

STC 93801D

C-Band to IF Synthesized Frequency Downconverter



STC 93801D fully synthesized line of C-Band frequency Downconverters is providing a high-performance, convenient and economical solution for systems, requiring C-Band to IF interface.

PERFORMANCE

Fine frequency resolution, impressive amplitude linearity, low phase noise, exceeding the Intelsat phase noise mask for IBS and IDR, spectral purity, high dynamic range make this converter ideally suitable for all current high speed data transmission rates and advanced digital modulation schemes.

MONITORING & CONTROL

Front panel hardware switch is used for selecting local or remote RS-232/RS485 monitoring and control (M&C) interfaces. Optionally a converter unit can be equipped with Ethernet M&C interface. Simple ASCII commands used to control and set the converter parameters can be customized on request to fit existing M&C system.

Applications

- Satellite ground stations
- Satellite multi-service systems
- Fly-Away Terminals

Key Features

- Standard and extended C-Bands
- 1KHz frequency resolution
- Excellent phase noise
- Low group delay distortion
- User friendly interface
- Built-in internal temperature monitoring
- Automatic sense of external 10 MHz reference

Options

- Redundancy switching capabilities
- Choice of 70MHz or 140MHz IF
- Ethernet remote monitoring and control



Table 1. Technical Specifications

C-band Input		Internal Reference	
Frequency Range		Frequency	10 MHz
Model STC 93801D-A	3625 MHz to 4200 MHz	Stability over time	±0.5E-9 ppm/day
Model STC 93801D-B	3400 MHz to 3700 MHz	Stability over 0 to +50 °C	±1E-8 ppm
Model STC 93801D-C	4500 MHz to 4800 MHz	Phase Noise	-115dBc/Hz at 10 Hz
Model STC 93801D-F	3400 MHz to 4200MHz		-145dBc/Hz at 100 Hz
			-150dBc/Hz at 1 kHz
Input power	-45 dBm (typical)	Frequency Programmable	
Connection	50Ω SMA (F)	Control	±1ppm in 0.04ppm steps
Return loss	19 dB min.	Mechanical	
IF Output		Width	19", standard rack mount
Frequency Range	70MHz ±18MHz (140MHz ±36MHz opt 1)	Height	1U(1.75")
Connection	50Ω or 75Ω BNC (F)	Depth	13", plus connectors
Output Power at P1db	+15 dBm nom	Weight	5 lb (2.6 kg)
Synthesizer Step Size	1 KHz	Construction	Aluminum welded chassis
Return loss	23dB min	Power Requirements	
Performance		Voltage	90/250 VAC (auto-ranging)
Conversion	Dual	Frequency	47 to 63 Hz
Spectrum sense	Non-inverted	Power consumption	35W
Conversion Gain	45dB ± 1.5dB	Environmental	
Gain adjustment	15 dB, 0.25 dB step	Temperature	0-50°C
Gain flatness @ 36 MHz	±0.3 dB	Altitude	8,000 Feet MSL
Gain Slope	0.05 dB/MHz	Humidity	0-95% Relative
Group delay	Linear 0.03ns/MHz Parabolic 0.01ns/MHz ² Ripple 1ns p-p	Operating Temperature	0 to +50 °C
Gain stability over 24h	±0.25dB @25°C	Local control interface	LCD 20x2, 16 keypad
Harmonics	Better then -60dBc	Alarms	LO lock failure Summary Failure Relay (Form C)
Phase Noise		Serial M & C	RS-232 9-pin D M RS-485 9-pin D M opt 3 Ethernet opt 4
		Test Points	RF sample -20 dBc SMA(F) opt 2 IF sample -20 dBc BNC(F) opt 2
Noise Figure	-65dBc/Hz at 100 Hz -75dBc/Hz at 1 kHz -85dBc/Hz at 10 kHz -95dBc/Hz at 100 kHz -105dBc/Hz at 1 MHz	Carrier Mute	-80 dBm min
Spurious carrier related	12 dB max @ max.gain	External Reference In	Automatic sense of 10 MHz with external reference level ±3 dBm BNC (F)
Spurious, non-carrier	-60dBc max @ 0dBm Pout	Temperature Control	Internal temperature monitoring
Intermod	-75dBm typ	Options	
Image rejection	-60dBc max. @ 0 dBm Pout	1. IF 140MHz	IF = 140MHz ±36MHz
Image rejection	-80 dB in band	2. RF & IF test points	RF sample: SMA (F) – 20dBc IF sample:BNC (F) – 20dBc
AM to PM conversion	0.1 deg/dB @ -5 dBm output	3. M & C Interface	RS-485
		4. M & C Interface	TCP/IP Ethernet

Specification is subject to change without notice.