

## FEATURES

- Superior Phase Noise
- 1 kHz Step Size
- External Reference 10-200 MHz (Optional)
- PXI, Compact PCI Size Compatible
- 5 Line Serial & USB Control

## DESCRIPTION

The **MLSP-Series** of YIG-Based wideband synthesizers are ideal as the main local oscillators in receiving systems, frequency converters and test and measurement equipment. They provide 1 kHz frequency resolution over the 18 to 33 GHz frequency range, in bands. Power levels of +13 dBm are provided and full band tuning speed is 6 mSec. The units are 5" x 3" x 1" high and fit a 2 slot PXI chassis.

## APPLICATIONS

Test Equipment  
Local Oscillators  
Frequency Converters  
KA Band VSAT



## PERFORMANCE SPECIFICATIONS

(Operating Case Temperature: 0° to +60° C Baseplate) (Note 1)

Model No.	MLSP-1829	MLSP-2333
<b>RF Specifications</b>		
Output Frequency	18 - 29 GHz	23 - 33 GHz
Output Power Min.	+13 dBm	+13 dBm
Po Variation over Freq/Temp	5 dB	5 dB
Step Size, Min.	1 kHz	1 kHz
Switching Speed, 100 MHz Step, Typ.	1 mS	1 mS
1000 MHz Step, Typ.	3 mS	3 mS
Full Band Step, Typ.	6 mS	6 mS
Warm-up Time ("Lock") @ 0C (Minutes) (with Internal Crystal Reference)	3.0	3.0
Output Impedance	50 Ohms	50 Ohms
Load VSWR	2.0:1	2.0:1
Harmonics	-15 dBc	-15 dBc
Sub-Harmonics	-20 dBc	-20 dBc
Non-Harmonic Spurious (All Off Sets)	-54 dBc	-54 dBc
<b>Phase Noise Performance (dBc/Hz)</b> (with Internal Crystal Reference)		
@ 100 Hz Offset	-68	-65
@ 1 kHz Offset	-85	-82
@ 10 kHz Offset	-86	-84
@ 100 kHz Offset	-113	-113
@ 1 MHz Offset	-136	-134
@ 10 MHz Offset	-151	-146

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**MLSP PERFORMANCE SPECIFICATIONS (Continued)**

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<b>Model No.</b>	<b>MLSP-1829</b>	<b>MLSP-2333</b>
<b>Reference Oscillator Options</b>		
<b>Option A</b>		
External Reference (Note 2)	10 - 200 MHz	10 - 200 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability (< +/- 20ppm)	Cust Supplied	Cust Supplied
<b>Option B</b>		
External Reference with Internal Crystal (Note 3)	10 - 100 MHz	10 - 100 MHz
External Ref. Input Power	0 +/- 3 dBm	0 +/- 3 dBm
Frequency Stability (Note 5)	Cust Supplied	Cust Supplied
<b>Option C</b>		
Internal Reference	100 MHz	100 MHz
Frequency Stability	+/- 1 PPM	+/- 1 PPM
<b>Supply Voltage &amp; Current (Note 4)</b>		
+15 Vdc ( $\pm 0.5$ ) Vdc	1900 mA	1900 mA
+5 Vdc ( $\pm 0.25$ ) Vdc	300 mA	300 mA
<b>Supply Voltage Ripple</b>		
(Pk-Pk from 60 Hz to 3 MHz)	<50 mV	<50 mV
<b>Control Format</b>		
	5-Line Serial USB	5-Line Serial USB
<b>Phase Lock Alarm (P13) (TTL)</b>		
	1=Locked	1=Locked
<b>Weight</b>		
	15 oz / 426 g	15 oz / 426 g

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**MLSP Options:**

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**Option A:** External Reference / No Internal Reference

**Option B:** Internal Reference / External Reference

**Option C:** Internal Reference / No External Reference

**Option D:** RF Connectors Front, Input SMA - Female, Output K - Female

**Option E:** RF Connectors Side, Input SMA - Female, Output K - Female

Part Number Example: MLSP-2333BD 23 GHz to 33 GHz with Internal Reference and External Reference with RF connectors on front.

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**Notes:**

1) Special operating temperature range available.

2) 50-100 MHz OCXO recommended for best phase noise performance. External reference directly effects phase noise performance.

3) Output phase noise performance is not dependent on external reference phase noise.

4) All values stated for units with external reference. For internal reference add 125mA on the +15 Vdc line.

5) Frequency accuracy must be within exact reference frequency selected, +/- 5ppm.