



PNCS-1 1 GHz Phase Noise Clock Standard Product Manual

Signal Hound PNCS-1 User Manual

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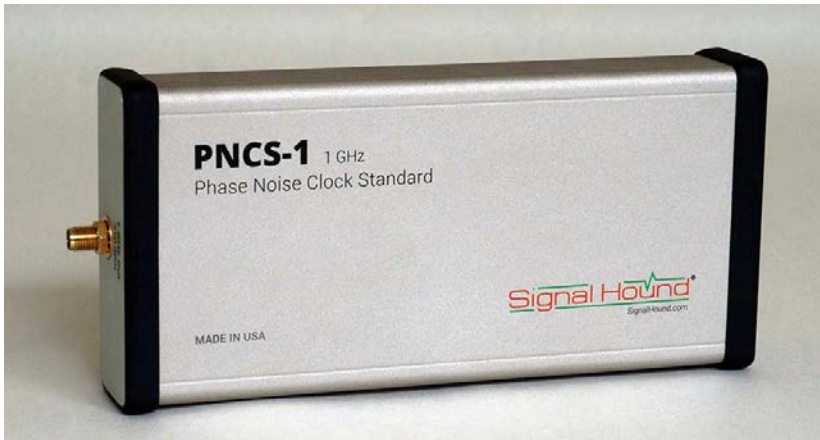
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1 Overview

This document outlines the operation and functionality of the PNCS-1 1 GHz phase noise clock standard.

The PNCS-1 is an ultra-low phase noise oscillator. It can be mechanically tuned to $1 \text{ GHz} \pm 25 \text{ Hz}$ using the included adjustment tool. The output power is $+10 \text{ dBm} \pm 2 \text{ dB}$.

2 Preparation



2.1 INITIAL INSPECTION

Check your package for shipping damage before opening. Your box should contain a PNCS-1 and a 13.5V AC-DC power adapter.

2.2 CONNECTING YOUR PNCS-1

Plug the power jack into the PNCS-1 DC power in. Wait 3 minutes for the OCXO to warm up. For best stability, leave the PNCS-1 plugged in for 30 minutes before use.

3 Understanding the PNCS-1 Hardware

The PNCS-1 uses an ultra-low phase noise, 100 MHz OCXO. It doubles the frequency to 200 MHz, filters, multiplies the frequency by 5, filters using a 1 GHz SAW filter, and then amplifies it to +10 dBm.

3.1 SPURIOUS SIGNALS

Harmonics of 1 GHz will be present at the output. Typically these will be more than 30 dB down. Smaller spurs at multiples of 100 MHz will be present at high frequencies as well.

4 Calibration and Adjustment

The output frequency may be mechanically adjusted using the included slotted adjustment tool. Contact Signal Hound for more information regarding calibration, or to schedule a calibration.

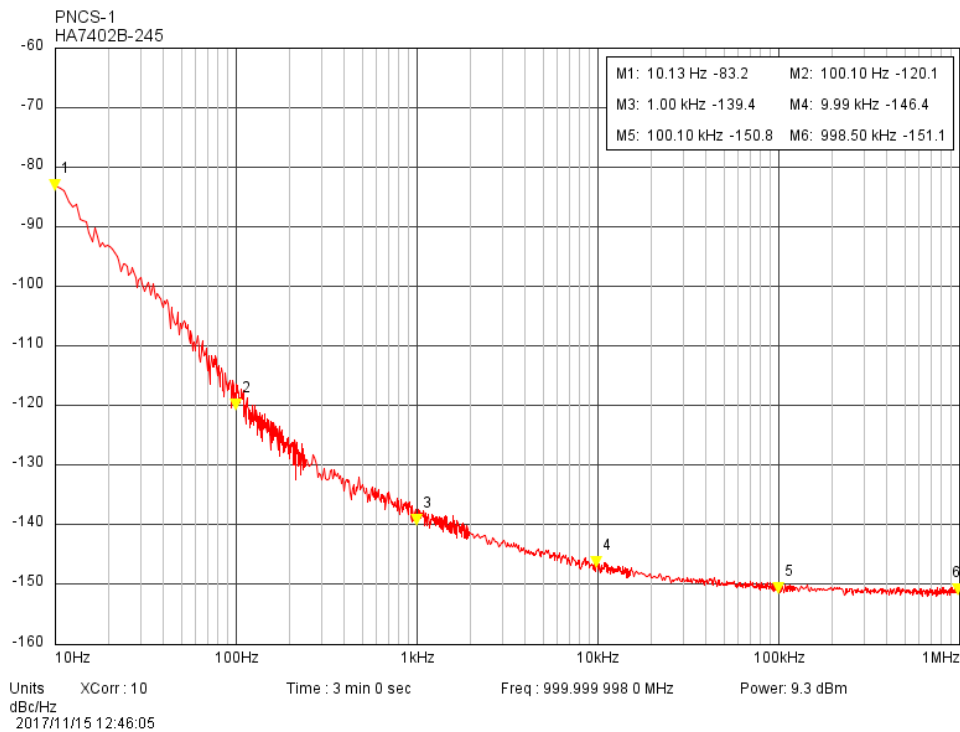
5 PNCS-1 Typical Performance

Frequency Range 1 GHz \pm 1 kHz, mechanically adjustable

Output Power +10 dBm \pm 2 dB

Timebase Accuracy $\pm 5 \times 10^{-9}$ per day for aging;

Typical SSB Phase Noise at 1GHz Center Frequency (see chart below)



Offset Frequency	Typical dBc/Hz
10Hz	-83
100Hz	-118
1kHz	-138
10kHz	-146
100kHz	-150
1MHz	-151

Operating Temperature (ambient)	32°F to 122°F (0°C to +50°C)
Power Consumption	6.5 watts warmup, 4.5 watts after 3 minutes from included 13.5 volt power supply
Spurious Signals	
Harmonics	< -30 dBc typical
Non-harmonic spurious	< -50 dBc typical (100 MHz multiples)

6 Warranty and Disclaimer

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6.1 WARRANTY

The information contained in this manual is subject to change without notice. Signal Hound makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties or merchantability and fitness for a particular purpose. Signal Hound shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material. This Signal Hound product has a warranty against defects in material and workmanship for a period of two years from date of shipment. During the warranty period, Signal Hound will, at its option, either repair or replace products that prove to be defective.

6.2 WARRANTY SERVICE

For warranty service or repair, this product must be returned to Signal Hound. The Buyer shall pay shipping charges to Signal Hound and Signal Hound shall pay UPS Ground, or equivalent, shipping charges to return the product to the Buyer. However, the Buyer shall pay all shipping charges, duties, and taxes, to and from Signal Hound, for products returned from another country.

6.3 LIMITATION OF WARRANTY

The foregoing warranty shall not apply to defects resulting from improper use by the Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product. No other warranty is expressed or implied. Signal Hound specifically disclaims the implied warranties or merchantability and fitness for a particular purpose.

6.4 EXCLUSIVE REMEDIES

The remedies provided herein are the Buyer's sole and exclusive remedies. Signal Hound shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

6.5 CERTIFICATION

Signal Hound certifies that, at the time of shipment, this product conformed to its published specifications.