1250W Ultralinear DBS-Band Antenna Mount HPA

TThe STA74125P DBS 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.

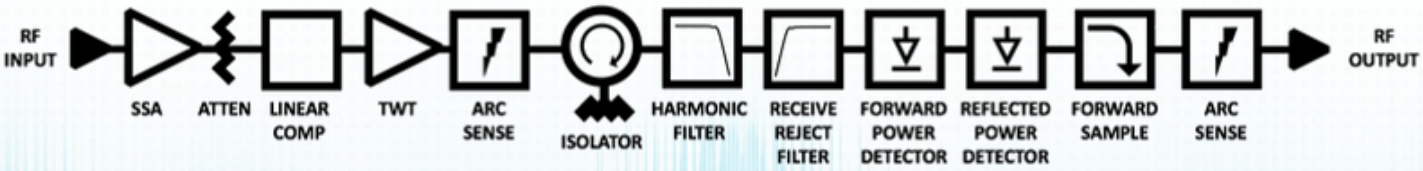
The STA74125P DBS is available with a wide range of options and accessories, backed by worldwide technical support.

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
- Modular construction for long term serviceability
- Removable air filters
- 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	DB1	17.3 – 18.1 GHz	
	DB2	17.3 – 18.4 GHz	
	DB3	17.3 – 17.8 GHz	
Bandwidth		800 MHz / 1300 MHz	
Output Power (for load VSWR ≤ 1.5:1)	TWT Power, Peak/CW	1250 W/ 750 W (60.97/58.75 dBm)	
	HPA Flange Power, Peak/CW	1114 W/ 668 W (60.47/58.25 dBm)	
	Linear, P_{LIN}	57.5 dBm (565 W)	
Gain		≥ 70 dB	
Gain Variation, 80 MHz, ΔG_{80MHz}		≤ 0.8 dB peak-peak	
Gain Variation, 800 MHz, ΔG_{750MHz}		≤ 2.5 dB peak-peak	
Slope, ΔG_{SLOPE}		± 0.04 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 @ $P_O \leq P_{LIN}$ - 1dB		≤ 2.0°/dB	
Inter-modulations (IMD) 2-tone		≤ -28 dBc @ $P_O \leq P_{LIN}$ – 1 dB	
Spectral Re-growth (SR)		≤ -30 dBc @ $P_O \leq P_{LIN}$ – 1 dB	
Noise Power Ratio (NPR)		≤ -19 dBc @ $P_O \leq P_{LIN}$ – 1 dB	
Noise power		Transmit band: ≤ –70 dBW/4 kHz	
		Receive band (10.65 – 11.75/12.75 GHz): ≤ -150 dBW/4 kHz	
Spurious @ $P_O \leq$ 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 lower than IESS phase noise profile ≤ -50 dBc max, AC fundamental ≤ -47 dBc max, Sum of all spurs	
Group Delay	Linear	0.01 nsec/MHz, max	
	Parabolic	0.005 nsec/MHz^2, max	
	Ripple	0.5 nsec/Peak-Peak, max	
Input VSWR (Return Loss)		≤ 1.3:1 (17.7 dB)	
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	

Electrical	
AC Input Voltage	200-240 VAC ± 10%, single phase 50-60 Hz ± 5%
Full Load Current	13 A max @ 200 VAC
Power Consumption	2200 VA typical 2600 VA maximum
Power Factor	0.98 typical 0.96 minimum

Physical	
Dimensions (request outline)	54.61 cm deep x 32.38 cm wide x 27.93 cm height
Weight	38Kg (84lb) typ
RF Input	Type N(f) 50 ohm
RF Output	WR-62
RF Sample port	Type N(f) 50 ohm
AC Input	Amphenol 97-3102A-18-10P
Ethernet	RJF71B
M&C Connector	PT07E18-32S (MS3114E-18-32S)

Environmental	
Operating temperature	-40˚C to +60˚C
Derating	2 °C/300 m above sea level (3.6 °F/1000ft)
Storage temperature	-40 to +80 °C
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