Signal Hound®

PN400 Phase Noise and VCO Test System

BRINGING IMPRESSIVE PHASE NOISE, VCO TESTING, AND SPECTRUM ANALYSIS MEASUREMENTS TOGETHER IN ONE POWERFUL AND PRECISE WORKFLOW.

The PN400 harnesses the power of two SM family spectrum analyzers to create Signal Hound's Phase Noise and VCO Test System. Enabling cross-correlation unlocks phase noise floors 20-30 dB lower than the capabilities of a single SM200/SM435. The integrated low noise variable power supply and tune voltage facilitate precise VCO testing and characterization that includes tuning sensitivity and VCO pushing. High performance automated test solutions that deliver accuracy in diverse test and measurement systems.

APPLICATIONS

- Phase Noise Testing and Characterization
- VCO Testing and Characterization
- Production and Manufacturing Testing
- Source Characterization
- System Level Debug
- SDR Characterization

FEATURES

- Wide Input Frequency Range from 100 kHz to 43.5 GHz
- Fast High-Performance Phase Noise Measurements
- Low Noise VCO Tuning and Supply Voltages
- Automated VCO Characterization
- Full Automation through SCPI
- High-End Spectrum Analysis Capability

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Preliminary Specifications

Frequency Range	100 kHz to 43.5 GHz
Input Power Level (Typical)	• +10 dBm at PN400 RFIN for typical specs. See PN400 Product Manual.

Phase Noise Floor at Center Frequency (dBc/Hz) (Typical, Maximum Correlations)

Offset	100 MHz	1 GHz	10 GHz	40 GHz
• 10 Hz	-108	-96	-76	-65
• 100 Hz	-145	-126	-106	-95
• 1 kHz	-160	-150	-130	-118
• 10 kHz	-167	-164	-144	-131
• 100 kHz	-173	-169	-151	-140
• 1 MHz	-176	-174	-155	-143
• 10 MHz	-178	-178	-173	-161

Correlation Time

Decade	Time Per Correlation (s)	Max Correlations	Max Corelation Gain (dB)
• 10 Hz to 100 Hz	• 1.96	• 100	• 10
• 100 Hz to 1 kHz	• 0.392	• 500	• 13.5
• 1 kHz to 10 kHz	• 0.032	• 6100	• 19
• 10 kHz to 100 kHz	• 0.0019	• 102k	• 25
• 100 kHz to 1 MHz	• 0.00024	• 819k	• 30
• 1 MHz to 10 MHz	• 0.00003	• 6.5M	• 34

VSUPPLY (Typical)

• Setting Range	0.5 V to 15 V
• Setting Resolution	5 mV
• Setting Accuracy	10 mV
• Voltage Readback Accuracy	10 mV
• Current Readback Accuracy	2 mA
• Settling Time	500 ms/V

VTUNE (Typical)

• Setting Range	- 1 V to 28 V
• Setting Resolution	1 mV
• Setting Accuracy	10 mV
• Settling Time	10 ms/V

Operating Temperature	• Standard -40°F to 185°F (-40°C to +85°C)
Size and Weight	• 7.21" x 3.74" x 1.78" (183mm x 95mm x 45mm) • 1.20 lbs. (0.55 kg)
External Power Supply	• 30 V
Power Consumption	• 10 Watts (max)
Interface	USB 2.0
System Requirements	Windows or Linux Operating System, x64_86 architecture

Ordering Options
Software, 1 year Software License
Standard, VCO Tester (2.4mm RF ports)
Option-17, VCO Tester (2.92mm RF ports)