Heart rate monitor application
for Group Training

User manual

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Content

1. General information

Pulse Monitor is an application designed for computers running Microsoft Windows 10 and 11 operating systems. It allows you to control the heart rate of participants in Fitness clubs and indoor cycling.

A trainer conducting fitness classes has a preview of the current parameters of each participant in the group. This allows to properly adjust load intensity for a given organism depending on an individual capacity of lungs, heart or the current fatigue state. Pulse Monitor enables you to continuously monitor up to 42 training participants. Each of the ANT+ heart rate monitors, put on the participant's chest emits a digital signal that is received by the application by means of a compatible antenna. ANT+ Heart Rate Monitors should be within 10 meters from the receiver.

The measurement results are displayed on the monitor screen. The screen of the training can also be presented on the large LCD TV after being connected to a computer via RGB or HDMI link.

In order for the system to work an antenna is required – **USB ANT+** signal receiver and **ANT+ chest straps** with pulse sensors for participants. Training sets, as well as single pieces of equipment can be purchased at sporting goods stores or online stores. A list of ANT+ compatible can also be found on **www.thisisant.com/directory**.

ANT+ signals receiver   **ANT+ Belt with a pulse sensor**

Tip: When buying heart rate monitors, make sure that they support ANT+ communication.

2. Installation and updates

Installation comes down to downloading and running the installer package. The installation process will run automatically.

Note: Do not connect the ANT+ receiver to a USB port before the complete installation.

Once the installation process is finished, you can connect the receiver to any USB port and start using the system.

The application periodically checks whether a new version of the program has come out. If a new version is found, the user is asked to update the application. It is recommended to perform each upgrade, because they introduce a number of improvements. Update is associated with downloading of a certain amount of data from the Internet.

Before starting to use the system during trainings, enter the data of the participants (they will be chosen to participate in the classes) and pair (enter in the register of the application) belts with pulse sensors.

3. License registration

At the end of the trial period, you must enter the license key in order to continue using the program. The license key can be obtained on the website:

https://www.pulsemonitor.net/

Go to *Help → register* and enter the license key you received.

Depending on the type of license, the key may be entered on one or more devices. If for some reason you need to transfer the license key to another computer, you can use the "license release" button in the same window. If the use of this function is not possible (e.g. due to computer damage), contact the developer of the application in order to transfer the license to another computer.

4. Application & Fitness club data configuration

Go to settings: *Tools → configuration.*

Got to "Others" tab. Setup Units user in your country (metrics or imperial).

After finishing the classes, participants who were provided with e-mail addresses can receive reports with charts presenting the course of trainings and basic training data.

You have to set up you SMTP server and Account setting before sending email reports.

There is a possibility of setting the name of the club, location and logo, which will be located in the header of the report in a PDF format.

Configuration of these parameters can be done by selecting the top menu:

Tools → configuration → reports tab.

5. Pulse sensors

5.1.   Compatible devices

Pulse Monitor System is certified to comply with the ANT+ standard. It means that it is compatible with the USB receiver and any pulse watchers having the designation:

Before purchasing the heart rate monitor, make sure the retailer supports this standard.

For a list of compatible devices visit **www.thisisant.com/directory**

5.2. Pairing of devices

In order to be able to receive signals from individual heart rate belts, they must be paired in the Pulse Monitor system. Each device has a unique number (ID) consisting of a number of digits, according to which it is recognized by the application.

Adding more heart rate monitors is possible after pressing the "Devices" button on the main screen or by selecting the menu:

Tools → devices.

Each paired device must be assigned a name, which will facilitate their identification in the allocation of them to individual participants.

Some heart rate monitors (unfortunately, very rarely) have IDs printed mostly on the back of them, you can then manually enter the device number and assign a name to it.

Tip: It is recommended to use consecutive numbers from 1 upwards as choosing a name for a device. It is worth to write the number using a permanent marker or stick with a tape to the heart rate monitor.

If the device is not assigned with ID number, use a **"scan for devices"** option. Once scanning is initiated („Scan for devices" button), the program is listening to register signals coming from unknown heart rate monitors. A list of numbers of found devices will appear on the screen below. You can then click on the number – it will be rewritten to the window of adding a new device and assign it an individual name.

Most heart rate monitors begin to emit signals only after putting them on the participant's chest. Before pairing a new device the heart rate monitor will make sure that the belt was put on the chest and that it adheres well to the body. Contact spots of sensors and the skin should be moistened with water. Heart Rate Monitor should be located no more than 10 meters from the receiver.

Tip: While pairing new devices use only one belt to make sure that you are assigning the appropriate device. If multiple HR straps are operating near the receiver, you may not be able to tell which serial number belongs to which strap.

6. Management of participants database

While creating a participants a trainer can quickly select them for training sessions he will be running in the future. The management of participants database is done by clicking „Participants" button located on the main screen.

In order to add a participant the trainer gives his name and nickname. The nickname appears on the screen during an on-going training session. In addition, he enters the age of the participant and physical data, such as weight and height.

These parameters are used to estimate the maximum heart rate of the participant. If the participant knows his maximum heart rate (measured e.g. during the training session), you can enter it manually here. On the basis of the physical data, the amount of calories burned during each workout is also calculated.

If the participant's e-mail address had been entered, they will be able to receive the report in a PDF format on the course of the training session.

Editing of participant data occurs in the left box by selecting it from the list on the right. Removing the participant's name takes place after right-clicking and selecting "Delete".

Adding participants may also be carried out with the very level of the training session, as will be discussed below.

7. Conducting training sessions

7.1.   Creating a new training session

In order to commence carrying out of a training session with the Pulse Monitor system, choose „New training session" button located on the main screen. The system will ask for the name of the workout and the name of the trainer conducting given classes. As a default name the current date and time is suggested, however, it can be any name, e.g. strength training etc.

Then you move to the main screen of the training in order to select the participants. In the future, when the training is already completed, this screen will presented data summarizing the training of each participant.

7.2. Selection of participants, allocation of belts

Adding another participant to classes takes place in the upper left grey form, through the selection of the participant and belt and that they will be wearing during workout. From this level you can quickly add a new participant or the pairing of new device by pressing the "plus" button behind the checkboxes.

Adding of another person to the classes is confirmed by the appearance of their name on the list of participants below. The maximum heart rate of the participant is also included on the list.

By **right-clicking** of the mouse we can quickly edit the data of the person (e.g. correction of his maximum heart rate) or remove it from the list of the participants. After selecting all the participants of the classes, click on the button "Go to the training" located next to it – then appears the screen with signal lights presenting the nickname and condition of each participant selected for the course participants.

7.3. Commencement of a training session

Commencement of recording of the training session takes place after pressing the "Start" button at the bottom of the screen or u „Play" at the centre of the screen. From now on the workout time counts and the current values of the pulse of the participants are being saved.

7.4. Training options

An exemplary training screen is presented below:

The screen presents the condition of individual participants.

The status of the participant during the training session:
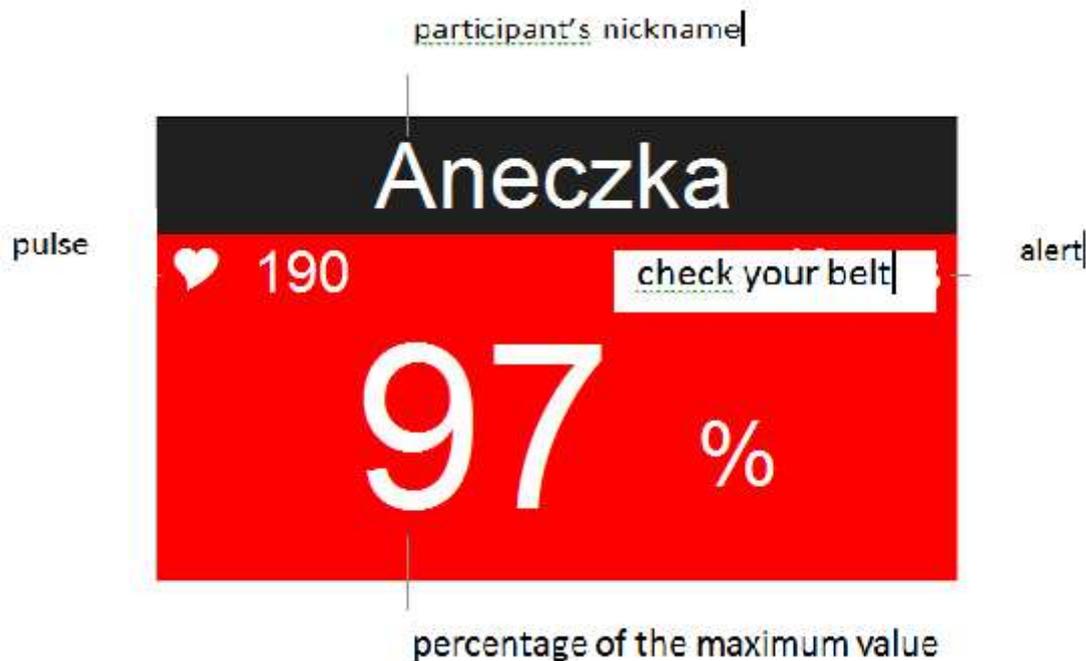
Possible alerts include:

- **Check the belt** – this message appears when the belt is within the antenna's reach, however, probably it does not adhere exactly to the chest of the participant. In this case, the belt supports the recently registered value of the pulse. The application displays this message for a long time if the pulse of the participant does not change.

- **No signal** – this message appears when the belt does not transmit a suitable signal. The reason for this may be an incorrect pairing of the belt, the belt is not used during training or the battery in it got exhausted battery.
- **You can setup some of display preferences in the application settings**.

The buttons controlling the screens of the training session:

- **Stop** – stops/resumes the duration of the training session.
- **Go back** – stops the duration of training session and return to the screen of training management. This allows you to add participants (e.g. participant who is late), editing of their parameters (e.g. HR) without having to re-start training. After returning to the monitoring screen, you can resume training.
- **Finish and summarize** – It causes the end of training and displays the summary screen (read below).

7.5. Presentation of participants' condition – training with colours

After commencing the training session, keeps presenting data received from the heart rate monitors from each participant.

You can decide which participant's data is presented during the training

Tools → configuration → Other.

Data presented: Participant's nickname, the number of heart beats per second and the percentage of heart rate in relation to the maximum value entered for a given participant, calories burned. Additionally an element associated with the participant takes on colours depending on the heart rate zone, in which it is currently in.

7.6. End of a training session

During training it is possible to exit from the screen presenting participants' data t (e.g. for the purpose of adding the person who was late). Return to the training screen and pressing the "Start" button will always resume training.

After you exit the training screen you can end and save the course of training. This is done by clicking "End a training session". After completion of training, it can no longer be continued, and the entrance to the training screen shows a general summary of your workout. The summary of training for each participant presents calories burned and average heart rate.

8. Reports on training sessions

After the finishing a training session there is a possibility of sending reports to each of the participants. The only condition of sending out of the reports is providing an e-mail in the edit field of participant data and access to the Internet. Reports can be sent at any time after completion of a training session.

Before sending the report you should input fitness club data (name, location, etc.) parameter and SMTP settings (see section 3).

You can also save the report in PDF file locally.

9. Open workout mode

You can also provide training monitoring without creating lessons for a specific duration.

In **Open workout mode** paired sensors appear automatically on the screen if the system recognizes them and emits pulse signals. If the trainee finishes the training and moves away, after some time it is automatically disconnected from the screen.

This allows the system to work throughout the day and control heart rate without the participation of a supervising trainer.

Unfortunately, this mode has several restrictions:

- The name / number of the bar appears on the screen, not the name of the trainee
- Calories burned cannot be calculated
- As maximum HR, the value is 180bpm is taken (this can be configured for each heart rate monitor separately).
- No summaries or reports are generated after such training

10.   Exporting HR data from training

For every trainee you can export such data after the lesson is over.

Data is sent from the heart rate monitor at various intervals. Mostly once a second, but sometimes several times a second. Sometimes once every 2-3 seconds. To make

the presentation stable, we average the data in intervals of about 5-7 seconds. This applies to on-screen presentations.

You can export these data in TCX (kind of XML format). By right-clicking on participant's name when the lesson is finished.

Additionally, you can export full data sent by heart rate monitor in CSV format, but as I wrote, they are not always exactly one second intervals.

Additionally, you can export full data sent by heart rate monitor in CSV format (Save Full HR Data), but as was wrote, they are not always exactly one second intervals.

11.   Cardio zones configuration

The system allows you to configure 5 cardio zones.

Tools → configuration → cardio zones

These zones represent in a coloristic way the heart rate of the participant in relation to its maximum value.

Zone 1: 0 to 60% of the maximum heart rate – grey

Zone 2: 61 to 70% of the maximum heart rate - blue

Zone 3: 71 to 80% of the maximum heart rate - green

Zone 4: 81 to 90% of the maximum heart rate - yellow

Zone 5: 90 to 100% of the maximum heart rate - red

Depending on the type of training and trainers' preferences, these values can be freely changed.

12.   Data backup and restore

We recommend that you back up your data periodically. This will allow you to quickly restore functionality in the event of a device failure. To make a full backup of your data, go to the menu:

File → full data backup

This allows you to save all training data, data of paired devices and participants.

Optionally, you can also back up the data of only participants or only paired devices.

More information at:

Information on personal data

The information and personal data entered into the program are saved only on your computer. They are not in any way transmitted by the application to other parties without your knowledge.

If you send training reports by e-mail, then you forward this data to the appropriate recipients via your e-mail account.

All product names, manufacturers and their technology, as well as logotypes are trademarks or registered trademarks of their respective owners and are used for informational purposes only.

You can find compatible devices used to measure the heart rate on **www.thisisant.com/directory**

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