



eqView
Mobile

User Guide

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List of Abbreviations

HTTP	Hypertext Transfer Protocol
MicroSD	Micro Secure Digital
MRI	Magnetic Resonance Imaging
PWI	Physiological Welfare Index
RIM	Research In Motion
SEM	Sensor Electronic Module
SMS	Short Messaging Service
URL	Uniform Resource Locator

Introduction

This User Guide will guide you through every aspect of the eqView Mobile application explaining in detail how you, the user, can utilise the full functionality of the application.



This guide is intended for users who have licensed Equivital™ Sensor Electronic Modules (SEMs) and who are familiar with cardio-respiratory monitoring terminology and practice.

Getting Help

If at any point during the installation, configuration and / or use of eqView Mobile you encounter problems, which you cannot resolve and are not addressed in this User Guide, please contact your local Equivital™ Sales Representative via one of the contact methods below:

Tel: +44 (0) 1954 233430

Fax: +44 (0) 1954 233431

Email: support@equivital.co.uk

Monday to Friday 9am to 5pm (GMT)

Warnings, Cautions and Information

The following symbols will appear throughout this User Guide to advise of any particular dangers or to provide information that may prove useful.



WARNINGS are provided where there is an immediate danger to users and subjects.



CAUTIONS are provided where there is a danger of damaging equipment or associated devices.



INFORMATION MESSAGES are provided to assist the user in the use of eqView Mobile.

Minimum System Requirements

The device where the eqView Mobile application is installed must, as a minimum, meet the following system requirements.

- Android – v4.1 and above – Optimised for Samsung SIII hardware and above

eqView Mobile



WARNING: *The eqView Mobile application is not intended for use in clinical practice.*



WARNING: *Under no circumstances should a subject undergo a MRI scan, if a Core Temperature Capsule has been swallowed and is still in the subject's digestive system.*



WARNING: *Under no circumstances should a subject undergo a MRI scan, if a Dermal Temperature Patch is still attached.*

The eqView Mobile application allows you to connect a SEM to a mobile device using its built in Bluetooth. The real time physiological data is displayed locally as summary data on the device itself and streamed live to a remote server via SMS or HTTP protocols. Typically, live data is reviewed using eqView Professional or eqView Explorer.

The following section describes how to use eqView Mobile to get the most out of your Equivital™ System.

eqView Mobile for Android

eqView Mobile is designed to run on Android 4.1 or higher.

eqView Mobile for Android is designed for smart phones (such as the Samsung SIII or better) and tablets (such as the Samsung Galaxy or better).

Installing eqView Mobile

The eqView Mobile application must be downloaded from an authorised Hidalgo representative.

Contact your local representative for information on where the application can be downloaded.

Typically, the application will be downloaded onto a storage device such as a MicroSD Memory Card and installed directly onto the device.

Please refer to the User Guide supplied with your device for detailed instructions on how to do this.

Launching eqView Mobile

How eqView Mobile is launched will depend on the mobile device you have installed the application on.

Please refer to the User Guide supplied with your device for detailed instructions on how to do this.

eqView Mobile for Android

The following sections will provide an overview of the eqView Mobile for Android application complete with detailed instructions on its use.

Overview

Once the application has been launched as described in 'Launching eqView Mobile', the home screen will be displayed as shown in Figure 1.

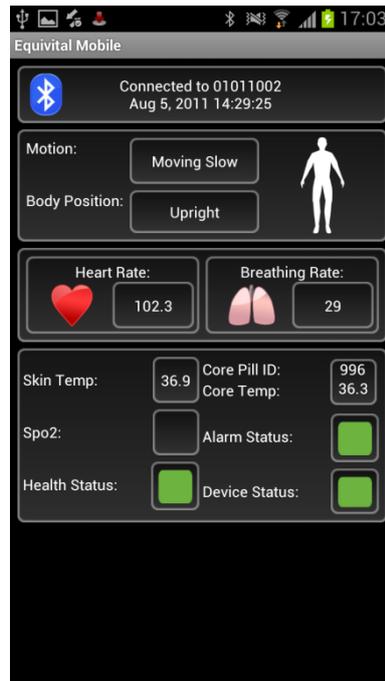


Figure 1 - The Android Home Screen

Once the mobile device is configured and connected to a SEM as described in 'Connecting to a SEM', the Home screen will display a summary of the real time physiological data. The summary data includes:

- Name of the selected SEM and its current connection status
- Indication of the subject's motion
- Indication of the subject's body position
- Current heart rate in beats per minute
- Current breathing rate in breaths per minute
- Current skin temperature as measured by the SEM
- Current oxygen saturation as measured by the Spo2 Oxygen Saturation Probe (if connected)
- Current core temperature as measured by the Core Temperature Capsule (if connected)

NOTE: If the application has not been configured for use with a SEM, the Home screen will display either a '0', '?' or the word 'Unknown' in each area of the Home screen.

- An alarm status
- A health status
- A device status

NOTE: The 'alarm' and 'device' status summary boxes use colours to indicate status. Red indicates an alarm status and green indicates a normal status. The 'health' status summary box uses various colours to indicate the subject's Physiological Welfare Index (PWI). The situation a colour is used will depend on the specific PWI settings.

Connecting to a SEM

Before a summary of real time physiological data can be displayed in the Home screen, a SEM must be connected to the mobile device.

To connect a SEM:

1. Ensure the SEM is turned on and has sufficient charge.
2. Press the mobile device **Menu** button to display the application menu.
3. Tap the **Connect a Device** button. The 'Select a device to connect' screen will be displayed as shown in Figure 2.

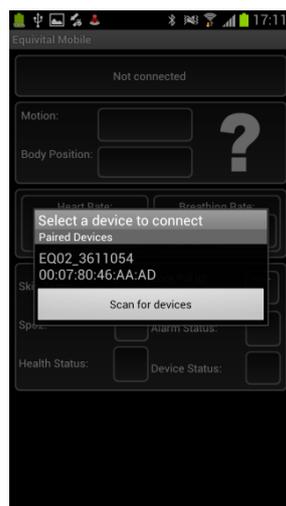


Figure 2 - The Select a Device to Connect Screen

The application will scan for all discoverable SEMs and display them as a list by SEM name and MAC Address.

4. Slide your finger up or down the screen to display all the discovered SEMs.
5. Tap the SEM you want to connect to. The application will attempt to connect to the selected SEM. If successful, the SEM name will be displayed at the top of the Home screen.

*NOTE: If the SEM you want to connect to is not listed, tap the **Scan for Devices** button. The application will perform a new scan for all discoverable devices.*

SEM Configuration

For best performance, your SEM should be configured to send partial disclosure data over the Bluetooth interface. This is because most Android phones will be overloaded if they are expected to process data messages every 40milliseconds. The SEM can still collect data internally in full disclosure mode. To set the correct configuration.

1. Configure Bluetooth Connectivity enabled on the General tab in Manager.
2. Configure 'Live Data Transmission' to Partial Disclosure on the General tab in Manager.
3. Select 'Always log full disclosure (summary and waveforms) data to the SD card in the 'advanced' options section of the on the General tab in Manager.
4. Configure 'always log in full disclosure' if you need full disclosure data for later download.

Certain high-end Android phones will process full disclosure data over Bluetooth but it is not necessary for the phone to do that in order to display and transmit subject data and you will reduce phone and SEM battery life sending full disclosure data.

When viewing ECG waveforms on Android, the phone will switch the SEM to send full disclosure data while the waveform is being displayed. To make sure that this happens correctly, select 'Enable Full Disclosure' on the settings tab of the eqView Mobile for Android

Bluetooth Pairing

Later versions of Android and some Android phones will prompt for the SEM Bluetooth PIN code from eqView Mobile itself, making the pairing process very straightforward. Older versions of Android will flag the need to enter the PIN code as part of the status bar at the top of the screen. To bring up the pairing dialogue, swipe the top bar of the screen down and enter the PIN code.

These functions cannot be controlled from the application in older versions of Android and it may take longer to pair the SEM than the Bluetooth connection process allows. In this case, you may need to attempt the connection a gain by selecting 'connect a SEM'. The SEM that you have just paired will appear in the list of known paired SEMs and will now connect correctly.

Alternatively, you can pre-pair your SEM in the Android Bluetooth window

Viewing Live Waveforms

eqView Mobile now supports two ECG waveforms if the connected LifeMonitor is in full disclosure mode.

NOTE: Waveform rendering is processor and display intensive, so for the best experience, this functionality is only recommended in a high-end, Android 4.0 or higher phone.

1. On the Main menu press the settings button
2. Select the Data format tab and choose either one or two leads of ECG as in Figure 3

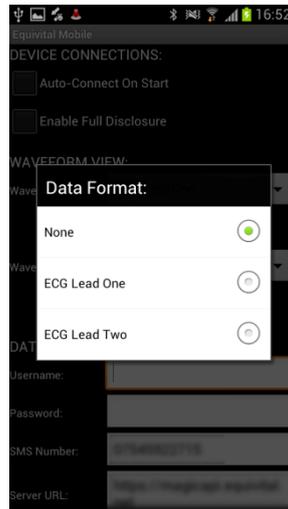


Figure 3 – The Select a Data Channel for Live Waveform Display Screen in Settings

3. Return the Main screen and select the view live waveform button to view live waveforms as in figure 4

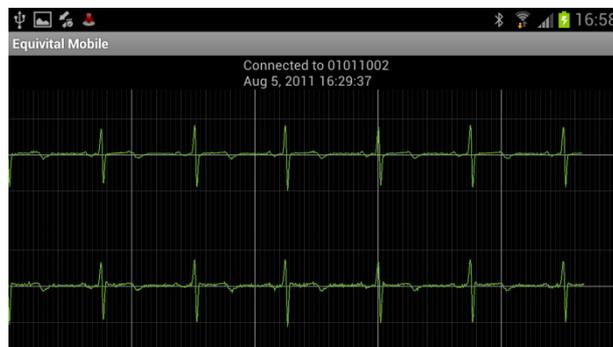


Figure 4 – Two Leads of ECG Live Waveform Screen

Configuring Real Time Data Streaming

This functionality is available to BlackGhost customers only and not as part of the standard TnR Product range. For further details please contact Sales@equivital.co.uk.

To view the real time physiological data on a remote application such as eqView Professional or Explorer, the application must be configured for live streaming.

Before the application can be configured, the following information must be available. This should be provided by your System Administrator.

- The Username and Password.
- The SMS number if real time data is to be streamed via a SMS Service.
- The HTTP URL if real time data is to be streamed over the internet.

To configure live data streaming:

4. Press the mobile device **Menu** button to display the application menu.
5. Tap the **Settings** button. The 'Equivital Mobile' screen will be displayed as shown in Figure .

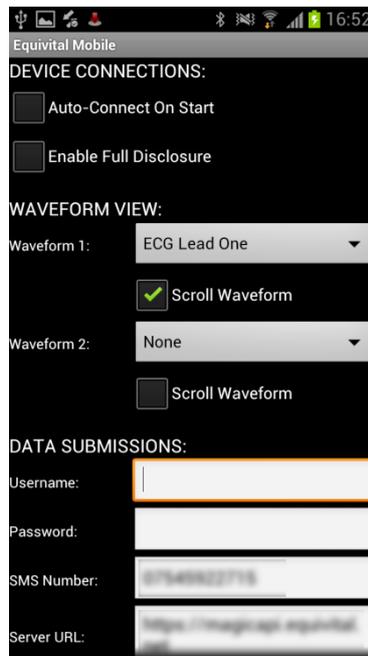


Figure 5 - The Equivital Mobile Screen

6. Tap the **Username** field. The on-screen keyboard will be displayed. Enter the Username provided by your System Administrator. Tap the **OK** button to close the on-screen keyboard.
7. Tap the **Password** field. The on-screen keyboard will be displayed. Enter the Password provided by your System Administrator. Tap the **OK** button to close the on-screen keyboard.
8. If applicable, tap the **SMS Number** field. The on-screen keyboard will be displayed. Switch the on-screen keyboard to a numeric keyboard as described in your mobile device User Guide. Enter the SMS number provided by your System Administrator. Tap the **OK** button to close the on-screen keyboard.
9. If applicable, tap the **HTTP Server URL** field. The on-screen keyboard will be displayed. Enter the HTTP URL provided by your System Administrator. Tap the **OK** button to close the on-screen keyboard.

You can select the data transmission rate which will define the time interval between each broadcast.

10. Tap the **Data Transmission Rate** drop down menu. A list of available data transmission rates will be displayed. Tap the desired rate to select it.
11. If you are using a SMS service to transmit data, tap the **Enable SMS Data Channel** radio button. Once selected, a green circle will appear in the button.
12. If you are transmitting data over the internet, tap the **Enable IP(HTTP) Data Channel** radio button. Once selected, a green circle will appear in the button.

In some scenarios it may be desirable to automatically connect to the previously selected SEM whenever the application is started.

13. To configure automatic connection, tap the **Auto-Connect on Start** tick box. Once selected a 'tick' will appear.

NOTE: When selected to auto-connect, a SEM will begin transmitting live data once connected without the need for user intervention.

14. Press the mobile device **Back** button to accept the configuration and return to the Home screen.

Starting a Session

To start a session at any time and begin transmitting real time data to the remote application:

1. Press the mobile device **Menu** button to display the application menu.
2. Tap the **Start a Session** button. The session has now begun.

Stopping a Session

To stop a session at any time and end transmission of real time data:

1. Press the mobile device **Menu** button to display the application menu.
2. Tap the **Stop a Session** button. The Session will end.

Running eqView Mobile in the Background

eqView Mobile will run in the background on your phone. To do this,

1. Connect the SEM and start sending data to Black Ghost in the normal way.
2. Do not press back to exit eqView Mobile.
3. Return to the home screen by pressing the home button on your phone.
4. eqView Mobile is now running in the background.

To return to the application, select the eqView Mobile application icon. The app will appear showing its live connection and subject status.

Miscellaneous

Locking the Phone

It is not possible to allow eqView Mobile to lock the phone from within the application. That could disrupt the normal operation of the phone. To lock the screen, follow the normal process for locking or hiding the screen on your phone. You will not need to leave Mobile to do this.

Android Issues

There are certain error modes and configuration options in Android which we cannot work around in eqView Mobile. These include power saving options which disconnect or disable services based on low battery or inactivity timeouts.

Service Discovery Errors

If your phone refuses to connect to the SEM or shows service discovery errors, we recommend the following procedure.

1. Shut down and re-start the SEM
2. If that does not solve the problem shut down and re-start the phone.