FEI-Elcom Tech

UFS

0.3 - 18 GHz ULTRA WIDE BAND FREQUENCY SYNTHESIZER

WIDE FREQUENCY RANGE:

UFS-3	**0.3 to 3 GHz**
UFS-4	**0.3 to 4 GHz**
UFS-18	**0.3 to 18 GHz**

FEATURES

- Ultra-Fast Switching Speed: 250 nsec, Full Band, 1 Hz Resolution
- Low Phase Noise Floor: -147 dBc up to 18 GHz
- Low Phase Noise: -135 dBc/Hz 1 MHz offset @ 10 GHz
- Exceptionally Clean Signal: -65 dBc Spurious, -50 dBc Harmonics
- User accessible 3GHz IF Loop-back capabilities
- MTBF@20,000 +hours

BENEFITS

- Simulates multiple emitters without limitation using Elcom proprietary phase coherent switching
- Improves target range and resolution by employing industry's lowest phase noise
- Increases frequency hopping speed

11 Volvo Drive, Rockleigh, New Jersey 07647
Telephone: (201) 767-8030 ext 286 Fax: (201) 767- 1326
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APPLICATION

- EW Simulation
- Frequency Agile Radar
- ATE Systems
- SIGINT
- RCS

OPTIONS

- Wideband FM, DC 10 MHz, 700 MHz / Microsecond, ±250 MHz Deviation
- Full Band Phase Coherent switching, 1 Hz resolution
- Low Phase Noise
- Ethernet Interface
- IEEE 488 Interface
- 3 GHz IF Input, 100 MHz BW for custom modulation
- Digital Phase Modulation

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SPECIFICATIONS

Parameter	Units	Spec
Frequency Range:	GHz	0.3 to 18
Frequency Resolution:	Hz	1.0
Switching Speed:	ns	250
Spurious:	dBc	-65
Harmonics:	dBc	-50
Output Power:	dBm	+10
Flatness:	dB	+/-2
SSB Phase Noise	Offset	dBc /Hz
@ Fc =10 GHz:	10 Hz	-50
	100 Hz	-80
	1 KHz	-100
	10 KHz	-112
	100 KHz	-126
	1 MHz	-135
	10 MHz	-138
	40 MHz	-140
	150 MHz	-145
Amplitude Settling:	Within 2 dB of final level < 250 nanoseconds	
Incidental FM:	Shall not exceed 10 kHz RMS measured in a 10 MHz Bandwidth	
Frequency Stability:	± 5 X 10^{-9} per day	
MTBF:	20,000 Hrs	
Remote Programming:	44 Bit Parallel BCD Standard	
Temperature Range:	0° C to + 50° C Operating, -20° C to + 85° C Storage	
Power Requirements:	120/240 VAC +/10%, 50 to 440 Hz, 225 Watts	
Dimensions:	5.22” X 16.75” X 24.5” deep	
Weight:	70 Pounds	

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AVAILABLE OPTIONS

OPT 100: Low Phase Noise: (SSB Phase Noise)

Frequency Offset from Carrier	0.3 to 3.25 GHz Output Frequency SSB Phase Noise (dBc/Hz)	3.25 to 9.5 GHz Output Frequency SSB Phase Noise (dBc/Hz)	9.5 to 14.5 GHz Output Frequency SSB Phase Noise (dBc/Hz)	14.5 to 18 GHz Output Frequency SSB Phase Noise (dBc/Hz)
10 Hz – 99 Hz	-68	-55	-55	-55
100 Hz – 999 Hz	-92	-85	-85	-85
1 kHz – 9.9 kHz	-106	-106	-106	-106
10 kHz – 99.9 kHz	-117	-117	-117	-117
100 kHz – 999.9 kHz	-128	-128	-127	-126
1 MHz – 9.9 MHz	-137	-135	-134	-132
10 MHz – 39.9 MHz	-140	-140	-140	-140
40 MHz – 149.9 MHz	-145	-145	-145	-145
150 MHz and beyond (noise floor)	-149	-149	-149	-149

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AVAILABLE OPTIONS

OPT 101 Low Spurious Option:	-70 dBc from 0.3 to 18 GHz
OPT 102 High Stability Reference:	Aging: 1 ppm per year
OPT 103 Modulation:	
OPT 103A Wideband FM:	Modulation Bandwidth DC mode: DC- 6 MHz
	Modulation Bandwidth AC mode: 3 kHz to 6 MHz
	FM Deviation: +/-250 MHz (500MHz p-p)
	Rate: 250 MHz / usec
OPT 103B Phase Modulation:*	Deviation: +/-180 degrees
	Modulation Bandwidth: 6 MHz
	Rate 0 to 40 MHz
OPT 103C Digital Modulation:*	40 MHz instantaneous BW-AM, PM, FM Digital Chirp
OPT 103D Pulse Modulation:*	On / Off Ratio……..80 dB to 18 GHz
	Rise Time ……10 nsec
	Pulse Width……..TBD
OPT 103E Scan Modulation:*	Contact Factory for Details
OPT 104 Fast Attenuator:*	
Frequency:	0.3 to 18 GHz
Attenuation:	0 to 60 dB
Resolution:	0.25 dB
Switching Time:	1 usec Max

AVAILABLE OPTIONS

OPT 105 Slow Attenuator*

Frequency:	10 MHz to 18 GHz
Attenuation:	0 to 120 dB
Resolution:	1 dB
Switching Time:	20 msec Max

OPT 106 Phase Coherency: Full Band Phase Coherent Frequency Switching is available with 1 Hz Resolution.

OPT 107 Front Panel: Front Panel “Touch Screen” and Display for Data Entry

OPT 107B Sweep/Scan/List Mode: 4096 Frequency List Mode with Sweep/Scan includes Front “Touch” Screen

OPT 108 Rack Mounting: Industry Standard Rack Mount Slides can be accommodated.

OPT 110 Extra Manuals

OPT 111 Ethernet Capability

OPT 112 IEEE 488 Interface

OPT 113 3 GHz IF Modulation Input BW +/- 50 MHz: See Option Bulletin

OPT 113A 3 GHz IF Modulation Input BW ± 100 MHz (1GHz to 18 GHz)

OPT 114 10 MHz Phase Lock Capability: See Option Bulletin

OPT 114A 10 MHz Phase Lock Capability with 10 MHz Reference Output

OPT 114B 100 MHz Phase Lock Capability

OPT 114C 100 MHz Phase Lock with 100 MHz Reference Output: See Option Bulletin

OPT 115 10MHz to 300MHz Downconverter (Harmonics @ -25dBc): See Option Bulletin

OPT 116 Frequency Extension: 0.3 GHz to 40 GHz: * In Development

OPT 117 Extended Warranty at the time of purchase

OPT 118 20 GHz Frequency Extension

OPT 119 Frequency Extension to 27.5 GHz

* Consult Factory

ABOUT FEI-ELCOM TECH, Inc

Elcom designs and manufactures instruments and modules in the RF and Microwave frequency spectrum for broadband and narrow band applications in ATE, Aerospace/ Defense, SIGINT and commercial communications. Proprietary technologies include low phase noise fast switching direct analog synthesis, low noise indirect PLL designs, and RF DSP up to 40GHz.

FOR ADDITIONAL INFORMATION PLEASE CONTACT

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