

# STR1340 Series 400W, Ku-Band Touchscreen Indoor TWTA



# STR1340Series, 400W, Ku-Band, Rack Mount TWTA

The new generation of STR Series rack mount TWTAs provide an easy to operate, colour touchscreen interface with a multi-functional selector wheel. The colour touchscreen 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 touchscreen. 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.

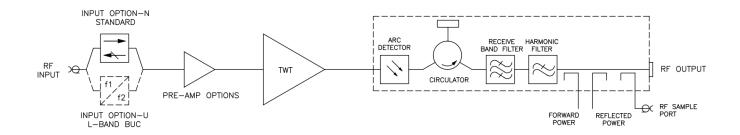
The STR1340 is available with a wide range of options and accessories, backed by worldwide technical support.

#### **OPTIONS**

- Integral solid-state amplifier (SSA)
- L-Band Block upconverter
- 10MHz reference
- Lineariser
- Redundant system control
- Quick connect waveguide options

#### **FEATURES**

- Touchscreen control
- Ethernet interface
- Remote diagnostics
- Forward and reverse power monitoring
- TWTA performance Data and Event logging
- Built-in redundancy control
- Waveguide arc detection



<b>PERFORMANCE</b> (V	/ithout U	pconverter)
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Frequency range:
KU113.75 to 14.50 GHz
KU212.75 to 14.50 GHz
KU313.75 to 14.80 GHz
KU412.75 to 13.25 GHz
KU612.75 to 14.80 GHz
Output power:
TWT output flange 400 W min
HPA rated output 350 W min
Gain:
at rated power (C option) 45 dB min
at rated power (A, D, Z option)
SSG Prated –10 dB (C option) 50 dB min
SSG Prated –10 dB (A, D, Z option) 78 dB min
Attenuation range (D, Z option)
Gain variation:
full band 2.5 dB max
over any 80 MHz band 1.0 dB max
slope
Gain stability 24hrs (constant drive,
temperature and load)
Gain stability over full operating temperature 2.0 dB max
Intermodulation (two equal carriers)
with total output = Prated –4 dB:
options A, D18 dBc max
performance with linearised option, Z24 dBc max
Harmonic output60 dBc max
AM to PM conversion at Prated –6 dB
Noise nower:
transmit band70 dBW/4 kHz max
receive band
10.95 – 12.75 GHz - standard –150 dBW/4 kHz max
10.70 – 11.70 GHz - extended –150 dBW/4 kHz max
Residual AM:
<10 kHz50 dBc max
10 kHz< f <500 kHz20(1.5+log f) dBc max
>500 kHz85 dBc max
Group delay:
linear 0.01 ns/MHz
parabolic
ripple
Phase noise:
continuous
AC fundamental50 dBc
sum of all spurs47 dBc
Input VSWR (operating) 1.3:1 max
Output VSWR (non-operating)
Load VSWR, no damage
Voltage
VOIIAGE 99 IO 765 V

# **ELECTRICAL**

Prime power	single phase, line-neutral or line-line
Frequency	47 to 63 Hz
Power requirement	1350 VA max
Power factor	0.95 min

#### **MECHANICAL**

Weight	25.0 kg (55 lb) typ
Dimensions	3 , , ,
Cooling	integral forced-air

#### **CONNECTORS**

RF input	N-type female
	WR75 with 6-32 UNC 2B threaded holes
RF sample port	N-type female
Prime power	IEC 60320
Control interface	15way D-type female
	ors for the mains supply and control
interface are supplied.	

# **ENVIRONMENTAL**

For operation outside these parameters, refer to SpacePath Communications for guidance.

Derating	2 °C/300 m above sea level
_	(3.6 °F/1000 ft)
Storage temperature	40 to +80 °C
	nsing) 100 %
Altitude:	_
operating	4.5 km (15,000 ft) max
non-operating	12 km (40,000 ft) max
Vibration BS	EN 60068-2-64 test Fh, Transportation

Shock ...... IEC Publication 68-2-27 Part 2 Test Ea, 25 g

Operating temperature (see note 1) .....-40 to +55 °C

EN61000-6-3:2001 (Emissions) EN61000-6-2:2001 (Immunity)

FCC CFR47 Part 15B

#### **CE CERTIFIED**

EMC Directive 89/336/EEC, Low Voltage Directive 73/23/EEC.

#### NOTES

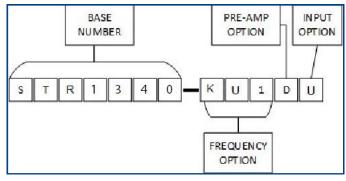
- 1. +55 °C applies when the input supply voltage is between 180 and 265 V. Below 180 V, the maximum operating temperature is +50 °C.
- 2. Safety applies for operating altitude up.

### **CONTROLS**

Туре	Function	
REMOTE CONTROL	Off Standby Transmit RF inhibit	High Power Alarm Set Low Power Alarm Set Auto Redundancy Control RF Switch Control Gain Control (when fitted)
REMOTE STATUS/MONITOR	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 Arc Fault	Output Power Monitor Reflected Power Monitor Helix Current Monitor Helix Voltage Collector Voltages Heater Voltage Heater Current Elapsed Hours
INTERFACES Serial User	RS-422/485 / Ethernet Dry Relay Contact	
Other Features	Auxiliary Output Voltage Redundant system & wavegui	ide switch drive

#### **OPTIONS**

Extensive options are offered with the STR1340 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 STR1340 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 25 dB (min) of gain control
- Z Integral lineariser that improves the linearity of the HPA, providing a C/I of typically –26 dBc at 4dB OPBO. The lineariser also incorporates the pre-amp and gain control options. (Consult SpacePath Communications for availability)

#### **Input Option**

The STR1340 can be offered with an L-Band Block Upconverter. Specify:

N - Standard RF

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

#### Note:

The upconverter requires the inclusion of the 'D' and 'Z' option. (Consult SpacePath Communications for availability)

For more information contact SpacePath Communications.

#### PERFORMANCE WITH INTEGRAL BLOCK UPCONVERTER

Output frequency range: option KU1	GHz GHz
frequency range option KU1 950 to 1700	MHz
frequency range option KU5	MHz
frequency range option KU7	MHz
level	dBm max
LO frequency:	abiii iiiax
option KU1 12.8	GHz
option KU5	GHz
	GHz
option KU7	ВП
External reference (see note):	N 41 1-
frequency	MHz
level3 to +7	dBm
impedance 50	Ω
Output power:	
TWT output flange400	W min
HPA rated output	W min
Gain:	
at rated power (D, Z option)	dB min
SSG Prated –10 dB (D, Z option)	dB min
Attenuation range (D, Z option)25	dB min
Gain variation:	
full band4.0	dB max
over any 40 MHz band1.5	dB max
slope 0.08 dB/	/MHz max
Gain stability 24hrs (constant drive,	
temperature and load)0.5	dB max
Gain stability over full operating temperature 2.0	dB max
Intermodulation (two equal carriers)	
with total output = Prated –4 dB:	
options C, A, D18	dBc max
performance with linearised option, Z24	dBc max
Harmonic output60	dBc max
AM to PM conversion at Prated –6 dB2.5	°/dB
Noise power:	, 3,0
transmit band70 dBW/4	ł kHz max
receive band (10.95 – 12.75 GHz)150 dBW/4	
150 (1517)	iz iiidx

łz	Residual AM >100 kHz from carrier60 Group delay:	dBc max
Ηz	linear	ns/MHz
	parabolic 0.005	
z	ripple	ns p-p
z	Phase noise:	
Z	Continuous meets IESS phase noi	se profile
ax	AC fundamental50	dBc
	Sum of all spurs47	dBc
Ηz	Input VSWR (non-operating) 1.6:1	max
٦Z	Output VSWR (non-operating) 1.3:1	max
Ηz	Load VSWR, no damage 2.0:1	max
	Note: the BUC can be operated without the external referen	nce,
_	typical frequency stability ±0.25 ppm.	
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# **HEALTH AND SAFETY HAZARDS**

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.

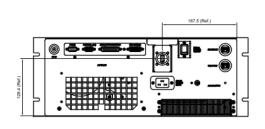
# **High Voltage**

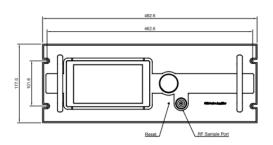
Dangerous voltages are present within the TWT amplifier when operating normally. However, the equipment is designed so that personnel cannot come into contact with high voltage circuits unless covers are removed.

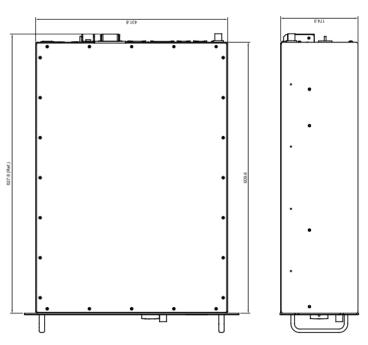
#### **RF Radiation**

All RF connectors must be correctly fitted before operation.

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.







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