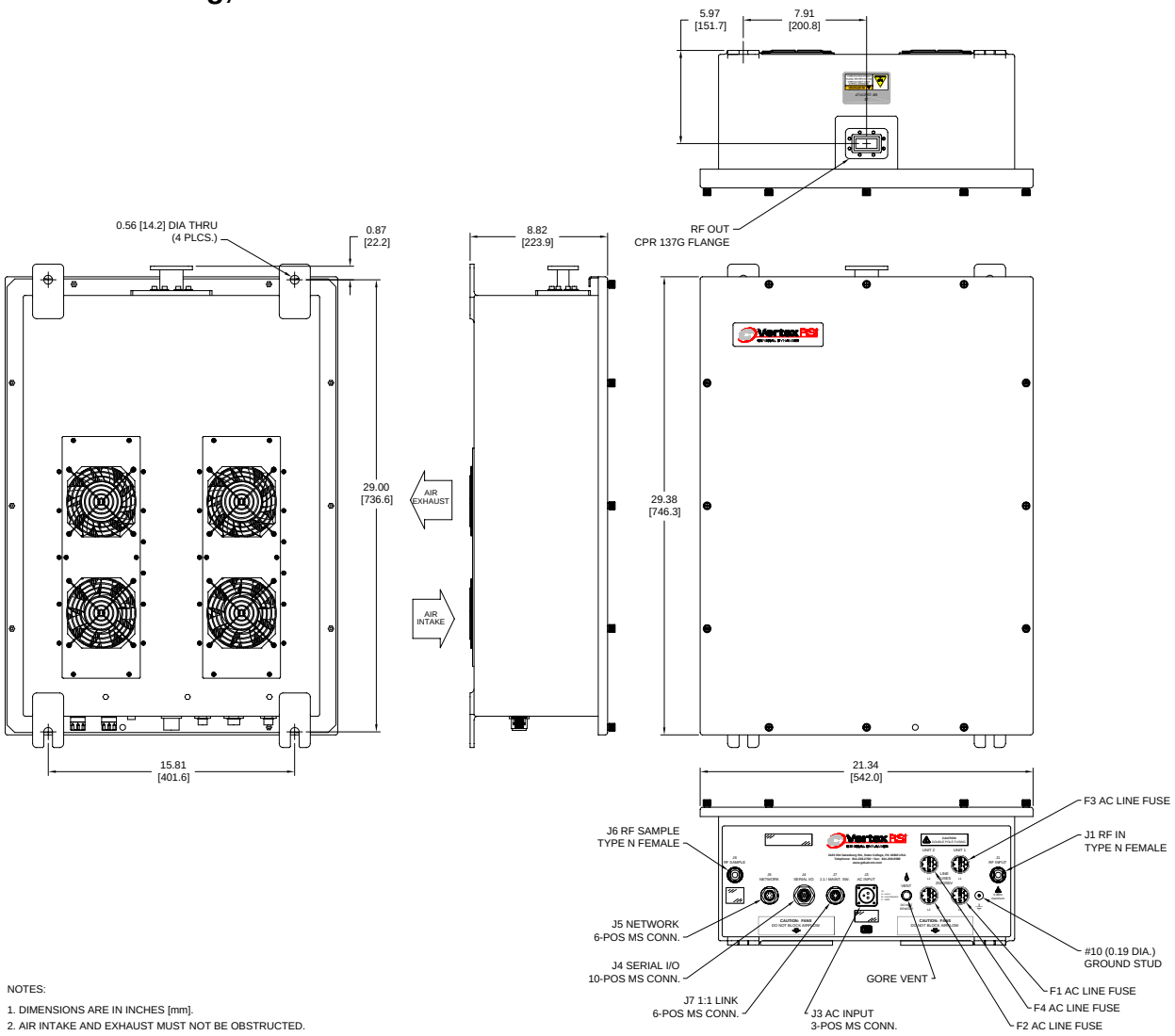
2120 Old Gatesburg Road, State College, PA 16803 USA
Telephone 814-238-2700 • FAX 814-238-6589 • *www.gdsatcom.com*

Parameter	Notes	Min	Nom/Typ†	Max	Units
Frequency Range	Band "D" Band "M"	5.850 5.850		6.425 6.725	GHz GHz
Input Frequency Range with Option 7, Block Upconverter	Band "D" Band "M"	950 950		1525 1825	MHz MHz
Gain, at maximum gain setting	Standard With Option 7	70 70	73 75		dB dB
Gain Adjust Range		20			dB
Gain Flatness	Full band, standard Full band, with Option 7 Per 40 MHz, standard Per 40 MHz, with Option 7			±1.0 ±2.0 ±0.3 ±0.5	dB dB dB dB
Gain Stability vs. Temperature	-40 to +50 °C, standard -40 to +50 °C, with Option 7		±1.0 ±2.0	±1.5 ±2.5	dB dB
Power Output	Saturated At 1 dB compression ($P_{1\ dB}$)	 +55.2 (320)	+56.0 (400)		dBm (W) dBm (W)
Two-tone Intermodulation	At 3 dB total backoff from 1 dB compression point		-30	-25	dBc
Group Delay	Linear Parabolic Ripple			0.03 0.003 1.0	ns/MHz ns/MHz^2 ns p-p
AM/PM Conversion	At 3 dB backoff from $P_{1\ dB}$		1.0	2.0	°/dB
Noise Figure, at maximum gain	Standard With Option 7		10 15		dB dB
VSWR	Input, Standard Input, with Option 7 Output		1.25 1.35 1.20	1.30 1.50 1.30	:1 :1 :1
Output Sample Port			-40		dBc
Connectors	Input Output Sample Port Serial I/O 1:1 Link Power		Type N Female CPR137G Waveguide Type N Female 10-pos MS, mate supplied 6-pos MS, mate supplied 4-pos MS, mate supplied		
Power Requirements	Voltage Frequency Power Power factor corrected	180 47	 2000 0.98	264 63 3200[A]	Vac Hz W
Cooling System			Forced air		
Operating Temperature Range	Ambient air temperature	-40		+50	°C
Dimensions	See outline drawing		21.34 W x 29.38 H x 8.82 D 542 W x 746 H x 224 D		inches mm
Weight	Approximate		104 (47)		lb (kg)

† When there is only one value on a line, this column is a nominal value. Otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

[A] Cold start, at -40 °C and Pout in saturation.

Outline Drawing, SSPA



NOTES:

1. DIMENSIONS ARE IN INCHES [mm].
2. AIR INTAKE AND EXHAUST MUST NOT BE OBSTRUCTED.

Outline 14408

Part Number/Ordering Information

SSPAs: **DPC□6400N-X**

5.850–6.425 GHz = D
5.850–6.725 GHz = M

Option:

Block Upconverter
L-Band IF Input **7**

Redundant Systems: **DPRC1□400N-XX**

5.850–6.425 GHz = D
5.850–6.725 GHz = M

Options:

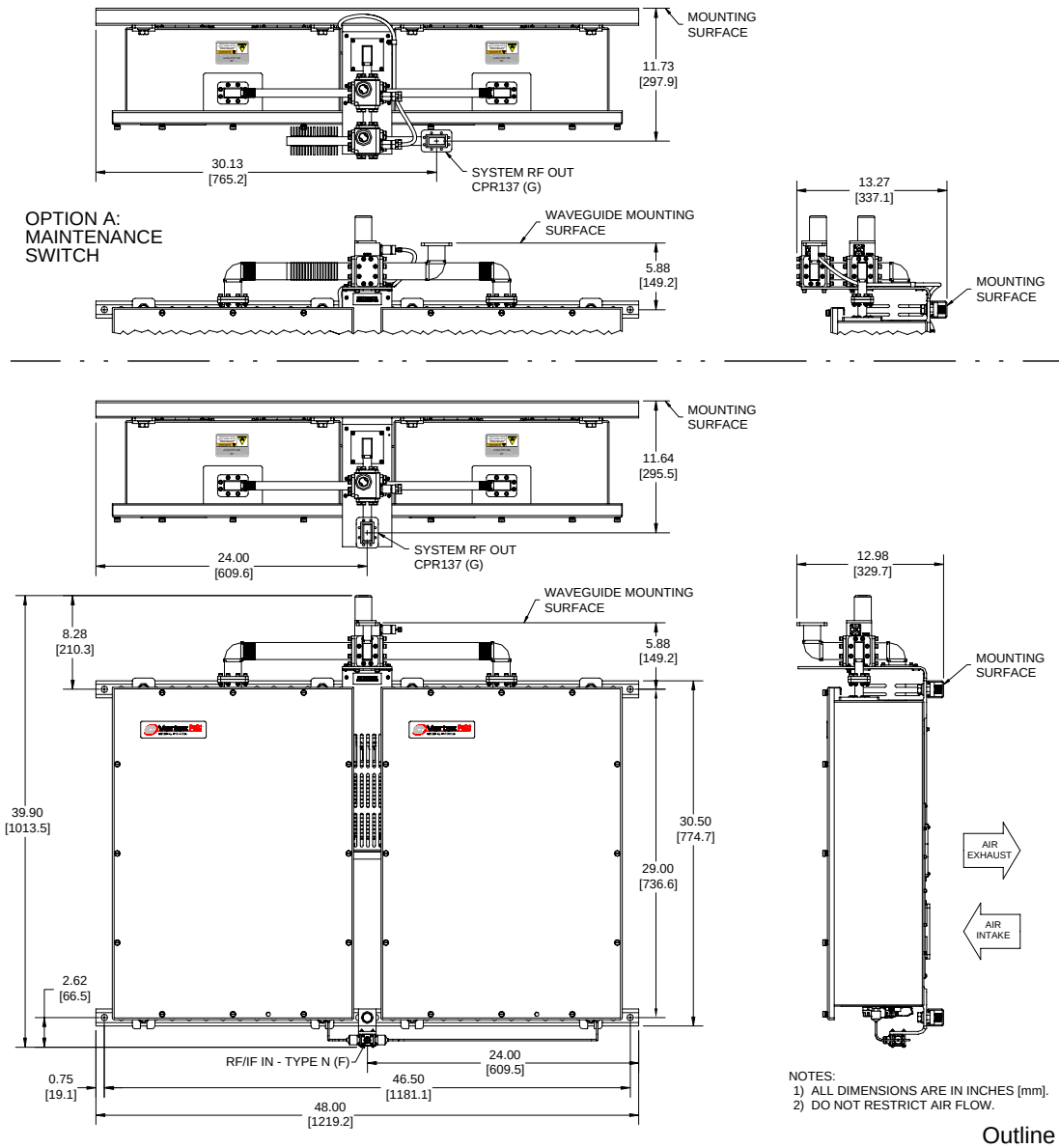
Block Upconverter
L-Band IF Input **7**

Maintenance Switch
Select antenna or dummy load at system output ..... **A**

Related Accessory:

- **RCP-2001 SSPA Remote Control Panel**
  1U-high rack-mounted panel. Can be located up to 1.3 km (4000 ft) away from the SSPA.

Outline Drawing, 1:1 System



NOTES:
1) ALL DIMENSIONS ARE IN INCHES [mm].
2) DO NOT RESTRICT AIR FLOW.

Outline 19111-2

Connector Interface

Ref. Des.	Function	Connector Type	Mating Connector	Comment
J1	RF/IF Input	Type N Female	Type N Male	
J2	RF Output	CPR137G Waveguide	CPR137 Flange	
J3	AC In	3-pos MS, Male	4-pos MS, Female	Mate supplied
J4	Serial I/O	10-pos MS, Female	10-pos MS, Male	Mate supplied
J6	Output Sample	Type N Female	Type N Male	
J7	1:1 Link	6-pos MS, Female	6-pos MS, Male	Mate supplied

Vertex RSI®

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Specifications are subject to change at GD SATCOM's discretion.