

Cost-effective, high stable, 170 MHz wide band

100 kHz to 170 MHz

LG 3236 (S1 version) AM/FM STEREO SIGNAL GENERATOR
GENERAL

The LG 3236(S1 version) Synthesized Standard Signal Generator covers a wide frequency range of 100 kHz to 170 MHz and provides FM/AM modulation capability. The high-accuracy crystal-controlled reference oscillator ensures highly stable RF frequency of $\pm 5 \times 10^{-6}$ (5 ppm).

The solid-state step attenuator is used for the RF output system to extend service life (because there is no mechanical contact), and is suited to frequent changes in output level such as in automatic production and inspection applications.

For modulation functions, the LG 3236(S1 version) is equipped with a high-quality stereo FM modulator. The AM modulator supports up to 100 %. In addition, the LG 3236(S1 version) is equipped with a simultaneous AM/FM modulation function (2 Audio Frequency systems) and a DDS AF oscillator that covers a frequency range of 20 Hz to 20 kHz.

FM stereo modulator and simultaneous FM/AM modulation capability is equipped.

FEATURES

- Oscillation frequency is locked to a high-accuracy reference oscillator to ensure accuracy of $\pm 5 \times 10^{-6}$ (5 ppm).
- The solid-state step attenuator is used for the RF output system to extend service life (because there is no mechanical contact), and is suited to frequent changes in output level such as in automatic production and inspection applications.
- The RF frequency covers a wide range of 100 kHz to 170 MHz.
- The output level can be set in the range of -20 dB μ to 126 dB μ (0 dB μ = 1 μ V, 50 Ω into open circuit) in 0.1 dB steps.
- Equipped with a simultaneous AM/FM modulation function.
- Two systems of low-distortion, fixed oscillators are provided as AF oscillators, and the AM/FM and the L and R of FM stereo can be set to different frequencies.
- The variable DDS oscillator is provided allowing arbitrary AF frequencies to be specified in 1-Hz resolution.
- The FM modulation supports up to 200 kHz and AM modulation up to 100 %.
- In addition, a wide bandwidth of external modulation up to 100 kHz is supported for both FM and AM.
- FM stereo modulator is equipped.
- Since the GPIB interface is provided as standard, this instrument can be incorporated into a GPIB measurement system.
- The numeric keys are used for setting the frequency, output level, and modulation factor.
- Up to 100 preset conditions consisting of frequency, output level, and modulation can be stored to internal memory.
- All front panel switches (except power switch) can be remotely controlled via the 24-pin connector on the rear panel.
- An SCA input connector and a PILOT output connector are provided for connecting instruments such as an external FM multiple signal generator. (S1 version)

SPECIFICATIONS LG 3236 (S1 version)

Frequency

Range:	100 kHz to 170 MHz
Resolution:	100 Hz (100 kHz to 39.9999 MHz) 1 kHz (40 MHz to 170 MHz)
Setting:	Ten-key pad, digit-select key and rotary knob
Accuracy:	$\pm 5 \times 10^{-6}$ (≥ 500 kHz) $\pm(5 \times 10^{-6} + 1 \text{ digit})$ (< 500 kHz)
Display:	6 digits

Output Level

Range:	-20 dB μ to 126 dB μ (0 dB μ = 1 μ V, 50 Ω into open circuit)
Resolution:	0.1 dB
Setting:	Ten-key pad, digit-select key and rotary knob
Output Level Accuracy:	± 1 dB (output ≥ 0 dB μ) ± 1.5 dB (output < 0 dB μ)
Impedance:	50 Ω VSWR ≤ 1.4
Spurious Output:	≤ -25 dBc
Display:	4 digits

Modulation

Frequency Modulation(FM)

Deviation:	0 to 200 kHz (≥ 2 MHz) 0 to 1/10 of carrier frequency (< 2 MHz)
Display:	3 digits
Resolution:	0.1 kHz (< 100 kHz), 1 kHz (≥ 100 kHz)
Modulation Accuracy:	\pm (preset value X 0.03 + 0.8) kHz
Distortion:	≤ 0.05 % (10.7 \pm 1 MHz, 76 to 108 MHz) ≤ 0.1 % (other frequencies) (1 kHz modulation frequency, 75 kHz deviation, 50 Hz to 15 kHz demodulation bandwidth, 50 μ s de-emphasis/AM OFF)
Residual FM:	≥ 78 dB S/N at 75 kHz deviation (10.7 MHz, 76 to 108 MHz) (50 Hz to 15 kHz demodulation bandwidth, 50 μ s de-emphasis/AM OFF)
Pre-emphasis:	The deviation at AF = 1 kHz is reduced by approximately 20 dB when pre-emphasis is turned ON. The deviation increases according to the pre-emphasis characteristics as the AF frequency increases

FM Stereo

Separation:	≥ 55 dB (AF 1 kHz, 75 kHz deviation, 76 to 108 MHz)
Mode:	MAIN, SUB, L, R
Pilot Signal	
Frequency :	19 kHz ± 1 Hz
Deviation:	0 to 10 kHz
Display:	3 digits
Resolution:	0.1 kHz
Accuracy:	\pm (preset value X 0.1 + 0.5) kHz

Pilot Output Signal

Output Level :	1 Vrms (into open circuit)
Output Impedance:	600 Ω

SCA Signal Input

Input Reference Level:	1 Vrms
Input Impedance:	10 k Ω

Amplitude Modulation(AM)

Depth:	0 to 100 % (≤ 123 dB μ) 0 to 60 % (> 123 dB μ)
Display:	3 digits
Resolution:	0.1 %
Accuracy:	\pm (preset value X 0.05 + 1) % (≤ 99 %)
Distortion:	≤ 0.3 % (30 %AM, ≤ 123 dB μ 200 kHz to 2 MHz) ≤ 0.5 % (30 %AM, ≤ 126 dB μ 200 kHz to 2 MHz) ≤ 1.0 % (≤ 90 %AM, ≤ 123 dB μ) (AF 1 kHz, 50 Hz to 15 kHz demodulation bandwidth, excluding the range 26. 67 MHz \pm 10 kHz.FM OFF)

Residual AM:	≥ 55 dB (S/N at 30 % depth, 200 kHz to 2 MHz) (50 Hz to 15 kHz demodulation bandwidth, FM OFF)
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Internal Modulation Frequency

(1) Fixed Oscillators(2 System)

Frequency:	400 Hz, 1 kHz (An oscillator generates both frequencies, selectable.)
Accuracy:	± 5 %

(2) DDS Oscillators

Frequency:	20 Hz to 20 kHz
Resolution:	1 Hz
Frequency Accuracy:	± 0.01 % ± 1 digit

External Modulation

Input Impedance:	10 k Ω
Reference Input Voltage:	1.0 Vrms
Frequency Range:	FM : 20 Hz to 100 kHz(MONO) AM : 20 Hz to 12 kHz(< 2.5 MHz) 20 Hz to 20 kHz(< 10 MHz) 20 Hz to 100 kHz(≥ 10 MHz)
Flatness:	Within ± 1 dB (1 kHz reference)

Simultaneous Modulation Function

(1) Combination with the Monaural FM Modulator

INT FM + INT AM
INT FM + EXT AM
EXT FM + INT AM
EXT FM + EXT AM

(2) Combination with the Stereo FM Modulation

INT FM STEREO	}	+ or	INT AM EXT AM
EXT FM STEREO			
INT FM[L] / INT FM[R]			
INT FM[L] / EXT FM[R]			
EXT FM[L] / INT FM[R]			

EXT FM[L] / EXT FM[R]

Preset

Up to 100 preset conditions consisting of frequency, output level, and modulation can be stored to internal memory.

RF Leakage

Low enough not to cause measurement interference under 0 dB μ (1 μ V) conditions.

Remote Control

All front panel switches (except power switch) can be remotely controlled.

GPIO

IEEE 488.1-1987

Environmental Conditions

Operating Temperature:	0 to 40 $^{\circ}$ C
Operating Humidity:	≤ 85 % RH (without condensation)
Spec-Guaranteed Temperature:	10 to 35 $^{\circ}$ C
Spec-Guaranteed Humidity:	≤ 85 % RH (without condensation)
Operating Environment:	Indoor use
Operating Altitude:	Up to 2,000 m
Overvoltage Category:	II
Pollution Degree:	2

Power Requirements

AC 100, 120, 220, 240 V ± 10 %, 250 Vmax. 50/60 Hz

Dimensions and Weight

426 (W) x 99 (H) x 300 (D) mm, 8 kg

Accessories

Power cord.....	1
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