Series DSX

Fast Switching Synthesizers

Direct Synthesizers

Features

- Up to 20% bandwidth tailored to your specific band of operation
- Very low phase noise: -120 dBc/Hz typical at 10 kHz offset at 10 GHz
- 200 nanoseconds typical switching time
- Ideal for Radar applications
- Standard bands: 500 MHz to 18 GHz; in up to 20% bandwidths
- Custom bands and step sizes
- Low spurious
- Parallel binary or custom programming
- Low power consumption, high proven reliability
- Low sensitivity to microphonics
- Locks to external references
- Compact modular configuration as small as 6"x 5"x 6.5"

Options

- Coherent switching
- DDS for small step sizes
- BCD control
- Differential data control
- Universal AC power supply
- Vibration damping for high vibration environments
- 1 Hz step size

Description

The Herley-CTI series DSX synthesizers are exceptionally quiet, fast and precise. Their phase noise rivals the best microwave fixed-frequency sources. With typically 200 nanosecond switching time, the DSX delivers ample speed to meet the required response times of radars and automatic test systems. The available frequency range of 500 MHz to 18 GHz in 20% bandwidths cover a wide variety of applications. When very fine steps are necessary, the optional 1 Hz step size capability allows the frequency to be controlled to a precision of +/-10^{-10}. In addition, the unit can be optionally configured for coherent switching.

Custom versions are available with different step sizes and bandwidths.

Parallel programming is standard in order to optimize speed. Other interfaces are available as options.

These direct synthesizers have been designed for low power consumption and high reliability. For specialized applications the DSX can be tailored for custom bands and physical outlines due to its modular architecture.

The DSX synthesizer, because of its very low phase noise and fast switching, is a signal source with multiple uses including testing applications, ground and airborne radar as well as any application requiring a low phase noise, fast switching local oscillator.

9 Whippany Road ,Whippany, NJ 07981 ■Tel: 973-884-2580 Fax: 973-887-6245 ■ E-mail: Sales@herley-cti.com ■ Website: www.herley.com

Direct Synthesizers

Typical Performance Specifications

Frequency Range	500 MHz to 18 GHz in up to 20% bandwidths				
Custom Bandwidths	Any band less than or equal to 20%				
Step Size	250 kHz to 20 MHz; 1 Hz optional				
Phase Noise in dBc/Hz Offset from carrier At 10 GHz At 1 GHz	 100 Hz -90 -110	 1 kHz -110 -117	 10 kHz -120 -132	 100 kHz -120 -139	 1 MHz -130 -147
Power	+13 dBm +/- 2 dBm nominal; up to 1 Watt optional				
Spurious	-70 dBc				
Harmonics	<-20 dBc typ.; (-50 dBc optional)				
External Reference	Unit can be configured to lock to an external 10 or 100 MHz reference. Consult factory for stability requirements of external reference.				
Frequency Accuracy with Internal Ref.	+/-0.2 ppm over temperature; 1 ppm/year aging; 10 or 100 MHz Ref Out; Consult factory for other options				
External Reference for Phase-Locking Internal Reference	External source accuracy +/- 1 ppm Power = +3 +/-3 dBm Loop bandwidth of internal PLL 10 to 40 Hz typical				
Freq. Accuracy with Ext. Ref.	Same as External Reference for step sizes 250 kHz to 20 MHz				
Frequency Control	Parallel TTL Binary plus strobe standard; other options available consult factory				
Switching Speed	<200 nanosecond typical				
DC Supply Voltage (measured at synthesizer)	+5.5 Vdc, +15 Vdc, -12Vdc (AC supply is optional 110/240 VAC, 47-400 Hz)				
Ripple on DC	5 mVpp max 50 Hz to 50 kHz; 50 mVpp 50 kHz to 10 MHz				
Summary Alarm	TTL Low = Alarm				
Operating Temperature	-20°C to +70°C standard; consult factory for extended ranges				
RF Connectors/ Control Connectors	SMA female : RF Out and Ref In/Ref Out				
Approximate Dimensions	6" x 5" x 6.5" Nominal				
Weight	Approximately 11 lbs				

Note: All specifications subject to change without notice.

9 Whippany Road ,Whippany, NJ 07981 ■Tel: 973-884-2580 Fax: 973-887-6245 ■ E-mail: Sales@herley-cti.com ■ Website: www.herley.com