

## STC 83701U, STC 83701D

IF to Ku-band Synthesized Frequency Up and Downconverters



STC 83701U, STC 83701D fully synthesized frequency UP and Downconverters are providing a high-performance, convenient and economical solution for systems, requiring IF (70MHz or 140MHz) to Ku-band interface, where a frequency step size required is 125kHz.

High amplitude linearity, low phase noise, spectral purity, high dynamic range make this converter ideally suitable for all current high speed data transmission rates and advanced digital modulation schemes.

### Applications

- **Satellite ground stations**
- **Satellite multi-service systems**
- **Satellite News Gathering Uplinks**
- **Fly-Away Terminals**

### Key Features

- Available in all Ku bands
- High amplitude linearity
- Low phase noise
- Small group delay distortion
- User friendly interface
- Smart 2 fans air cooling system
- Small weight and only 13" depth 1U rack

### Options

- IF 140 MHz  $\pm$ 36 MHz
- RF/IF Sample Test Points
- Ethernet M&C
- Downconverter high gain
- RF/IF sample test points
- Customization to user requirements and logo is available

**Table 1. Technical Specifications**

<b>Upconverter</b>		Amplitude response over any 36 MHz	± 0.5* dB typ(±0.75 dB max)
IF Input Frequency Range	70 MHz±18 MHz; 140 MHz±36 MHz (Opt 1)	Amplitude response over the band	± 0.75* dB typ (± 1dB max)
Connection	50Ω BNC Female (75Ω Opt 4)	Group delay	Linear 0.025ns/MHz Parabolic 0.015ns/MHz <sup>2</sup> Ripple 1ns p-p
VSWR	1.5:1	Gain stability	- over 24h ±0.5dB @25°C - 0°C - +50°C ±0.75dB
<b>Ku-band Output</b>		Harmonics	Better then -60dBc
Model STC83701U-A	14000-14500 MHz	Phase Noise	-76dBc/Hz at 100 Hz -86dBc/Hz at 1 kHz -87dBc/Hz at 10 kHz -90dBc/Hz at 100 kHz -110dBc/Hz at 1 MHz
Model STC83701U-B	13750-14500 MHz	Noise Figure	12 dB max (6.5 dB w/option 3)
Model STC83701U-C	12750-13250 MHz	Spurious carrier related	-60dBc max
Model STC83701U-F	12750- 14500 MHz	Spurious, non-carrier	-60dBm max
Model STC83701U-D	17300-18100 MHz	Intercept point	+30 dBm
Connection	50Ω SMA-Type Female	Carrier mute	-80 dBm min
VSWR	1.5:1	Spectrum sense	Non-inverted
Synthesizer Step Size	125 KHz	Output Power at P1db	+15 dBm nom
Gain	20 dB to 40dB with 0.5dB step	<b>Internal Reference</b>	
Amplitude response over any 36 MHz	± 0.5* dB typ(±0.75 dB max)	Stability (0 to 50 °C)	± 1E-8 ppm
Amplitude response over the band	± 0.75* dB typ (± 1dB max)	Phase Noise	-120dBc/Hz at 10 Hz -140dBc/Hz at 100 Hz -145dBc/Hz at 1 kHz -150dBc/Hz at 10 kHz
Group delay	Linear 0.025ns/MHz Parabolic 0.015ns/MHz <sup>2</sup> Ripple 1ns p-p	<b>Standard Features</b>	
Gain stability	- over 24h ±0.5dB @25°C - 0°C - +50°C ±0.75dB	M & C Interface	RS-232/RS-422/485- 9-pin D (M)
Harmonics	Better then -60dBc	Redundancy ready	Summary Alarm Relay Closure
Phase Noise	-75dBc/Hz at 100 Hz -85dBc/Hz at 1 kHz -85dBc/Hz at 10 kHz -90dBc/Hz at 100 kHz -110dBc/Hz at 1 MHz	Auxiliary L-band access	Input for Upconverter Output for Downconverter
Noise Figure	5.5 dB max	External Reference In	Automatic sense of 10 MHz 0dBm
Spurious carrier related	-60dBc max	Internal Temperature Monitoring	On LCD Display
Spurious, non-carrier	-60dBm max	<b>Mechanical</b>	
Intercept point	+20 dBm	Width	19", standard rack mount
Carrier mute	-80 dBm min	Height	1U(1.75")
Spectrum sense	Non-inverted	Depth	13", plus connectors
Output Power at P1db	+10 dBm nom	Weight	6.6 lb (3 kg)
<b>Downconverter</b>		Construction	Aluminum Chassis
Ku-band Input Frequency Range	10.95 GHz to 11.7 GHz	<b>Power Requirements</b>	
Model STC83701D-A	11.70 GHz to 12.25 GHz	Voltage	115/230 VAC (auto-ranging)
Model STC83701D-B	12.20 GHz to 12.75 GHz	Frequency	47 to 63 Hz
Model STC83701D-C	10.7 GHz to 12.75 GHz	Power consumption	23W
Model STC83701D-F	50Ω SMA-Type	<b>Operating Temperature</b>	
Connection	50Ω SMA-Type	Local control interface	0 to +50 °C
VSWR	1.5:1	Alarm	LCD 20x2, 16 keypad LO lock failure
IF Output Frequency Range	70 MHz±18 MHz; 140 MHz±36 MHz (Opt 1)	<b>Options</b>	
Connection	50Ω BNC Female (75Ω Opt 4)	1. Dual IF frequency	140 MHz±36 MHz
VSWR	1.5:1	2. RF/IF sample test points	-20dBc SMA connector
Synthesizer Step Size	125 KHz	3.Ethernet M&C	Instead of RS Interface M&C
Gain	15 dB to 35dB with 0.5dB step	4. IF connector impedance	BNC 75Ω
Gain (option 5)	35 dB to 55dB with 0.5dB step	5. Downconverter high gain	35 dB to 55dB
		6 - Custom logo	

\*+25°C

Specification is subject to change without notice.