# C-Band Solid-State Power Amplifiers

## *DPCD, DPCM6400R*

Using technology developed for ModuMAX™ amplifiers, these rack-mount SSPAs 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. The SSPAs incorporate a modular architecture that includes the RF modules, power supplies, logic, fans, and front panel assembly. The amplifiers are designed for reliable service in fixed and mobile applications.

### Features

- 400 W saturated output power
- Digital gain adjustment (20 dB range)
- Forward and reflected power monitoring
- Microprocessor-based monitor and control
- Serial interface (RS-232/-422/-485) standard
- 10 Base-T network interface (SNMP, HTTP)
- RF input and output sample port
- Integral 1:1 redundancy control

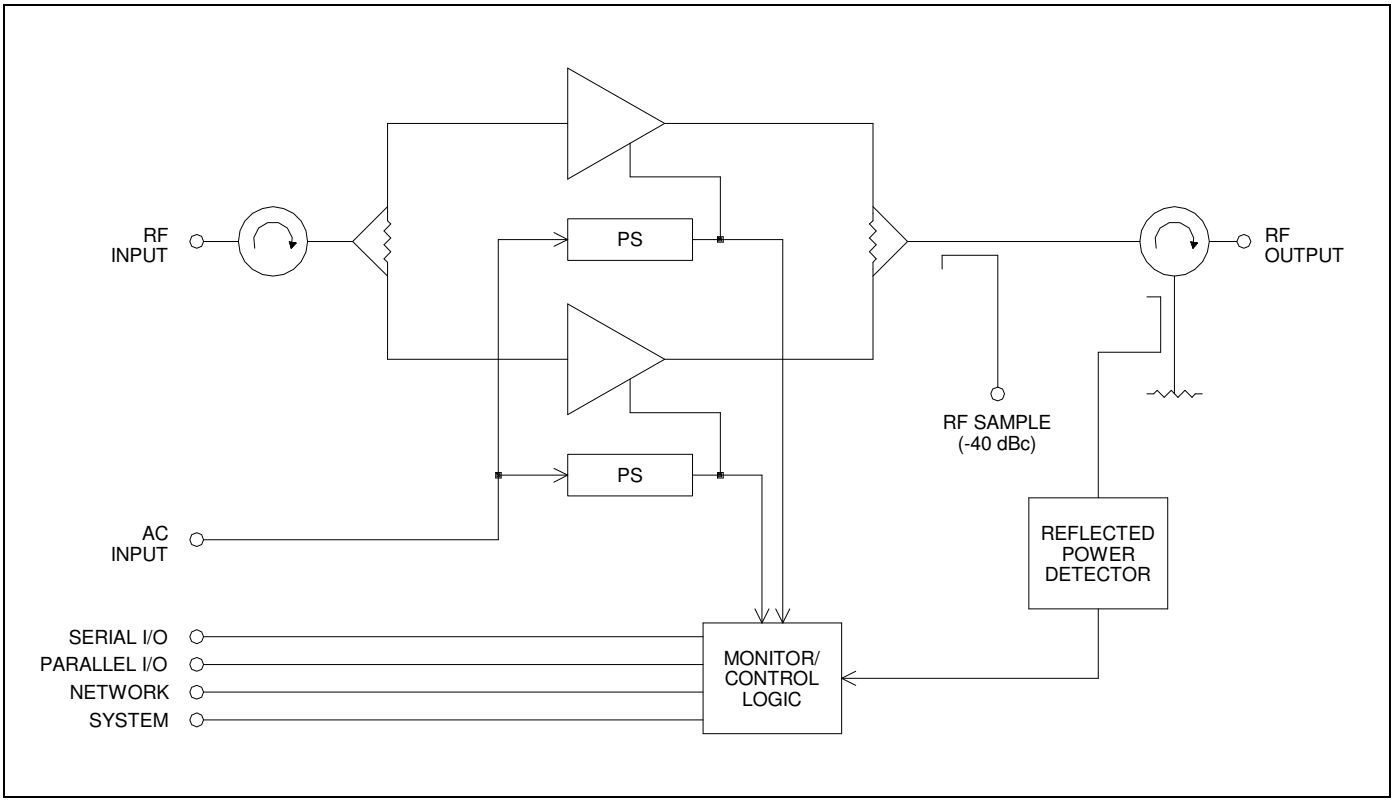
### Applications

- Single-thread SSPA
- Redundant systems (1:1, 1:2)
- Fixed installations
- Mobile terminals
- Commercial, Government, and Military systems

### Accessories

- RCP-2001 remote panel

### Block Diagram

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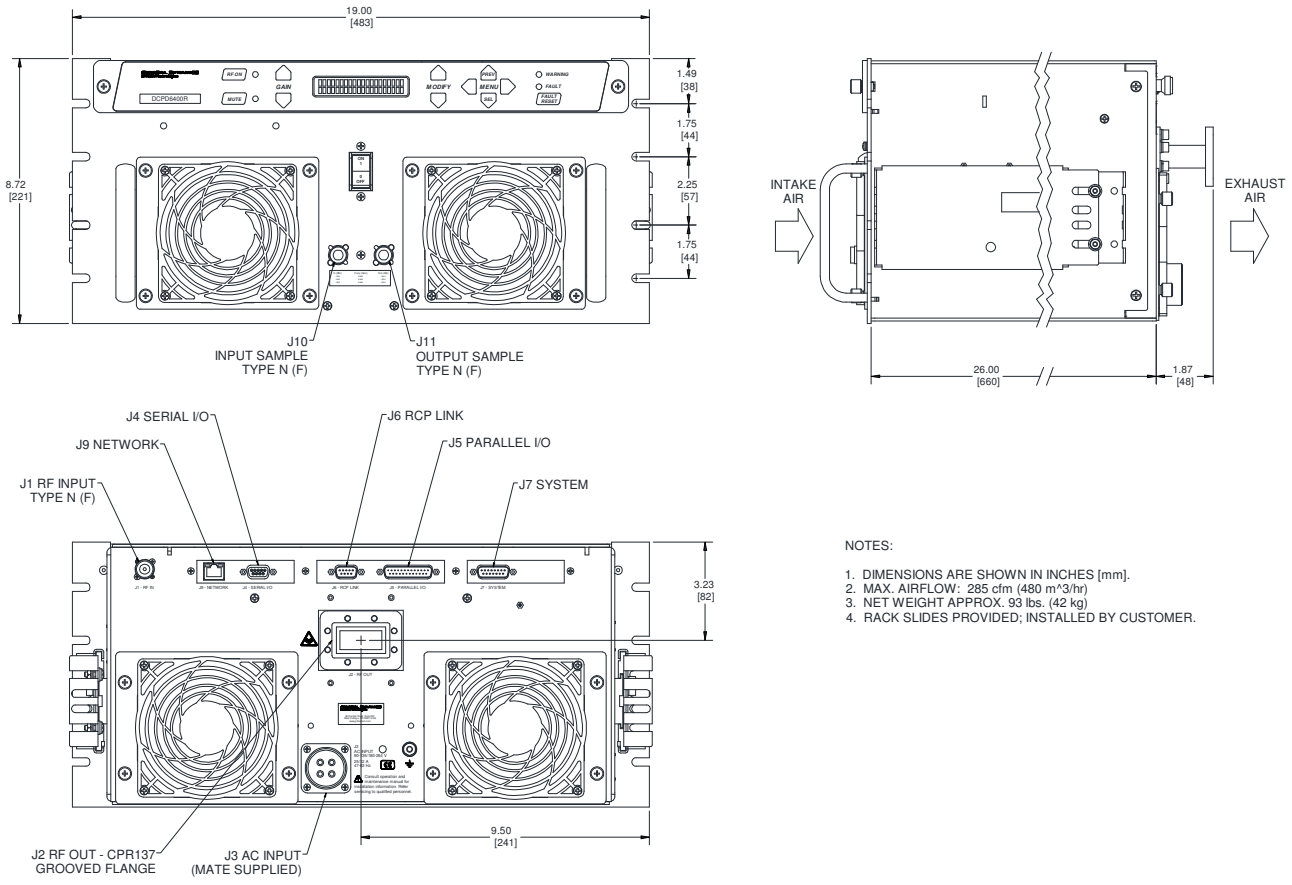
**Single-Thread SSPA Specifications**

| 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 |
| Gain, at maximum gain setting | Standard | 70 | | | dB |
| Gain Adjust Range | Digital, 0.1 dB steps | 20 | | | dB |
| Gain Flatness | Full band<br>Per 40 MHz | | | ±1.0<br>±0.3 | dB<br>dB |
| Saturated Power Output | | | +56.0 (400) | | dBm (W) |
| Power Output at 1 dB compression ($P_{1\ dB}$) | | +55.2 (320) | | | 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 $P_{1\ dB}$ | | 2.5 | 3.5 | °/dB |
| VSWR | Input<br>Output | | 1.25<br>1.20 | 1.30<br>1.30 | :1<br>:1 |
| RF Sample Ports | Input<br>Output | | -10<br>-40 | | dB<br>dB |
| Connectors | RF Input<br>RF Output<br>Sample Ports<br>Serial I/O<br>Parallel I/O<br>System<br>RCP Link<br>Network<br>Power | | Type N Female<br>CPR137G Waveguide<br>Type N Female<br>9-pos D-sub Female, mate supplied<br>25-pos D-sub Male, mate supplied<br>15-pos D-sub, Male<br>9-pos D-sub, Male<br>RJ-45 Jack<br>4-pos CE05, mate supplied | | |
| Power Requirements | Voltage<br>Frequency<br>Power<br>Power factor corrected | <br>47<br> | 90–135 or 180–270<br><br>2000<br>0.98 | <br>63<br>2400[A] | Vac<br>Hz<br>W |
| Cooling System | | | Forced air | | |
| Operating Temperature Range | Ambient air temperature | 0 | | +50 | °C |
| Dimensions | See outline drawing | | 8.75 H x 19 W x 27.88 D<br>222 H x 483 W x 708 D | | inches<br>mm |
| Weight | Approximate | | 93 (42) | | 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 $P_{OUT}$ in saturation.

## Outline Drawing, SSPA




NOTES:

1. DIMENSIONS ARE SHOWN IN INCHES [mm].
2. MAX. AIRFLOW: 285 cfm (480 m^3/hr)
3. NET WEIGHT APPROX. 93 lbs. (42 kg)
4. RACK SLIDES PROVIDED; INSTALLED BY CUSTOMER.

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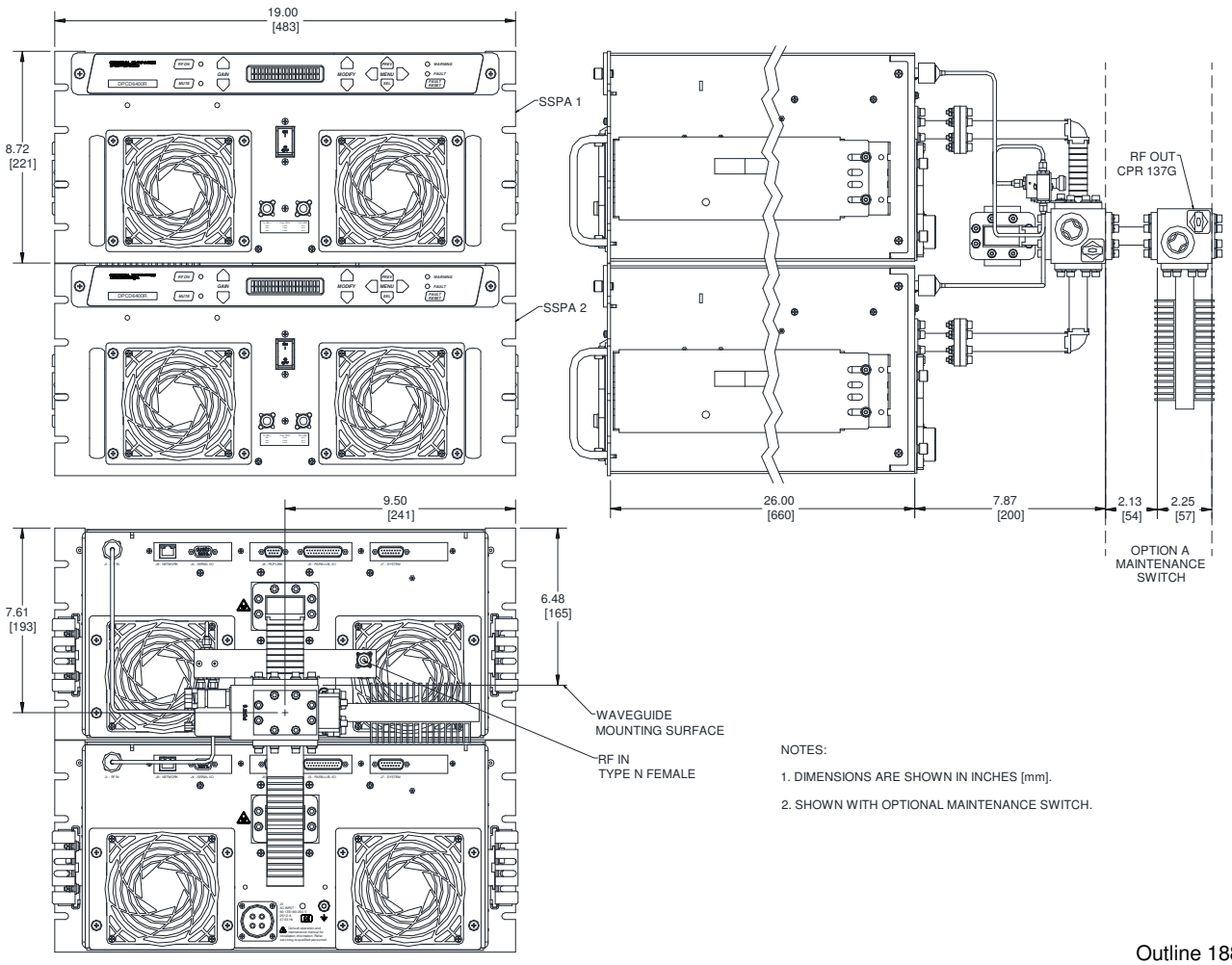
## Connector Interface

| Ref. Des. | Function | Connector Type | Mating Connector | Comment |
|---|---|---|---|---|
| J1 | RF Input | Type N Female | Type N Male | |
| J2 | RF Output | CPR137G Waveguide | CPR137 Flange | |
| J3 | AC In | 4-pos CE05, Male | 4-pos MS or CE05, Female | Mate supplied |
| J4 | Serial I/O | 9-pos D-sub, Female | 9-pos D-sub, Male | Mate supplied |
| J5 | Parallel I/O | 25-pos D-sub, Male | 25-pos D-sub, Female | Mate supplied |
| J6 | RCP Link | 9-pos D-sub, Male | 9-pos D-sub, Female | |
| J7 | System | 15-pos D-sub, Male | 15-pos D-sub, Female | |
| J9 | Network | RJ-45 Jack | RJ-45 Plug | |
| J10 | Input Sample | Type N Female | Type N Male | Front panel mounted |
| J11 | Output Sample | Type N Female | Type N Male | Front panel mounted |

## Outline Drawing, Typical 1:1 System

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## Part Number/Ordering Information

**SSPA:**

**Part/Model No.** **DPC□6400R**

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

* Performance specifications of a redundant system depend on the installed configuration and optional accessories. Contact the factory for more information and for 1:2 system capabilities.

**1:1 Redundant System*:**

**Part/Model No.** **DPRC1□400R-X**

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

**Option:**

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

**Related Accessory:**

**RCP-2001, SSPA Remote Control Panel**
1U-high rack-mount panel enables remote manual control of the SSPA. Can be located up to 1.3 km (4000 ft.) away and interconnects with inexpensive cable.

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