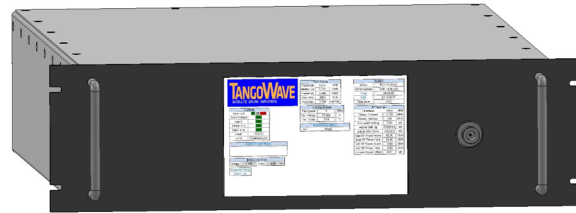


## Features

- 400 Watt Linearized TWT
- 355 Watt Rated 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



The PA3RU-Ku400 series power amplifiers provide the best in class Size, Weight and Power performance of any SATCOM 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 PA3RU-Ku400 is driven by the high efficiency power conversion of the traveling wave tube; an unmatched technology for power conversion.

The PA3RU-Ku400 series power amplifiers are designed for global use. The reduced size and weight is user friendly for shipping and installation.

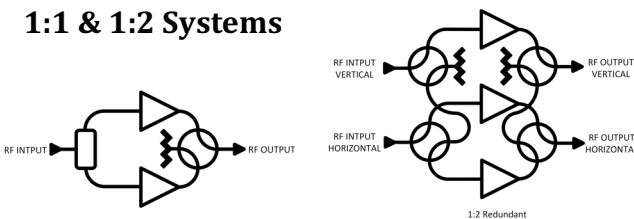
Reliability is built-in. Designs are qualified and all products are manufactured in the USA under very stringent standards for quality and workmanship.

The PA3RU-Ku400 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.

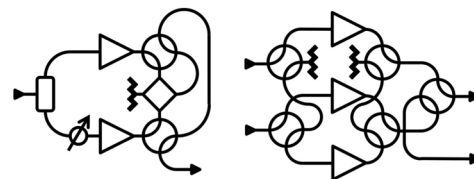
Each amplifier includes a detailed system configuration interface for custom integration, as well as, multiple serial interfaces and multiple configurable discrete interfaces.

The PA3RU-Ku400 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.

## 1:1 & 1:2 Systems



## Redundant and Phase Combined Systems



## RF Performance:

Frequency	13.75 – 14.5 GHz
Bandwidth	750 MHz
Output Power	(for load VSWR ≤ 1.5:1)
TWT Power	56.0 dBm (400 W) typical
Rated (P <sub>RATED</sub> ) (PA flange)	55.5 dBm (355 W)
Maximum Linear (MLP), P <sub>MLP</sub>	52.5 dBm ( 180 W)

## Gain

Gain	≥ 70 dB
Variation, 80 MHz, ΔG <sub>80MHz</sub>	≤ 0.8 dB peak-peak
Variation, 750 MHz, ΔG <sub>750MHz</sub>	≤ 2.5 dB peak-peak
Slope, ΔG <sub>SLOPE</sub>	± 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 <sub>ADJ</sub>	30.0 dB typical
Adjustment step size	0.1 dB

## Linearity

AM/PM @ P <sub>O</sub> ≤ MLP	≤ 2.0°/dB
Inter-modulations (IMD) 2-tone	≤ -28 dBc @ P <sub>O</sub> ≤ MLP – 1 dB
Spectral Re-growth (SR)	≤ -30 dBc @ P <sub>O</sub> ≤ MLP – 1 dB
Noise Power Ratio (NPR)	≤ -20 dBc @ P <sub>O</sub> ≤ MLP – 1.5 dB

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 2 <sup>nd</sup> & 3 <sup>rd</sup>	≤ -60 dBc

## Noise Power

Transmit Band (T <sub>x</sub> )	≤ -70 dBW/4KHz
Receive Band (R <sub>x</sub> )	≤ -150 dBW/4KHz (10.65 – 12.75 GHz)

Spurious @ P <sub>O</sub> ≤ 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	10 dB below IESS requirement ≤ - 50 dBc, AC fundamental ≤ - 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

## Prime Power:

AC Input Voltage	100-240 VAC, single phase 90-264 VAC maximum range 50-60 Hz ± 5%
Full Load Current	13.0 A max @ 100 VAC
Power Consumption	1000 VA typical 1300 VA maximum
Power Factor	0.99 typical 0.96 minimum

## Environmental:

Ambient Temperature	-10°C to +50°C
Relative Humidity	95% non condensing
Altitude	12,000 ft. with standard adiabatic de-rating of 2°C/1000 ft., operating  50,000 ft., non-operating
Shock	5 g peak, 11mSec, 1/2 sine
Vibration	2 g rms, 10-500 Hz
Acoustic Noise	65 dBA @ ≥3 ft. from amplifier

## Mechanical:

Dimensions	3 Units 19 inch Rack Mount Outline info: <a href="mailto:sales@tango-wave.com">sales@tango-wave.com</a>
Length	24.0 inches (61.0 cm)
Width	17.0 inches (43.2 cm)
Height	5.25 inches (13.3 cm)
Weight	49 pounds (22 kg) typical
Cooling	
Forced Air	200 cfm (340 m <sup>3</sup> /hr) typical
Thermal Load	2800 BTU/hour typical 3300 BTU/hour maximum

## Connectors

RF Input	Type N(F), 50 Ohm (Rear panel )
RF Output	WR-75
RF Output Sample	Type N(F), 50 ohm (Front panel )
AC Input	IEC 60320 C20
Ethernet	RJ 45
RS232	DB-9 (F)
RS485	DB-9 (F)
Auxiliary	DB-25 (F)
Redundancy	DB-37 (F)

## Options:

Ku1325	12.75 - 13.25 GHz (R <sub>x</sub> 10.65 – 11.75 GHz)
Ku1275	12.75 - 14.50 GHz (R <sub>x</sub> 10.65 – 11.75 GHz)
Ku1480	14.50 - 14.80 GHz (R <sub>x</sub> 10.65 – 12.75 GHz)
BUC10	Integrated block up-converter with reference
Rx1275	External filter (R <sub>x</sub> 10.65 – 12.75 GHz), applies to option Ku1275
WR-62-ADPT	RF Output – WR-75-to-WR-62 adapter