

# SpacePath 400W Ultralinear C-Band Antenna Mount HPA

The STA6140 C series HPA provides ultra linear, high efficiency performance in a compact, lightweight, rugged, weatherproof, antenna mount enclosure. The advanced packaging and cooling techniques enable the unit to operate in extreme environmental conditions from direct rain to direct sunlight. The amplifiers can be simply deployed anywhere in the world, are user-friendly and incorporate a comprehensive remote control facility as standard, including RS485, RS232 and Ethernet options.

The HPA incorporates a high efficiency multi-collector TWT powered by an advanced power supply built on over 30 years of experience in the design and manufacture of satellite amplifiers.

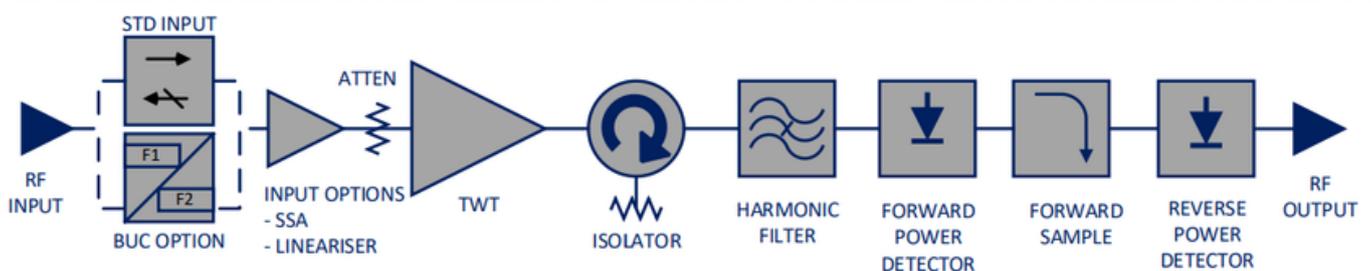
The company's products have an enviable reputation for performance, robust quality and reliable service. The STA6140 C is available with a wide range of options and accessories, backed by worldwide technical support.

## Features

- Advanced cooling design enables operation at +60°C and in direct sunlight
- Weatherproof antenna mount construction allows exposed mounting
- Ethernet/SMP/Webpage GUI interfaces
- Broadband – high efficiency operation
- Wide input voltage range - can operate from mains supplies worldwide
- Redundant control - contains control and drive circuits for 1:1 redundancy
- Stand-alone setting - automatically sequences to transmit mode
- Wide range of accessories including: Controllers, waveguide networks, cable assemblies



## Block Diagram



| RF Performance                                       |  |   |
|--|--|---|
| Frequency range                                      |  | CC1: 5.850 – 6.425 GHz CC2: 5.850 – 6.650 GHz CC3: 5.850 – 6.725 GHz<br>CC4: 5.850 – 7.025 GHz CC6: 6.725 – 7.025 GHz |
| Output Power<br>(for load<br>VSWR ≤ 1.5:1)           | TWT Power, Peak/CW   | 56.02 dBm (400 W)   |
|  | HPA Flange Power, Peak/CW  | 55.44 dBm (350 W) min.  |
| Gain   | ≥ 70 dB (At Prated) ≥ 75 dB (Small Signal) Low gain option 46dB (49dB with Linearizer)                         |   |
| Gain Variation, over 40 MHz                          | ≤ 0.5 dB peak-peak   |   |
| Gain Variation, over 800 MHz                         | ≤ 2.5 dB peak-peak <sup>1</sup> ≤ 4.0 dB peak-peak <sup>2</sup>  |   |
| Slope, ΔG <sub>SLOPE</sub>                           | ± 0.02 dB/MHz  |   |
| Gain Stability vs. Time                              | ± 0.25 dB / 24hrs  | @ constant drive and temperature  |
| Gain Stability vs. Temperature                       | ± 1.0 dB   | @ constant drive and frequency  |
| Adjustment range, G <sub>ADJ</sub>                   | 30.0 dB typical  |   |
| Adjustment step size                                 | 0.1 dB   |   |
| AM/PM  | ≤ 2.5°/dB @ P <sub>O</sub> ≤ Prated-7 dB <sup>1</sup><br>≤ 2.5°/dB @ P <sub>O</sub> ≤ Prated-4 dB <sup>2</sup> |   |
| Inter-modulations (IMD) 2 equal carriers 10MHz apart | ≤ -18 dBc @ P <sub>O</sub> ≤ Prated-4 dB <sup>1</sup><br>≤ -26 dBc @ P <sub>O</sub> ≤ Prated-4 dB <sup>2</sup> |   |
| Spectral Re-growth (SR)                              | ≤ -30 dBc @ P <sub>O</sub> ≤ Prated-6 dB <sup>1</sup><br>≤ -30 dBc @ P <sub>O</sub> ≤ Prated-4 dB <sup>2</sup> |   |
| Noise Power Ratio (NPR)                              | ≤ -19 dBc @ P <sub>O</sub> ≤ P <sub>LIN</sub> - 1 dB   |   |
| Noise power  | Transmit band  | ≤ -70 dBW/4 kHz <sup>1</sup> ≤ -65 dBW/4 kHz <sup>2</sup>   |
|  | 3.4 – 4.2 GHz  | ≤ -150 dBW/4 kHz  |
|  | 12.0 – 18.0 GHz  | ≤ -110 dBW/4 kHz  |
| Spurious @ P <sub>O</sub> ≤ MLP                      | ≤ -60 dBc  |   |
| Residual AM  | ≤ -50 dBc, f < 10kHz<br>≤ -20(1.5+LOG(frequency KHz))dBc, f = 10KHz to 500KHz<br>≤ -85 dBc >500KHz             |   |
| Phase Noise  | 10dB below IESS requirement <sup>3</sup><br>≤ -50 dBc max, AC fundamental<br>≤ -47 dBc max, Sum of all spurs   |   |
| Group Delay  | Linear   | 0.01 nsec/MHz, max  |
|  | Parabolic  | 0.002 nsec/MHz <sup>2</sup> , max   |
|  | Ripple   | 0.5 nsec/Peak-Peak, max   |
| Input VSWR (Return Loss)                             | ≤ 1.3:1 (17.7 dB) ≤ 1.6:1 max with internal BUC  |   |
| Output VSWR (Return Loss)                            | ≤ 1.3:1 (17.7 dB)  |   |
| Load VSWR (no damage)                                | ≤ 2.0:1 (9.5 dB)   |   |
| Harmonic 2 <sup>nd</sup> & 3 <sup>rd</sup>           | ≤ -60 dBc  |   |

1) No Linearizer 2) With Linearizer

| Electrical        |  |
|-------------------|--|
| AC Input Voltage  | 100-240 VAC $\pm$ 10%, single phase<br>50-60 Hz $\pm$ 5% |
| Inrush Current    | 200% max.  |
| Power Consumption | 1350 VA typical<br>1450 VA maximum                       |
| Power Factor      | 0.98 typical<br>0.96 minimum                             |

| Physical                     |   |
|------------------------------|---|
| Dimensions (request outline) | 58.8 cm deep x 25.4 cm width x 28.0 cm height |
| Weight                       | 25Kg typ                                      |
| Cooling                      | Internal Forced Air                           |
| Heat Dissipation             | 1100W typ                                     |
| RF Input                     | Type N(f) 50 ohm                              |
| RF Output                    | CPRG-137                                      |
| RF Sample port               | Type N(f) 50 ohm                              |
| AC Input                     | Amphenol C016 20C003 200 12                   |
| Ethernet                     | RJF71B (IP67 RJ45 Connector)                  |
| M&C Connector                | PT07E18-32S (MS3114E-18-32S)                  |
| M&C Interface                | Network: Ethernet<br>Serial: RS422/485        |

| Environmental         |  |
|-----------------------|--|
| Operating temperature | -40°C to +60°C   |
| Storage temperature   | -54 to +71 °C  |
| Derating              | 2 °C/300 m above sea level (3.6 °F/1000ft)   |
| Relative humidity     | 100% condensing  |
| Altitude              | 12,000 ft. with standard adiabatic de-rating of 2°C/1000 ft., operating<br>50,000 ft., non-operating |
| Shock                 | 15 g peak, 11mSec, 1/2 sine  |
| Vibration             | 3.2 g rms, 10-500 Hz   |
| Acoustic Noise        | 65 dBA @ $\geq$ 3 ft. from amplifier   |
| Solar Gain            | 1120 2/m2  |

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.  
 Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.