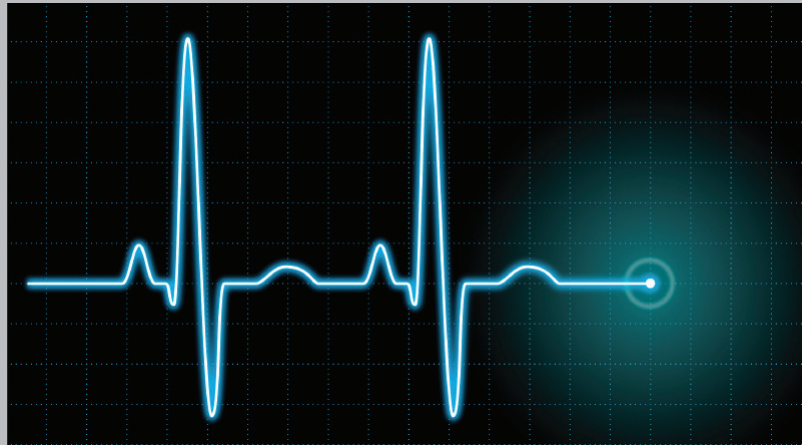


VIVONOETICS



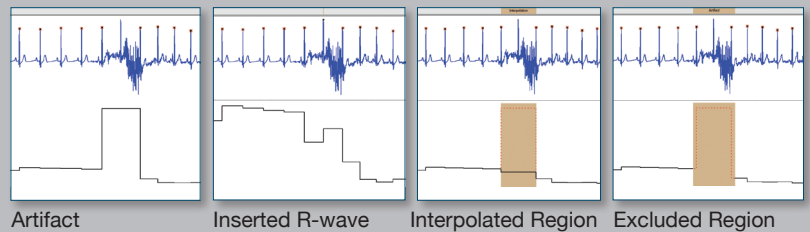
VIVOSENSE™ HEART RATE VARIABILITY ANALYSIS MODULE

The analysis of heart rate variability provides a way to non-invasively study the Autonomic Nervous System (ANS) by acting as a dynamic window into autonomic function and balance. VivoSense™'s HRV analysis and visualization tools offer users a comprehensive and validated suite of functionality to accurately and efficiently perform high standard HRV analysis.

FEATURES

- Analyze ECG, PPG or R-R data from any sensor system.
- Artifact management (Automated and manual)
- Visualization of HRV over time
- Easy visualization of seconds to hours or days
- Validated calculations
- World class QRS detection
- Time synchronized with any other measured signals
- Additional RSA calculations with simultaneous respiration measurement
- Time domain, frequency domain and non-linear indices
- Spectral and Poincaré plots
- Histograms
- Configurable export of data

ARTIFACT MANAGEMENT



Elimination and management of artifact are a critical requirement for reliable HRV calculations. Even a few artifacts can significantly bias a HRV calculation.

Vivonoetics have created the best artifact management tools. Now HRV researchers have the capability to efficiently and accurately manage artifacts. The VivoSense™ tools are based on sophisticated user feedback and offer efficient processing of large files where editing single R-waves is often impractical. Heart Rate Variability Analysis Module

Artifacts may be managed using several tools:

- R-wave editing (insertion or deletion)
- Interpolation
- Exclusion of regions

This may be done automatically and/or manually:

- Efficiently and accurately manage artifact of 24 hour recordings in minutes.
- HRV algorithms provide robust calculations in discontinuous regions that include exclusions .
- Merge interpolations or exclusions.
- Artifact statistics available.

STANDARDIZATION

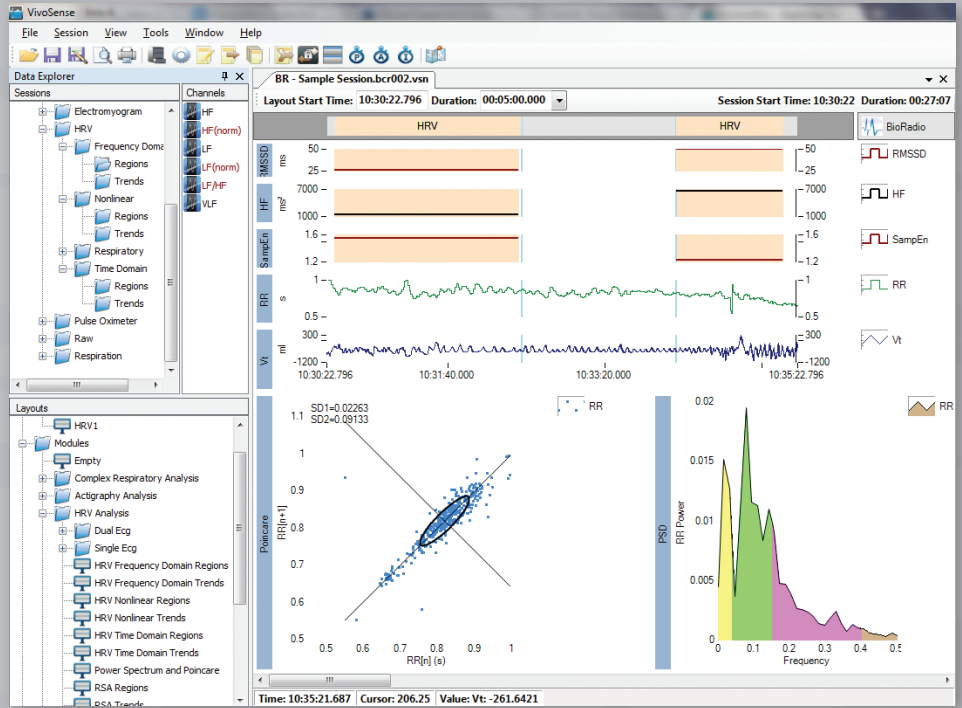
All VivoSense™ HRV calculations follow the accepted standards described in leading journals.

All VivoSense™ HRV tools have been developed under the guidance of leading HRV experts.

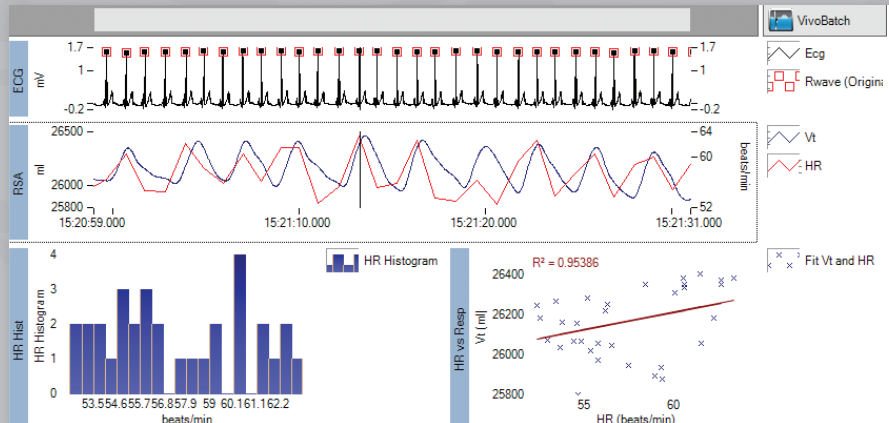
VISUAL HRV

Visual HRV is a means to visualize the different HRV indices as individual channels that are time synchronized with other channels. This allows users to see how HRV changes over time and graphically integrates HRV with other metrics.

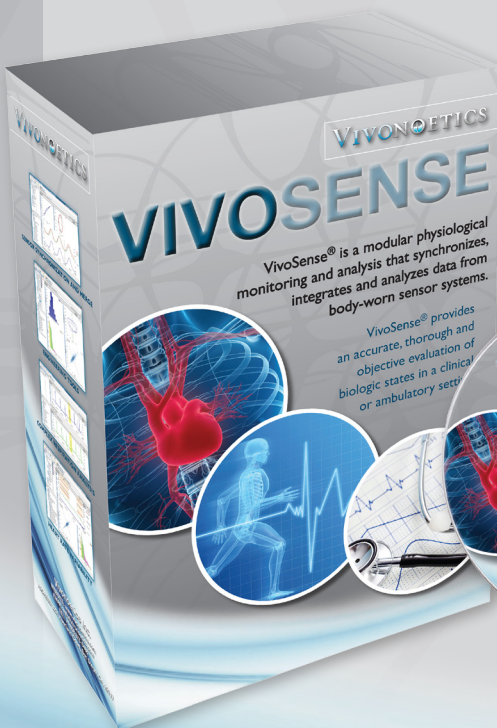
The duration of the analysis period may be adjusted to meet the user's specific needs. This is more intuitive than reporting single numbers as is the usual convention.



Time domain, frequency domain and non-linear HRV indices may be visualized over selected time ranges. VivoSense™ provides simultaneous visualization of other waveform data, Spectral plots and Poincaré plots for selected time ranges



VivoSense™ may be used to directly plot heart rate and tidal volume together to visualize the strength of coupling. Also shown is a histogram of heart rate as well as a regression fit of heart rate and tidal volume.



CUSTOMIZATION

Vivonoetics offers customizations services for VivoSense™.

Contact us to discuss your HRV analysis requirements for the VivoSense™ framework and we will work with you to incorporate this.

Vivonoetics Inc.

WEBSITE: www.vivonoetics.com
 EMAIL: info@vivonoetics.com
 TEL: +1 858 876-8486