



RF Systems & Synthesizers > Phase Noise Test Sets

BLUE PHASE 1000™

Single Channel System Standard Features:

- Frequencies from 5 MHz to 1.5 GHz
- Noise Floors to <-178 dBc
- Offsets to 100 kHz
- Multi-Function Analog Panel Meter
- Speaker for Noise Monitoring and Troubleshooting
- Variable Voltage Source for Auxiliary Electrical Tuning
- USB Port Interface for Computer Control of Instrument

**Single Channel
Absolute Phase Noise Test Set
BP-1000-SC**

Additional Plug-Ins and Capabilities:

- Mixer/LPF for Extended Input Frequencies to 26.5 GHz
- Noise Floors to <-190 dBc (Cross-Correlation)
- Audio Amplifier for Extended Offset Measurements to 20 MHz
- Voltage Regulator for Clean Auxiliary Power
- Built-in or External Reference Sources



Other Standard Configurations:

- Cross-Correlation Absolute Phase Noise Test Set
- Residual Phase Noise Test Set

BPMS-1000-SC Phase Noise Measurement System	
SSB Phase Noise	<-178 dBc/Hz at 10 kHz (Typical)
Frequency Range	5 MHz to 1.5 GHz [extended range available]
Offset Analysis	1 Hz to 100 kHz (input frequency and tuning sensitivity dependent) [to 20 MHz available]
Measurement Accuracy	±1.5 dB (<100 kHz offset) [±2 dB (<20 MHz offset) optional]
Input Signal Level	+14 dBm into 50 ohms
Input / Output Connectors	SMA female, BNC female
Electrical Tuning Output to VCO	±14 VDC
Spurious	<-110 dBc
Supply Voltage	+18 ^{-0.5} ₊₁ VDC -18 ⁻¹ _{+0.5} VDC
Supply Voltage Connector	D-subminiature 9 pin connector
Power Consumption	<500 mA @ ±18 VDC ±5%, standard
Operating Temperature	0 to +50°C
Dimensions (w x d x h)	17.625 x 15 x 5.25" (3U) [19" rack mountable]

Phase Noise Test Set Overview:

Wenzel Associates *BLUE PHASE 1000™* series test set integrates *BLUE TOPS™* modules and other ultra low noise components into a manually operated or computer controlled phase noise measurement system. The *BLUE PHASE 1000™* test set is modularly constructed, allowing complete flexibility for use in multiple configurations and achieving extremely low noise floors.

The *BP-1000-SC* Single Channel Absolute Phase Noise Test Set consists of a two chassis configuration. The BPMS-1000-SC is the Absolute Phase Noise Measurement System, which is housed in a 5¼" high rack mountable chassis. This unit is powered by the BPPS-1000 Low Noise Power Supply, which is housed in a 5¼" high half-rack chassis (full-rack available). The *BPMS-1000-SC* phase noise measurement system is configured to facilitate accurate single sideband (SSB) absolute phase noise measurements of RF and microwave sources utilizing a two-source approach.

BPPS-1000 BluePhase Power Supply	
Supply Voltage	115/230 VAC, 50/60 Hz [selectable]
Output Voltage	+18 ^{-0.5} ₊₁ VDC, 1.5A -18 ⁻¹ _{+0.5} VDC, 1.5A
Supply Voltage Connector	D-subminiature 9 pin connector
Operating Temperature	0 to +50°C
Supply Fuse	AC: 250V, 1.5 A, slow blow. DC: 250V, 2A, slow blow (internal)
Dimensions (w x d x h)	9.25 x 11.5 x 5.25" (3U) [half-rack standard; full-rack available]

The single channel phase noise measurement technique for a frequency source compares the phase of the device under test (DUT) to a reference frequency source (REF) with similar or superior noise performance. The relative phase of the two frequency sources is held at quadrature so that small phase variations convert into voltage variations at the output of the MIXER/LPF. Although the PHASE LOCK CONTROL is constantly working to eliminate these phase variations, when possible, the time constant is set long enough to preserve the slowest phase variations of interest. The power spectral density of the output audio noise of the circuit can be measured with a signal analyzer and is easily converted to phase noise by correcting for mixer conversion and amplifier gain.

Standard Test Equipment Required:

- Oscilloscope
- FFT Analyzer (for offsets to 100 kHz)
Recommend: SR760 (for Single Channel)
- Spectrum Analyzer (for offsets to 20 MHz)

Optional:

- Computer with a USB communications port running Microsoft Windows (XP recommended)

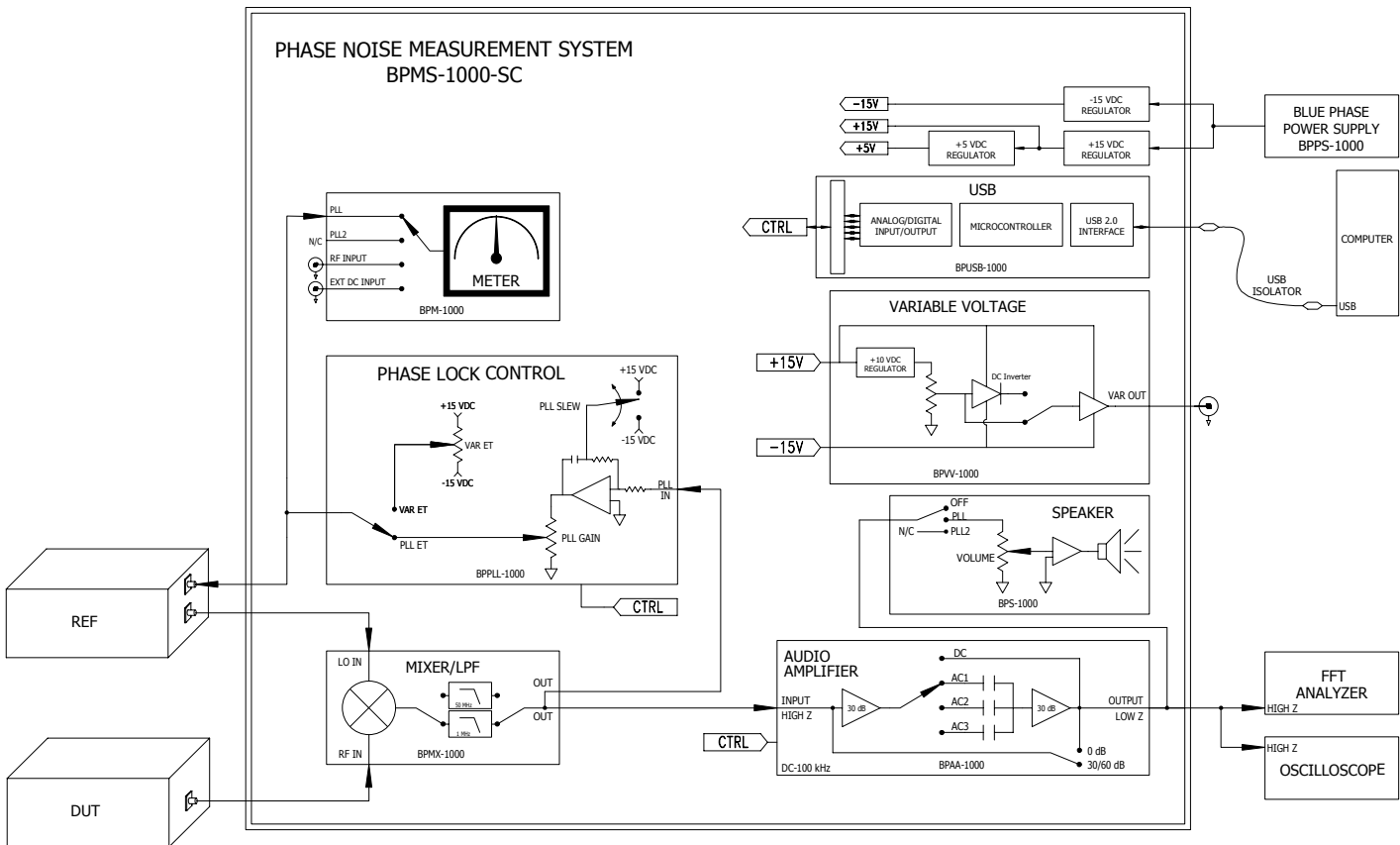


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BLUE PHASE 1000™

Single Channel

Absolute Phase Noise Test Set BP-1000-SC



SINGLE CHANNEL PHASE NOISE TEST CONFIGURATION

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