

Overview of the Equivital™ G-Track Intelligent Falls System



*Working Toward Safe & Independent
Living*

EQUIVITAL - TECHNOLOGY FOR LIFE

Why Remote Physiological Monitoring in Healthcare?

The seamless flow of health information, through the “continuum of healthcare”, is now feasible with the advent of remote patient monitoring technologies and assessment tools. This technology has uses throughout the continuum; at an emergency incident, in ambulance care, in facility and importantly, post discharge.

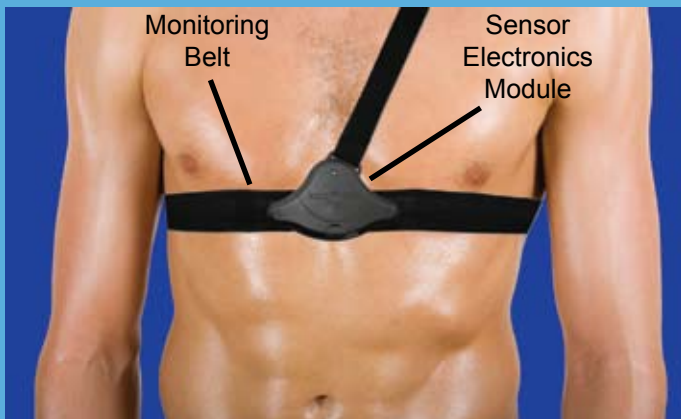
Two key groups of people, for whom the Equivital Technology represents a significant breakthrough, are those with long term conditions and elderly people at risk of falls.

Remote physiological monitoring of patients with long term conditions may enable more efficient management of the patient’s condition and may ultimately contribute to longer life expectancy by:

- Reducing in-hospital patient stays
- Retaining patient independence, provide support for carer network and help to maximise efficiency
- Contributing to the creation of seamless and person centric health and social care services

The Equivital™ Physiological Monitoring System

The Equivital™ System is an advanced tool for the remote monitoring of the wearer’s vital signs and physiological status. Accredited with EN13485 and FDA approved, the Equivital System can contribute to the effective provision of patient care within both hospital and home environments. The Equivital™ System has been developed by Hidalgo, a focussed team of highly experienced electronic medical systems designers and healthcare professionals. Based in Cambridge, UK, Hidalgo have been developing and validating the Equivital remote monitoring technology, working within established relationships with prominent teaching hospitals and international medical research organisations since 2000.



Monitoring Belt

The Equivital monitoring belt has been developed with comfort and performance in mind and offers options for either front or side of torso positioning. Proven in demanding trials and able to operate effectively whilst the wearer undertakes strenuous physical activity, the belt features a system of sensors and electrodes which connect with the sensor electronics module.



Self Adhesive System

Alternatively, a self adhesive pad provides an ideal method for enabling short term monitoring of a casualties vital signs, for example.

Sensor Electronics Module

The Equivital Sensor Electronics Module (SEM) is the central processor of the Equivital System. Weighing just 75g, robust and completely water resistant, the SEM processes the wearers vital signs and transmits them via a Class 1 Bluetooth interface in real time to a variety of personal or hub based communications devices. The SEM can simultaneously record data to a self contained memory card, the contents of which can be downloaded for analysis as and when required.



Full disclosure web based Live-Link viewer

Patient Information Communication

Equivital can be configured to transmit patient data continuously or at set intervals. Data can be communicated within a managed environment such as a hospital or other care facility using WiFi or Bluetooth infrastructure. In un-managed and home environments, Equivital can operate with personal communication devices or home hubs to transmit wearer data using GSM/GPRS or Bluetooth technology.

To learn more about our complete “end to end” Live-Link software capabilities please contact the Equivital team.

Equivital is a revolutionary new system dedicated to the remote monitoring of Long Term Conditions (LTC's) in hospital and within the home

What Does It Measure?

The Equivital™ System measures a series of vital signs which may be viewed in real time and importantly, recorded for longer term trend analysis and alerts.

- Heart rate
- Electrocardiograph (2 lead)
- Respiratory rate and effort
- Skin temperature
- Oxygen saturation (with optional finger sensor)
- Body position and posture (3 axis accelerometer)
- Impact and fall detection

Equivital also analyses and consolidates these vital signs and provides a simple “traffic light” indication of a person’s status using configurable parameters.

Derived Algorithmic Measures

In addition to directly sensing key physiological measurements, the Equivital System is equipped with advanced software algorithms that enable it to provide contextual data and derive condition based parameters such as:

- Heat stress
- Mobility index
- Fall alert

EQUIVITAL PATIENT SUMMARY										
PATIENT	OVERALL	CARDIAC	RESPIRATION	SKIN TEMP	CORE TEMP	MOTION	POSTURE	FALL	PATIENT ALERT	
PN12301	✓	60	12	35.6	37.2	NONE	SUPINE	✗	✗	✗
PN12302	✓	105	22	34.2	36.5	HIGH	STANDING	✗	✗	✗
PN12303	✗	110	40	33.2	36.2	LOW	PRONE	✓	✗	✗
PN12304	✓	60	12	35.6	37.2	NONE	SUPINE	✗	✗	✗

Equivital Multiple Patient Summary Display



Equivital Patient Tracking (when used in conjunction with a GPS enabled personal communications device)

Equivital G-Track - Intelligent Fall Alert and Analysis

The Equivital G-Track System represents a revolutionary new approach to alerting to and analysing falls and setting preventative measures. Equivital features trunk based tri-axis accelerometers and sophisticated software algorithms. These enable Equivital G-Track to assess movement vectors, force and human responses and provide a sensitive and specific falls alert and a reduction in false alarms, particularly prevalent amongst the elderly.

Panic and Fall Alert

Following a fall, healthcare providers can “buzz” the SEM unit and watch for a cognitive response. Alternatively, Equivital features a “panic alert” button which can be activated by the wearer.

Peri Fall Diagnostic Physiology

The Equivital G-Track could enable analysis of peri fall physiology - especially important in cardiorespiratory pathologies as a cause of falls. Analysis of stored or transmitted data can be used to identify the following:

Cardiac rhythms that may have led to a fall

- Tachy/Brady Cardia
- Atrial Fibrillation
- Ventricular Tachycardia
- Heart Block

Respiratory conditions leading to a fall:

- Apnoea Related Syncope
- Hyper/Hypnoventilation

Gait Analysis & Fall Prevention

Gait quality is an important measure when considering opportunities for fall prevention. Gaits vary significantly and their variability has been described as an important parameter in balance control. Laboratory gait analysis is expensive, inconvenient and time consuming. It provides data which is out of the normal patient activity context and does not provide a continuum unless the patient is re-assessed periodically at the laboratory.

Equivital G-Track can be used to assess gait patterns and identify the deterioration in gait associated with increasing frailness or the development of conditions such as Parkinson’s and Alzheimers.

Equivital can accurately sense a fall and alert health workers - a person’s physiology at the time of the fall and over the longer term can also be assessed

EQ-01

TECHNICAL SPECIFICATIONS

EQUIVITAL EQ-01 TECHNICAL SPECIFICATIONS

Internal memory	2Gb micro SD
Interface	Class 1 Bluetooth (100m)
Power source	2 x 1.5v AAA LR03 Alkaline cells or 3.7V 740mA Li-ION rechargeable cell (Recharge Time: From Flat 1hr)
Operating temperature	-10°C to +55°C
Operating Humidity	0% to 95% RH Non-Condensing
Storage Temperature	-20°C to +65°C
Storage Humidity	0% to 95% RH Non-Condensing
Environmental Protection	IP67 (0.4m/30mins)
Weight	SEM - 75g
Accreditation	<p>CE Certified EN13485 Device Safety EN60601-1 Classification Shock Protection: Type BF Applied Part, Internally Powered Equipment Mode of Operation: Continuous FDA Device Classification: Class II EU Device Classification: Class IIb FCC Part 15</p> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Type 0 Radio Interface: Type 1 Radio Interface</p>
Data Communications	Integration in to existing command system software or custom integration options available

Hidalgo Limited
20 Market Street
Swavesey
Cambridgeshire CB24 4QG UK
Tel: +44 (0) 1954 233430
Fax: +44 (0) 1954 233431
E: info@equivital.co.uk

www.equivital.co.uk

For more information
on **Equivital**, please call
Hidalgo on
+44 (0) 1954 233430
or email
info@equivital.co.uk



A Jalttek Group Company

Revision 1a 27.03.09