



HIGH SPEED CROSS CORRELATION ENGINE

The HA7402B provides NIST traceable data at the fastest possible acquisition speeds. The Holzworth HA7000 Series Phase Noise Analyzer products have been designed for ease of use with the ability to hit extremely low phase noise floors. With years of field proven reliability, the HA7000 Series has become the phase noise test standard for many laboratories and product manufacturing test lines, worldwide.



RAPID CROSS CORRELATION COVERING 5MHz - 6.4GHz

The HA7402B cross correlation engine was originally designed for the test of high end oscillators, as the best means to achieve the lowest possible phase noise measurements in the shortest amount of time. The user supplies 2 frequency matched test LOs. The HA7402B analyzer takes control with fully automated calibration functions.

INTUITIVE INTERFACE

Holzworth Instrumentation has been measuring the phase noise of 100% of its own shipped products since the company was founded in 2004. There is an understanding that the quality of the user interface is as important as the capabilities of the hardware.



The highly intuitive HA7402B interface is a driver-free, JAVA™ based GUI that will operate on any standard PC. As pictured, the GUI has been optimized to be touch screen compatible.

Originally targeted for use in high throughput manufacturing, the HA7000 Series GUI is designed to work seamlessly under the control LabVIEW™ or other software suites

Z540 NIST TRACEABLE CALIBRATION

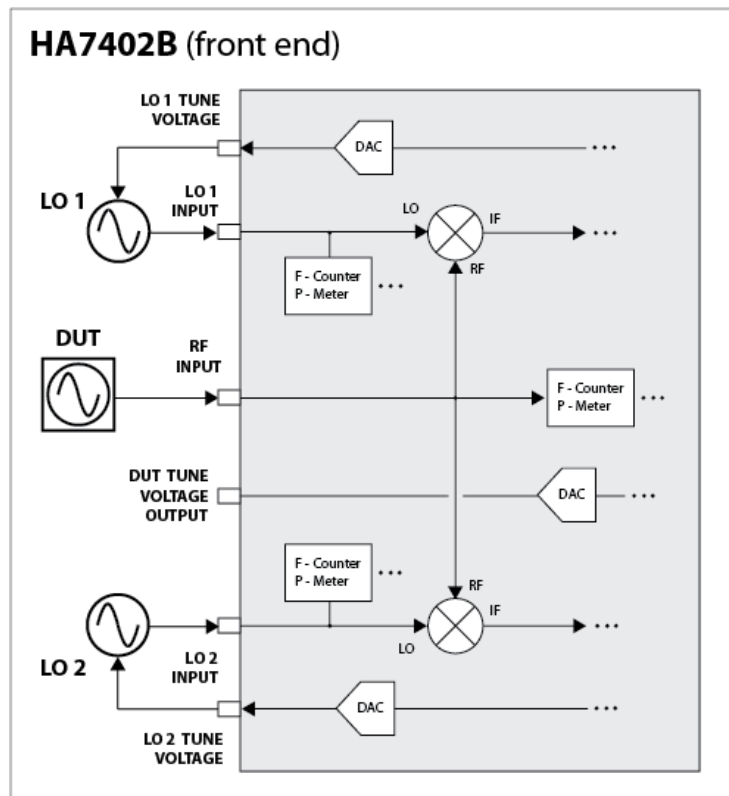
Make no assumptions. Accuracy of results is a common speculation for any phase noise analyzer. Beyond architecting with a high isolation front end, all Holzworth analyzers come with a NIST traceable calibration. The ANSI z540 calibration standard is a mandatory procedure for Holzworth phase noise analyzers. Phase noise data that cannot be traced to an industry accepted standard leaves too many variables open for interpretation.

ARCHITECTURE OUTLINE

The HA7402B core combines the best of traditional analog phase noise measurement front-ends (being virtually spur free) with the latest technology in cross correlation analysis. The digital analysis system uses the latest DSP with a powerful cross correlation engine to help achieve the lowest noise floors possible.

EXTERNAL LOs are used with this unique architecture to achieve the lowest phase noise floors as well as blazing fast measurement speeds. Two LOs must be used, as the engine requires non-coherent signals in order to cross correlate. The integrated frequency counters and power meters make the use of external LOs completely non-problematic with fully automated calibration routines.

The **CHASSIS** is a 1U high, fan-less design that encases the entire test system. The HA7402B's fully integrated, low power platform removes the need for fan cooling, which also eliminates invalid spurious data caused by microphonics. The integrated chassis is fully sealed, rugged and portable for field applications; providing consistent results from location to location without the worry of recalibration support or repair.



HA7402B: Front End Architecture

ATE TEST SYSTEMS need an analyzer that will easily integrate. Holzworth engineering has designed the API for all our analyzers to operate with both commercial and proprietary automated ATE test programs so that phase noise measurement can be integrated into the performance test process. It will even run with LabVIEW™.

PERFORMANCE SUMMARY

DUT Tuning Range	10MHz – 6.4GHz (5MHz tests utilize model HX4105)
Measurement Floor	< -190dBc/Hz
Signal Acquisition Time	~100ms (DUT frequency dependent)
Measurement Speed	1.2s (1kHz-1MHz), 22s (1Hz-1MHz)
Measurement Offset	0.1Hz to 1MHz
Warranty	2 years