



Physilog[®]5 Companion Android Application User manual

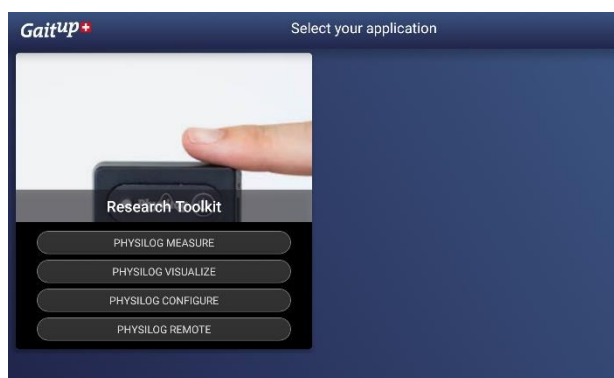
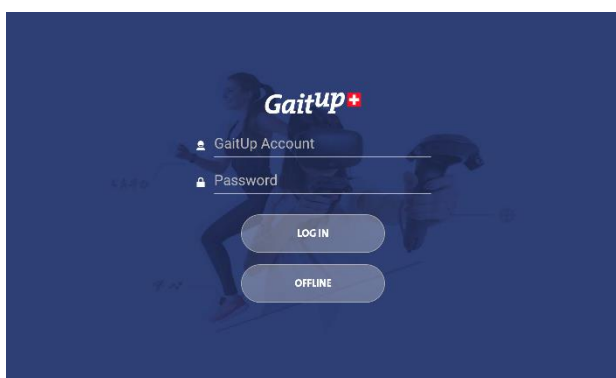
Thank you for purchasing Physilog[®]5, the Swiss quality movement sensor. The free companion Android application provided by Gait Up allows to display raw signals in real-time, start and stop measurements from the tablet with or without file transfer to the tablet, to program and check Physilog[®]5 sensors and to update the internal date and time of the Physilog[®]5. This manual contains the instructions for use of all the different functions of the Android App.

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1. Physilog[®]5 Android Application

The “GaitUp” Android Application is the free companion App to work with your Physilog[®]5. In its offline part, it allows to display the raw signals and the orientation of up to 4 Physilog[®]5 at the same time to check the sensors in “Physilog Visualize”. You can also start and stop the measurement from your Android device in “Physilog Remote” and in addition receive the data directly on the device through streaming of the data file during the measurement in “Physilog Measure”. It is possible to check and update the sensor configuration from your mobile device for easy control of your measurement set-up with the “Physilog Configure” functionality. Finally you can check the battery level of your Physilog[®]5 in all modules of the App in the list of connected Physilog[®]5. The Log in part of the app is reserved for customers with Gait Analysis or Running analysis licenses.



2. How to install Physilog[®]5 Android App

Download the latest version of the Physilog[®]5 Android App from the website www.gaitup.com/support or get it from Google Playstore with the keyword “GaitUp”. When downloading from the support page, execute the installation by clicking on the downloaded file. You may need to allow the installation of the App coming from other source than Google Play.

Technical requirements: Your device needs to have Android version 5.0 or newer and have Bluetooth v4.0 or higher (Bluetooth low energy).

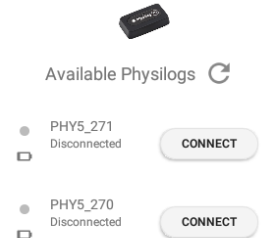


The Application has been optimized for Android tablets with screen size of 9.7”, when using it on devices with different size or resolution the display may have some difficulties. Please contact our support if you have problems with the display of the App and indicate the specifications of your Android device.

3. Connect Physilog sensors to the app

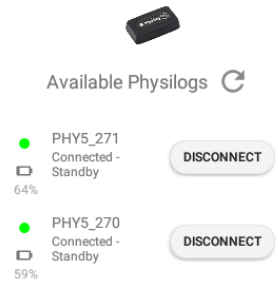
There is no need to pair your Physilog® with the tablet prior to Bluetooth communication. To find available sensors you need to turn on the Bluetooth of the Android device. Enter any part of the app described below. Sensor connection to the application is maintained while the app is open, so when changing from one part to the other the sensors don't need to be reconnected.

Click on the “Available Physilogs” refresh button below the picture of the Physilog®5 on the left of the screen of the application to look for available sensors. Chose any Physilog® you want to connect from the list and click on the “Connect” button beside the sensor name. The name of the sensor contains the number which is written on the back of the Physilog®5.



Troubleshoot: If a sensor is not detected by the tablet, shortly press the main button of the sensor to enter detection mode. If the sensor can still not be connected, check that it has enough battery and is not connected to another mobile device and if necessary ultimately do a reset of the sensor by holding the main button of the sensor for 15 seconds. If the sensor has incompatible firmware version for using with the app, the app displays an error message and automatically disconnects from the sensor. If the sensor is blinking after disconnection, you need to do a soft reset of the sensor (see above). Physilog5 user manual explains how to update firmware.

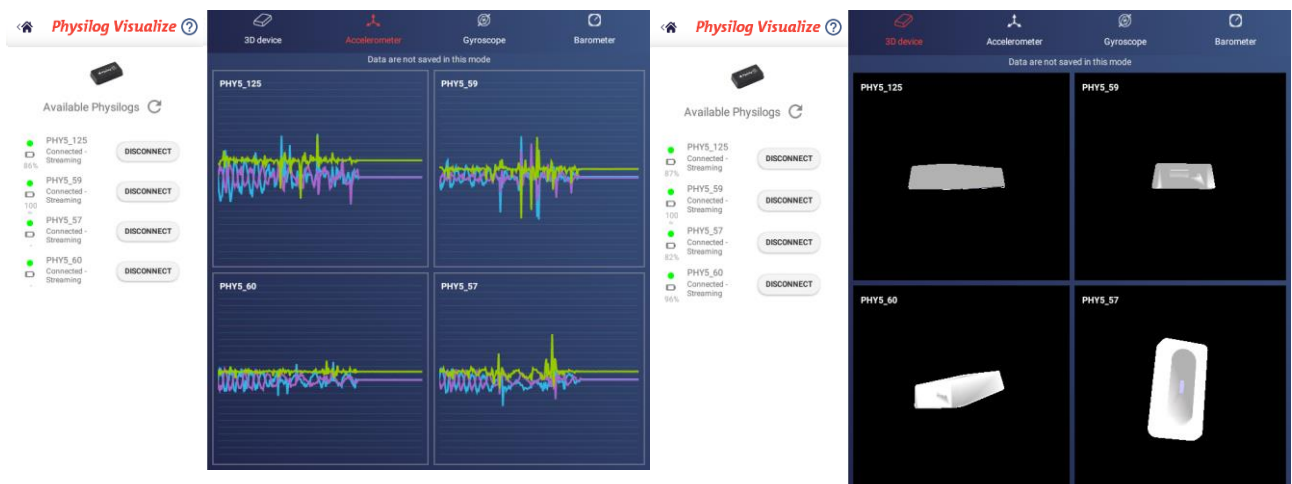
Different parts of the app allow for different maximal number of sensors to be connected, the application will display a pop-up information if the connected number of sensors is not appropriate.



When the sensors are connected the button changes to “Disconnect” and a green dot appears besides the sensor name. You can see a battery level estimation for each sensor below the battery symbol.

4. Physilog visualize

The “Signals visualizer” allows to display the raw signal and orientation of up to 4 Physilog® sensors simultaneously. Previously connected Physilog®5 (also in different parts of the app) will



automatically start to stream their data to the mobile as soon as you enter this part of the application.

You can select the data to be displayed: raw accelerometer, gyroscope and barometric pressure sensor data as well as the 3D orientation of the sensors are available.



For the 3D orientation display, both the accelerometer and gyroscope must be activated in the configuration of the Physilog[®] and their sampling frequency must be set to 128Hz with range of +/- 8g for accelerometer and +/-2000°/s for gyroscope.



The signals visualizer mode is useful for rapid check of the sensor before starting the actual measurement. Data which is streamed for real time display in this part of the application is neither saved on the internal memory of the Physilog[®]5 nor on the mobile.

5. Physilog measure

The “Physilog measure” part of the application allows to start and stop measurements of one or two Physilog[®]5 from the app. During the measurement, the recorded data is sent to the Android app and saved as Physilog[®]5 .BIN file in the tablet memory. The data transfer rate is limited and for sampling frequencies above 64Hz, the transfer is delayed and remaining data is sent after the recording has been stopped. Files from the two sensors are synchronized.

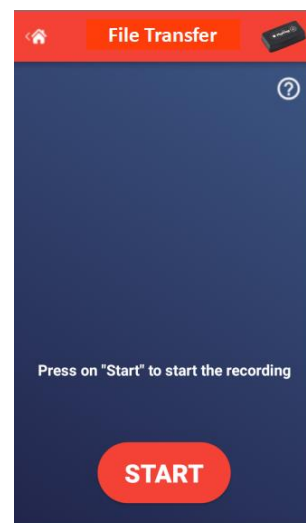


The data file saved on the Android device only contains accelerometer and gyroscope data, the complete recording is saved on the internal memory of the Physilog[®]5.

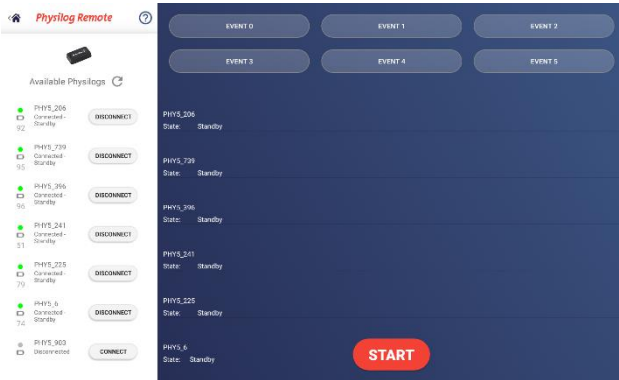
To perform a file transfer measurement, connect one or two Physilog[®]5 to the application and click on “Start” inside the app. The app sends the starting signal to the two sensors which first exchange synchronization information and then start to record data once the countdown (3,2,1, Go) has arrived at “Go”. You can then start your movement protocol. To stop the measurement click on “Stop” inside the app.

The sensors will start to twinkle orange, this is the sign that the recording is finished and that the sensors are sending remaining data to the app. The percentage of sent data is displayed in the app. During the “Finalizing transfer” period, do not disconnect the sensor, quit the app or turn the sensor off using the main button.

Between each start and stop of recording one file is created and stored on the tablet and on the internal memory of the Physilog[®]5. The Physilog[®] stop recording once you click on stop but stay connected to the application for quick start of the next measurement.



6. Physilog remote



Similar to the Physilog measure function described above, the “Physilog Remote” allows to start and stop Physilog sensors from the application. The data file is however not streamed to the application and stays only locally on the intern memory of Physilog. Up to 7 Physilog5 can in this way be remotely controlled from the app to collect synchronized data.

The Physilog Remote allows to send six different marker events to the connected, recording sensors via the buttons “Event 0” to “Event 5”. The marker signals can be seen when reading the files in Research Toolkit Desktop (from v1.5.0) or with the MATLAB® functions.

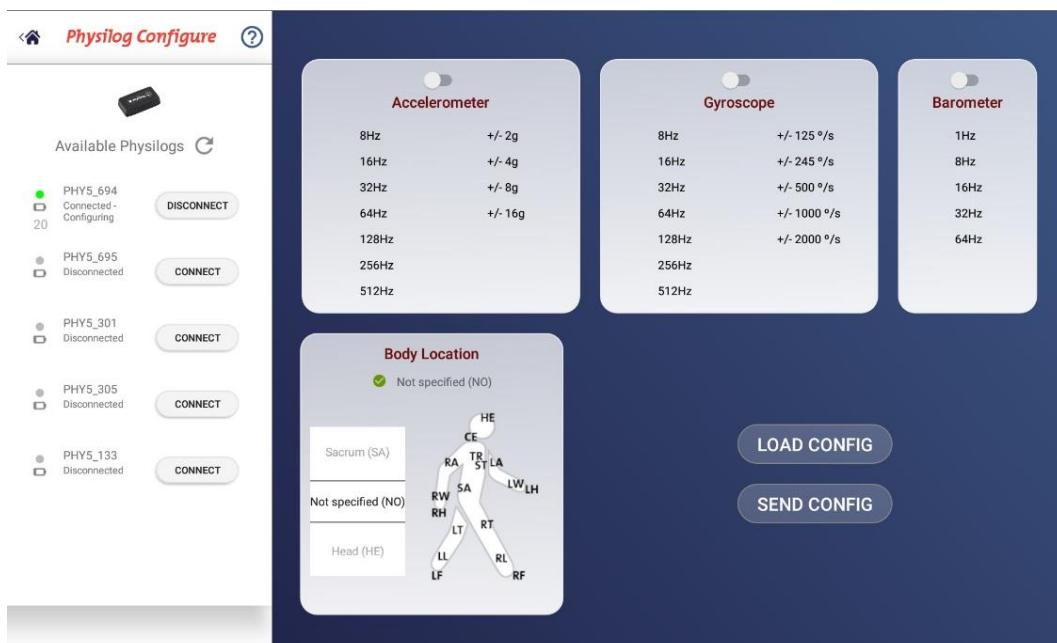


The synchronization accuracy can vary depending on density of other wireless devices in the environment and is less reliable than standalone synchronization. To record perfectly synchronized data, use the “standalone” recording mode where sensors are started with the button on the sensors.

7. Physilog configure

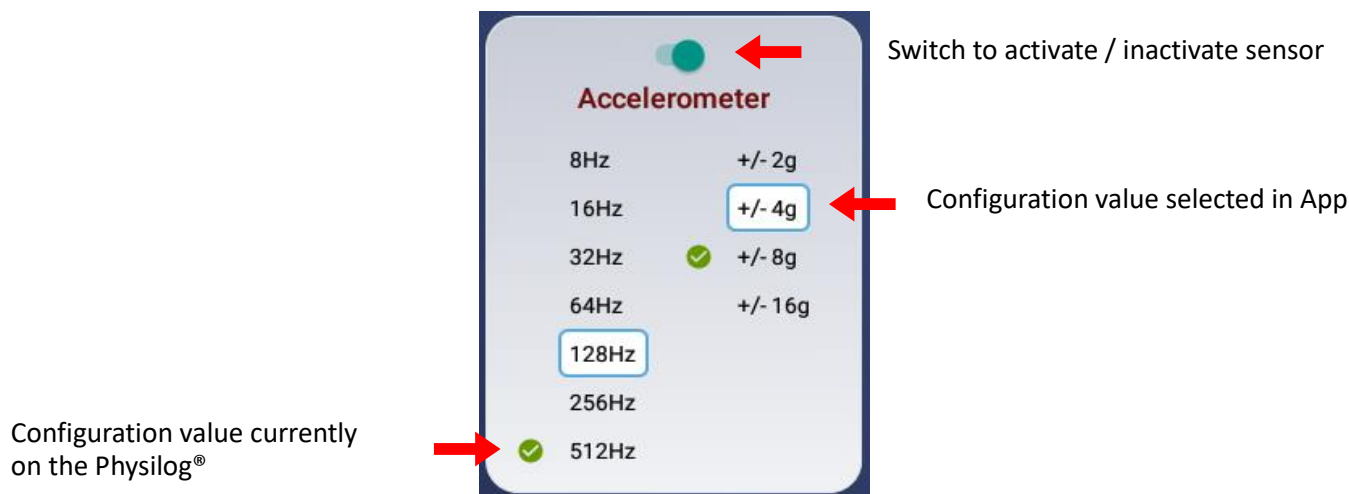
To access and change the configuration of the Physilog®5 sensors, open the “Physilog configure” part of the companion application. Only one Physilog® must be connected to the App to display and modify the configuration, therefore click on “disconnect” for all but one sensor or add a single Physilog® from the “Available Physilog” list.

You can then load the current configuration saved on the Physilog® by clicking on “Load config”. You always need to load the configuration before you can modify it.



Once the current configuration is displayed in the App it is possible to activate or inactivate sensors, change the sampling rates of all sensors and the ranges of accelerometer and gyroscope. You can also select the Body location (f.ex. Left foot (LF)) which can help you to remember where you placed the Physilog[®] for the measurement.

It is not possible to modify the calibration values of the accelerometer and gyroscope from the Android application. When inactivating the accelerometer or gyroscope the calibration values are lost when you send the new configuration to the Physilog[®].



The configuration values currently on the Physilog[®] are indicated with the green check marks. The selected values in the app are shown by the white boxes. To update the configuration on the Physilog[®], click on “Send config”.



Please be aware that for some specific applications, such as Gait and Running analysis, the configuration of the sensors should not be modified or be set back to the necessary values before such measurements, otherwise the software will be unable to analyse the data. The needed configuration is described in the user manuals of the specific applications.

8. Troubleshoot

If a sensor is not detected by the tablet, shortly press the main button of the sensor to enter detection mode. If the sensor can still not be connected, check that it has enough battery and is not connected to another mobile device and if necessary ultimately do a reset of the sensor by holding the sensor button for 15 seconds.

If the sensor has incompatible firmware version for using with the app, the app displays an error message and automatically disconnects from the sensor. If the sensor is blinking after disconnection, you need to do a soft reset of the sensor (see above). Physilog5 user manual explains how to update firmware.

Contact

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Document version	Changes	Responsible	Date
1.0.0	Initial release to public	Rebekka Anker	07.04.2017
1.1.0	Changes related to firmware v1.1.0: - File transfer function	Rebekka Anker	14.06.2017
1.3.0	Changes related to App v1.5.0: - Design updates – new pictures and naming adapted	Rebekka Anker	12.02.2018
1.4.0	Changes related to App v1.6.0: - How to connect sensors - Physilog Remote function - Troubleshoot	Rebekka Anker	19.06.2018