

Move 3

Physical Activity Sensor

User Manual



Imprint

Move 3 User Manual

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The newest version of the User Manual can be found here:

http://www.movisens.com/wp-content/downloads/Move3_User_Manual.pdf

Frequently asked questions:

<https://www.movisens.com/en/faq/>

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Contents

1	Welcome!	1
2	Scope of Application	3
3	Instructions of Use	5
4	Scope of Delivery and Accessories	7
4.1	Scope of Delivery	7
4.2	Accessories	8
4.3	Complementary Products	9
4.4	Complete Measurement System	11
5	Description of the Sensor	12
6	Software Installation	15
6.1	System Requirements	15
6.2	Installing the Software	16
6.3	Updating the Software	17
6.4	Updating the Sensor Firmware	17
6.5	Uninstalling the Software	18
7	Handling	19
7.1	Charging the Sensor	21
7.2	Preparing a Measurement	22
7.3	Starting a Measurement	23
7.4	Attaching the Sensor to the Test Person	25
7.5	Stopping a Measurement	27
7.6	Storing Measurement Data	28
7.7	Viewing Measurement Data	32
7.8	Analyzing Data	35
8	Maintenance and Proper Disposal	37
8.1	Maintenance	37

8.2	Cleaning Instructions	37
8.3	Cleaning of Wrist Bands and Chest Belt	37
8.4	Proper Disposal.....	38
8.5	Troubleshooting	38
9	Technical Data	39
10	Legal Notes.....	41
10.1	Copyright.....	41
10.2	Disclaimer	41
10.3	Trademarks.....	41

1 Welcome!

Dear customer,

Thank you for choosing the physical activity sensor **Move 3** from movisens. With this sensor, you get the newest technology for mobile monitoring of physical activity in everyday life.

Please read this manual completely and thoroughly before bringing the measurement system into service! In this manual you will find all information relevant to the use and maintenance of the measurement system as well as for solving problems.

If you have any further questions, don't hesitate to call us. It is our pleasure to help you:

Phone: +49 721 381344-0

E-Mail: support@movisens.com


2 Scope of Application

Move 3 is a scientific research instrument designed to capture the physical activity and other secondary parameters of a person. **Move 3** is designed and optimized for research applications.

The physical activity sensor Move 3 is not a medical device!

The physical activity of a person is measured by the acquisition of their acceleration across three dimensions, and the atmospheric air pressure. In addition the ambient temperature is acquired.

The sensor can be configured via a PC by utilizing the **Sensor Manager** software included in this package.

When used in conjunction with  **DataAnalyzer** software, the Move 3 allows the offline calculation and analysis of the following parameters and the generation of reports.

- Acceleration in three dimensions
- Atmospheric Air Pressure
- Temperature
- Movement Acceleration
- Acceleration along the body axis
- Inclination of body axes
- Steps
- Activity Classes
- Body Position
- Altitude

- Activity Energy Expenditure
- Total energy expenditure
- Metabolic Equivalent of Task (MET)
- Energy expenditure summary
- Physical activity report
- Physical activity and energy expenditure report


In addition to the offline calculation, **Move 3** offers the possibility of live analysis of physical activity and in conjunction with **movisensXS**, the software platform for experience sampling, and the **SensorTrigger** the realization of interactive ambulatory assessment strategies. In live mode, the following parameters can be measured, calculated and transmitted via a Bluetooth Smart interface:

- Movement acceleration

These values are transmitted with 1 value per minute. Additional live parameters will be available soon.



Tip:

movisens  can calculate other parameters from raw data upon request.

3 Instructions of Use

- ! **Move 3 is not a medical device.**
- ! Only use **Move 3** for the designated applications.
- ! Never open **Move 3**.
- ! The battery of **Move 3** may only be changed by the manufacturer.
- ! **Move 3** is not waterproof. Don't use the sensor in wet environments.
- ! Only use the **Move 3** under the specified conditions.
- ! To charge the battery of **Move 3**, only use USB standard compatible devices.
- ! If **Move 3** is used with wrist or chest strap, these have to be cleaned regularly.
- ! If any problems occur by wearing the sensor (e.g. pressure marks, skin irritations or other discomfort), stop using it immediately.

4 Scope of Delivery and Accessories

In this chapter, you'll learn which parts are within the scope of delivery and what accessories are available. All of these parts can be reordered. Please consider the order numbers in the following paragraph.

To be able to do measurements a PC is needed in addition to the scope of delivery.

4.1 Scope of Delivery

One of the following components is included in delivery:

Article	Order No.
Move 3 (Clip) Activity Sensor Raw data acquisition: 3D Acceleration 64 Hz, Barometric Altitude 8 Hz Measurement duration 9 days (up to 2 month with re-charging) live analysis of data Bluetooth Smart interface Fixation with clip including Micro USB cable and SensorManager software to read out and configure the sensor	10111



Article	Order No.
Move 3 (Wrist) Activity Sensor Raw data acquisition: 3D Acceleration 64 Hz, Barometric Altitude 8 Hz Measurement duration 9 days (up to 2 month with re-charging) live analysis of data Bluetooth Smart interface Fixation port for use with wristband including cradle, Micro USB cable and SensorManager software to read out and configure the sensor	10112



4.2 Accessories

The following accessories can be ordered optionally: Article	Order No.
Wrist Band Move 3 (S) Size: S Wrist Measurement: 13 to 16 cm	10129
Wrist Band Move 3 (M) Size: M Wrist Measurement: 15 to 18 cm	10130

Wrist Band Move 3 (L) Size: L Wrist Measurement: 17 to 23 cm	10131
Wrist Band Move 3 (XL) Size: XL Wrist Measurement: 20 to 28 cm	10132
USB Charger USB Charger for 110-240V	30100
USB Hub USB Hub 2.0, 7 Ports	30101
Micro USB Cable	30102



4.3 Complementary Products

The following products can be used together with **Move 3**:

Article	Order No.
DataAnalyzer Base Single User Licence Basic Software with Algorithms for Physical Activity	20100

DataAnalyzer Module EnergyExpenditure Single User Licence, in combination with DataAnalyzer Base Algorithms for Energy Expenditure	20101
DataAnalyzer Module Sleep Single User Licence, in combination with DataAnalyzer Base Algorithms for Sleep Analysis	20104
movisensXS Basic Experience Sampling for Android Bundle license for 10.000 item results usable with unlimited number of smartphones	20110
movisensXS Gold Experience Sampling for Android Bundle license for 100.000 item results usable with unlimited number of smartphones	20111
movisensXS Platinum Experience Sampling for Android Bundle license for 1.000.000 item results usable with unlimited number of smartphones	20112
SensorTrigger Solution for Interactive Ambulatory Assessment to retrieve the sensor data on your android device and trigger forms in movisensXS	20120

4.4 Complete Measurement System

A complete system for the measurement and analysis of physical activity consists of the following components:

- **Move 3** sensor for the objective assessment of physical activity
- movisens **SensorManager** software to configure and read out the sensor
- **UnisensViewer** for visualization and preprocessing of sensor data and calculated results
- movisens **DataAnalyzer** software for analysis of sensor data, calculation of outcome parameters and for the creation of reports (allows offline analysis of sensor data)
- Experience sampling platform **movisensXS** (for interactive ambulatory assessment)
- **SensorTrigger** to retrieve the sensor data on your android device, evaluate these data with predefined and configurable algorithms and trigger forms in **movisensXS**.

A detailed description of these components can be found in the following documents:

- Online help for **UnisensViewer** (www.unisens.org)
- **DataAnalyzer** User Manual
- Online help **movisensXS** (xs.movisens.com/help)
- **SensorTrigger** User Manual

5 Description of the Sensor

Depending on the application, **Move 3** sensor can be worn in various locations, e.g.

- with a clip at the right side hip



- with a wrist band on the wrist



- with an additional chest belt at the sternum



For the different sensor locations, the sensor system offers different possibilities for the analysis of the acceleration signal (see chapter 7.4). The preferred position for energy expenditure measurements is the hip.

Move 3 is also equipped with a Bluetooth Smart interface. The sensor can be used in conjunction with a gateway or a mobile phone for live applications. The Bluetooth Smart interface is activated in the default configuration of the sensor. To deactivate this interface, a firmware update is required (see 6.4)

The axes of the integrated acceleration sensor are defined in the following figure:



Move 3 is equipped with a multi-colored LED to show the status of the sensor:

Status-LED	Meaning
Flashing red (once per second)	The sensor is active and recording data
Flashing red slowly (every two	Delayed recording is active

seconds)	
Flashing green	The sensor is connected to a PC or a charger. The battery is fully charged.
Flashing blue	The sensor is connected to a PC or a charger. The battery is charging.
Flashing magenta	The sensor is active and records data. It is connected to a charger and charging.
Flashing yellow	The sensor is active, records data. It is connected to a charger. The battery is fully charged.
Flashing blue fast (three times per second)	The battery level is low, the sensor will turn off soon.
Flashing red fast (three times per second)	An error occurred. Reset sensor (see 8.5). If the sensor doesn't stop flashing, please contact the manufacturer.
No LED active	The sensor is inactive.

Combinations of red and green blinking as well as red and blue blinking are possible with the appropriate combination of the above descriptions.

Move 3 features a vibration alarm when Bluetooth is getting disconnected.

6 Software Installation

This chapter describes how to install and uninstall the software and how to update it. Beside this, the system requirements are defined.

6.1 System Requirements

Before installing the software, please check that the following system requirements are fulfilled.

- PC with one of the following Versions of Microsoft Windows: Windows 7, Windows 8, Windows 8.1, Windows 10
- USB 2.0 or USB 3.0 interface
- Administrator rights during installation
- A minimum of 300 MB free space on hard disc

The delivered software consists of two programs:

- **SensorManager:** Program to configure the sensor, to start a measurement and to download the data from the sensor.
- **UnisensViewer:** Program to view the stored data.

Option:

In addition to this, analysis software, android sensor trigger app and cloud service for experience sampling can be ordered as a complement to the sensor (see 4.3):

- **DataAnalyzer:** Program to analyze the stored sensor data.
- **movisensXS:** Experience sampling platform.
- **movisensXS Sensor Trigger:** android sensor trigger app to evaluate the analyzed data transmitted over Bluetooth smart interface.

6.2 Installing the Software

Please ensure that your PC fulfills the requirements described above.

Step 1: Plug the USB drive into the USB port of your PC. The content of the medium will be shown.

- ! If the window does not open automatically, select the appropriate drive from the window “My computer”.

Step 2: Double click the file “movisens_SensorManager_Setup.exe”

- ✓ The Installation runs automatically in the background. After successful installation, shortcuts are created in the Windows Start Menu under the entry “movisens SensorManager”.



The use of the different programs is explained in the following chapters.

Step 3: Double click the file “UnisensViewer_Setup_Full.exe”

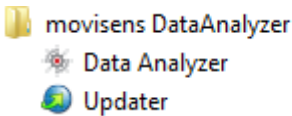
- ✓ The Installation runs automatically in the background. After successful installation, a shortcut “UnisensViewer” is created in the Windows Start Menu.

Option:

If you ordered a licence for **DataAnalyzer**, please follow the next step. Detailed information can be found in the **DataAnalyzer** User Manual.

Step 4: Double click the file “DataAnalyzer_Setup_Full.exe”

- ✓ The Installation runs automatically in the background. After successful installation, a shortcut “movisens DataAnalyzer” is created in the Windows Start Menu.



The use of the different programs is explained in the **DataAnalyzer** User Manual.

6.3 Updating the Software

You need an internet connection to make an update. Select Windows Start Menu → movisens SensorManager → Updater

If a new version is available, it will be downloaded and installed automatically after starting the updater software.

6.4 Updating the Sensor Firmware

If the **SensorManager** contains a sensor firmware version that is newer than the firmware on the sensor, a button “Update sensor” is shown.

Step 1: Check that the sensor is charged.

Step 2: Start the update by clicking the “Update sensor” button.

- ! Never unplug the sensor during firmware update or interrupt the firmware update process.

Special firmware versions are used to change the default configuration of the sensor, e.g. in customized sensor applications or to deactivate the Bluetooth interface. You can get these firmware versions upon request from movisens.

To install the new firmware, please start
Windows Start Menu → movisens SensorManager → Firmware Updater

You can now select the new firmware and Start the update.

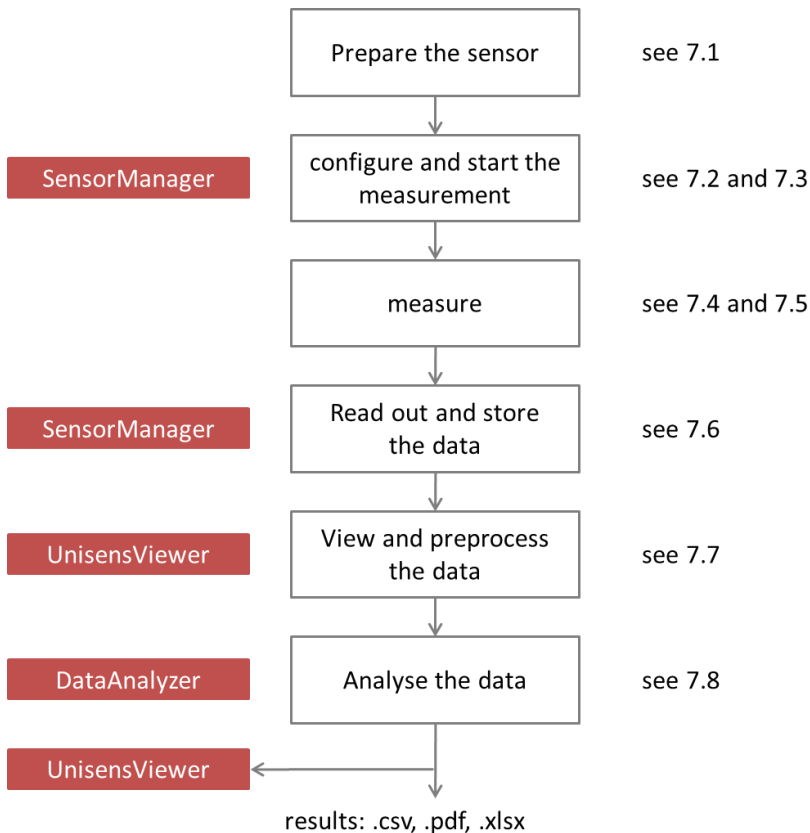
6.5 Uninstalling the Software

The software can be uninstalled using the Windows Control Panel.

7 Handling

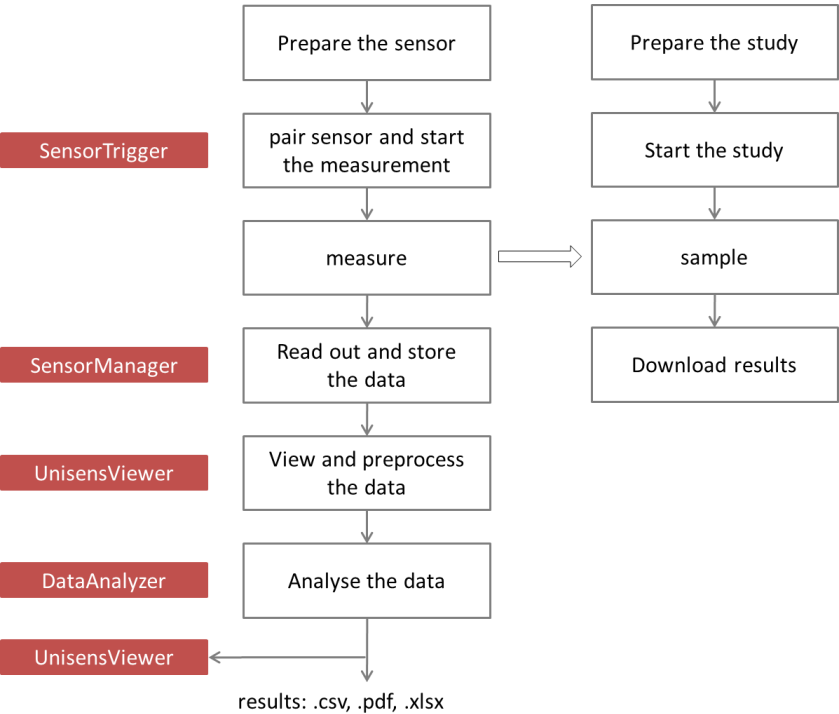
This chapter describes how to prepare a measurement and how to attach the sensor to a test person. Furthermore you get information on how to save, delete and analyze data from the sensor.

A typical usage scenario for the assessment of data and offline analysis is shown in the following diagram. The relevant software for each step is indicated on the left side of the diagram.



The different steps are described in further detail in the chapters indicated on the right of the diagram.

If you want to use the sensor in combination with the experience sampling platform **movisensXS**, the different steps to use the sensor are shown in the following figure. Unlike the offline measurement, the measurement is initiated on your mobile device.



The right side of the diagram illustrates the process to prepare and run a study on **movisensXS**.

To retrieve the data from the **Move 3**, you have to read out the sensor after the measurement. The results of **movisensXS** only contain the sensor information that causes a trigger.

7.1 Charging the Sensor

Step 1: Connect the sensor to a USB port (USB port of your computer or another port that conforms to USB standard like USB hub or USB charger). To charge multiple sensors at the same time, we suggest using a USB hub (see 4.2).

- ✓ After connecting the sensor to a USB port, the charging process starts immediately. During charging, the status LED is blinking blue. If the battery is fully charged, the LED is blinking green. The charging process of the sensor can take up to two hours, depending on the battery status of your sensor.
- ✓ If the sensor is fully charged, the battery run time during recording is 9 days.

Step 2: To extend the measurement duration you can recharge the sensor during a measurement.

- ! If recharging while taking a measurement be sure **NOT** to plug it into your PC as that will stop the measurement. Instead use a USB charger.

When recharging the sensor you have to ensure that the battery is fully charged (until the sensor is blinking yellow).



Tip:

If the sensor should be recharged by the test person, you can define a regular time (e.g. during night or during taking a shower in the morning) when they can plug the sensor to a USB charger.

- ! To be sure that the sensor is not running out of battery, you must advise the test persons to recharge the sensor

every day until it is blinking yellow. The time for **daily recharging** the sensor is **about 15 minutes**.

If you recharge the sensor regularly you can make a measurement up to the 2 month maximum recording capacity of the sensor.

If the sensor runs out of battery during a long measurement, the recording of data will be stopped. The measurement won't be continued even if you connect it to a charger.

If the sensor is discharged completely (e.g. after a long period where it was not used), it can take up to several minutes until the sensor reacts and can be identified by the computer.

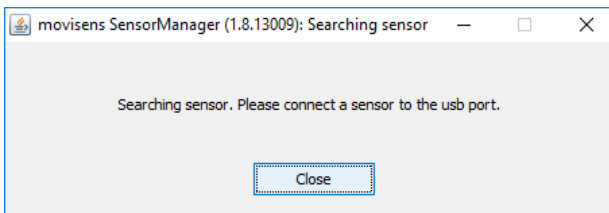
You can control the battery status before the measurement with the sensor manager, see the following section.

7.2 Preparing a Measurement

Before conducting a measurement please make sure you installed the software as described in chapter 6.2.

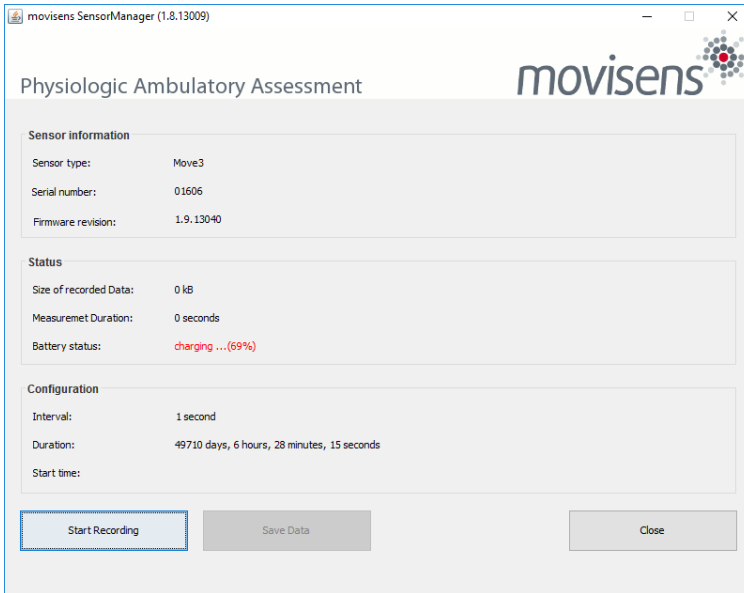
Step 1: Start the **SensorManager** by selecting
Windows Startmenu → movisens SensorManager → SensorManager

✓ **SensorManager** is now searching for available sensors.



Step 2: Connect **Move 3** with your PC using the USB cable.

✓ The software will automatically detect the device and open the following window:



This application shows information about sensor hardware, sensor state and sensor configuration.

Before you start a measurement please check the charging status of the battery. The maximum measurement duration can only be reached when the battery is fully charged.

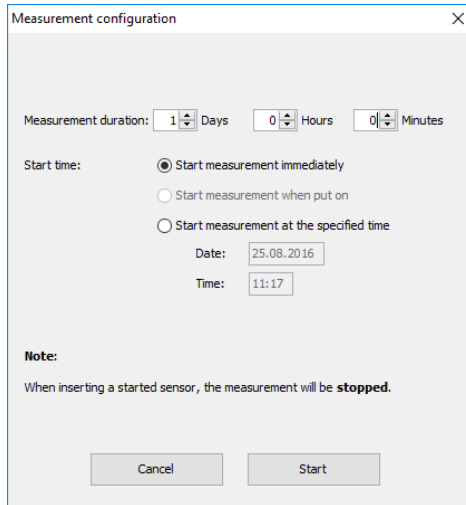
- ! When connecting for the first time allow up to 30 seconds for the device to be detected as it installs the driver.

7.3 Starting a Measurement

To start a measurement, please perform the following steps:

Step 1: In the **SensorManager** software click on the “Start Recording” button in the lower left of the window.

- ✓ You can see the following window:



Measurement configuration

Measurement duration: 1 Days 0 Hours 0 Minutes

Start time:

- ☒ Start measurement immediately
- ☐ Start measurement when put on
- ☐ Start measurement at the specified time

Date: 25.08.2016

Time: 11:17

Note:

When inserting a started sensor, the measurement will be **stopped**.

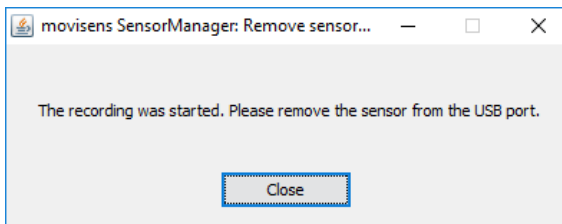
Cancel Start

Step 2: Please supply the following information into the text fields:

- Measurement duration: The maximum measurement duration of the **Move 3** is about 9 days without recharging the sensor. (see 7.1)
- Start time: You can start the measurement immediately or delayed at a specific time. If you want to start your measurement later please specify a date and time. The given time should not be more than 2 days from now as the maximum measurement duration can be influenced.

Step 3: Start the measurement by clicking the “Start” button.

✓ You will see the following window:



movisens SensorManager: Remove sensor...

The recording was started. Please remove the sensor from the USB port.

Close

Step 4: Please follow the instructions and remove the sensor from the PC.

- ✓ The status LED will flash red once per second as soon as the measurement has started and data will be recorded. If a delayed start was configured the LED flashes red every two seconds until the measurement starts.
- ✓ At the end of the measurement the LED stops flashing.
 - ! If you reconnect the sensor after starting a measurement again with a PC, the measurement will be stopped prematurely.
 - ! If you connect the sensor to a USB charger, the measurement won't be stopped. That means you can extend the measurement duration by intermittently charging the sensor during a measurement (see 7.1).

7.4 Attaching the Sensor to the Test Person

Attach the sensor to one of the following locations:

For **Move 3** (Clip)

- Use the Clip to attach the sensor to the right side hip. The clip can be used with belts or directly on other garments. The *movisens* logo should face directly to the right.



For **Move 3** (Wrist)

- Use a chest belt to attach the sensor on the height of the sternum. The *movisens* logo should face directly forward.



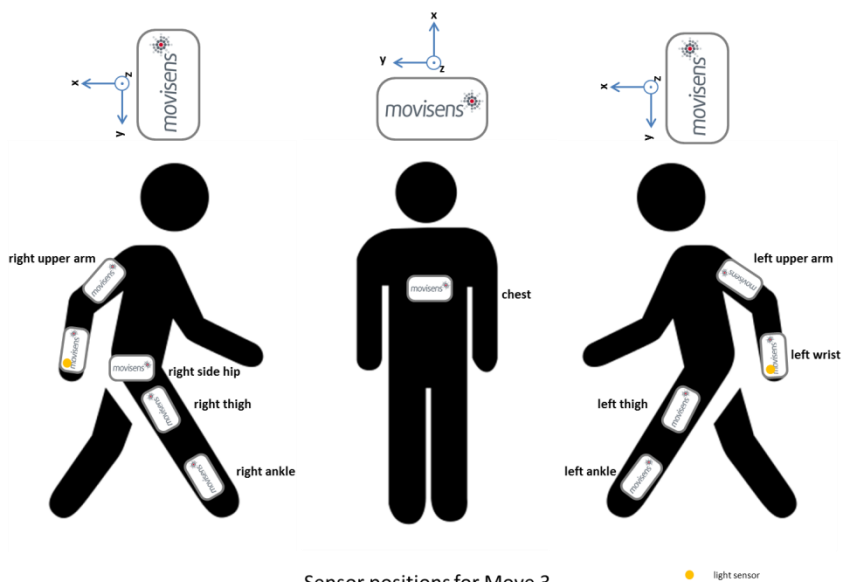
- Use the wrist band to attach the sensor to the non-dominant hand of the test person. At this position only simple parameters like Movement Acceleration can be measured.



Depending on the position of the sensor, different parameters can be analyzed after the measurement.

The following figure and table lists the possible sensor locations supported by the analysis software **DataAnalyzer** and the

parameters that can be calculated. For more details refer to the user manual of the **DataAnalyzer**.



Sensor positions for Move 3

Sensor location	Movement acceleration	Activity class	Body position	Energy expenditure
right side hip	✓	✓	✓	✓
chest	✓	✓	✓	✓
right, left wrist	✓	✓	-	(✓)
right, left ankle	✓	-	-	-
right, left thigh	✓	✓	✓	-
right, left upper arm	✓	-	-	-

7.5 Stopping a Measurement

The measurement will automatically be stopped, if the configured measurement duration has passed.

A running measurement will also be stopped when:

- The sensor is connect to a PC
- The end of the battery run time has been reached

If the battery is low, this is indicated by fast blue flashing (three times per second). The sensor will then turn off soon.

7.6 Storing Measurement Data

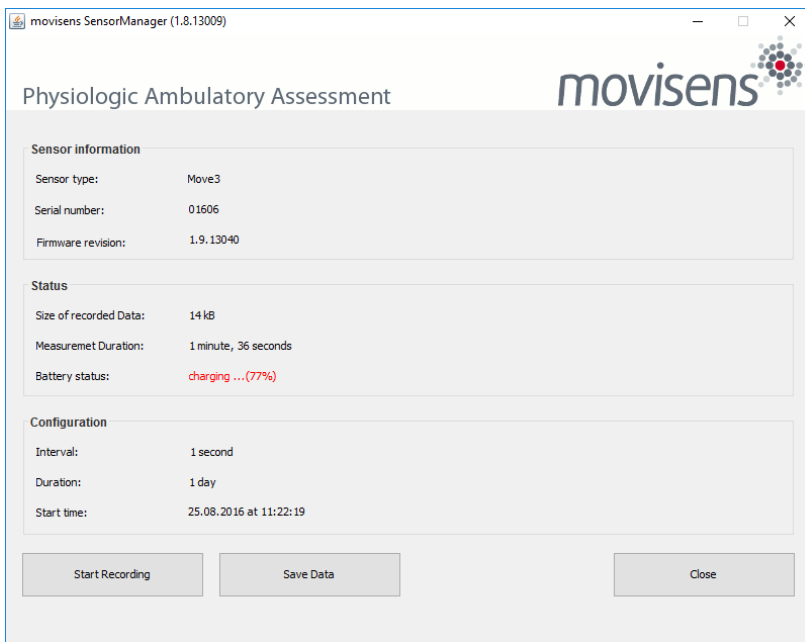
The measurement data of the sensor is stored as raw data (e.g. the acceleration data as it is measured). The data is not processed or aggregated neither in the sensor nor in the **SensorManager** software. That allows you to have a sustainable database with all the raw data of your study that can be used with future studies and with future algorithms.

To store recorded measurement data on the PC do the following steps:

Step 1: Start the **SensorManager** by selecting Windows Start menu → movisens SensorManager → SensorManager

Step 2: Connect **Move 3** to the PC using the USB cable.

- ✓ After the **SensorManager** has detected the connected sensor, the following windows will be shown:



Step 3: Click on „Save Data“.

✓ You will see the following window:

Save data of sensor 01606

Base folder: C:\Measurements

Measurement id: 2016-08-25 11.22.19

Name or subject id: ID01

Age: 28 Years

Weight: 70 kg

Height: 175 cm

Gender: M

Sensor location: right side hip

Comment:

☐ Store data as csv

Cancel Save data

Step 4: Please type in the following information:

- Select the base folder, where your measurements should be stored. To do this, click the button after the text field.
- Type in the ID of the measurement. If you want to use date and time in the ID click the button after the text input field.
- If the measurement data will be processed further with the movisens **DataAnalyzer** software, the additional information about the person and the sensor location is mandatory.

Step 5: Finally click on „Save data“

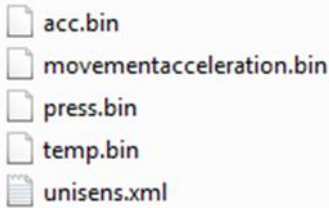
The measurement data will be stored either in the unisens format or as a .csv file. Unisens is an open data format for multi sensor data.

You can find further information about unisens here:

www.unisens.org

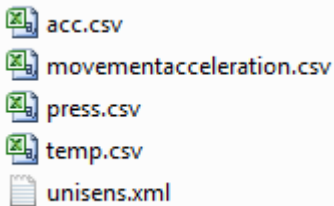
- ! If you store the measurement data in .csv format, you can't analyze the data with the movisens **DataAnalyzer**.

A unisens data set consists of a meta file (unisens.xml) and different data files for each measurement signal. If you select to store the data in unisens format, the following files will be generated:



movementacceleration.bin is the result of the live analysis on the sensor. The other .bin files are the raw data of the other measurement parameters.

If you select to store data in .csv format, the following files will be generated:

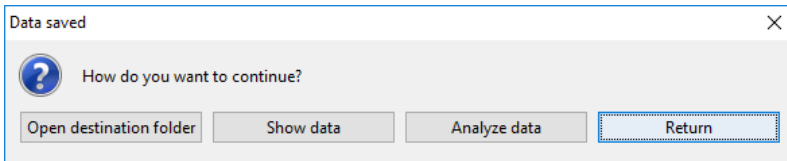


Tip:



When storing data as .csv file, you have to take into account that the size of the data file doesn't exceed the maximum size of the program you want to use (e.g. Microsoft Excel)

- ✓ The software confirms the end of data storing process. The following window is shown:



You can now directly show the stored data. The measurement will be opened in the **UnisensViewer**. If you have installed the **DataAnalyzer** you can directly start data analysis and generate reports by clicking on "Analyze data". You can find more information in the **DataAnalyzer** User Manual.

7.7 Viewing Measurement Data

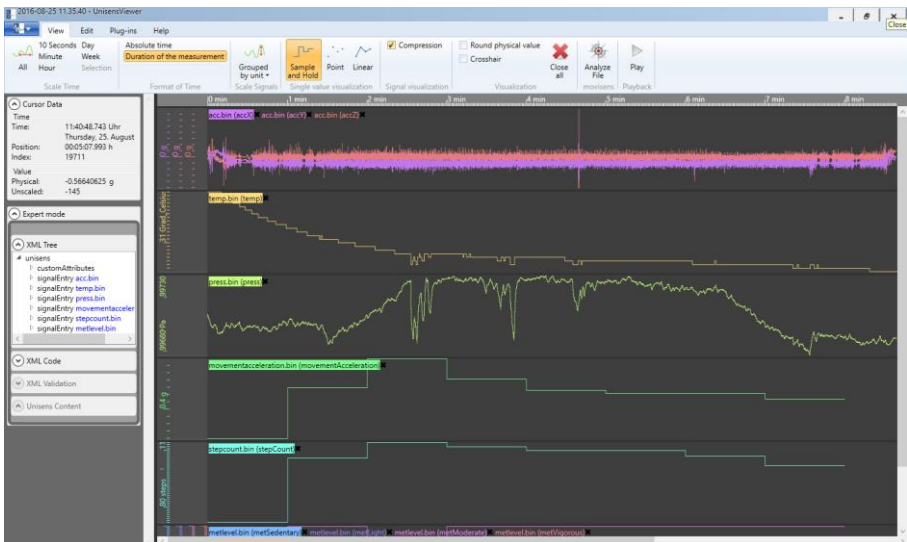
To view recorded measurements click on "Show data" directly after storing the data.

Tip:



Directly after storing the data you should check that the measurement is complete and correct. You can check visually if all signals are recorded for the full measurement duration and if the signals are of high quality.

To view previously stored measurements use Windows Explorer to navigate to your measurements folder and then open the folder with the desired ID. Then double click on the “unisens.xml” file. The measurement will then be shown in the **UnisensViewer**:



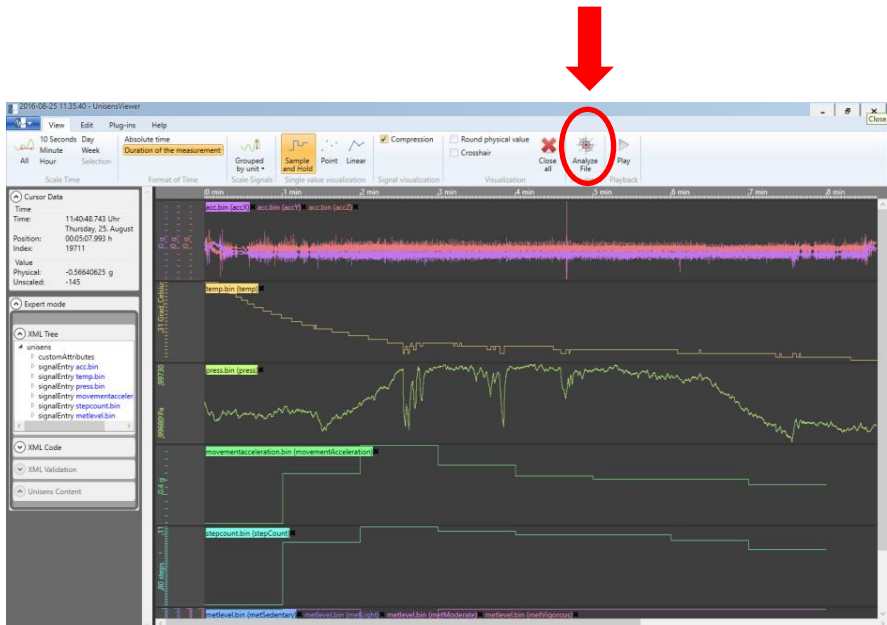
A first preprocessing of the data can be done with **UnisensViewer**. You can crop your signal to the desired time, set markers and annotate artefacts. Details can be found in the online help of **UnisensViewer**.



Tip:

Before changing the data of your study, be sure to make a copy of your raw data.

You can directly start the analysis of the data with **DataAnalyzer** by clicking the “Analyze Data” button.



7.8 Analyzing Data

Option:

To analyze the data, *movisens* offers the modular analyzing software **DataAnalyzer**. This product is a scientific software for the analysis of physiologic measurement data. The software is optimized for, but not limited to use with sensors from *movisens*.

With the help of **DataAnalyzer** you can calculate secondary parameters from your physiologic measurement data, create summaries and reports. **DataAnalyzer** is capable of batch-processing complete measurement databases.

DataAnalyzer (1.8_13023) - movisens GmbH

Physiologic Ambulatory Assessment

☐ Process all measurements in source folder (batch mode)

Source: C:\Measurements\2016-08-25 11.35.40

Destination: C:\Measurements\2016-08-25 11.35.40_result_2016-08-25 11.52.22

Please select the parameter to be calculated (multiple selection with ctrl key).

- Report: Summary of daily energy expenditure, METs, steps and activity classes (Excel)
- ReportActivityMediumPdf (beta)
- ReportActivityPdf
- ReportActivitySummaryPdf (beta)
- ReportActivitySummaryShortPdf (beta)
- StepCount [steps]
- TempMean
- TotalEnergyExpenditure [kcal/d]
- VerticalSpeed [m/s]
- WearTimeAcc (beta)

Alter in Jahren: 28

Körpergröße in cm: 175

Sensor Typ: Move3

Körpergewicht in kg: 70

Geschlecht: M

Trageort des Sensors: right_side_hip

Output interval in s: 60


Calculate

After a measurement was selected all possible analysis outputs (secondary parameters and reports) are shown. The list of analysis outputs is dependent on your licensed modules and the data contained in your measurement. You can now select the desired analysis output. If you want to select more than one analysis output keep the Ctrl-key pressed while selecting.

The results of the analysis are stored as a unisens data set. A unisens data set consists of a meta file (unisens.xml) and additional data files for each measurement signal and secondary parameter. Secondary parameters are stored as .csv file within the unisens data set and can also be processed e.g. with Microsoft Excel or SPSS




Tip:

movisens  can also analyze your raw data and generate reports according to your needs. If you have any further questions, please do not hesitate to contact us.

8 Maintenance and Proper Disposal

8.1 Maintenance

Besides charging the batteries, **Move 3** does not need any further maintenance. The battery capacity will decrease slowly with charging cycles and age. The battery can only be changed by **movisens** . Please contact us in the case when a replacement is necessary.

8.2 Cleaning Instructions

If you want to clean **Move 3**, please note the following:

- Disconnect the sensor from USB cable and wrist band or chest belt.
- Use a soft slightly moistened cloth.
- Take care that no humidity enters the sensor housing.

8.3 Cleaning of Wrist Bands and Chest Belt

To clean the wrist bands and chest belts please consider the following:

- Wash the bands/straps by hand and not in the washing machine.
- Use a mild liquid detergent.
- Directly after washing, air -dry the bands/belts before storing or using it for new measurements.

8.4 Proper Disposal

Move 3 is subject to the EU directive WEEE (Waste Electrical and Electronic Equipment). Please consider your local regulations for waste disposal.



8.5 Troubleshooting

Frequently asked questions: <https://www.movisens.com/en/faq/>

Error	Solutions
Sensor is not blinking when connected	If the battery is empty it can take 30 seconds or more for the LED to start blinking.
Sensor is not found by sensor manager	Reset sensor. This is found in the start menu under the movisens Sensor Manager folder. The LED will flash all colours (blue, red, green) when it is reset.
Flashing Red (3 times per second)	An error occurred. Reset sensor. If the sensor doesn't stop flashing, please contact the manufacturer.

9 Technical Data

Power supply	Lithium-Polymer-Battery
Supply voltage	3 V
Battery voltage	3.0 – 4.2 V
Number of charging cycles	300 with 1C/1C > 80%
Maximum recording capacity	~ 2 months
Battery run time (recording)	~ 9 days
Size of sensor (W x H x D)	62,3mm x 38,6mm x 11,5mm
Internal sensors	3D acceleration sensor: Measurement range: +/- 16 g Noise: 4 mg Output rate: 64 Hz Pressure sensor: Measurement range: 300 - 1000 hPa Noise: 0.03 hPa Output rate: 8 Hz
Indicators	LED, 3-color (operation and charging status) Vibration alarm (Bluetooth Smart is disconnected)
Interfaces	Micro-USB, Bluetooth Smart
Environmental conditions	Temperature: -20 °C to 60 °C 0 °C to 45 °C during charging Humidity: 0 to 75% RH relative humidity Atmospheric pressure: 300 to 1100 hPa absolute


10 Legal Notes


10.1 Copyright

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10.2 Disclaimer

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