

Product Data Sheet

ZoomOut

Introducing ZoomOut® – *See the Big Picture*. Providing the user with the distinct advantage of zooming in on details while never losing track of the big picture. ZoomOut® answers the problem of perspective by uniquely providing the ability to see large RF data files while “zoomed out” for the big picture while simultaneously “zooming in” to provide the detailed view thereby unlocking the hidden data in large files at a single glance. As a result, ZoomOut® makes the impossible possible.

Identifying critical signal information in an increasingly congested RF spectrum represents a challenge to anyone interested in understanding and controlling their spectrum. ZoomOut® addresses this challenge by empowering the user with the ability to visualize Large RF Captures resulting in huge data files and quickly identify the important signal information. Once the important detail has been identified, the user can simply adjust the “Zoom In” window to see detailed information that would be otherwise missed by existing solutions. ZoomOut provides both a macro and detailed view at the same time.



ZoomOut is a signal analysis software suite designed for viewing and analyzing very large RF signal files. Two main viewing windows provide both a macro view and a detailed view of the signals to be analyzed. As spectrum density grows, understanding what is in your environment at any given time has become increasingly difficult to achieve.

Erisys brings into existence with ZoomOut® Software, a complete RF Spectrum recording solution that provides control of the RF front end, the data storage system, and the signal generator used for playback coupled with the ability to quickly find and export the critical signals of interest for further analysis. The ZoomOut® and ZoomIn® windows can be co-located on the same monitor or can be placed on separate monitors. The software is intuitively operated and provides functionality quickly to new users.

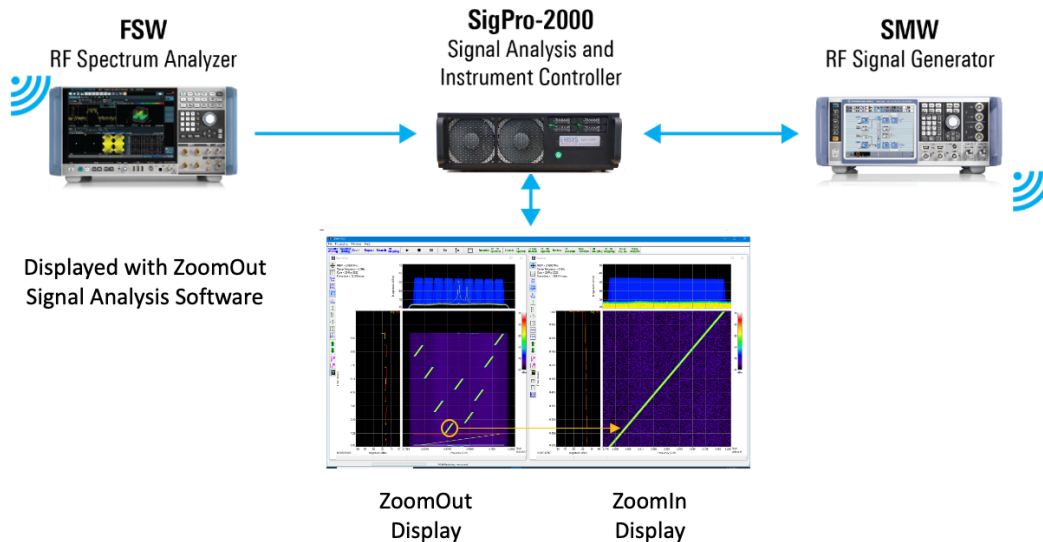
For the first time ever, you can visually view your entire RF spectrum file in one single image without losing the fine details. This powerful tool enables the user to find at a glance the signal information most important to them without wasting time viewing the entire file searching for the meaningful information.

ZoomOut® is optimized to run on SigPro®, Erisys' Signal Analysis System and Instrument Controller. This 3U hardware platform includes everything needed to support seamless and smooth operation of ZoomOut® software, while also controlling both the spectrum analyzer providing signal input, and the signal generator for signal output.

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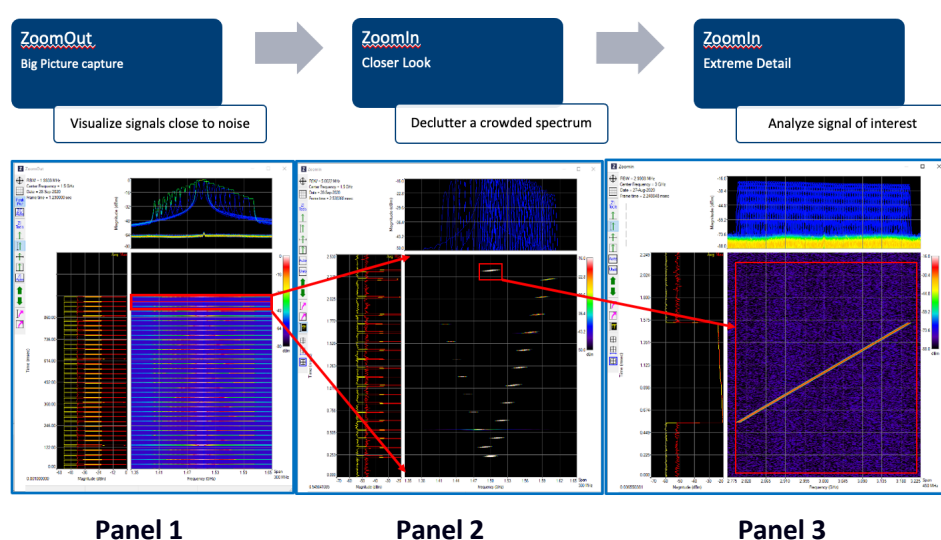
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A typical configuration showing ZoomOut® operating on a SigPro-2000B Signal Analysis and Instrument Controller is shown below. The SigPro system is connected to instruments manufactured by Rhode and Schwarz and provides a centralized control interface to all instruments shown below. The SigPro system is available with up to 60 Terabytes (TB) of removable storage media and can therefore capture, store, and replay very large signal files. The removable drives make transferring large signal files between SigPro systems immediate without tying up network resources.

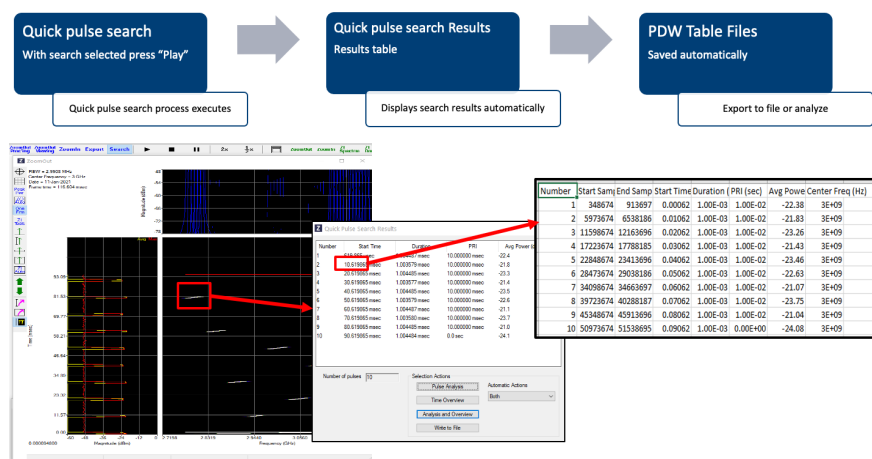


In the above diagram the FSW RF Spectrum Analyzer is providing data to the SigPro-2000B in IQ streams with bandwidths up to 1GHz IBW. The ZoomOut® software suite provides ZoomIn® capability of bandwidths as narrow as 1MHz or less. Captured data can be re-transmitted via the SMW RF Signal Generator at the center frequency selected by the user.

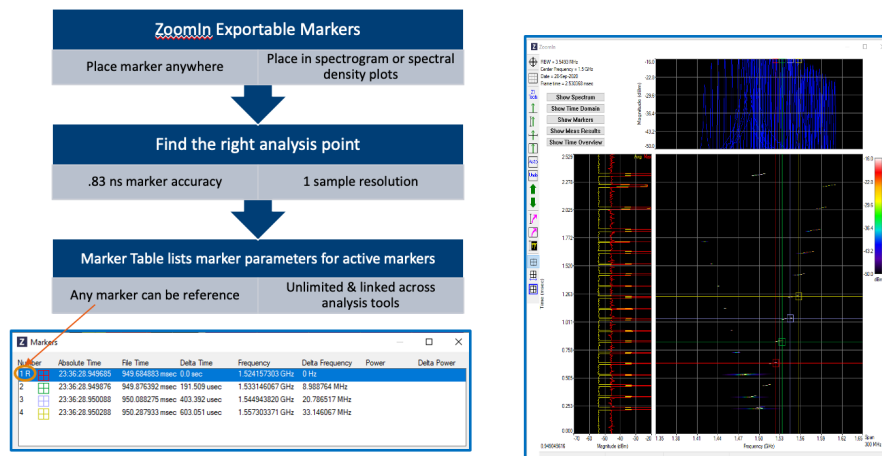
ZoomOut® provides the complete file capture as shown in Panel 1 below. Next, the user can ZoomIn® to the signal information relevant to them as shown in Panel 2. Once the desired signals have been found, the user can further ZoomIn® for extreme detail as shown in Panel 3.



ZoomOut® provides the perfect environment for creating automated tools to aid the user in finding specific signals of interest within a crowded spectrum. ZoomOut® provides advanced signal analysis techniques to quickly find key pulse data and creates the corresponding Pulse Descriptor Words (PDW) which are stored in an easily searched industry-standard table. This enables the user to quickly sort on PDW parameters such as PRI, power level, and duration and quickly ZoomIn® to the see the graphically displayed pulse information. Once the pulses or signals of interest have been identified, the underlying IQ data along with its timing information can be saved while the unneeded information can be discarded. Typically, this results in a *data reduction of greater than 80%*. This allows the user to work with very small specific files, rich with the signals of interest without unnecessary information.



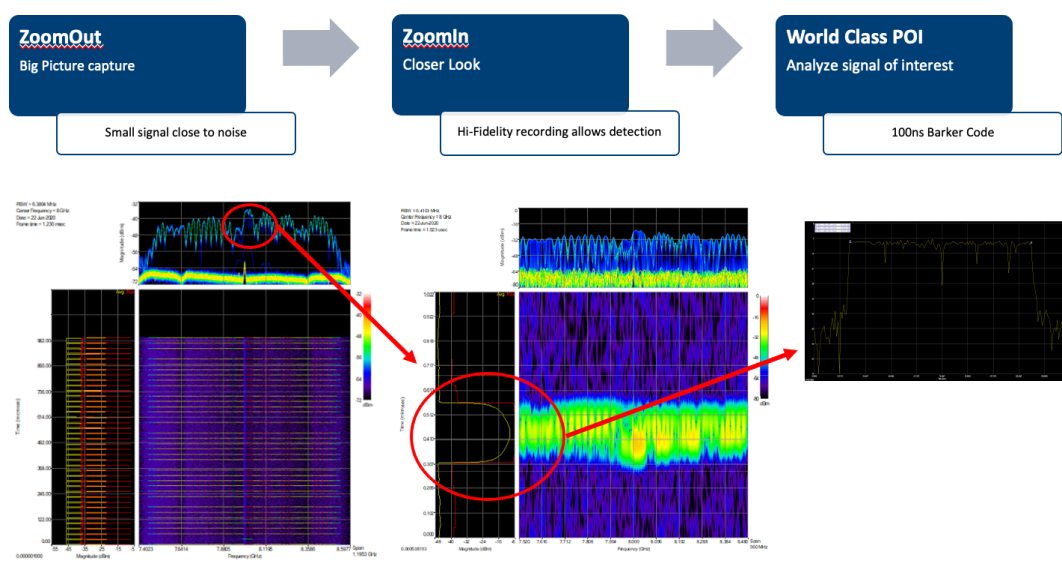
ZoomOut® provides the capability of easily placing markers in any location including beginning and end of file. Markers are tracked to the resolution of a single sample. For example, a marker referencing a specific location provides the associated signal information at the marker location. Markers track with nanosecond resolution and allow the user to place one marker as a reference to get delta information to other markers. Markers allow the user to easily find the important parts of each file. The list of markers is stored in a table which can be exported in an industry-standard format.



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ZoomOut® can find extremely short duration signals and is therefore a very capable detector of hidden signals. The software provides Best-in-Class Probability of Intercept (POI) performance. In addition to the detection and identification of known signals, the software includes an optional module that can stitch together up to four files creating one seamless RF file. In the past, wider bandwidth capture came at the cost of lower performance. Expanding bandwidth capture was only possible with lower resolution digitizers. The ZoomOut® suite with the SpectrumStitch module, eliminates this problem by allowing four high-resolution captures to be combined into a single wideband file. This provides an increase in resolution by up to 4x within a given bandwidth, or an increase of up to 4x bandwidth with a given resolution. For example, four 1GHz files can be combined into a single file of 4GHz bandwidth. With ZoomOut® signals can be revealed when hiding in a wide bandwidth.



ZoomOut Modules:

Instrument Control Module (R&S Control): This ZoomOut® Module provides complete control and recording capability interfacing to a Rhode & Schwarz spectrum analyzer and signal generator.

LiveVu: This ZoomOut® Module displays live signal information during the recording process. Data streamed from the FSW is displayed in a real-time spectrum and waterfall display.

PulseVu: This ZoomOut® Module provides analysis tools for pulsed waveforms such as frequency hoppers and radar signals. The module scans the entire file and reveals pulsed waveforms contained within the file.

QuadVu: This ZoomOut® Module provides multi-file comparison up to four files on one display simultaneously. QuadVu provides insight into the relationships between various signals contained within separate files. QuadVu also provides an overview of data contained within separate files.

SpectrumStitch: This ZoomOut® Module allows the RF spectrums from up to four different files to be stitched together into a single IQ file. The module allows four files to be combined into a single file that includes the total bandwidth of the source files. The user no longer has to choose between wide bandwidth or high resolution; SpectrumStitch enables the highest resolution with the widest bandwidth at once.