PLG signal generators

Features

— Operating frequency range from 25 MHz to 6/12/20 GHz

— Full functionality of full-scale laboratory generators.

— Analog modulation: amplitude, frequency, phase and pulse modulations

— Power range from −40 to +10 dBm

— Small size and low weight

— Power supply and control via USB 2.0 or USB 3.0

Description

PLG signal generator is designed to generate frequency-tuned harmonic signals within frequency range from 25 MHz to 6/12/20 GHz (with 1 Hz step) and power range from −40 dBm to +10 dBm (with 1 dB step) with possible analog modulation (amplitude, frequency, phase, pulse). The device is powered and controlled via USB 2.0 or 3.0 cable only.

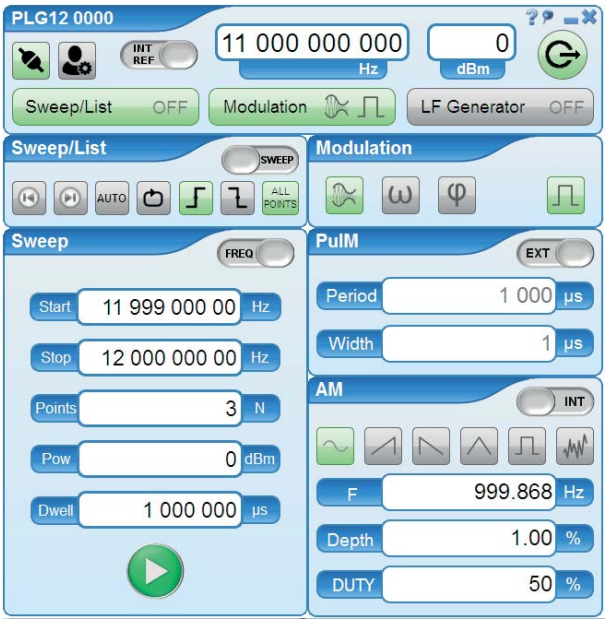
PLG generators are used for analyzing, tuning, testing and monitoring for manufacture of high-frequency and microwave devices used in radio electronics, communications, radar location, measuring equipment.

Main capabilities

- Continuous generation of harmonic signal with fixed frequency and power level and incremental variation of specified parameters.
- Frequency sweep, power sweep and arbitrary frequency/power list sweep with predefined signal sources;
- Continuous generation of harmonic amplitude, frequency or phase modulated signal with external or internal modulation signal source.
- Continuous generation of low-frequency signal of typical waveform (sinus, sawtooth, triangle, square, noise) with fixed frequency and amplitude and incremental variation of the specified parameters.
- Control of the PLG with SCPI commands provides integration of the device with automated instrumentation systems of various complexity.

Software

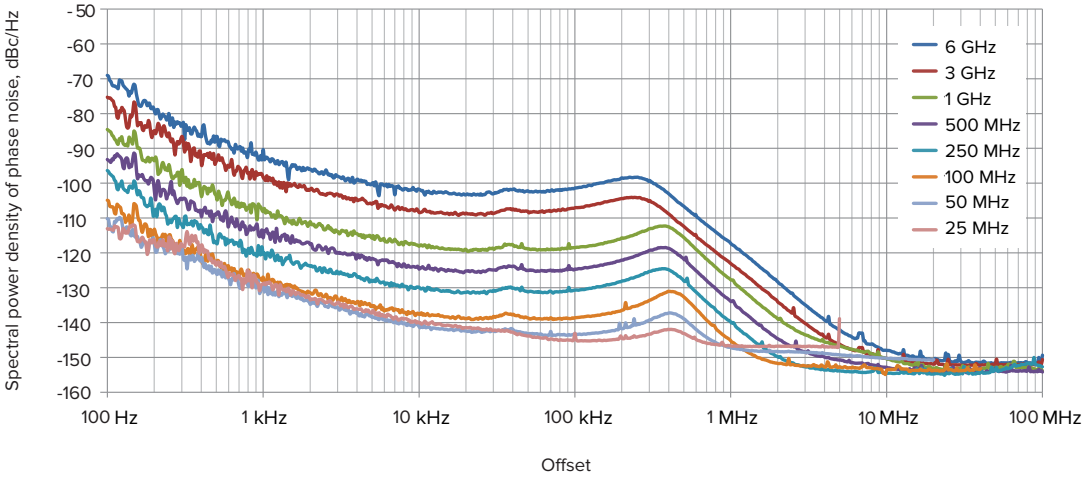
- User-friendly interface.
- Sweep list editor capable to download/save lists in .csv format.
- Saving/downloading profiles for measuring circuits.



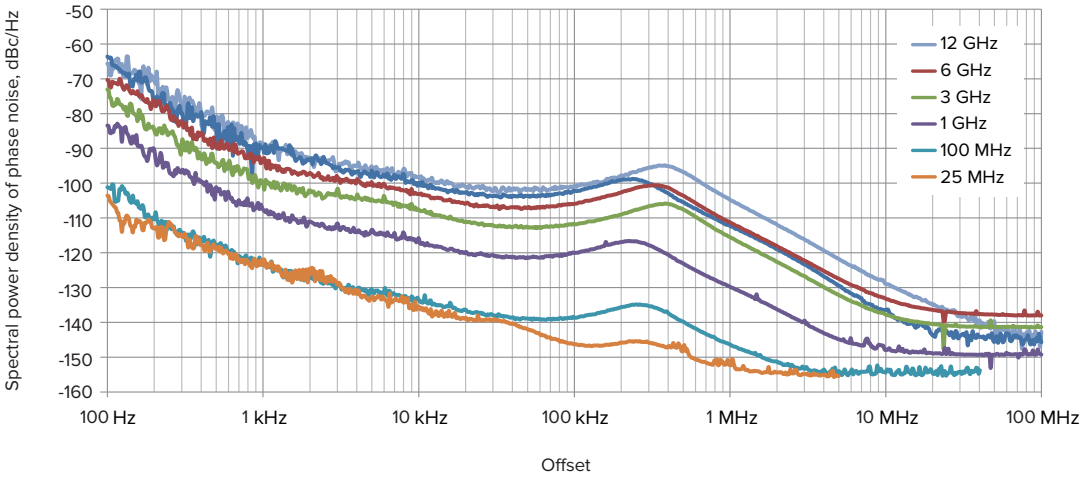
Specifications

	PLG06	PLG12	PLG20
Operating frequency range	25 MHz ... 6 GHz	25 MHz ... 12 GHz	25 MHz ... 20 GHz
Output frequency step	1 Hz		
Output signal power setting range	−40 ... +10 dBm		
Output signal power setting increment	1 dB		
Output signal power setting error	±1 dB	±2 dB	±2 dB
Relative spectral power density of 1 GHz signal phase noise at an offset			
1 kHz	−108 dBc/Hz	−105 dBc/Hz	−108 dBc/Hz
10 kHz	−117 dBc/Hz	−113 dBc/Hz	−117 dBc/Hz
100 kHz	−115 dBc/Hz	−112 dBc/Hz	−113 dBc/Hz
1 MHz	−128 dBc/Hz	−128 dBc/Hz	−128 dBc/Hz
10 MHz	−150 dBc/Hz	−150 dBc/Hz	−148 dBc/Hz
Relative level of nonharmonic spectral components	< −60 dBc		
Relative level of harmonic components, max	−25 dBc		−20 dBc
Subharmonics level	none	−50 dBc	−50 dBc between 5 GHz and 20 GHz
Microwave signal modulation			
Microwave signal modulation types	Amplitude, frequency, phase, pulse modulations, internal or external source		
AM, FM, PM frequency range	0 (100 Hz for FM) ... 100 kHz		
Modulation waveform	Defined by external source or built-in low-frequency oscillator		
AM depth	0 ... 96 %	0 ... 70 %	
PM index	0 ... 1 rad at 1 GHz may be proportionally scaled to another carrier frequency		
FM deviation	0 ... 100 Hz at 1 GHz may be proportionally scaled to another carrier frequency		
Pulse repetition period for pulse modulation	for internal source 2 µs ... 32 ms, for external source 100 ns min.		
Pulse duration for pulse modulation	for internal source 1 µs ... 32 ms, for external source 40 ns min.		
Attenuation during the pause for pulse modulation	50 dB min.		
Pulse envelope front/tail time for pulse modulation	< 10 ns		
Low-frequency output			
Waveform of built-in low-frequency oscillator	Sinus, sawtooth, triangle, square, pulse, noise, direct current		
Input frequency range of low-frequency generator	0 ... 500 kHz (1 MHz for sine waveform)		
Frequency setting increment for low-frequency output signal	1.5 Hz		
Low-frequency generator signal amplitude range	6 mV ... 3 V		
Low-frequency generator signal amplitude setting increment	6 mV		
Sweep			
Sweep type	Frequency, power, list		
Maximum number of sweep points	501		
Synchronization signal type	External signal bound to front or tail, SCPI command, internal signal acc. to timer		
Time required to set a new frequency and power for sweep with external synchronization signal	< 100 µs	< 200 µs	< 200 µs
Reference oscillator			
Internal reference oscillator frequency	10 MHz		
Relative temperature instability of frequency	$< 10^{-6}$		
Long-term frequency instability	$< 10^{-6}$ per year		
External reference signal frequency	10 ... 100 MHz with 10 MHz step		
Relative lock-in range of external frequency	$< 5 \times 10^{-6}$		
Output signal power of reference oscillator	> 0 dBm		
External reference signal power	0 ... 10 dBm		
Wave impedance of port	50 Ohm		
Connector types			
Microwave output	SMA female/male, N female/male		
Connector to feed modulation signals, strobe, reference frequency or receive signal of low-frequency oscillator, reference oscillator and capture/readiness	MCX, female		
Power and control	USB 2.0 Mini-B		

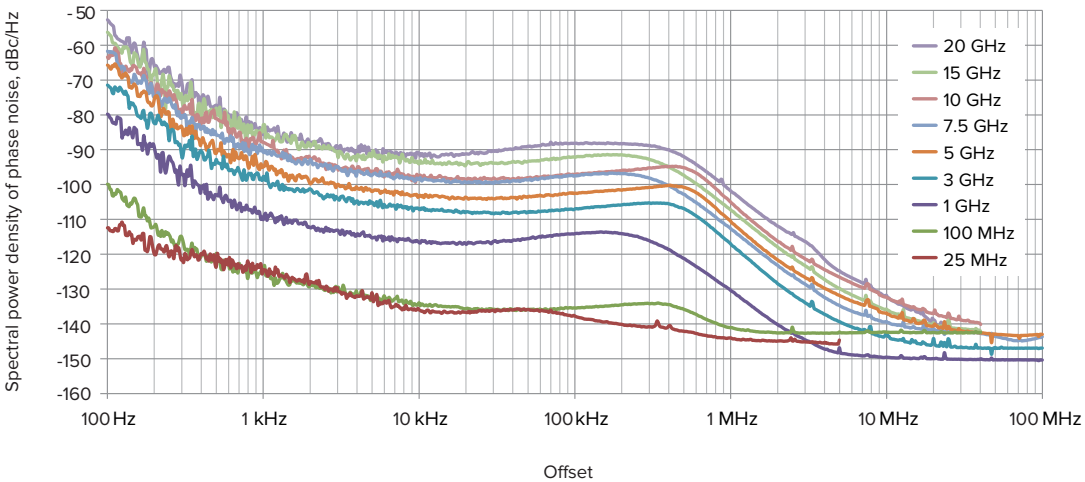
PLG06 phase noise



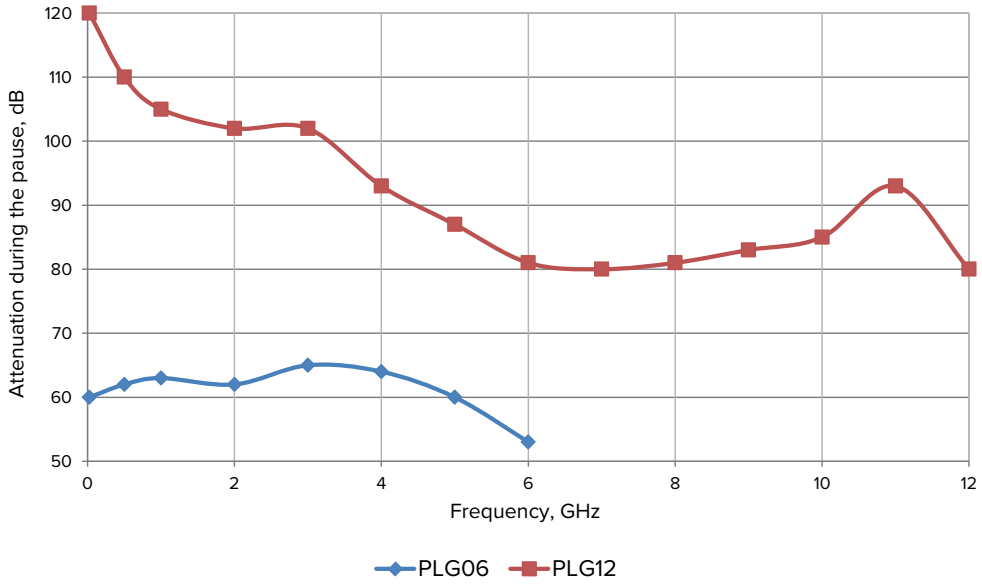
PLG12 phase noise



PLG20 phase noise



Attenuation during the pause for PLG06 and PLG12



Ordering information

Version	
PLGxx-11F	Type N output microwave connector (female)
PLGxx-11M	Type N output microwave connector (male)
PLGxx-12F	Type SMA output microwave connector (female)
PLGxx-12M	Type SMA output microwave connector (male)
Supply set	
MCX-BNC cable assemblies	4 x 0.8 m each
Torque wrenches	KT-2 for PLGxx-12F or PLGxx-12M KT-4 for PLGxx-11F or PLGxx-11M
Cable assembly USB 2.0 type-A — USB 2.0 Mini-B	Power and control cable assembly, 1.2 m, with screws on USB 2.0 Mini-B connector end
PLGxx-11F	PK2-18-11-11 PK2-18-11-13 PK2-18-11-13R
PLGxx-11M	PK2-18-11R-11R PK2-18-11R-13 PK2-18-11R-13R
PLGxx-12F	PK2-18-11-13 PK2-18-11R-13 PK2-20-13-13
PLGxx-12M	PK2-18-11-13R PK2-18-11R-13R PK2-20-13R-13R

On your request, the device may be supplied with additional coaxial adapters and cable assemblies (Ref. Section 2. Microwave accessories).

Ordering example

- Noise generator PLG06-11F – 1 pcs.
- Cable assembly KSA18A-11-11-1000 – 1 pcs.