equivital™

Mobile human monitoring
Better Data • Better Decisions • Better Performance

The EQ02+ LifeMonitor

The EQ02+ is the new multiparameter body worn sensor in the Equivital LifeMonitor range.

It measures clinical grade cardiorespiratory, temperature and activity data from mobile people. Data is stored on the sensor and can be transmitted wirelessly for viewing on a mobile phone or computer.

The EQ02+ is ideal for monitoring human physiology across a wide range of applications including sports and exercise research, clinical trials, biofeedback, CBRN and military training and deployment.

New Features

- 2 shoulder strap belt design for high quality data during extreme ambulation
- Upgraded 32bit arm core processor
- Improved battery performance
- Improved body temperature measurement

Benefits

- **2 Leads of 256Hz ECG:** Allows multichannel processing and reduction in noise from the ambulatory signal
- **25Hz and 256Hz Tri Axis Accelerometer:** Configurable to the requirements of a specific application from motion and activity analysis to detailed gait analysis
- **Wireless connection** to external sensors including core temperature pill, skin temperature patch and galvanic skin response sensor – All data automatically time synchronised and stored on the SEM
- **FDA clearance:** Peace of mind that the system you are using meets the requirements of the rigorous medical device standards

Measurements

- ECG, HR, R-R interval
- Respiratory Rate
- Skin Temperature
- Galvanic skin response*
- Core temperature capsule/Dermal Patch*
- Accelerometer, X,Y,Z, Activity
- Body position/ Movement
- Oxygen saturation*
- Blood pressure*

* Measured using a compatible ancillary sensor

How it works

The LifeMonitor comprises 2 elements; the Sensor Belt and the Sensor Electronics Module (SEM). The sensor belt features low profile sensors embedded into a biocompatible fabric. The SEM docks into a cradle on the left hand side of the sensor belt where it processes, stores and transmits physiological data.

The Sensor Belt

The sensor belt is made from a breathable, lightweight fabric to ensure that it is comfortable for long-term use. The two-shoulder strap unisex design provides a secure and comfortable fit for both male and female users.

Key Features

- Unisex
- Breathable, sports fabric
- Available in Sizes 29in – 47in
- Washable

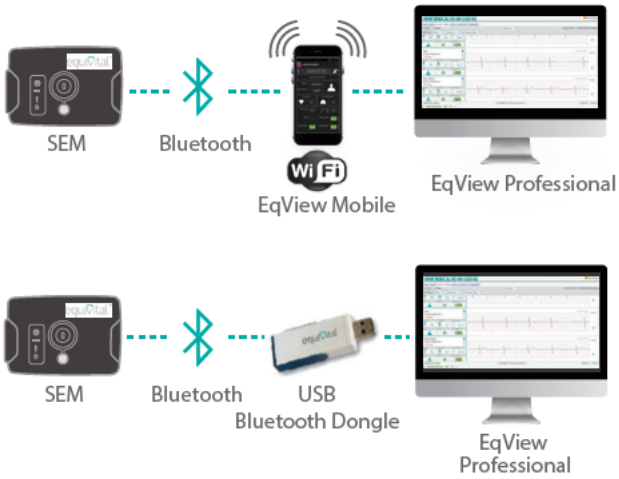
The SEM

The SEM slots into the low profile belt cradle and it's LEDs, visible when worn on body, provide status information including transmission, power and external sensor connections. It has a rechargeable Li Polymer battery which takes approximately an hour to reach full capacity. The SEM includes a medical grade infra-red thermometer and tri-axis accelerometer. All data is stored on an integral 8GB SD card, allowing retrospective data download and analysis.

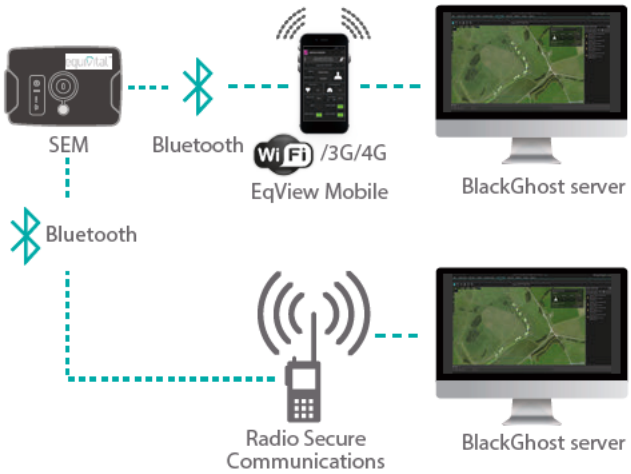
Real time data transmission

Data can be transmitted in real time from the SEM, via Class 1 Bluetooth, to a mobile phone or computer, for viewing and analysis.

Training and Research



BlackGhost System



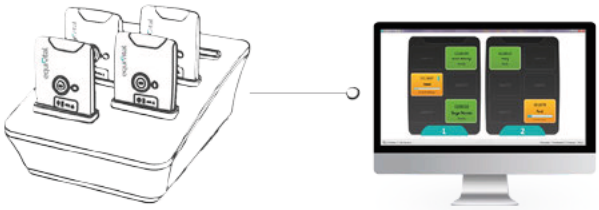
Software

Equivital Manager

Equivital Manager is a software application for viewing SEM status information, downloading and splicing SEM files, pairing Bluetooth ancillaries and extracting data to CSV or Excel files. It is particularly useful for managing data and settings in a small number of SEMs, over USB.

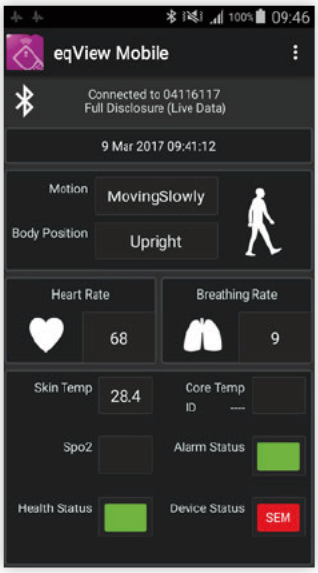
Equivital Qiosk

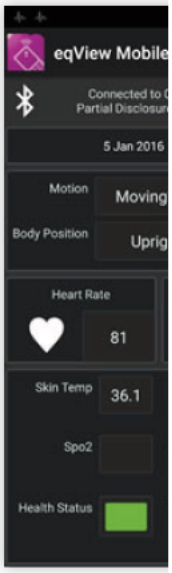
Equivital Qiosk is a software application that is intended for use in clinical trials and Black Ghost deployments where more SEMs and data need to be managed. It has a pre-configured set up for configuring and downloading data from a SEM, which is initiated without the need for user interaction. This is especially suitable where you need to maintain a consistent operating protocol between multiple researchers, sites or subjects.

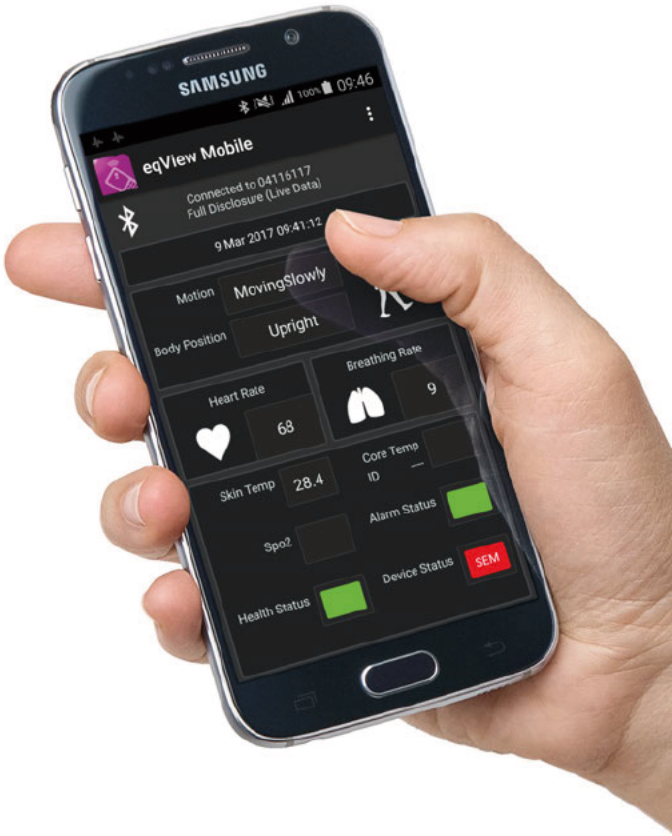


eqView Mobile

eqView Mobile is an Android app that allows data viewed in real time. It requires a one to one conne Key data including ECG can be viewed on the app on to either eqView Pro or Black Ghost.







eqView Pro

eqView Pro is a software tool for viewing live data including ECG and respiratory waveforms. Subjects can be assigned sensors, multiple sensors can be time synchronised and session event markers can be created during the session.

Black Ghost

Black Ghost is a web application tailored to the needs of CBRN, military and emergency first response users. It combines SEM and geolocation data enabling small and large teams to be monitored in training or deployment missions.

System Developers Kit (SDK)

Supported by our excellent in house team, Equivital offers developers a choice of .NET and Java SDK to engineer innovative solutions with the EQ02+ LifeMonitor.

EQ02+ LifeMonitor key specifications

Parameter	Specification
Memory	8GB
Power	Li-Po rechargeable cell
Li Polymer recharge time	Recharge from flat in 1 hour
Communications	Class 1 Bluetooth 2.1, 100m operating range
Connectivity	USB 2.0 compatible
Configuration	Via USB

Physical specifications	SEM
Weight	38g
Size	78mm x 55mm x 11mm
Operating temperature	-10 to +50°C
Operating humidity	0 to 95% RH Non-condensing
Operating altitude	-300ft to 30,000ft
Water ingress protection	IPx7

Signals	Sampling rate	Resolution
ECG	256Hz	10 bit
Respiratory	25.6Hz	10 bit
Skin temperature	15 seconds	0.1°C
Accelerometer	25.6 or 256Hz	12 bit

Physiological parameters	Reporting range
Heart rate	25-240bpm
Breathing rate	0-70 Breaths per minute
Skin temperature	-10°C to +50°C ±0.3°C Accuracy using IR Thermometer at temperature of interest
Body position	All orientations Includes fall detection and motion

Approvals	
USA	FDA Device Classification Class II
Health Canada	Device Class II

Battery Life Data

SEM use case	Operating life	Operating life with external battery pack connected
All SEM data recorded	48hrs	138hrs
All SEM data recorded with core temperature pill receiver on	18hrs	51hrs
All SEM data recorded and transmission over bluetooth on	12hrs	38hrs

For further information or support on Equivital products please contact the Equivital team at info@equivital.co.uk

Equivital Ltd
Unit F, Buckingway Business Park, Swavesey, Cambridge CB24 4UQ, UK
T: +44 (0) 1954 233430 F: +44 (0) 1954 233431 E: info@equivital.co.uk W: www.equivital.co.uk

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