

## Features

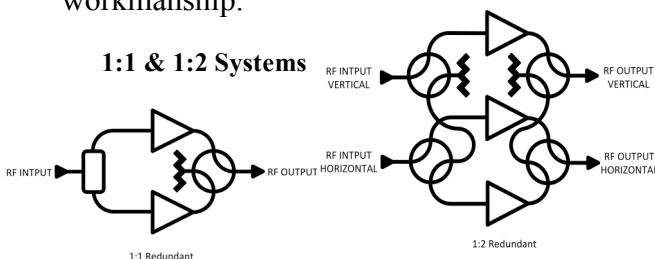
- 250 Watt Linearized TWT
- 110 Watt Linear Power @ Flange
- Low Power Consumption
- Ethernet with SNMP
- Web Page
- RS-232 & RS-485
- Beacon receiver interface
- Integrated redundancy, 3 switches
- Data & Event Logger
- Selectable discrete interfaces  
Interlock, RF inhibit, Fault
- RF arc protection
- Reflected power protection
- Thermal protection
- Air Filter



The PA17-Ka250P series power amplifiers provide the best in class Size, Weight and Power performance of any SATCOM outdoor power amplifier. These amplifiers are designed to optimize linear power performance and minimize power consumption, making them the most efficient linear power amplifiers available. The carbon footprint of a PA17-Ka250P is driven by the high efficiency power conversion of the traveling wave tube; an unmatched technology for power conversion.

The PA17-Ka250P series power amplifiers are designed for global use. The reduced size and weight is user friendly for shipping and installation.

Reliability is built-in. Designs are qualified and all products are manufactured in the USA under very stringent standards for quality and workmanship.

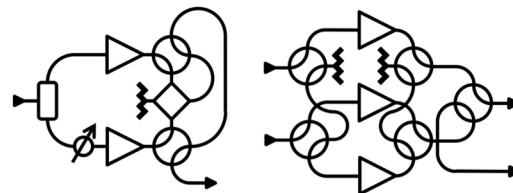


The PA17-Ka250P amplifier's internal monitor & control system provides Ethernet connectivity with plug and play web page interface for out of the box use. In addition SNMPv2 is supported.

Each amplifier includes a detailed system configuration interface for custom integration, as well as, multiple serial interfaces and multiple configurable discrete interfaces.

The PA17-Ka250P series power amplifiers are equipped with internal redundancy control, eliminating the need for external controllers. Systems can be configured for redundancy, power combining and combinations of these. Custom configurations with up to 3 switches can be managed over addressable Ethernet on a local area network.

## Redundant and Phase Combined Systems



# PA17-Ka250P

## RF Performance:

|   |  |
|---|--|
| Frequency   | 27.5 – 30.0 GHz  |
| Bandwidth   | 2500 MHz   |
| Output Power  | (for load VSWR $\leq$ 1.5:1)   |
| TWT Power, PEAK ( $P_{TWT-PK}$ ) *                          | 54.0 dBm (250 W) typical   |
| Rated ( $P_{RATED}$ ) (PA flange) *                         | 50.4 dBm (110 W)   |
| Maximum Linear (MLP), $P_{MLP}$                             | 50.4 dBm (110 W)   |
| Gain  |  |
| Gain  | $\geq$ 70 dB   |
| Variation, 250 MHz, $\Delta G_{250MHz}$                     | $\leq$ 1.0 dB peak-peak  |
| Variation, 1000 MHz, $\Delta G_{1000MHz}$                   | $\leq$ 2.5 dB peak-peak  |
| Slope, $\Delta G_{SLOPE}$                                   | $\pm$ 0.04 dB/MHz  |
| Gain Stability vs. Time @ constant drive & temp             | $\pm$ 0.25 dB/24 hours   |
| Gain Stability vs. Temperature @ constant drive & frequency | $\pm$ 1.0 dB   |
| Adjustment range, $G_{ADJ}$                                 | 30.0 dB typical  |
| Adjustment step size  | 0.1 dB   |
| Linearity   |  |
| AM/PM @ $P_O \leq MLP - 1$                                  | $\leq$ 2.0°/dB   |
| Inter-modulations (IMD) 2-tone                              | $\leq$ -28 dBc @ $P_O \leq MLP - 1$ dB   |
| Spectral Re-growth (SR)                                     | $\leq$ -30 dBc @ $P_O \leq MLP - 1$ dB   |
| Noise Power Ratio (NPR)                                     | $\leq$ -20 dBc @ $P_O \leq MLP - 1.5$ dB   |
| Input VSWR (Return Loss)                                    | $\leq$ 1.3:1 (17.7 dB)   |
| Output VSWR (Return Loss)                                   | $\leq$ 1.3:1 (17.7 dB)   |
| Load VSWR (no damage)                                       | $\leq$ 2.0:1 (9.5 dB)  |
| Harmonic 2 <sup>nd</sup> & 3 <sup>rd</sup>                  | $\leq$ -60 dBc   |
| Noise Power   |  |
| Transmit Band ( $T_x$ )                                     | $\leq$ -70 dBW/4KHz  |
| Receive Band ( $R_x$ )                                      | $\leq$ -150 dBW/4KHz ( $\leq$ 21.2 GHz)  |
| Spurious @ $P_O \leq MLP$                                   | $\leq$ -60 dBc   |
| Residual AM   | $\leq$ -50 dBc, $f < 10$ KHz<br>$\leq$ -20(1.5+LOG(frequency KHz)) dBc<br>$f = 10$ KHz to 500KHz<br>$\leq$ -85 dBc $> 500$ KHz |
| Phase Noise   | 10 dB below IESS requirement<br>$\leq$ -50 dBc, AC fundamental<br>$\leq$ -47 dBc, Sum of all spurs                             |
| Group Delay (any 80 MHz)                                    |  |
| Linear  | 0.01 nsec/MHz, max   |
| Parabolic   | 0.005 nsec/MHz <sup>2</sup> , max  |
| Ripple  | 0.5 nsec/Peak-Peak, max  |

\* The users exact frequency range must be specified at the time of purchase. Performance is dependent on the TWT and TWT-Linearizer optimization as a function of frequency.

## Prime Power:

|                   |  |
|-------------------|--|
| AC Input Voltage  | 100-240 VAC, single phase<br>90-264 VAC maximum range<br>50-60 Hz $\pm$ 5% |
| Full Load Current | 6.5 A max @ 100 VAC  |
| Power Consumption | 575 VA typical<br>650 VA maximum   |
| Power Factor      | 0.99 typical<br>0.96 minimum   |

## Environmental:

|                     |   |
|---------------------|---|
| Ambient Temperature | -40°C to +60°C  |
| Relative Humidity   | 100% condensing   |
| Altitude            | 12,000 ft. max. with standard adiabatic de-rating of 2°C/1000 ft., operating<br><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  |

## Mechanical:

|                     |   |
|---------------------|---|
| Dimensions          | Request outline at<br><a href="http://sales@tango-wave.com">http://sales@tango-wave.com</a> |
| Length              | 17.0 inches (43.2 cm)   |
| Width               | 8.5 inches (21.6 cm)  |
| Height              | 8.5 inches (21.6 cm)  |
| Weight              | 36 pounds (16.0 kg) typical   |
| Cooling             |   |
| Forced Air          | 120 cfm (200 m <sup>3</sup> /hr) typical  |
| Thermal Load        | 1600 BTU/hour typical<br>1850 BTU/hour maximum  |
| Connectors          |   |
| RF Input            | WR-34   |
| RF Output           | WR-34   |
| RF Output Sample    | Type K(f), 50 ohm   |
| AC Input            | Amphenol C016 20C003 200 12   |
| Ethernet            | RJF71B  |
| M&C Connector       | PT07E18-32S (MS3114E-18-32S)  |
| Auxiliary Connector | PT07E18-32SW (MS3114E-18-32SW)  |

## Options:

|            |  |
|------------|--|
| Ka2730     | 27.0 – 30.0 GHz ( $R_x \leq 21.2$ GHz)       |
| Ka2830     | 28.0 – 30.0 GHz ( $R_x \leq 21.2$ GHz)       |
| Ka3031     | 30.0 – 31.0 GHz ( $R_x \leq 21.2$ GHz)       |
| BUC10      | Integrated block up-converter with reference |
| WR-28-ADPT | RF Output – WR-34-to-WR-28 adapter           |
| QDC34      | Waveguide quick connector, WR-34             |
| QDC28      | Waveguide quick connector, WR-28 adapter     |
| CON-AUX    | Auxiliary Connector Cable Plug               |

PA17-Ka250P