



Product Brochure

Microwave Signal Generator

2500B Series - 100 kHz to 50 GHz



Are your test needs changing?

- ▣ Slow moving target detection requires state-of-the-art ultra-low phase noise test signals
- ▣ Calibration of next generation wideband receivers requires fast, accurate frequency switching and measurement
- ▣ Demanding high resolution specifications, requires industry leading, high fidelity narrow pulse generation





The 2500B Series Microwave Signal Generators are Designed to Meet Your Evolving Test Challenges

Ultra-Low Close-in Phase Noise:

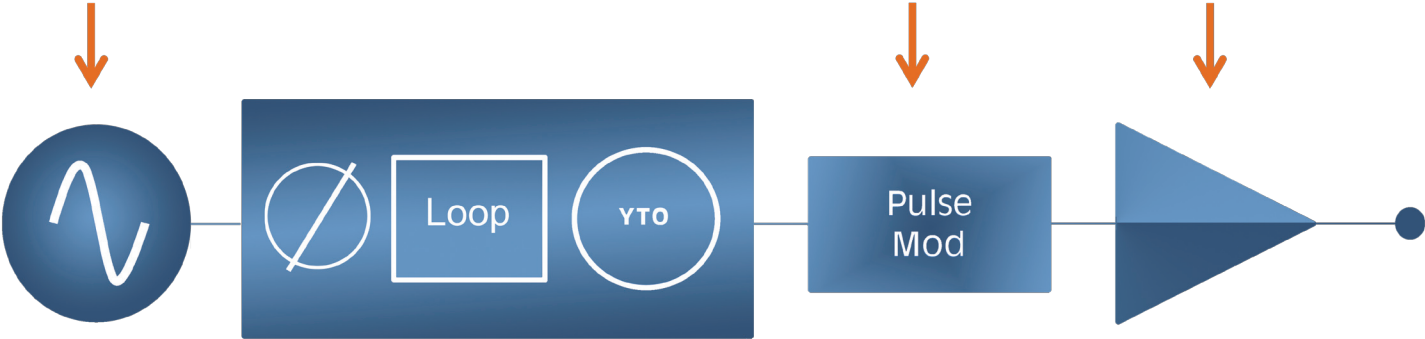
The frequency reference oscillators and associated circuitry are optimized to minimize the phase noise close to the carrier.

Pulse Fidelity:

The pulse modulator is before the ALC allowing excellent pulse fidelity and > 80 dB on/off ratio.

Narrow Pulse:

Optimized ALC Loop for narrow pulse level control.



High Frequency, Fast Switching: utilizing an innovative approach allows for fast, accurate frequency switching speed.

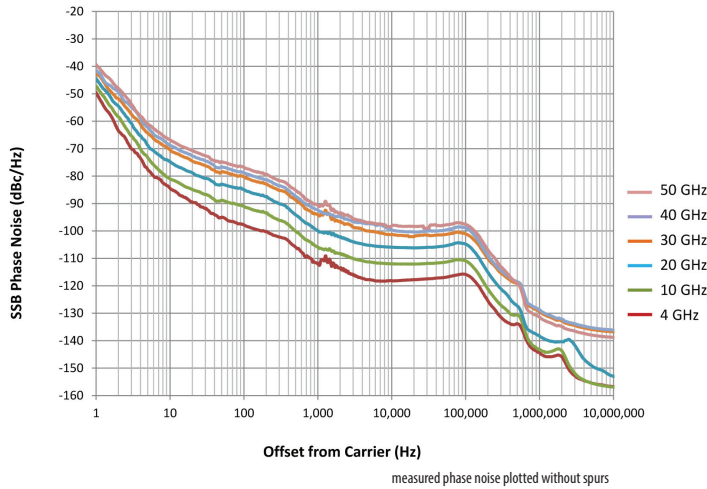
Fast Switching Speed YTO: The YIG-tuned oscillator (YTO) and its drive circuitry are optimized for both fast switching speed with minimal phase noise.



The 2500B - Fast Switching, Narrow Pulses, High Power, Excellent Signal Purity

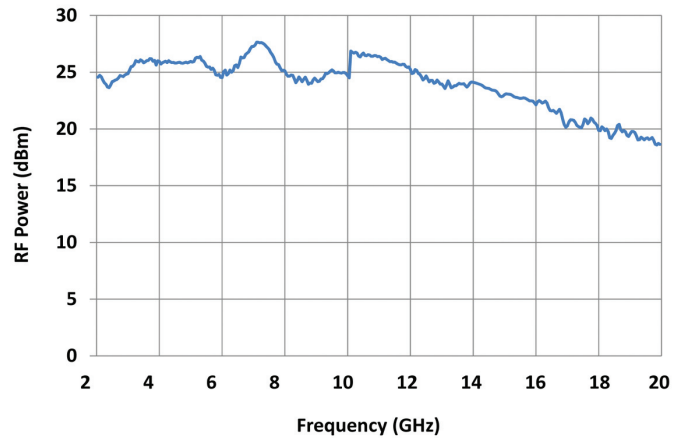
- Ultra-low phase noise means clean pure signals to meet your most challenging test needs

2500B Option 28 Absolute SSB Phase Noise Performance (Nominal)



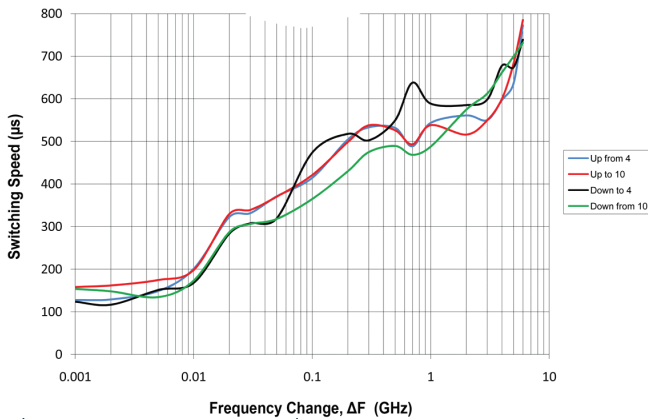
- High output power overcomes losses in cables and signal switching

Giga-tronics 2520B Option 20 X-Band Power Boost On (Nominal)

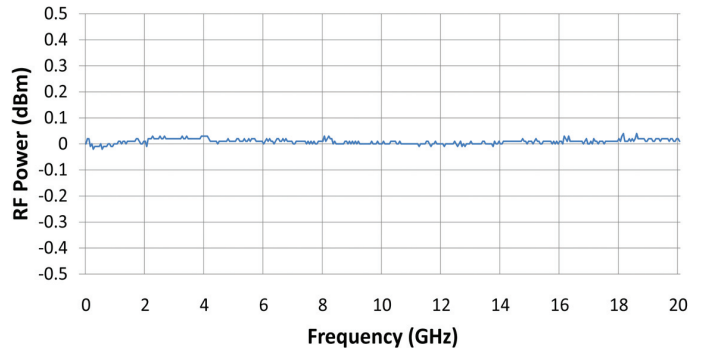


- Fast switching, combined with excellent flatness speeds and simplifies transmitter test, and provides agility for signal simulation applications

Giga-tronics 2500B option 29 Switching Speed vs. Frequency Change (Nominal)



Giga-tronics 2520B Level Flatness at 0 dBm (Typical)



$$F = |(F_{\text{stop}} \times N_{\text{stop}}) - (F_{\text{start}} \times N_{\text{start}})| \text{ where } N \text{ is the value in the Frequency Band Table}$$

- Narrow pulse width down to 10 ns meets the needs for testing high resolution radars.



10 ns pulse at 750 MHz RF



20 ns pulse envelope at 10 GHz RF

Optimized for Automated Test Solutions

Automation Xpress is an easy to use application development tool for use with Giga-tronics 2500B Series Microwave Signal Generators. Automation Xpress leverages the familiar Windows interface for intuitive operation.



Fast Remote Operation

- Maximize ATE performance with fast data exchange speeds and high-speed list downloads
- 2 ms typical remote command CW frequency and level switching

Fast Integration with Auto-Programming Feature

- Streamline programming development times with error-free automatic code generation.
- Automatically create complete projects in Microsoft Visual C++ and Visual Basic.



Familiar Microsoft Windows Environment

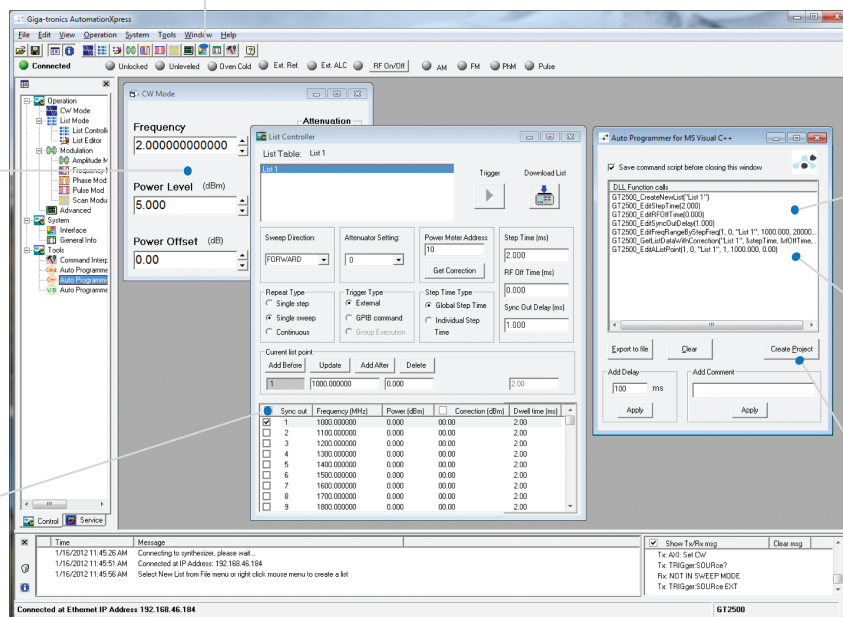
Intuitive graphical user interface with drop down menus and navigation window

Xpress CW Frequency/Power Switching Feature

Blazing 2 ms typical CW frequency and level switching speeds maximize data exchange, for enhanced test throughput and increased profitability.

List Operations

Download 4,000 point list in a matter of seconds with simplified list development windows



Auto-Programmer

Reduces programming time by automatically recording and translating action into code.

Consistent Code Development

Creates the ultimate programming environment by ensuring uniform and highly accurate code generation.

Project Creation

Easily create projects that can be fully integrated into Visual Basic and Visual C++, significantly reducing development and integration times.

Key Specifications

	2500B
Frequency Range	100 kHz to 2, 8, 20, 26.5, 40 or 50 GHz
Frequency Resolution	0.001 Hz
Max Leveled Output Power	+20 dBm at 20 GHz +11 dBm at 50 GHz
Time Based Stability	$< 5 \times 10^{-10}$ /day
Switching Speed	500 μ s per point (typical)
Phase Noise	< -109 dBc/Hz at 10 GHz and 10 kHz offset
Harmonics and Spurious	< -58 dBc

Amplitude Modulation

Depth 0 to 90% (Level = 0 dBm)
 Rate (3 dB Bandwidth) DC to 100 kHz
 Sensitivity 0 to 95% per Volt - Selectable
 Accuracy $\pm 10\%$

Frequency Modulation

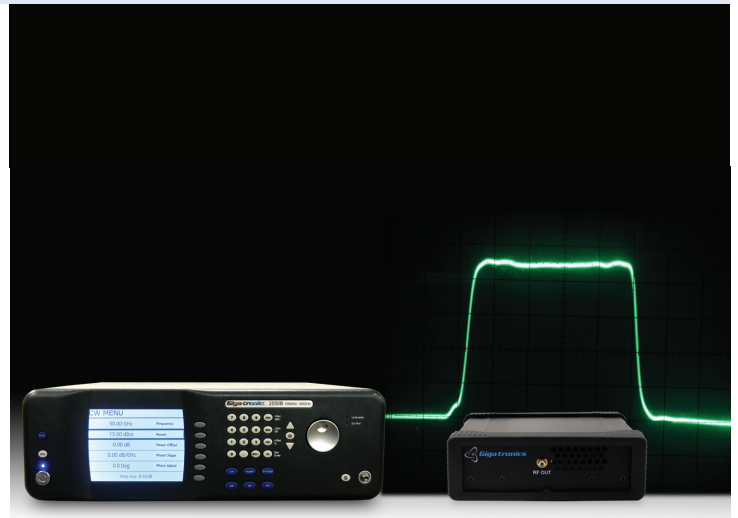
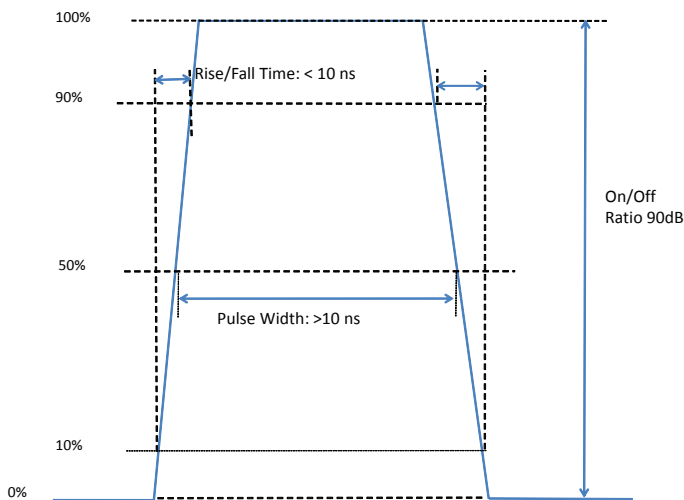
Rate (3 dB bandwidth) DC to 5 MHz
 Peak Deviation 1.5 MHz/N to 15 MHz/N
 Accuracy $\pm 5\%$

Phase Modulation

Rate (3 dB Bandwidth) 100 Hz to 100 kHz
 Peak Deviation 10 rad-pk/N
 Accuracy $\pm 5\%$

Pulse Modulation

On/Off Ratio > 80 dB minimum, 90 dB nominal
 Rise/Fall Times
 0.5 to 20 GHz < 10 ns max, 3 ns typ.
 20 to 50 GHz < 25 ns max, 10 ns typ.
 Minimum Leveled Pulse Width 100 ns
 Minimum Unleveled Pulse Width Open-Loop Calibrated 25 ns, 10 ns nominal
 Level Accuracy
 Pulse Width > 350 ns ± 0.5 dB
 Pulse Width > 100 to 350 ns $+1.5 / -0.5$ dB
 Pulse Width > 25 to 100 ns $+2.5 / -0.5$ dB
 PRF (50% Duty Cycle) Leveled < 3 MHz, Open-Loop
 Calibrated < 10 MHz



Ordering Information

Giga-tronics offers engineering and technical expertise to help you gain the maximum return on your investment. At Giga-tronics, we understand the challenges you face. We help you achieve both top-line growth and bottom-line efficiencies by working to identify your precise needs and implement smart and result orientated solutions. Our support services are tailored to assist your team with integration and next-generation product and process technology.

For Quotes, Order Assistance, or Demonstration Equipment, please contact your local Giga-tronics representative. The contact information is available at: <http://www.gigatronics.com/Where-to-Buy>

Phone / Email: Toll free: 800.726.4442 (USA)
 +1 925.328.4650 (International)
 Email: inquiries@gigatronics.com

Model Number	Frequency Range
2502B	100 kHz to 2.5 GHz
2508B	2 GHz to 8 GHz
2520B	2 GHz to 20 GHz
2526B	2 GHz to 26.5 GHz
2540B	2 GHz to 40 GHz
2550B	2 GHz to 50 GHz

Option	Description
17A	Add Internal and External Modulation Suite (includes internal function generator)
17B	Add External Modulation Suite
18	Add 100 kHz to 2 GHz Frequency Range (Standard on the 2502B model)
20	Add High RF Output Power
22	Move RF Output Connector to Rear Panel
23	Add Type-N RF Connector (for 2520B model only)
26A	Add 90 dB Mechanical Step Attenuator (for 2502B, 2508B, 2520B models only)
26B	Add 90 dB Mechanical Step Attenuator (for 2526B model only)
26C	Add 90 dB Mechanical Step Attenuator (for 2540B model only)
26D	Add 90 dB Mechanical Step Attenuator (for 2550B model only)
27	Add 110 dB Electronic Step Attenuator (for 2502B, 2508B models only)
28	Add Ultra-Low Close-in Phase Noise
29	Add Fast Frequency Switching Speed
32	Add Narrow Pulse Width ≤ 100 ns (Requires Option 17A or 17B)
44	Replace Standard Front Panel with Blank Front Panel (Requires Option 22)
46	Add Rack Slide Kit

Additional Resources

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