# 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

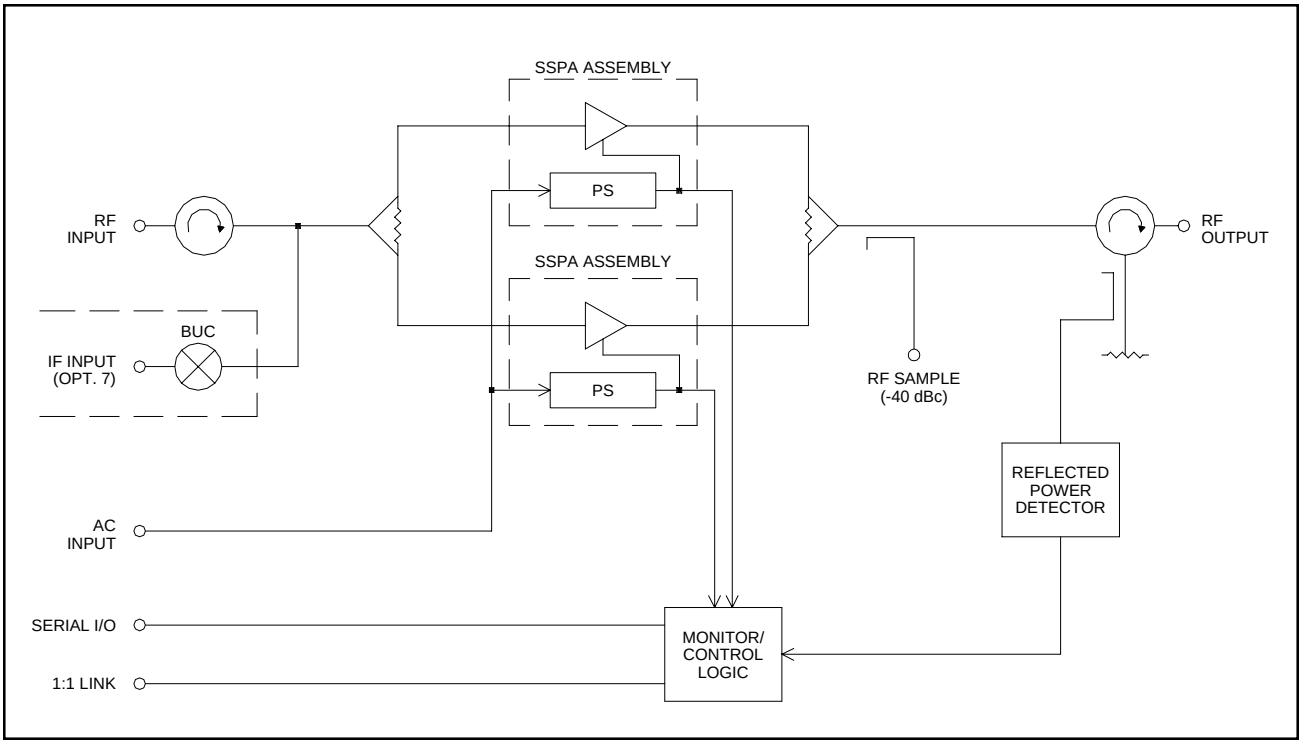
## Applications

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

## Options

- Block upconverter

## Block Diagram

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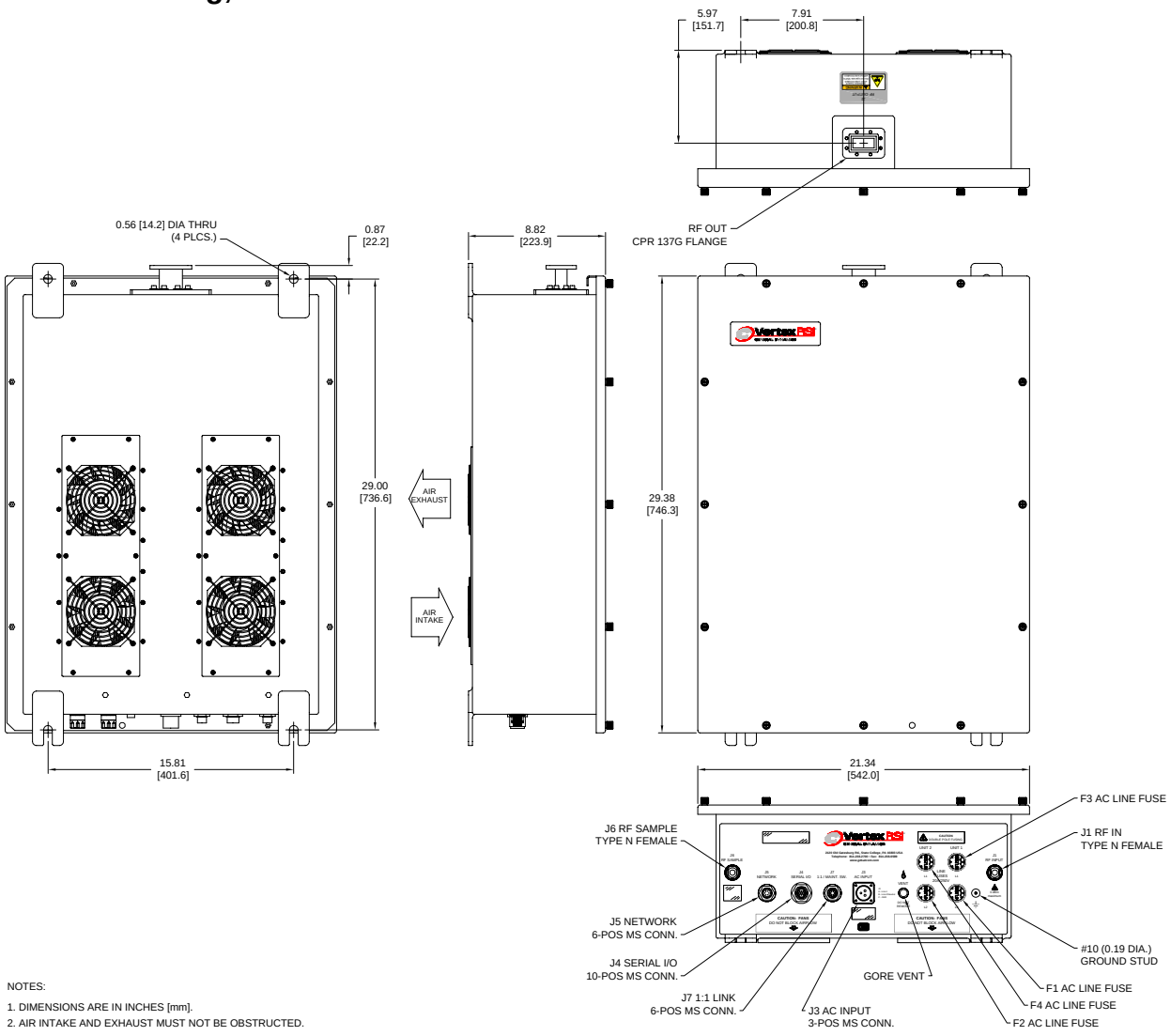
| Parameter | Notes | Min | Nom/Typ† | Max | Units |
|---|---|---|---|---|---|
| Frequency Range | Band "D"<br>Band "M" | 5.850<br>5.850 | | 6.425<br>6.725 | GHz<br>GHz |
| Input Frequency Range with Option 7, Block Upconverter | Band "D"<br>Band "M" | 950<br>950 | | 1525<br>1825 | MHz<br>MHz |
| Gain, at maximum gain setting | Standard<br>With Option 7 | 70<br>70 | 73<br>75 | | dB<br>dB |
| Gain Adjust Range | | 20 | | | dB |
| Gain Flatness | Full band, standard<br>Full band, with Option 7<br>Per 40 MHz, standard<br>Per 40 MHz, with Option 7 | | | ±1.0<br>±2.0<br>±0.3<br>±0.5 | dB<br>dB<br>dB<br>dB |
| Gain Stability vs. Temperature | -40 to +50 °C, standard<br>-40 to +50 °C, with Option 7 | | ±1.0<br>±2.0 | ±1.5<br>±2.5 | dB<br>dB |
| Power Output | Saturated<br>At 1 dB compression ($P_{1\ dB}$) | <br>+55.5 (320) | +56.0 (400) | | dBm (W)<br>dBm (W) |
| Two-tone Intermodulation | At 3 dB total backoff from 1 dB compression point | | -30 | -25 | dBc |
| Group Delay | Linear<br>Parabolic<br>Ripple | | | 0.03<br>0.003<br>1.0 | ns/MHz<br>ns/MHz$^2$<br>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<br>With Option 7 | | 10<br>15 | | dB<br>dB |
| VSWR | Input, Standard<br>Input, with Option 7<br>Output | | 1.25<br>1.35<br>1.20 | 1.30<br>1.50<br>1.30 | :1<br>:1<br>:1 |
| Output Sample Port | | | -40 | | dBc |
| Connectors | Input<br>Output<br>Sample Port<br>Serial I/O<br>1:1 Link<br>Power | | Type N Female<br>CPR137G Waveguide<br>Type N Female<br>10-pos MS, mate supplied<br>6-pos MS, mate supplied<br>4-pos MS, mate supplied | | |
| Power Requirements | Voltage<br>Frequency<br>Power<br>Power factor corrected | 180<br>47 | <br><br>2000<br>0.98 | 264<br>63<br>3200[A] | Vac<br>Hz<br>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<br>542 W x 746 H x 224 D | | inches<br>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:**

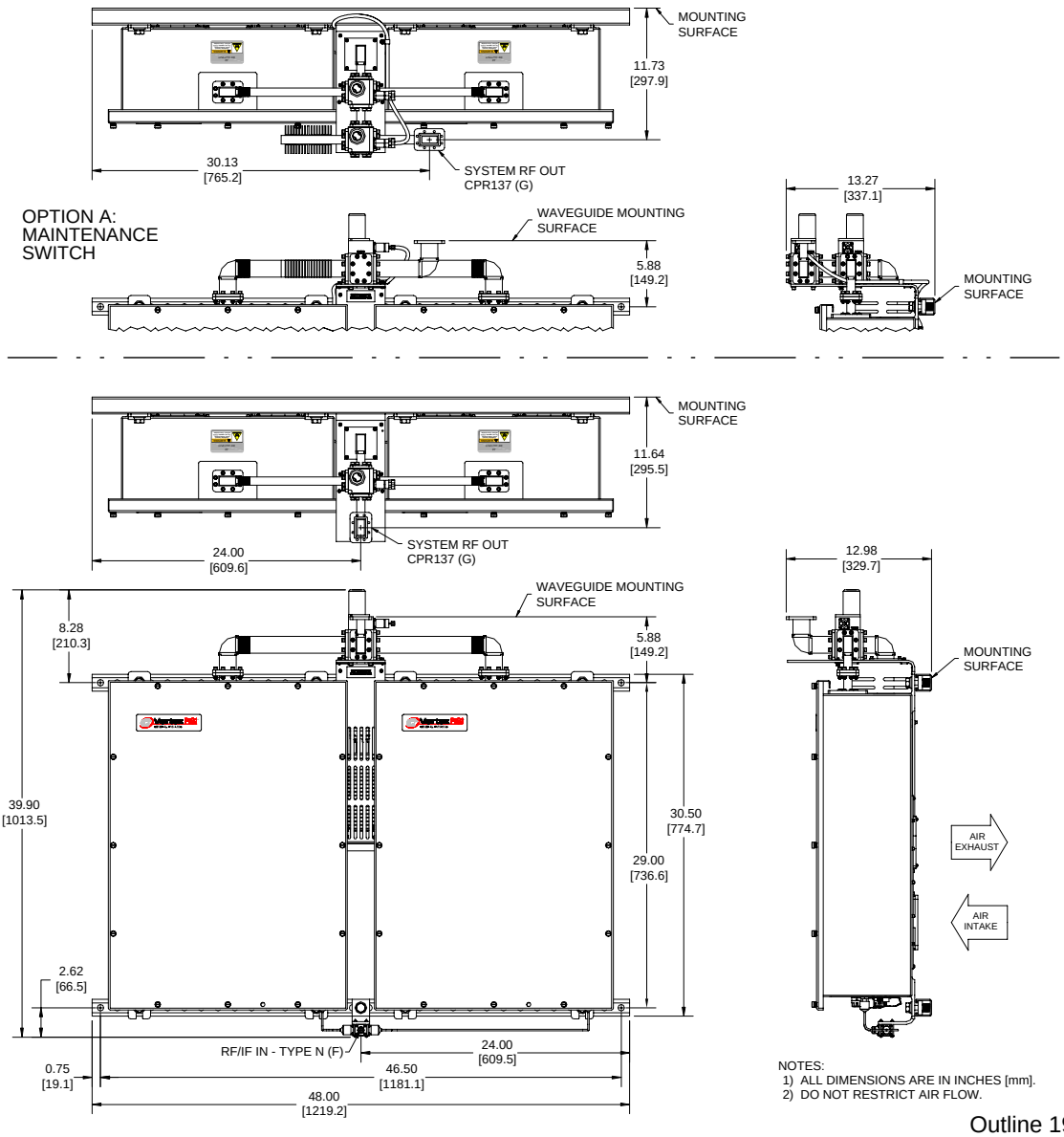
**Block Upconverter**
L-Band IF Input ..... **7**

**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




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 |