

## The EX EQ02+ LifeMonitor

The EX EQ02+ is the new body worn sensor, for use in hazardous environments, from 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 EX EQ02+ is ideal for monitoring human physiology in hazardous environments. Typical applications include military training and deployment, hazardous area first response and CBRNe.



### New Features

- 2 shoulder strap belt design for high quality data during extreme ambulation
- Longer battery life
- Significantly reduced charging time
- Improved body temperature measurement



### Benefits

- **ATEX, ETL and IECEx marking:** The only body worn physiological monitoring device that you can safely wear in explosive environments
- **Combined heart rate and breathing rate data:** Monitor for heat related illness and effects of noxious gases
- **Body position, motion and falls monitoring:** Know in real time if your team member has suffered an injury or collapse
- **FDA and CE clearance:** Peace of mind that the system you are using meets the requirements of the rigorous medical device standards

### Measurements

- |   |  |
|---|--|
|  ECG, Heart Rate         |  Estimated Core Temperature         |
|  Respiratory Rate        |  Current Heat Strain Index (cHSI)   |
|  Skin Temperature        |  Predicted Heat Strain Index (pHSI) |
|  Body position/ Movement |  Accelerometer, X,Y,Z, Activity     |

## 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 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 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 from the SEM can be transmitted in real time via Class 1 Bluetooth to a mobile phone or computer or over a tethered connection to a compatible mobile device.

## BlackGhost System



## The Black Ghost System

The EX EQ02+ LifeMonitor is designed to work seamlessly as part of a Black Ghost system deployment. Black Ghost is designed to monitor and assist with the protection of professional teams within the most challenging and hazardous environments. Displaying real time heat stress, safety and performance data, Black Ghost provides a critical overview on each and every team member's status.

### New Features

- Remote view of real time physiological data
- Interactive map with Geofence alerts capability
- Web based or secure local deployment

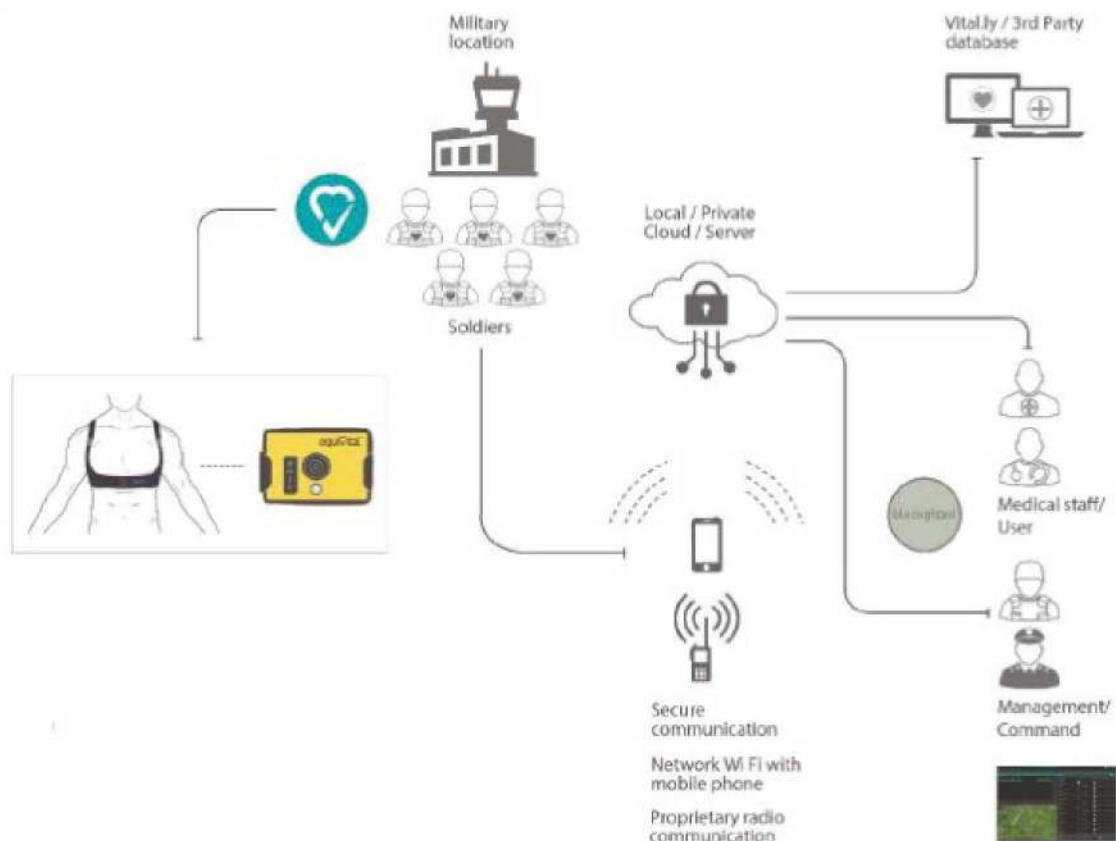


### Benefits

- **ATEX, ETL and IECEx marking:** The only body worn physiological monitoring device that you can safely wear in explosive environments
- **Combined heart rate and breathing rate data:** Monitor for heat related illness and effects of noxious gases
- **Body position, motion and falls monitoring:** Know in real time if your team member has suffered an injury or collapse
- **FDA and CE clearance:** Peace of mind that the system you are using meets the requirements of the rigorous medical device standards

The Black Ghost web application displays data sent from the LifeMonitor, along with GPS and other contextual information, within easy to navigate user interfaces.

The user can further contextualise live data with event markers and tags relevant to the subject, group, location or time.





## LifeMonitor key specifications

Parameter	Specification
Memory	8GB
Power	3.7V 300mAh Li-Po rechargeable cell
Li Polymer recharge time	Recharge from flat in 150mins
Communications	Class 1 Bluetooth 2.1, 100m operating range
Connectivity	USB 2.0 compatible
Configuration	Via USB

Physical specifications	SEM
Weight	60g
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	
Europe	CE Certified, EU Device Classification Class IIb
USA	FDA Device Classification Class II
Health Canada	Device Class II
Hazardous Area	<b>Europe:</b> CE certified, EU ATEX, Equipt Groups I and II  <b>North America:</b> ETL, Class I, Div 1  <b>Australia &amp; New Zealand:</b> IECex Equipment Protection Level: Ma and Ga

## Battery Life Data

SEM use case	Operating life
All SEM data recorded	50hrs
All SEM data recorded and transmission over bluetooth on	18hrs