400W Ku-Band Rack Mount TWTA

The new generation of STR Series rack mount TWTAs provide an easy to operate, colour touch screen interface with a multi-functional selector wheel. The colour touch screen display provides clear, easy to read status of the amplifier's operation, including: RF output power monitoring, heater, helix monitoring, & TWT temperature. Set up screens are intuitive and simple to manage and the touch panel allows full local control and monitoring of all amplifier parameters, including automatic level control, system event logging and graphical trend analysis. Remote control operation can be made via RS485 or through an Ethernet interface, and a web page interface is also available. If a redundancy system is required, this can be set up and controlled via the touch screen.
Changes to operating parameters can be locked and password protected if required.

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 STR5340 is available with a wide range of options and accessories, backed by round-the-clock, worldwide technical support.

Options

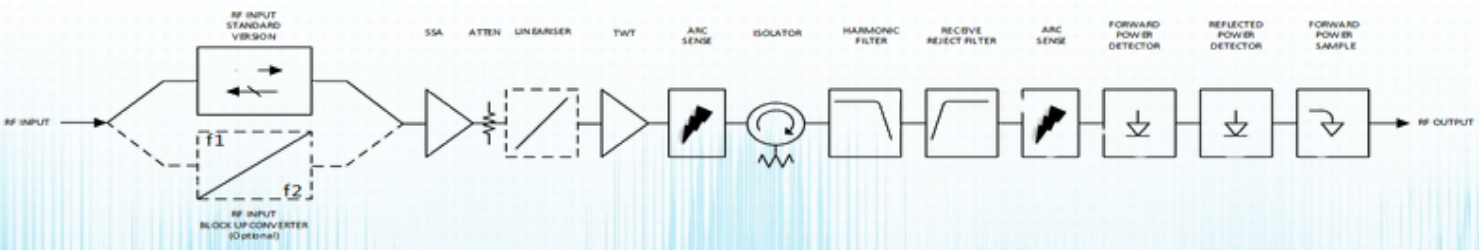
- L-Band Block upconverter
- Auto sense Int/Ext Reference Source



Features

- Compact 4RU enclosure
- Touch screen control
- Ethernet interface
- Remote diagnostics
- Forward and reverse power monitoring
- TWTA performance Data and Event logging
- Constant Power Control
- Uplink Power Control (UPC)
- Redundant Control - contains control and drive circuits for 1:1 or 1:2 redundancy

Block Diagram



Performance (without Upconverter)			
Frequency range	KU1	13.75 – 14.50 GHz	
	KU2	12.75 – 14.50 GHz	
	KU3	13.75 – 14.80 GHz	
	KU4	12.75 – 13.25 GHz	
Bandwidth		500 MHz / 750 MHz	
Output Power (for load VSWR ≤ 1.5:1)	TWT Power	56.0 dBm (400 W)	
	HPA rated output	55.4 dBm (350 W) typ.	
Gain		≥ 70 dB	
Gain Variation		80 MHz, ΔG_{80MHz}, ≤ 0.8 dB peak-peak 750 MHz, ΔG_{750MHz}, ≤ 2.5 dB peak-peak	
Slope		± 0.04 dB/MHz	
Gain Stability vs Time		± 0.25 dB / 24 hours	@ constant drive & temperature
Gain Stability vs Temperature		± 1.0 dB	@ constant drive & frequency
Adjustment range		30 dB typ.	
Adjustment step size		0.1 dB	
AM/PM @ $P_O \leq P_{LIN}$ –1dB		≤ 2.0°/dB	
Intermodulation (IMD) 2-tone		no Linearizer: ≤ -18 dBc @ $P_O \leq P_{LIN}$ –1dB with Linearizer: ≤ -26 dBc @ $P_O \leq P_{LIN}$ –1dB	
Spectral Re-growth (SR)		with Linearizer: ≤ -30 dBc @ $P_O \leq P_{LIN}$ –1dB	
Noise Power Ratio (NPR)		with Linearizer: ≤ -19 dBc @ $P_O \leq P_{LIN}$ –1dB	
Noise power		Transmit Band (Tx): ≤ –70 dBW/4 kHz max	
		Receive Band (Rx): ≤ -150 dBW/4 kHz (10.65-11.75/12.75 GHz)	
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	
Harmonic output		-60 dBc max	
Phase Noise		10 dB below IESS requirement ≤ -50 dBc, AC fundamental ≤ -47 dBc, 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 (operating)		≤ 1.3:1 (17.7 dB)	
Output VSWR (non-operating)		≤ 1.3:1 (17.7 dB)	
Load VSWR (no damage)		≤ 2.0:1 max (9.5 dB)	

Electrical	
AC Input Voltage	100-240 VAC ± 10%, single phase 50-60 Hz ± 5%
Full Load Current	12.5 A max @ 200 VAC
Power Consumption	1300 VA typ., 1450 VA max
Power factor	0.98 typ., 0.96 min

Physical	
Dimensions (request outline)	60.96 cm deep x 48.26 cm wide x 17.78 cm height
Weight	32 Kg typ
RF Input	Type N(f) 50 ohm
RF Output	WR-75
RF Sample	Type N(f) 50 ohm
AC Input	Amphenol C016 20C003 200 12
Ethernet	RJF
Com	9-Way D-Type
Aux Interface	25-Way D-Type
WG Switch	37-Way D-Type

Environmental	
Ambient temperature	-10˚C to +60˚C
Relative humidity	100% condensing
Altitude	Operating: 12,000 ft. with standard adiabatic derating of 2°C/1000 ft Non-operating: 50,000 ft.
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

For operation outside these parameters, refer to ETL Systems for guidance.

ETL Systems Ltd, Coldwell Radio Station,
Madley, Hereford, England HR2 9NE
info@etlsystems.com
+44 (0)1981 259020