MICRO LAMBDA WIRELESS, INC.

MLSP SERIES
WIDEBAND, LOW NOISE SYNTHESIZERS
FOR VSAT APPLICATIONS

FEATURES

- Superior Phase Noise
- 1 kHz Step Size
- External Reference 1-200 MHz (Optional)
- PXI, Compact PCI Size Compatible
- 5 Line Serial & USB Control

DESCRIPTION

The **MLSP-Series** of YIG-Based wideband synthesizers are specifically designed for VSAT applications. They provide 1 kHz frequency resolution over the 600 MHz to 20 GHz frequency range. Power levels of +8 to +13 dBm are provided through out the series and full band tuning speed is 6 mSec. The units are 5" x 3" x 1" high and fit a 2 slot PXI chassis.

PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: -20º to +70º C Baseplate)

Model No.	MLSP-4214	MLSP-4689	MLSP-1113
RF Specifications			
Output Frequency	4.2-14.2 GHz	4.6-8.9 GHz	11.6-13.9 GHz
Output Power Min.	+13 dBm	+13 dBm	+13 dBm
Po Variation over Freq/Temp	4 dB	3 dB	3 dB
Step Size, Min.	1 kHz	1 kHz	1 kHz
Switching Speed, 100 MHz Step, Typ.	1 mS	1 mS	1 mS
1000 MHz Step, Typ.	3 mS	3 mS	3 mS
Full Band Step, Typ.	6 mS	5 mS	5 mS
Warm-up Time ("Lock") @ 0C (Minutes) (with Internal Crystal Reference)	3.0	3.0	3.0
Output Impedance	50 Ohms	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1	2.0:1
Harmonics	-12 dBc	-12 dBc	-12 dBc
Non-Harmonic Spurious			
100 Hz f off ≤500 kHz	-60 dBc	-60 dBc	-60 dBc
>500 kHz	-80 dBc	-80 dBc	-80 dBc
Phase Noise Performance			
(with Internal Crystal Reference)			
@ 100 Hz Offset	72 dBc/Hz	79 dBc/Hz	72 dBc/Hz
@ 1 kHz Offset	89 dBc/Hz	95 dBc/Hz	89 dBc/Hz
@ 10 kHz Offset	91 dBc/Hz	95 dBc/Hz	91 dBc/Hz
@ 100 kHz Offset	115 dBc/Hz	117 dBc/Hz	115 dBc/Hz
@ 1 MHz Offset	138 dBc/Hz	140 dBc/Hz	138 dBc/Hz

MLSP PERFORMANCE SPECIFICATIONS (Continued)

Model No.	MLSP-4214	MLSP-4689	MLSP-1113
Reference Oscillator Options			
Option A			
External Reference (Note 1)	1 - 200 MHz	1 - 200 MHz	1 - 200 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability	Cust Supplied	Cust Supplied	Cust Supplied
Option B			
External Reference with Internal Crystal (Note 2)	1 - 100 MHz	1 - 100 MHz	1 - 100 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability	Cust Supplied	Cust Supplied	Cust Supplied
Option C			
Internal Reference	100 MHz	100 MHz	100 MHz
Frequency Stability	+/- 1 PPM	+/- 1 PPM	+/- 1 PPM
Supply Voltage & Current (Note 3)			
+15 Vdc (± 0.5) Vdc)	1400 mA	900 mA	1400 mA
+5 Vdc (± 0.25) Vdc)	300 mA	300 mA	300 mA
Power dissipation	23 watts	15 watts	23 watts
Supply Voltage Ripple (Pk-Pk from 60 Hz to 3 MHz)	<50 mV	<50 mV	<50 mV
Control Format	5-Line Serial USB	5-Line Serial USB	5-Line Serial USB
Phase Lock Alarm (P13) (TTL)	1=Locked	1=Locked	1=Locked
Weight	15 oz / 426 g	15 oz / 426 g	15 oz / 426 g

MLSP Options:

Option A: External Reference / No Internal Reference
Option B: Internal Reference / External Reference
Option C: Internal Reference / No External Reference, Drawing 181-003 & 181-004
Option D: RF Connectors Front, Drawing 181-001
Option E: RF Connectors Side, Drawing 181-002

Part Number Example: MLSP-4214BD 4.2 GHz to 14.2 GHz with Internal Reference and RF connectors on front.

Notes:
1) 50-100 MHz OCXO recommended for best phase noise performance. External reference directly effects phase noise performance.
2) Output phase noise performance is not dependent on external reference phase noise.
3) All values stated for units with external reference. For internal reference add 125mA on the +15 Vdc line.