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 SNMP V3 and a feature-rich web user interface, alongside RS485, and RS232.

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.

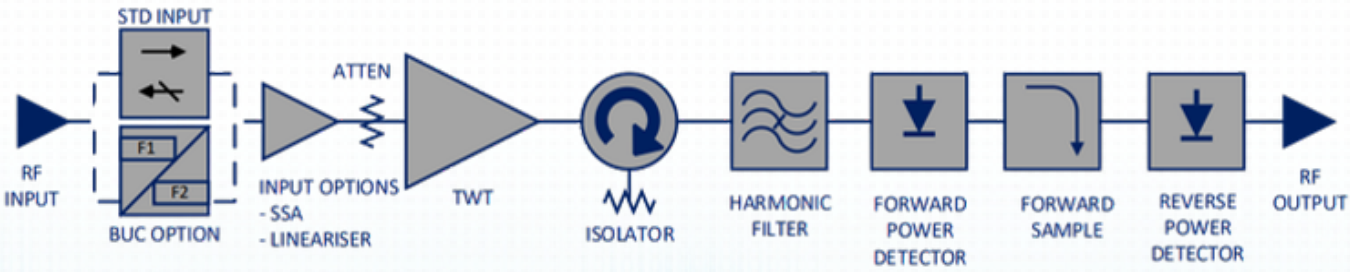
The company's products have an enviable reputation for performance, robust quality and reliable service. The STA6140 C is available with a wide range of options and accessories, backed by worldwide technical support.

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 CC4: 5.850 – 7.025 GHz CC6: 6.725 – 7.025 GHz	
Output Power (for load 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[1] ≤ 4.0 dB peak-peak[2]	
Slope, ΔG_{SLOPE}		± 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_{ADJ}		30.0 dB typical	
Adjustment step size		0.1 dB	
AM/PM		≤ 2.5°/dB @ P_O ≤ Prated-7 dB[1] ≤ 2.5°/dB @ P_O ≤ Prated-4 dB[2]	
Inter-modulations (IMD) 2 equal carriers 10MHz apart		≤ -18 dBc @ P_O ≤ Prated-4 dB[1] ≤ -26 dBc @ P_O ≤ Prated-4 dB[2]	
Spectral Re-growth (SR)		≤ -30 dBc @ P_O ≤ Prated-6 dB[1] ≤ -30 dBc @ P_O ≤ Prated-4 dB[2]	
Noise Power Ratio (NPR)		≤ -19 dBc @ P_O ≤ P_{LIN} – 1 dB	
Noise power	Transmit band	≤ –70 dBW/4 kHz[1] ≤ –65 dBW/4 kHz[2]	
	3.4 – 4.2 GHz	≤ –150 dBW/4 kHz	
	12.0 – 18.0 GHz	≤ –110 dBW/4 kHz	
Spurious @ P_O ≤ MLP		≤ -60 dBc	
Residual AM		≤ –50 dBc, f < 10kHz ≤ -20(1.5+LOG(frequency KHz))dBc, f = 10KHz to 500KHz ≤ -85 dBc >500KHz	
Phase Noise		10dB below IESS requirement[3] ≤ -50 dBc max, AC fundamental ≤ -47 dBc max, Sum of all spurs	
Group Delay	Linear	0.01 nsec/MHz, max	
	Parabolic	0.002 nsec/MHz^2, 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 2nd & 3rd		≤ -60 dBc	

1) No Linearizer 2) With Linearizer

Electrical	
AC Input Voltage	100-240 VAC ± 10%, single phase 50-60 Hz ± 5%
Inrush Current	200% max.
Power Consumption	1350 VA typical 1450 VA maximum
Power Factor	0.98 typical 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 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 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 @ ≥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.

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