# STA4525P Ka Series 250W Ultralinear Ka-Band Antenna Mount HPA

## FEATURES

**Ultralinear**
**Lightweight**
**High Efficiency**
**Broadband**

## STA4525P Ka series 250W Antenna Mount HPA

The STA4525P Ka 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.

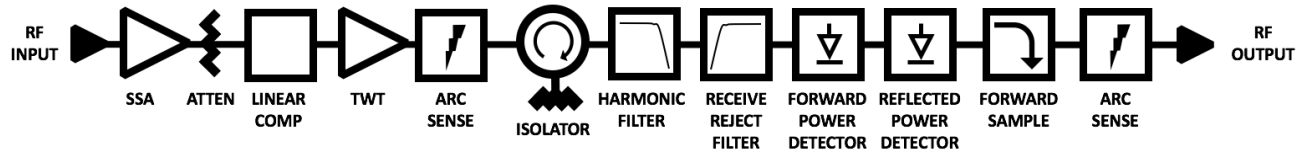
The company's products have an enviable reputation for performance, robust quality and reliable service.

The STA4525P Ka 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
- CE complaint
- 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 | |
| KA1 | 27.5 – 30.0 GHz |
| KA2 | 27.0 – 30.0 GHz |
| KA3 | 28.0 – 30.0 GHz |
| KA4 | 30.0 – 31.0 GHz |
| KA5 | 29.0 – 30.0 GHz |
| KA6 | 27.5 – 31.0 GHz |
| Bandwidth | 2500 MHz |
| Output Power | (for load VSWR ≤ 1.5:1) |
| TWT Power, PEAK | 54.0 dBm (250 W) |
| Rated (flange) | 50.4 dBm (110 W) typical |
| Linear, $P_{LIN}$ | 50.4 dBm (110 W) |
| Gain | |
| Gain | ≥ 70 dB |
| Variation, 250 MHz, $\Delta G_{250MHz}$ | ≤ 1.0 dB peak-peak |
| Variation, 1000 MHz, $\Delta G_{1000MHz}$ | ≤ 2.5 dB peak-peak |
| Slope, $\Delta G_{SLOPE}$ | ± 0.04 dB/MHz |
| Gain Stability vs. Time @constant drive & temp | ± 0.25 dB/24 hours |
| Gain Stability vs. Temperature @ constant drive & frequency | ± 1.0 dB |
| Adjustment range, $G_{ADJ}$ | 30.0 dB typical |
| Adjustment step size | 0.1 dB |
| Linearity | |
| AM/PM @ $P_O \leq P_{LIN}$ - 1dB | ≤ 1.5°/dB |
| Inter-modulations (IMD) 2-tone | ≤ -26 dBc @ 85W |
| 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 |
| Noise Power | |
| Transmit Band ($T_X$) | ≤ -70 dBW/4KHz |
| Receive Band ($R_X$) | ≤ -150 dBW/4KHz (≤ 21.2 GHz) |
| Spurious @ $P_o \leq$ 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 | 10 dB below IESS requirement<br>≤ - 50 dBc, AC fundamental<br>≤ - 47 dBc, Sum of all spurs |
| Group Delay (any 80 MHz) | |
| Linear | 0.01 nsec/MHz, max |
| Parabolic | 0.005 nsec/MHz$^2$, max |
| Ripple | 0.5 nsec/Peak-Peak, max |

## Prime Power:

| | |
|---|---|
| AC Input Voltage | 100-240 VAC ± 10%, single phase<br>50-60 Hz ± 5% |
| Full Load Current | 6.5 A max @ 100 VAC |
| Power Consumption | 575 VA typical<br>650 VA maximum |
| Power Factor | 0.98 typical<br>0.96 minimum |

## Environmental:

| | |
|---|---|
| Ambient Temperature | -40°C to +60°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/m$^2$ |

## Mechanical:

| | |
|---|---|
| Dimensions | Request outline |
| Length | 44 cm |
| Width | 22 cm |
| Height | 22 cm |
| Weight | 16 kg typical |
| RF Input | WR-28 (Optional WR-34 / 2.92m SMA) |
| RF Output | WR-28 (Optional WR-34) |
| RF Sample | 2.9mm SMA Female |
| AC Input | Amphenol C016 20C003 200 12 |
| Ethernet | RJF71B (IP67 RJ45 Connector) |
| M&C Connector | PT07E18-32S (MS3114E-18-32S) |

Specification subject to change without notice