



# HRV STANDARD

**Kubios HRV Standard** is a heart rate variability (HRV) analysis software for personal non-commercial use. The Kubios HRV Standard makes it possible to use your HR monitor to examine the health of the cardiovascular system or to evaluate stress and recovery. By upgrading to Kubios HRV Premium, which is our full-featured HRV analysis software, you can obtain the most detailed and user-friendly charts of the HRV analysis with over 40 analysis parameters and time-varying analysis options – the true market leader.

## The gold-standard HRV software

Kubios HRV is a scientifically validated software and is being used roughly at 1200 universities in 128 countries. The software has been developed during the past 20 years and key publications related to the software and its pre-processing algorithms are listed below. These four publications have attracted over 1700 citations and Kubios HRV software has been used in over 4500 scientific publications.

1. Tarvainen MP et al. An advanced detrending method with application to HRV analysis. IEEE Trans Biomed Eng, 49(2):172-175, 2002.
2. Niskanen J-P et al. Software for advanced HRV analysis. Comp Meth Programs Biomed, 76(1):73-81, 2004.
3. Tarvainen MP et al. Kubios HRV – Heart rate variability analysis software. Comp Meth Programs Biomed, 113(1):210-220, 2014.
4. Lipponen JA & Tarvainen MP. A robust algorithm for HRV time series artefact correction using novel beat classification. J Med Eng & Technol, 43(3):173-181, 2019.

## For personal non-commercial use

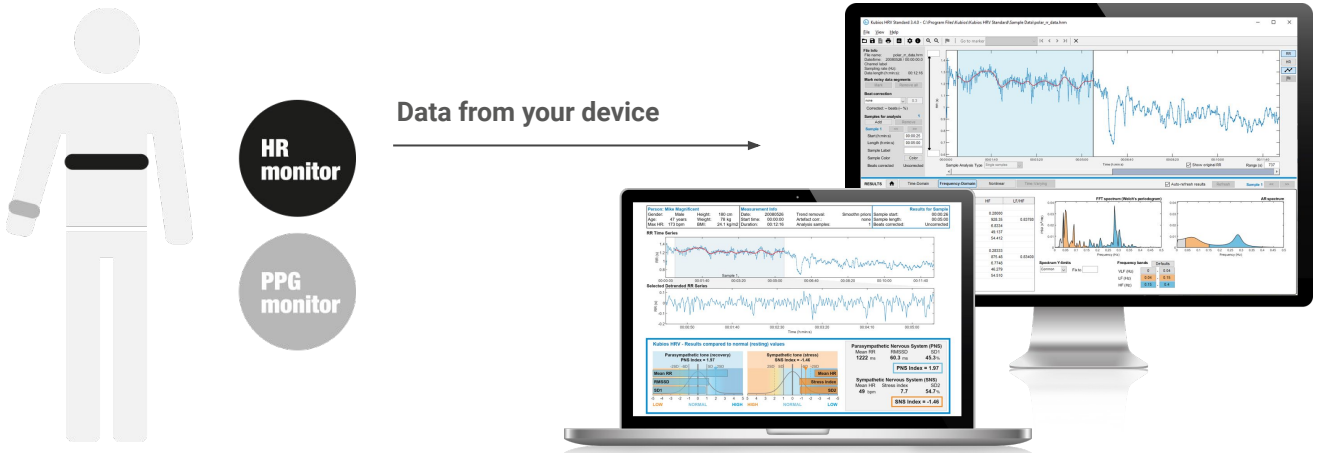
Computes HRV analysis parameters, including commonly used time-domain and frequency-domain HRV parameters. Analysis can be performed for specified time periods.

## Stress and recovery monitoring

Kubios HRV Standard provides analysis of autonomic nervous system activity. The analysis features available in the Standard version allow you to evaluate your stress levels at a glance or to monitor recovery from daily HR measurements (e.g. by monitoring changes in the PNS index).

## Supports your measurement device

Kubios HRV Standard is compatible with most commonly used HR monitors on the market. The only requirement for the HR monitor is that it should be able to record inter-beat interval (IBI) data.



## Operating system

- Kubios HRV Standard is available for 64-bit operating systems: Windows (7 SP1 or 10), macOS (Mojave, Catalina or Big Sur) and Linux
- Minimum system specifications: 4 GB RAM, 3-5 GB of disk space and screen resolution 1024 x 768 or higher.

## Usability

- Easy-to-use graphical user interface (GUI)
- Adaptable to user needs due to adjustable analysis settings through software preferences.

## Supported data formats and devices

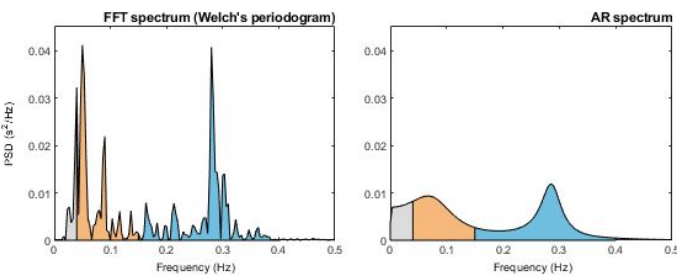
- Inter-beat-interval (IBI) or RR interval data files: Garmin FIT files; Polar HRM and TXT files; Suunto SDF, STE, XML and FIT files; custom formatted text and CSV files
- Supported HR monitors: ActiHeart, emWave, Firstbeat Bodyguard, Garmin (Forerunner and Fenix series), Polar (V800), Suunto (Ambit and Spartan series), Zephyr BioHarness.

## Pre-processing features

- Threshold based beat correction algorithm with manually adjustable threshold for correcting missed, extra and misaligned beats
- Smoothness prior's method for removing very low frequency trend components when performing short-term HRV analysis.

## HRV analysis features

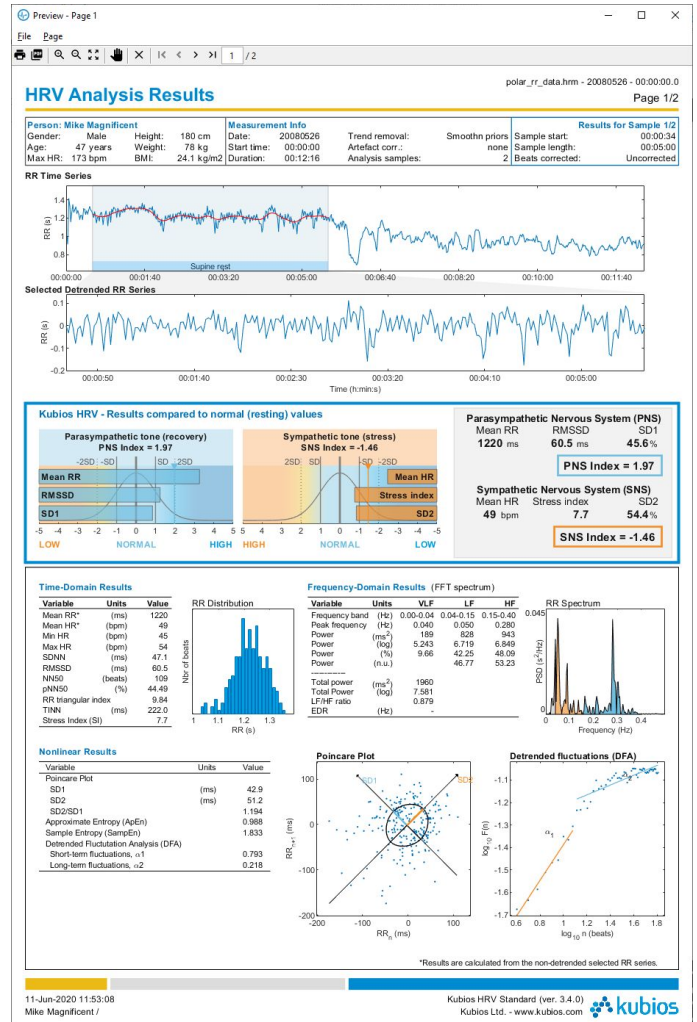
- Stress level and indexes for parasympathetic (PNS) and sympathetic nervous system (SNS) activities
- Time-domain parameters: Mean RR and HR, min and max HR, SDNN, RMSSD, pNNS50 (with adjustable threshold), HRV triangular index and TINN
- Frequency-domain parameters: Welch's periodogram and AR spectrum estimates. VLF, LF and HF peak frequencies and band powers (powers in absolute units and normalised units), and LF/HF ratio



- Nonlinear parameters: Poincare plot (SD1, SD2, and SD2/SD1), approximate entropy (ApEn), sample entropy (SampEn) and Detrended fluctuation analysis (DFA).

## Reports and exporting results

- PDF reports with detailed HRV analysis results and graphics
- CSV text file export for saving all the analysis results into a structured text file



## Pricing and licensing policy

- Kubios HRV Standard is our freeware HRV analysis software
- The license allows you to use the software on one computer at a time for non-commercial use only.