

Main Features

- A choice of either EMG or ECG/EEG waveform recorders
- 1, 2 and 4 channel units available with user selectable sampling and bit rates
- Ultra miniature, light-weight design for unobtrusive monitoring in daily living
- Light-weight 3 or 5 lead ECG Holter monitoring
- Ideal for paediatric and pre-clinical use
- Ability to record tri-axial acceleration and ECG using the Actiwave Cardio
- A range of reader/charger units is available increasing flexibility for users
- Easily rechargeable lithium polymer battery technology
- Data stored is outputted in standard EDF files for easy viewing

The Actiwave range of biomedical waveform recorders are designed to capture EMG, EEG and ECG signals in daily living. Using ultra miniature recorders which are available with either 1, 2 or 4 channels of recording capability, EMG, EEG and ECG waveforms can be recorded discreetly without the need for a large belt mounted recorder or lengthy wires. Each recorder can simply be taped or glued to the skin near to the position of the electrodes. The small size of the units makes them ideal for paediatric and pre-clinical use.

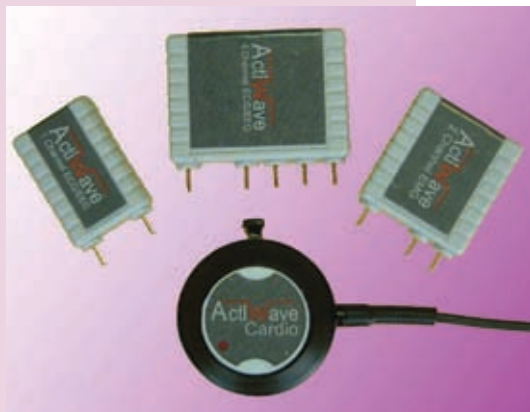
A range of reader/charger units are available allowing easy setup, download and charging of whatever range of Actiwave products is selected. The Actiwave product range is supplied with simple PC setup software and the data recorded is outputted as standard EDF files for easy viewing.

The Actiwave Cardio

The Actiwave Cardio is a waterproof single channel ECG waveform recorder. It consists of two electrodes connected by a short lead which simply clip onto two standard ECG pads worn on the chest. It also



contains a tri-axial accelerometer, the signal from which can be used to determine the subject's resting body position.



Technical Specification

EEG

Range: 400uV p-p
Impedance: 10MΩ
Frequency: 0.3 - 50 Hz

ECG

Range: 8mV p-p
Impedance: 10MΩ
Frequency: 0.3 - 50 Hz

EMG

Range (low) 800uV p-p
Range (high) 8mV p-p
Impedance: 10MΩ
Frequency: 50 - 500 Hz

Acceleration

Range: ± 4g
Frequency: 0 - 10 Hz

Verification

The reliability of the Actiwave range has been verified in a study carried out by The University of Surrey, UK.

Unit type	Order Code	Memory	Recording time*	Weight	Size (mm)
EEG/ECG 1	08-514	16 Mbytes	36 hours	4.8g	18.5x27x8.5
EEG/ECG 2	08-521	24 Mbytes	27 hours	5.6g	25x27x8.5
EMG 2	08-536	24 Mbytes	27 hours	5.6g	25x27x8.5
EMG/ECG 4	08-557	24 Mbytes	13 hours	8.5g	37x27x8.5
Cardio	08-603	24 Mbytes	31 hours**	10.3g	32diam.x10

*Example recording times are based on 128 Hz 8 bit recording.

**Assuming 3 axes acceleration measured at 32 Hz.

CamNtech Ltd

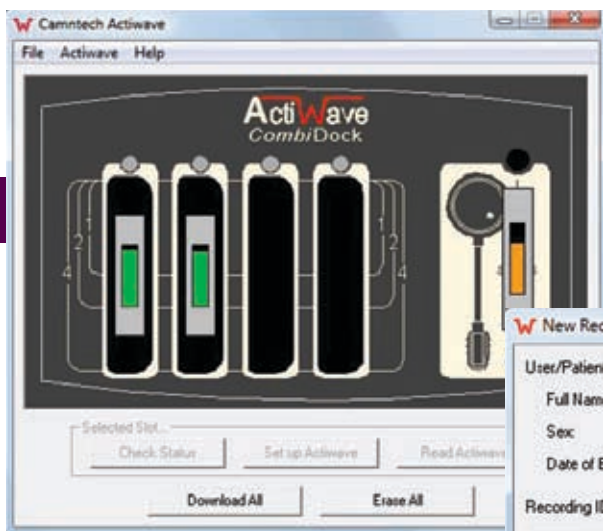
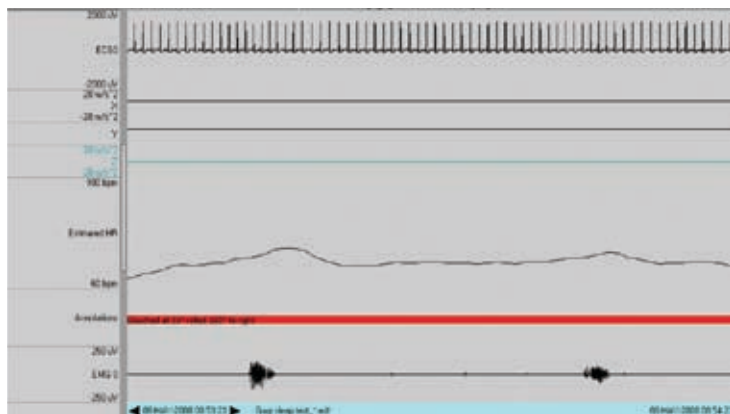
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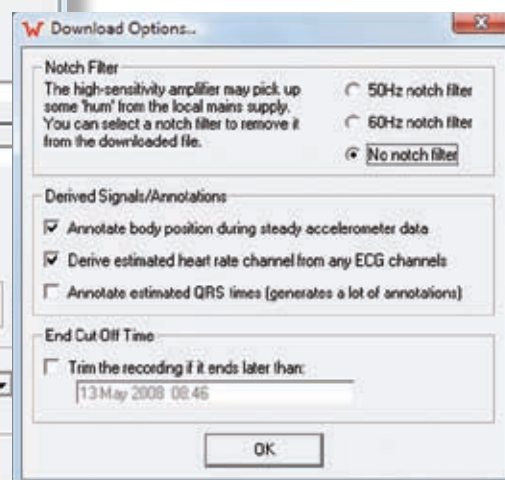
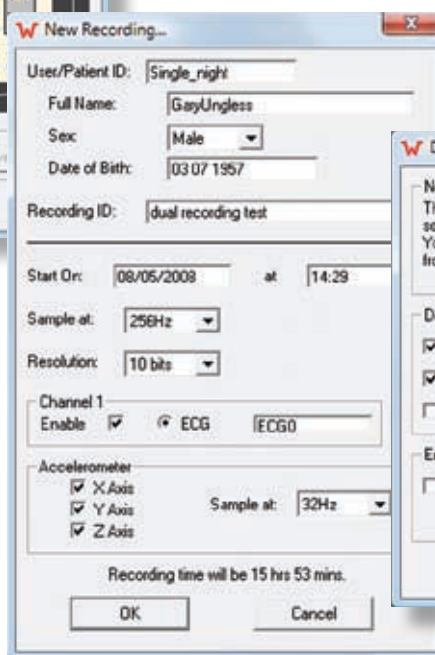
- Data is outputted as a standard EDF+ file format
- This data format is suitable for analysis in a wide variety of programs
- Various Freeware EDF viewers are available for free download
- Multiple files can be viewed together

The recording shown below is displayed using Polyman EDF+ software which is available to download as Freeware. It shows part of an overnight recording made using an Actiwatch Cardio together with an Actiwave EMG recording made on the subject's tibialis anterior. The recording clearly shows two periodic limb movements (PLMS kicks) together with the associated variability in heart rate. The subject's body position is also shown on the red bar.



PC software

- Simple intuitive user interface
- Three main screens shown on the right control all setup and download options
- Compatible with Microsoft Windows Vista, XP and 2000



Accessories	Order code
MultiDock : 6 channel reader charger with software and cable	08-715
CombiDock : 4 channel + 1 Cardio reader charger with software and cable	08-727
CardioDock : 3 channel Actiwave Cardio reader charger with software and cable	08-733
1mm socket to ECG/EMG electrode 4mm stud. Cable length 50mm to 600 mm (**See note)	08-788- length (mm)
Pack of 10 *1 mm sockets + 5 metres 1.6 mm flexible cable (** See note)	08-791

***CamNtech also offers an EEG/ECG/EMG lead customisation service. Please email admin@camntech.co.uk for further information.