



## STA1340 Series, 400W, Ku-Band, Antenna Mount TWTA

The STA1340 range of Ku-Band TWT provide over 350 W of output power in a compact, lightweight, rugged, weather-proof, antenna mount enclosure. The advanced packaging and cooling techniques (Stellar Cool™, patent pending) 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 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 STA1340 is available with a wide range of options and accessories, backed by round-the-clock, worldwide technical support.

### Options

- Integral solid-state amplifier (SSA)
- L-band block upconverter
- Gain control (requires SSA)
- Lineariser
- Break-out link for upconverter

### Features

- Advanced cooling design (Stellar Cool™, patent pending) enables operation at +55 °C and in direct sunlight.
- Weatherproof antenna mount construction allows exposed mounting.

- CE compliant.
- cETLus listed.
- CB certified.
- 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.
- Round-the-clock hotline support.
- Wide range of accessories including: controllers, waveguide networks, cable assemblies.



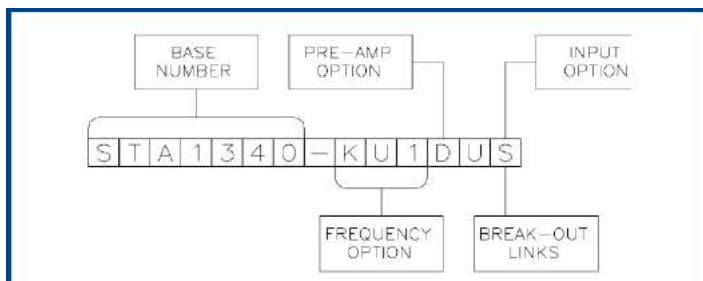
## CONTROLS

Type	Function
<b>REMOTE CONTROL</b>	Off Standby Transmit RF inhibit  Off Warm-up Standby Transmit Fault Summary Reflected Power External interlock TWT too hot Mean Helix Current Peak Helix Current High Power Alarm Low Power Alarm
<b>REMOTE STATUS/MONITOR</b>	High Power Alarm Set* Low Power Alarm Set* Auto Redundancy Control* RF Switch Control* Gain Control* (when fitted)  Output Power Monitor* Reflected Power Monitor* Helix Current Monitor* Helix Voltage* Collector Voltages* Heater Voltage* Heater Current Elapsed Hours
<b>INTERFACES</b>	RS-422/485 Dry Relay Contact
<b>Other Features</b>	Auxiliary Output Voltage Redundant system & waveguide switch drive 'Stand Alone' setting for automatic power-up

**Note:** Controls/Monitoring marked\* are only available via Serial Interface.

### OPTIONS

Extensive options are offered with the STA1340 and include: integral pre-amplifiers, gain control, linearisers and block upconverters. The options are defined by adding to the base number as shown below:



(Consult SpacePath Communications for availability of options)

### Frequency Options

The STA1340 is offered in a number of frequency bands:

- KU1 - 13.75 – 14.50 GHz
- KU2 - 12.75 – 14.50 GHz
- KU3 - 13.75 – 14.80 GHz
- KU4 - 12.75 – 14.80 GHz
- KU5 - 12.75 – 14.50 GHz (BUC 12.75-13.25/13.75-14.50GHz)
- KU6 - 12.75 – 14.80 GHz
- KU7 - 12.75 – 14.80 GHz (BUC 14.30-14.80GHz)

### Pre-Amp Option

The pre-amp option can be selected from any of the following:

- A - Integral solid-state amplifier (typical SSG 78 dB).
- D - As option 'A' but includes an attenuator to provide 25dB (min.) of gain control.

Z - Integral lineariser that improves the linearity of the HPA, providing a C/I of typically -26 dBc at 4 dB OPBO.

The lineariser also incorporates the pre-amp and gain control options. (Consult SpacePath Communications for availability).

### Input Option

The STA1340 can be offered with an L-Band Block Upconverter. Specify:

N - Standard RF

U - L – Ku-Band Block Upconverter (see page 4)

Note: the upconverter requires the inclusion of either the 'D' or 'Z' options. (Consult SpacePath Communications for availability).

### Break-Out Links

Available only with the upconverter option, this enables bypassing of the upconverter and can be used for monitoring, set-up, redundant switching etc. Specify 'S' for Break-Out Links (leave blank if not required).

### ACCESSORIES

The STA1340 is supplied with an operation manual, prime power connector mating part, interface connector mating part and air cowls. Additional accessories include:

- **N6080 Override Controller**

Provides automatic power-up for 'emergency' situations.

- **SPC1U01 1:1 Control Unit**

Provides control of 2 HPA's in 1:1 switch configuration. (The waveguide switch network can also be supplied).

- **Cable Assemblies**

For connecting STA1340 to controllers and waveguide switches. Refer to data sheet A1A-Stellar\_Cables.

- **DAS563750AA**

Additional mains connector parts.

- **DAS563751AA**

Additional interface connector parts.

For more information on accessories, contact SpacePath Communications.

## PERFORMANCE WITH INTEGRAL BLOCK UPCONVERTER

Output frequency range:	
option KU1 .....	13.75 to 14.5
option KU5 .....	12.75 to 14.5
L-band input:	
frequency range option KU1 .....	950 to 1700
frequency range option KU5 .....	950 to 1700
frequency range option KU7 .....	950 to 1700
level .....	10
LO frequency:	
option KU1 .....	12.8
option KU5 .....	13.05
option KU7 .....	13.35
External reference (see note):	
frequency .....	10
level .....	-3 to +7
impedance .....	50
Output power:	
TWT output flange .....	400
HPA rated output .....	350
Gain:	
at rated power (D, Z option) .....	70
SSG Prated -10 dB (D, Z option) .....	75
Attenuation range (D, Z option) .....	25
Gain variation:	
full band .....	4.0
over any 40 MHz band .....	1.5
slope .....	0.08
Gain stability 24hrs (constant drive, temperature and load).....	0.5
Gain stability over full operating temperature.....	2.0
Intermodulation (two equal carriers) with total output = Prated -4 dB:	
options A, D .....	-18
performance with linearised option, Z .....	-24
Harmonic output .....	-60
AM to PM conversion at Prated -6 dB .....	2.5
Noise power:	
transmit band .....	-70 dBW/4 kHz max
receive band (10.95 – 12.75 GHz) .....	-150 dBW/4 kHz max

Residual AM >100 kHz from carrier .....	-60 dBc max
GHz	
Group delay:	
GHz linear .....	0.01 ns/MHz
GHz parabolic .....	0.005 ns/MHz <sup>2</sup>
MHz ripple .....	0.5 ns p-p
MHz Phase noise:	
Continuous .....	meets IESS phase noise profile
dBm max	
AC fundamental .....	-50 dBc
Sum of all spurs .....	-47 dBc
GHz Input VSWR (non-operating) .....	1.6:1 max
GHz Output VSWR (non-operating) .....	1.3:1 max
GHz Load VSWR, no damage .....	2.0:1 max
Note: the BUC can be operated without the external reference, typical frequency stability ±0.25 ppm.	

### HEALTH AND SAFETY HAZARDS

W min  
W min

Stellar satellite amplifiers are safe to handle and operate provided that the relevant precautions are observed. SpacePath Communications does not accept responsibility for damage or injury resulting from the use of electronic devices it produces.

### High Voltage

dB min  
dB min  
dB min

Dangerous voltages are present within the TWT amplifier when operating normally. However, the equipment is designed so that personnel cannot come into contact with high voltage circuits unless covers are removed.

### RF Radiation

dB max  
dB max

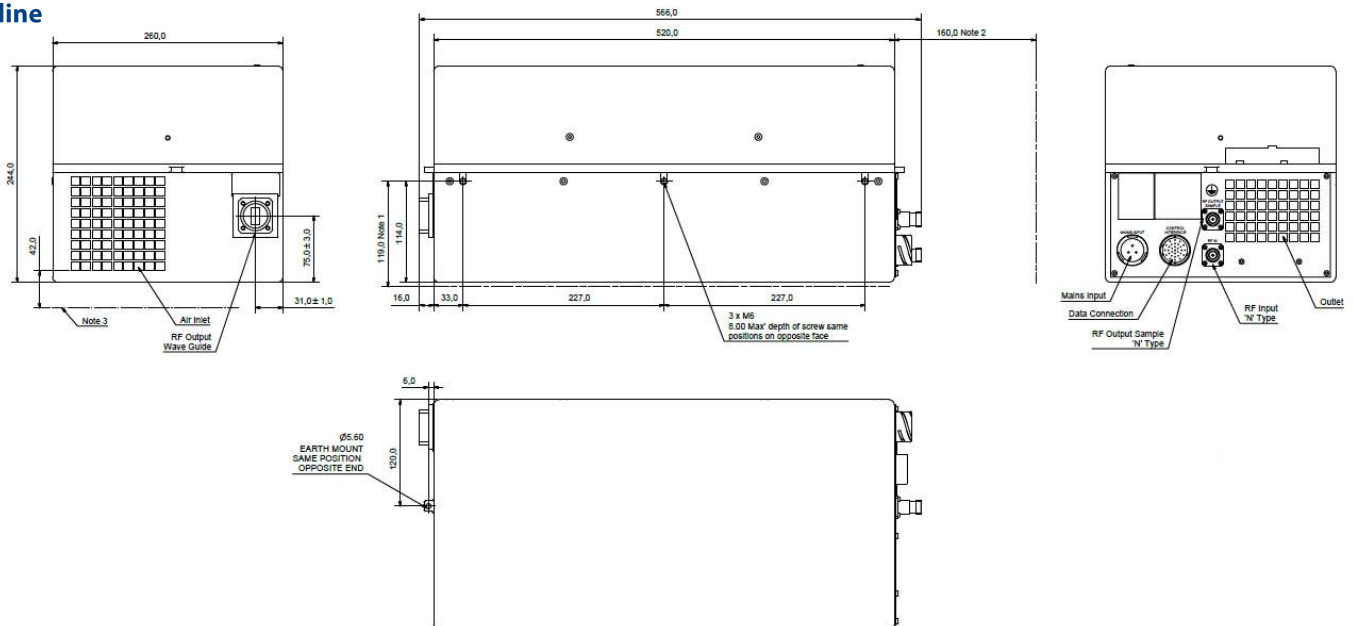
All RF connectors must be correctly fitted before operation.

### Beryllia

dB max  
%dB

The TWT in the amplifier contains Beryllium Oxide ceramic parts. These are not accessible unless the TWT casing is damaged. Consult SpacePath Communications regarding the disposal of damaged or life expired tubes.

## Outline



Whilst SpacePath Communications has taken care to ensure the accuracy of the information contained herein it accepts no responsibility for the consequences of any use thereof and also reserves the right to change the specification of goods without notice. SpacePath Communications accepts no liability beyond the set out in its standard conditions of sale in respect of infringement of third party patents arising from the use of tubes or other devices in accordance with information contained herein.