

Introducing MPG Solutions® EW Tuner – High-Resolution EW Intelligence in a Compact Form



Overview

This compact, high performance microwave tuner features front end preselection and multi frequency conversion to reject unwanted signals within a 1 GHz wide instantaneous bandwidth at the lower intermediate frequency for easier processing of complex modern wideband radar signatures. It offers performance comparable to larger superheterodyne receivers and is ideal for ESM/ELINT applications.

Standard SOSA-aligned open VPX architecture offers a scalable, modular design for scalable systems, optimizing performance, reducing costs and ensuring high speed data-transfer.

Benefits

- Wide RF Input (0.5 to 18 GHz)
- High Resolution (1 MHz)
- NF 14 dB (typical)
- 1 GHz Wide Instantaneous Bandwidth
- 50 dB 2 tone SFDR
- Fast Tuning
- Compact Single Slot 3U Form factor
- SOSA Aligned Open VPX Interface
- Other form factor and control option available
- Phase Coherent Multi Channel Configuration Option Available

- Suitable for advanced ELINT, SIGINT & RESM operations

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Parameter	Specification										
Operating Frequency	0.5 – 18 GHz (40 GHz extension available via option of additional 3U card)										
Frequency Resolution	1 MHz										
IF Output	1 GHz BW at 1.7 GHz IF (User selectable BW 250 MHz, 500 MHz & 1 GHz)										
Passband VSWR (In/Out)	2.0:1 nominal, 2.5:1 max										
Gain	20 ±2 dB										
Noise Figure	14 dB Nominal (16 dB max)										
P1dB (Input)	-5 dBm min										
Spurious Free Dynamic Range (1 GHz Noise Bandwidth)	50 dB min										
Tune Speed	10µs										
Phase Noise	<table> <tbody> <tr> <td>1 kHz</td> <td>-85 dBc/Hz</td> </tr> <tr> <td>10 kHz</td> <td>-90 dBc/Hz</td> </tr> <tr> <td>100 kHz</td> <td>-95 dBc/Hz</td> </tr> <tr> <td>1 MHz</td> <td>-95 dBc/Hz</td> </tr> <tr> <td>10 MHz</td> <td>-115 dBc/Hz</td> </tr> </tbody> </table>	1 kHz	-85 dBc/Hz	10 kHz	-90 dBc/Hz	100 kHz	-95 dBc/Hz	1 MHz	-95 dBc/Hz	10 MHz	-115 dBc/Hz
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Interface	SOSA Aligned Open VPX (Available as conduction cooled rear panel RF connection or card rail front panel RF connection)										
External Dimensions (Excluding connectors)	Single Slot 3 U form factor										
Operating Temperature	-40°C to +80°C										

Problems Solved

EW Tuners are built for the most demanding defense applications, solving the real-world challenges that system integrators and EW operators face today. We offer solutions designed to solve the following challenges:

- Need for high-performance receivers with wide bandwidth in small platforms
- Precision signal detection in contested environments
- Fast scanning and threat classification
- Size vs. performance tradeoff in traditional EW systems

Markets & Applications

Electronic Warfare (EW) & Signals Intelligence (SIGINT):

Captures and classifies signals in contested environments with high POI and rapid tuning.

Spectrum Monitoring & Surveillance:

Provides wideband coverage and precise signal recognition for government and military agencies.

Radar Warning & Threat Detection:

Identifies and responds to potential threats faster than traditional receivers.

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MPG Solutions[®] provides expert support throughout all of the phases in our customer experience, from quoting the perfect solution to continued post-delivery support and extended

warranty coverage. Let's take on your latest design challenge together.

Special Processes & Technologies

- **Front End Preselector:** This component is responsible for filtering incoming signals. It utilizes thin-film filtering technology to achieve exceptional broadband filtering. By selectively allowing specific frequency ranges to pass through, it ensures that only relevant signals reach the subsequent stages.
- **Local Oscillator (LO):** The LO generates the reference frequency needed for down-conversion. In this design, a novel concept has been employed to achieve a small size while maintaining high performance. The LO relies on DDS (Direct Digital Synthesis) technology, which allows precise frequency control. Additionally, micro-miniature proprietary microwave tunable filtering technology plays a crucial role in achieving the desired performance.
- **Down Converter:** The down converter is responsible for converting the incoming high-frequency signal to a lower intermediate frequency (IF). The architecture and frequency plan have been carefully designed to maximize SFDR (Spurious-Free Dynamic Range) while still offering a wide Instantaneous Bandwidth (IBW). The flexibility in final IF output frequency and bandwidth ensures compatibility with various system-level implementations.

Benefits



MODULAR



SWaP



CUSTOM DESIGN

Technical Questions?

Our team is composed of highly-technical engineers empowered to quickly assist you in identifying a high-performance RF/microwave solutions. Contact our engineers to see how we can solve your mission-critical challenges.

[ASK AN ENGINEER](#)