



Data Sheet

PNG7000A
Series Programmable
Noise Generator



Count on the noise leader

PNG7000A Programmable Noise Generator Series

The PNG7000A Series instruments generate white Gaussian noise and provide a summing input to control signal-to-noise (SNR) or carrier-to-noise (CNR) for bit-error-ratio (BER) testing. The output can also be used as a random source for time domain Jitter applications. A key feature of this instrument is its low distortion signal path that sums the user-supplied signal with the internal precision white noise source.

The signal path has a nominal insertion gain of 0 dB, with very low amplitude and phase ripple. The noise source provides an exceptionally high crest factor for accurate bit error rate testing, even with large carrier-to-noise (CNR) or bit energy-to-noise density (E_b/N_0) ratios. With the addition of option 7, DC coupling will allow adding noise directly to a digital TTL, ECL, or similar signal.

The standard PNG7000A is a broadband device, but for applications that require a greater range, the unit can be configured with up to five band-limited noise sources, each optimized for flatness over the specified frequency band. Noise Com will modify base units for specific customer needs. For pricing and availability, consult the factory.

The PNG7000A Series is microprocessor-controlled and provides information about operation of the instrument via a 6.25" color TFT display. Control of the noise level, noise on/off switching, signal on/off switching, and noise source selection can be controlled either manually by the touch screen, or remotely via IEEE-488 bus, Ethernet, or Serial type RS232. The PNG7000A instruments can be integrated into a test station under software control, and with the aid of a precision power meter the C/N or E_b/N_0 ratios can be set.

Once a CNR calibration has been performed, the ratio can be changed using the internal precision attenuator to vary the noise power without degrading accuracy. The output noise power level is factory calibrated at a 0 dB attenuator setting and is displayed in dBm/Hz.



General Specifications

- Output White Gaussian noise
- Minimum 18 dB crest factor
- Output noise power +3 dBm
- Noise attenuator 0 to 63 dB, with 0.25 dB step size
- Noise attenuator ± 0.2 dB or 0.5% accuracy at 1 - 500 MHz
- ± 0.2 dB or 1% at 0.5 - 1.0 GHz
- ± 0.3 dB or 2% at 1 - 2 GHz
- Signal path gain 0 ± 1 dB
- Group delay variation ± 0.2 nsec/40 MHz
- Standard connectors SMA female
- 6.25" color VGA, TFT touch screen
- Dimensions: 17.22 in. wide x 6.30 in. including feet, high x 19.5 in. deep
- Fold-down feet for bench-top use
- Power 115 VAC, 60 Hz
- Operating temperature: -10° to $+65^\circ\text{C}$



Specifications

PNG7000A Series

Output Characteristics

Model	Frequency Band	Power	Vrms	dBm/Hz	Flatness (dB)
PNG7105A	1 MHz - 10 MHz	+3	0.316	-67	±0.25 / 40 MHz
PNG7107A	10 MHz - 100 MHz	+3	0.316	-77	±0.25 / 40 MHz
PNG7108A	10 MHz - 500 MHz	+3	0.316	-84	±0.25 / 40 MHz
PNG7109A	10 MHz - 1 GHz	+3	0.316	-87	±0.25 / 40 MHz
PNG7110A	10 MHz - 1.5 GHz	+3	0.316	-89	±0.25 / 40 MHz
PNG7111A	1 GHz - 2 GHz	+3	0.316	-87	±0.25 / 40 MHz
PNG7112A	10 MHz - 2 GHz	+3	0.316	-87	±0.25 / 40 MHz

Applications

- BER, Jitter Testing
- Serial Data Testing
- C/N Ratio Testing
- E_b/N_o Testing
- Multiplexers
- Disk Drive Channel Testing



Intuitive standard control menu

Options

PNGopt01	BNC female input and output
PNGopt02	75 ohms input and output impedance
PNGopt03	230 VAC, 50 Hz
PNGopt04	Switch including up to 5 noise sources
PNGopt05	RS232 remote control
PNGopt06	127 dB signal attenuator in 1 dB steps
PNGopt07	DC coupled signal path (6 dB RF Loss)
PNGopt09	Custom internal filters
PNGopt10	Custom frequency, power, or flatness requirement**
PNG opt11	GPIB IEEE 488.2
PNGopt12	19" rack mount

** Consult factory for pricing and availability