



**The Actiwave** family of wave recorders are ultra-miniature devices designed for capturing data in free-living activities. The family includes ECG/EEG Recorders with 1, 2, or 4 channels and EMG Recorders with 2 channels. The researcher can select the sampling rate from 32 Hz to 1024Hz and the resolution from 8 to 10 bits. Recording times for 128Hz, 8 bit resolution range from 36hrs (1 channel) to 13hrs (4 channels).

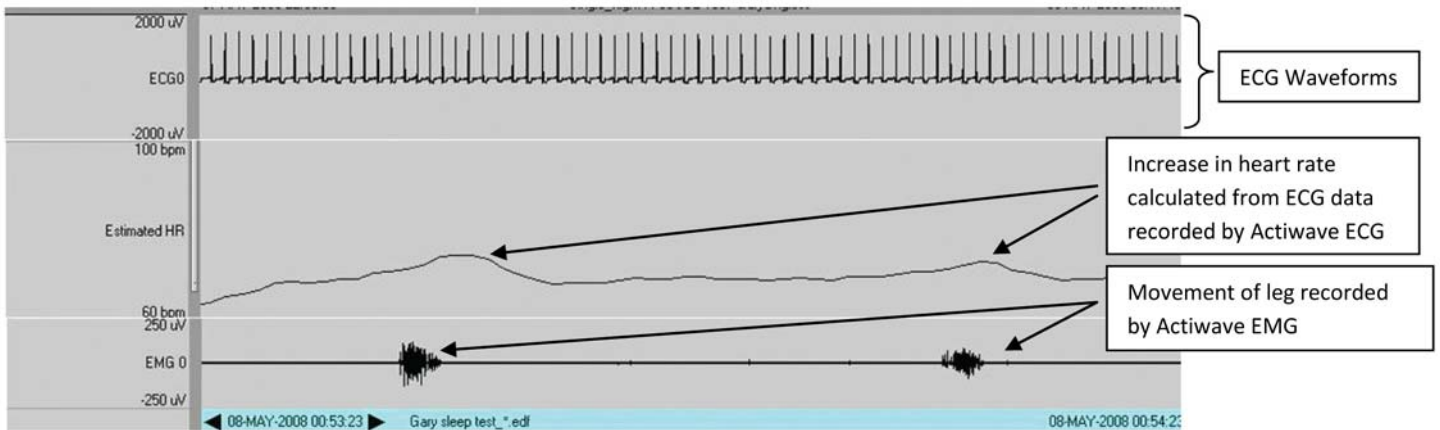
### *How does it work?*



The Actiwave monitors have 1mm diameter pins to which slip-on leads are attached. CamNtech supplies two styles of leads. One lead set has touchproof contacts on one end and 4mm female snap contacts on the other end. The second lead set has custom 1mm female sockets on one end and spring-loaded clip contacts on the other end. Either lead set will attach directly to any ECG, EEG, or EMG electrodes that have 4mm male snap contacts.

Physiological signals are passed from the electrodes through the leads to an on-board amplifier. A miniature, efficient microcontroller digitises the amplified physiological signal and stores the digitised waveform in non-volatile flash memory. At the end of the recording session, the leads are disconnected from the Actiwave recorder and the recorder is connected to a dock. The Actiwave software transfers data from the recorder to the PC via the dock and USB cable.

Actiwave data is stored on the PC in European Data Format (EDF+) files. There are several open source EDF+ viewers available (eg. Polyman, EDF Browser) for download from the internet that will allow you to view the Actiwave files. Most viewers will display multiple channels with correlated time stamps so the researcher can observe simultaneous events in the different physiological parameters.



For example, the diagram above shows data collected from a sleeping individual experiencing periodic limb movement disorder. The waveforms recorded are ECG, using a single channel Actiwave ECG on the chest, and EMG collected by Actiwave EMG on the leg. One can easily see the time correlation between the increase in heart rate and movement in the leg.

### Actiwave Advantages

- Extremely small, light-weight recording devices. The single-channel EEG/ECG wave recorder has dimensions of only 18.5mm x 27mm x 8.5mm and weighs a mere 4.8g.
- User selectable sampling rates from 32Hz to 1024Hz and resolution of 8, 9, or 10 bits.
- Record over 24 hours of data with 128Hz sampling rate and 8 bits resolution on ECG/EEG recorders with 1 and 2 channels, EMG Recorders with 2 channels.
- Data recorded in standard EDF+ files for easy import into a wide variety of analysis programs.

Actiheart	Actiwave Cardio	Actiwave ECG
Heart rate, Activity, Energy Expenditure and Heart Rate Variability.	Variability, Sleep Quality and Energy Expenditure for recordings with both ECG and Activity. Actiwave Software transfers data to PC for all data collection to be analysed by third party software including public domain software.	to be analysed by third party software including public domain software.

### Additional Information

See our website at [www.camntech.com](http://www.camntech.com) for more information regarding these products.



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