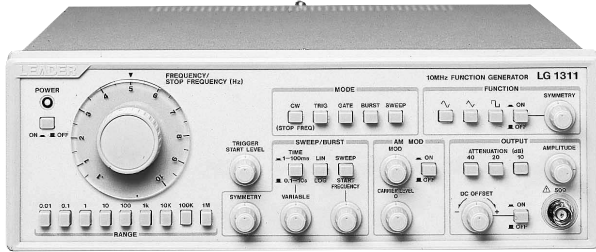


10-MHz SWEEP FUNCTION GENERATOR



LG 1311

- Wide Frequency Range, 0.01 Hz to 10 MHz
- Sine, Square, Triangle, Ramp and Pulse Output

An extremely versatile wide-ranging function generator, the LG 1311 offers extensive control of waveshape, symmetry, FM and AM modulation capabilities and log and linear sweep functions over frequency ranges that extend from sub-sonics at 0.01 Hz to 10 MHz. And flexibility in internal and external frequency control fits the unit into custom test setups, unique design evaluations and educational demonstrations. Waveforms include sine, square and triangle with control over symmetry to tailor pulse and ramp signals. Sweep operations include linear and log sweeps with 100:1 sweep range and both internal and external control of sweep frequency and range. Modulation capabilities include externally controlled FM and AM

- Linear and Log Sweep, 100 to 1 Range
- AM Modulation Including Suppressed Carrier
- Extended Low Frequency Operation
- External Control of Frequency, Sweep and FM
- Sync output
- Wide Range Output Attenuator + DC Offset
- Triggered Output, One Cycle per Trigger
- Gated Output
- Signal Burst Output

modulation from an external source with applications extending into communication systems. Additional features include trigger, gate and burst functions that enable single cycle and multi-cycle or bursts of signal for specialized tests of recovery time in servo, electro-mechanical and speaker applications. Output level is controlled by step attenuators to 70 dB with a 10:1 vernier. Rear panel outputs include sweep (scope H deflection), sync and GVC (generator voltage control). Inputs accept AM input and voltage control (VCG) for external control of frequency, FM and sweep. A front panel control facilitates carrier nulling for suppressed carrier AM.

2-MHz SWEEP FUNCTION GENERATOR



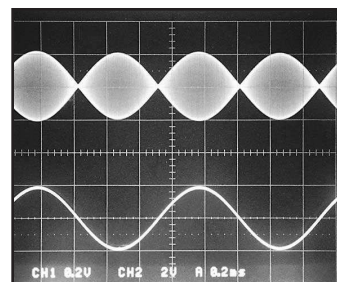
LG 1301

- Extended Low-Frequency Operation to 0.002 Hz
- External Control of Frequency, Sweep and FM

A multi-purpose signal source, the LG 1301 finds many applications in design/development and education uses. Wide frequency range from 0.002 Hz to 2 MHz coupled with extensive internal and external control of frequency, waveshape and sweep characteristics make the unit ideal for custom test setups and design evaluations. Waveforms include sine, square, triangle, ramp and pulse with 9:1 and 1:9 symmetry range. Both linear and log sweeps are available with 100:1 frequency ranges. Output level is controlled by step attenuators to 70 dB with 10:1 continuous control and dc offset is variable to ± 10 V.

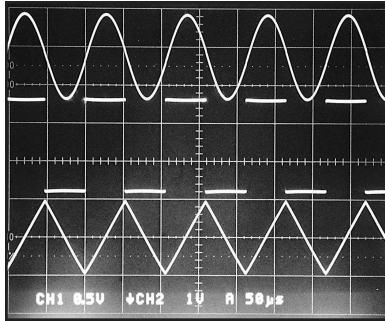
- Sync output
- Wide Range Output Attenuator + DC Offset
- Sine, Square, Triangle, Ramp and Pulse Output
- Adjustable Pulse Width
- Linear and Log Sweep, 100 to 1 Range

Rear panel outputs include sweep, sync and GVC (generator voltage control.) Input BNCs accept external AM input and voltage control generator (VCG) for external control of frequency, FM and external sweep control. AM includes a level control for adjustable suppressed-carrier operation.

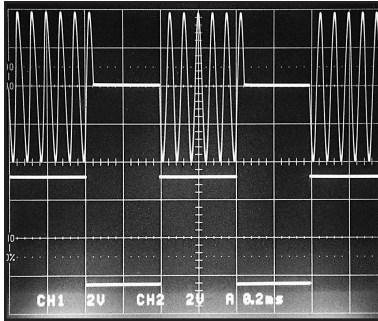


AM Suppressed Carrier

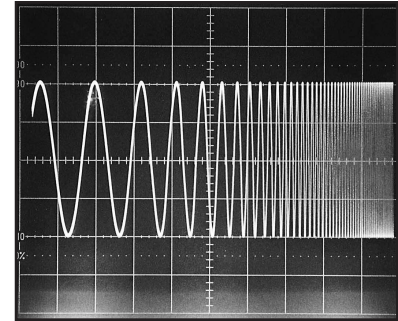
10-MHz AND 2-MHz SWEEP FUNCTION GENERATORS



Sine, Square and Triangle Waves



Burst (LG 1311)



Logarithmic Sweep

KEY SPECIFICATIONS (LG 1301/LG 1311)

Frequency Range

LG 1301

0.002 - 2 MHz, 8 ranges

LG 1311

0.01 - 10 MHz, 9 ranges

Accuracy

Within $\pm 5\%$ f.s. below X1 MHz range

WAVEFORMS

Sinewave

Flatness

Within $\pm 3\%$ below X100 kHz range

Distortion

LG 1301

<0.5%, 10 Hz - 20 kHz

<1%, 20 kHz - 100 kHz

LG 1311

<0.5%, 10 Hz - 50 kHz

<1%, 50 kHz - 100 kHz

Triangle

Symmetry

50:50 <1% (10 Hz - 100 kHz)

Squarewave

Rise Time

LG 1301

<100 ns into 50 Ω

LG 1311

<25 ns into 50 Ω

Symmetry

50:50 <1% (10 Hz - 100 kHz)

Sawtooth

Symmetry

LG 1301

15:85 or 85:15 <5% (10 Hz - 100 kHz)

LG 1311

1:9 or 9:1 <100 kHz range

PULSE

Rise Time

LG 1301

<100 ns into 50 Ω

LG 1311

<25 ns into 50 Ω

Symmetry

9:1 - 1:9 continuously variable
(10 Hz - 100 kHz)

OUTPUT LEVEL CONTROL

Output Voltage

10 V p-p $\pm 10\%$ into 50 Ω

20 V p-p $\pm 10\%$ open circuit

Attenuator Fixed

10, 20, 40 dB (0-70 dB 10 dB steps)

Attenuator Variable

10:1 continuously variable

Output Impedance

50 $\Omega \pm 5\%$

DC Offset

Open circuit ± 10 V continuously adjustable

AM Modulation

Signal Source

External Input

Input Voltage

0.5 V rms

Input Impedance

LG 1301

10 k $\Omega \pm 20\%$

LG 1311

10 k $\Omega \pm 10\%$

Modulation Depth

0 - 95%

Frequency Response

Within ± 3 dB (10 Hz - 100 kHz)

Maximum Input Voltage

LG 1301

± 10 V

LG 1311

± 15 V

Sweep Capabilities

Type

Linear, logarithmic

Type

10 s - 0.1 s, 500 ms - 5 ms, 2 ranges

Ratio

10:1 to 100:1 max or greater, continuously variable

SWEEP OUTPUT

Output Voltage

-1 V to 0 V within $\pm 10\%$

Output Impedance

1 k $\Omega \pm 10\%$

VCG INPUT

Input Impedance

10 k $\Omega \pm 10\%$

Frequency Response

Within ± 3 dB (DC - 100 kHz)

SYNC OUTPUT

Output Voltage

0 - 5 V squarewave

Output Current

>10 mA

Rise Time

< 25 ns

GVC OUTPUT

Output Voltage

0 to 5 V $\pm 10\%$

TRIGGER/GATE/BURST (LG 1311 only)

Trigger Level

Trigger level control sets trigger start phase

Output Signal

Outputs 1 period of gen signal
sync'd to trigger

GATE FUNCTION

Signal Source

External input

Trigger Level

Set by trigger start level control

Output Signal

Completed waveforms output are
controlled by period of external gate
signal

BURST FUNCTION

Signal Source

Internal 5 ms to 10 ms

Burst Setting

Symmetry control knob sets ON time

POWER REQUIREMENTS

100, 115, 230 V ac $\pm 10\%$ (max 250 V)

50/60 Hz user switchable

20 VA (LG 1301); 28 VA (LG 1311)

PHYSICAL

Size (W x H x D)

12 x 4 x 12 in.

300 x 100 x 300 mm

Weight

9 lbs., 4 kg (LG 1301)

9.2 lbs., 4.2 kg (LG 1311)

Operating Temperature

0-40°C, 10 to 85% RH

SUPPLIED ACCESSORY

BNC Alligator Clip Cable X1

OPTIONAL ACCESSORY

LT-2049 (50 Ω Terminator)