eq 02+ lifemonitor

DATA MONITORING THAT MAKES A DIFFERENCE

Choose the leading solution for real-time biometric data capture, smart data management, analysis tools and secure data storage.

The eq02+ LifeMonitor 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.

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.

Measurements

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

*Measured using a compatible ancillary sensor

equivital™

Unlock the power of the eq02+ LifeMonitor

Two shoulder straps ensure that the eq02+ LifeMonitor always stays in place, even during high ambulation.
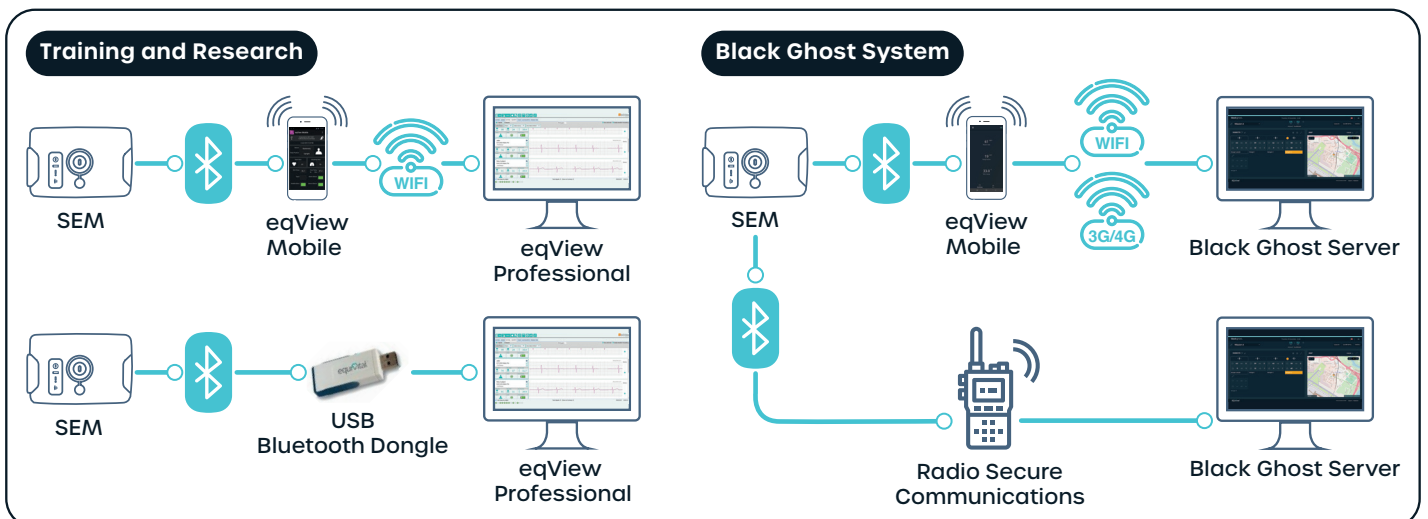
The LifeMonitor includes a medical grade infrared thermometer that measures temperature every 15 secs and a high resolution tri-axis accelerometer providing data for activity monitoring and gait analysis.

Seamlessly integrated respiratory sensor and sweat optimised ECG electrodes ensure high accuracy data collection.

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 and skin temperature patch – All data automatically time synchronised and stored on the SEM.

- **Wired ancilliaries:** For extreme precision connect your galvanic skin response sensor to the eq02+ LifeMonitor solution via the SEM.

- **FDA and CE clearance:** Peace of mind that the system you are using meets the requirements of the rigorous medical device standards.

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

SEM → Bluetooth → eqView Mobile → WIFI → eqView Professional

SEM → Bluetooth → USB Bluetooth Dongle → eqView Professional

Black Ghost System

SEM → Bluetooth → eqView Mobile → WIFI / 3G/4G → Black Ghost Server

SEM → Bluetooth → Radio Secure Communications → Black Ghost Server

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.
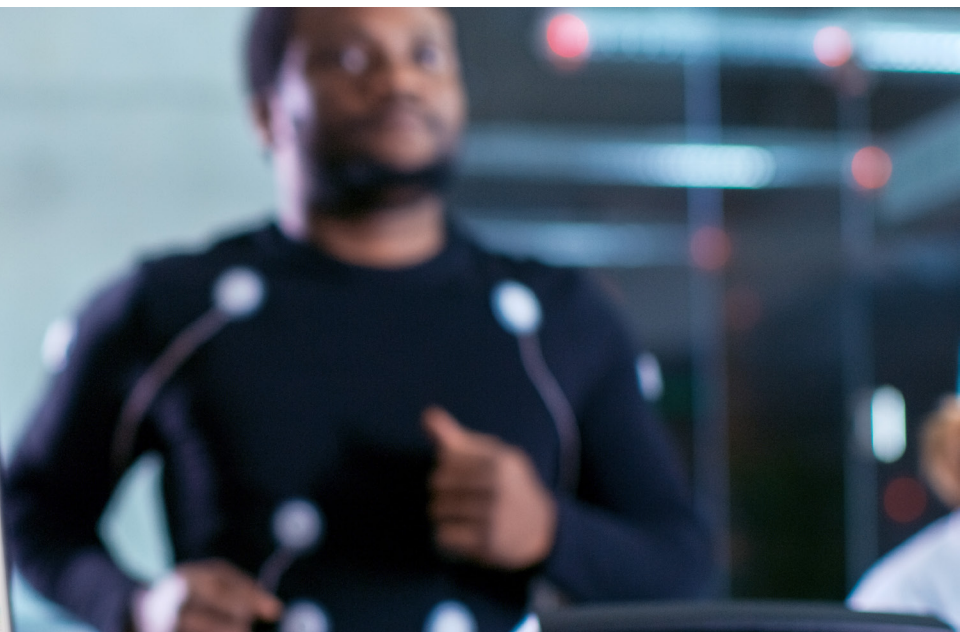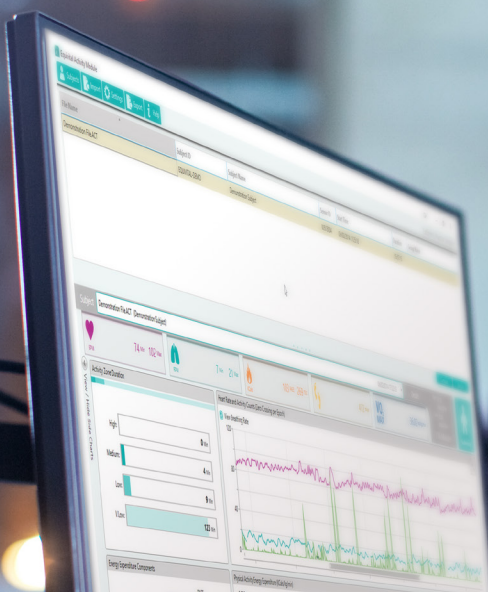
Key Features:
- Unisex
- Breathable, sports fabric
- Available in sizes covering 74-119cm (29in – 47in)
- Washable
- A belt extender can be worn to extend the belt by one size

The SEM

The SEM slots into the low profile belt cradle and its 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 infrared thermometer and tri-axis accelerometer.

All data is stored on an integral 8GB SD card, allowing retrospective data download and analysis. An external battery pack can be used to provide longer monitoring time between SEM charges. The SEM also supports a hot swap facility enabling the user to change over batteries in the external battery pack and reconnect during monitoring for uninterrupted use on long wears.
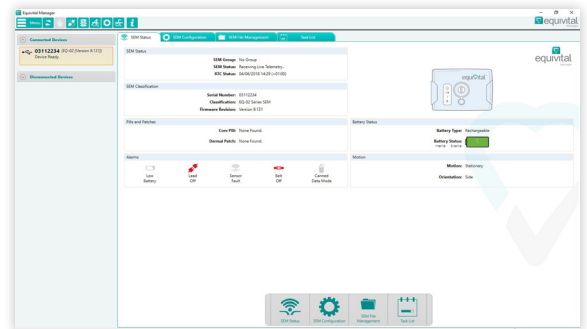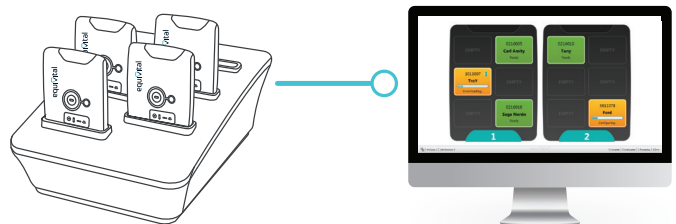
Software

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.

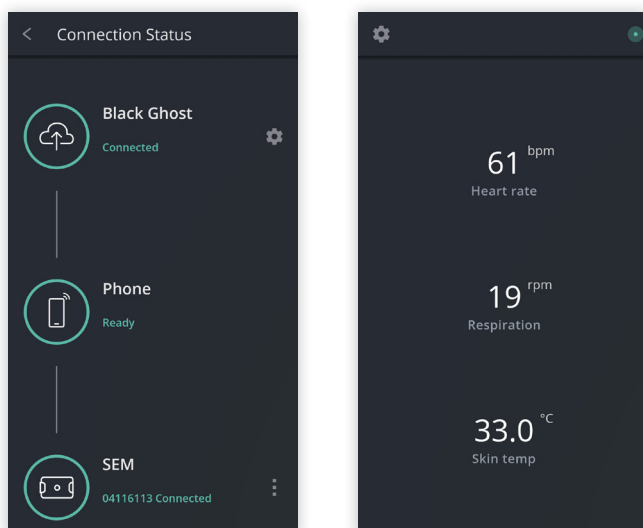It is particularly useful for managing data and configuring a small number of SEMs, over USB.

Equivital Qiosk

Equivital Qiosk is a software application that is intended for use in clinical trials and Black Ghost deployments where multiple SEMs and larger amounts of 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. Data can automatically be uploaded to a local or remote database in a custom extract format when necessary. 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 from a SEM to be viewed in real time. It requires a one to one connection with the SEM over Bluetooth. Key data including ECG can be viewed on the app and transmitted on to either eqView Professional or Black Ghost.

eqView Professional

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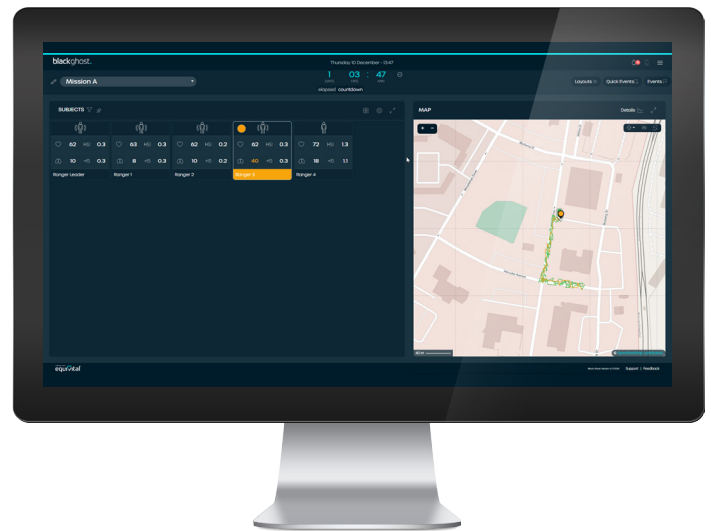
Subjects are assigned sensors, multiple sensors can be time synchronised and session event markers can be created during the session.

Black Ghost

Black Ghost is a web application tailored to the needs of CBRN, military and emergency first response users.

It combines SEM and location 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 SDKs.

These are designed to allow developers the ability to embed Equivital eq02+ LifeMonitor data into their own applications.

Support

Support options to suit your needs

Equivital has multiple ways to assit you with your eq02+ LifeMonitor and chosen software solution.

With a team of experts on hand, either on the phone, over email or via our comprehensive web support system. We have a library of support FAQs, articles, videos and step-by-step guides to assist you in setting up and getting the most out of your data solution.
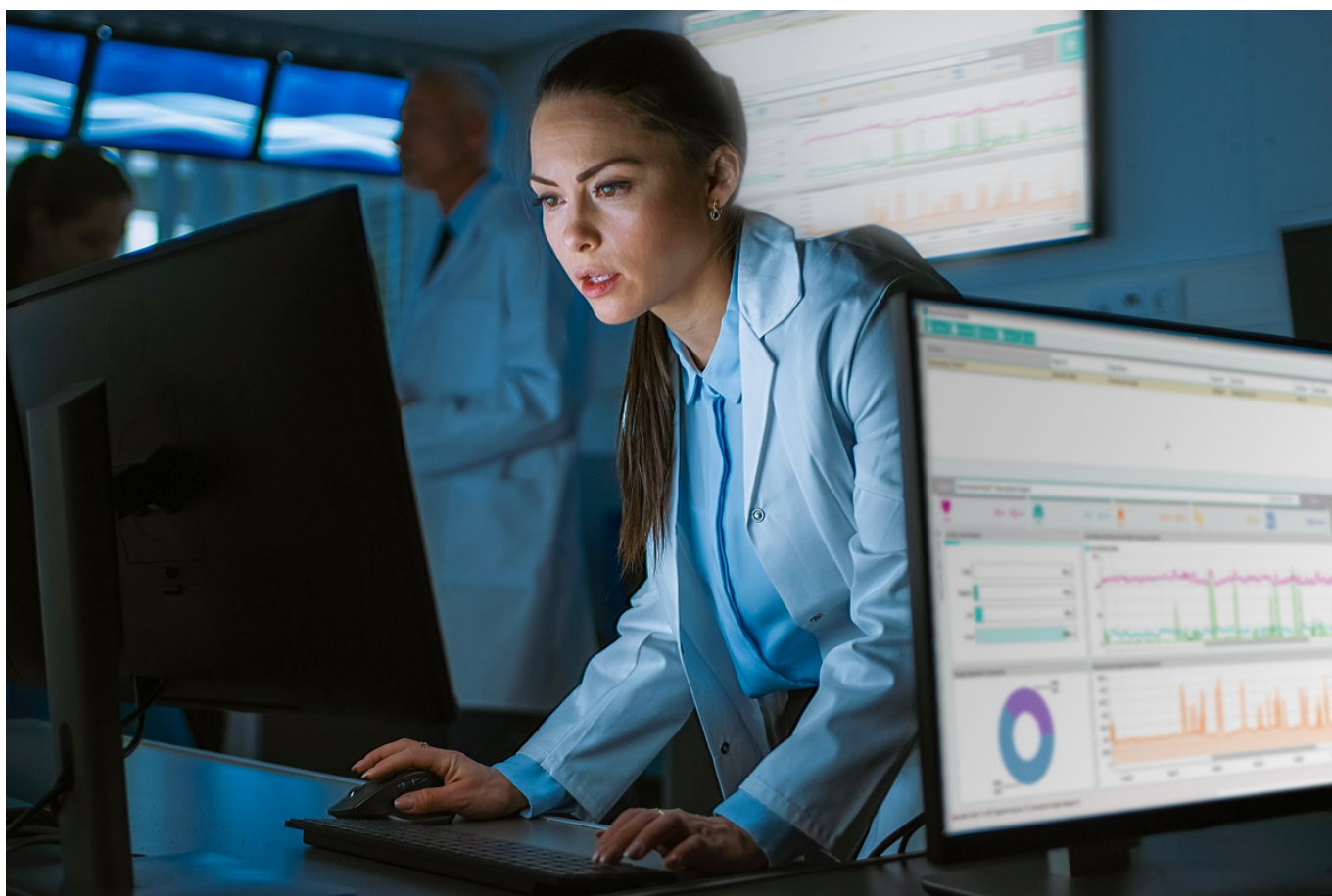
Visit https://support.equivital.com to find out more.

Partnerships

Technology partnerships to enhance data capture & analysis

We have partnered with AdInstruments with ADI Labchart and VivoSense to continue our commitment to offer accurate data that can be exported, viewed and analysed into other software provider's systems simply and easily.

Our eq02+ LifeMonitor can be paired with our partners' products including the core temperature pills from BodyCAP and VitalSense and dermal patches from VitalSense. The Nonin Xpod provides oxygen saturation and photoplethysmography (PPG) waveform information.

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	Up 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	
Europe	CE Certified, EU Device Classification Class IIb
USA	FDA Device Classification Class II

Core Temperature	
BodyCAP	Accuracy: +/- 0.2°C in the range 25°C - 45°C Data sent to eqManager
VitalSense	Accuracy: +/- 0.1°C in the range 25°C - 50°C Data sent direct to the SEM

Battery Life Data

SEM use case	Operating life	Operating life with external battery pack connected*
All SEM data recorded	48hrs	150hrs
All SEM data recorded with core temperature pill receiver on**	18hrs	60hrs

*Using 2 x AA Energizer Ultimate Lithium Batteries
** Only applies to Phillips core pill.