

## UFS

### 0.3 - 18 GHz ULTRA WIDE BAND FREQUENCY SYNTHESIZER



#### WIDE FREQUENCY RANGE:

<b>UFS-3</b>	<b>0.3 to 3 GHz</b>
<b>UFS-4</b>	<b>0.3 to 4 GHz</b>
<b>UFS-18</b>	<b>0.3 to 18 GHz</b>

#### 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

## APPLICATION

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

## OPTIONS

- Wideband FM, DC 10 MHz, 700 MHz / Microsecond,  $\pm 250$  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

## SPECIFICATIONS

<u>Parameter</u>	<u>Units</u>	<u>UFS-18</u>
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 @ Fc =10 GHz:	<u>Offset</u>	<u>dBc /Hz</u>
	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 <sup>-9</sup> 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	

## AVAILABLE OPTIONS

OPT 100 Low Phase Noise: (SSB Phase Noise @ Fc = 10 GHz)

<u>Offset</u>	<u>dBc / Hz</u>
10 Hz	-60
100 Hz	-84
1 KHz	-105
10 KHz	-120
100 KHz	-127
1 MHz	-135
10 MHz	-138
40 MHz	-145
150 MHz	-147

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 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 Radio.....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 Coherency Frequency Switching is available with 1 Hz Resolution.

OPT 107 Front Panel: Front Panel "Touch Screen" and Display for Data Entry.

OPT 107A List Mode:\* 1024 Frequencies

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

OPT 109 N/A

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 114 10 MHz Phase Lock Capability: See Option Bulletin

OPT 114A 10 MHz Phase Lock Capability with 10 MHz Reference: See Option Bulletin

OPT 114B 100 MHz Phase Lock Capability

OPT 114C 100 MHz Phase Lock Capability: See Option Bulletin

OPT 115 Low Band Downconverter: See Option Bulletin

OPT 116 Frequency Extension: 0.3 GHz to 40 GHz: See Option Bulletin

OPT 117 Extended Warranty at the time of purchase

OPT 118 20 GHz Frequency Extension

\* Consult Factory

## **ABOUT ELCOM TECHNOLOGIES**

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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