Extended user guide
PulseOn version 1.1.6
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Getting started

1. Download the “PulseOn” application from your smartphone’s application store and install it.

2. Make sure that the Bluetooth® in your smartphone’s Settings is activated.
Device

1. Get the application
2. Wear the device
3. Exercise
4. Sync
5. Check exercise details

Screen
Button
Strap
Optical sensor
Charging connectors
Buckle
How to wear it

The easiest and quickest way to put on the device is to first fasten the strap through the buckle, then pull the device over your hand, and tighten it to have a firm but comfortable fit on the wrist.

To measure heart rate (HR) reliably it is essential that you wear the device correctly. Place it roughly a finger length away from the bone on the side of your wrist (ulna) and tighten it firmly against your skin.

The strap should be tight enough to keep the device firmly on its place throughout your exercise.

A loosely attached or poorly positioned device may lead to unreliable HR readings.
Changing / adjusting the strap

The strap is easy to remove and change if the length isn’t right for you. You will find a smaller strap inside the device sales package.

Pull the device strap to tighten it. To release the grip/loosen the strap, lift the moving buckle part and pull the strap base.

REMOVING THE STRAP

Remove strap from device by opening the velcro closure.

The buckle is easy to remove by pulling the strap out of the hooks. When re-attaching strap, slip it first to the longer hook.

FASTENING THE STRAP

Pass the strap first over the buckle

Align the moving part and the fixed part of the buckle and slide the strap through the appearing opening.
Turning on/off the device

Press the button for three seconds and the device will turn on. If it doesn’t, connect the device to the device charger for 1 hour and try again.

Turn off the device by pressing the button for five seconds.
Charging your device

To charge the device, connect the charger clip with the device. Both the device and the clip have a pair of connector tabs that need to be joined (marked by arrows in the picture).

The charger clip comes with a USB cable that can be connected to your computer’s USB slot or any USB charger head to get the needed energy to charge the device.

Checking your device battery level

Check your device battery level by pressing 📄 for 3 seconds.
Press any button to return.

- Full
- 2/3 left
- Low (1h left)
- Critical (10 min left)
How to use it

The device has two modes, the **STANDARD MODE** for everyday life and the **SPORT MODE** to record your exercise details.

By recording your exercise details, you will get meaningful feedback and coaching from the PulseOn application.
Standard mode

The **STANDARD MODE** is used when you are not exercising. You can use the device as a watch, to check your current resting heart rate and to see the stats of your latest exercise.

Browse through the screens by pushing the button.

When checking your heart rate in **STANDARD MODE**, keep your hand still. Hand movements will slow down the search for the heart rate signal.

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**STANDARD MODE**

- **Time**: 14:30
- **HR check**: 45
- **Heart rate**: 2.4
- **Latest stats**:

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Note that your heart rate in **STANDARD MODE** will not be recorded in the device memory. To record HR data, use **SPORT MODE**.
Sport mode

**THE SPORT MODE** is used during exercise to monitor HR. When exercising outdoors with phone GPS on, you will also get your exercise distance recorded. All data in **SPORT MODE** will be saved and automatically uploaded to the PulseOn application for further analysis.

To browse through the screens, use the button.

Check p.27 for instructions on how to extend your device’s battery life. (Power saving)
Recording your exercise details

1. Get the application
2. Wear the device
3. Exercise
4. Sync
5. Check exercise details

Start by pressing 🔄.

When entering **SPORT MODE**, the device will first search for your heart rate. This will take 10-30s. To speed up the search, keep your hand still until the HR is found. After that, our intelligent algorithms will track your HR despite your movements.

3. 0:00 🔁 (Cancel and go back)

When the stopped timer clock appears on the screen, the device is ready to start recording your exercise data. Press 🔄 to start.
Marking laps

When the device is in **SPORT MODE**, you can create lapmarkers by pressing twice. (Note that the second press has to be made within 2 seconds of the first press, otherwise the lap won’t be marked.)

The device will show you briefly the number and duration of the latest lap.

After finishing your event, all the laps will be collected on the Distance tab of the Latest Event page in the PulseOn app. (see p.22)
End exercise recording

You can end the event by pressing 🔄.

You can then choose to cancel and return with the same button or confirm ending by pressing 🔄.
Using GPS to get speed/distance data

To get speed/distance data (used also for Fitness level value), follow these easy steps:

1. Turn phone GPS on, open the PulseOn application and take the phone with you.
2. Record your exercise details with the wrist device.
3. The GPS data of your exercise will be integrated in the application feedback and summaries.

Your personal exercise feedback gets more accurate when you record your exercise with your phone GPS on.
Using the PulseOn device with a third party app (iOS & Android)

If you want to use the PulseOn wrist device with third party applications. (“HR-only mode”). In this case simultaneous use of PulseOn Application is not recommended.

**NOTICE! Available for iOS and Android phones supporting Bluetooth LE / Bluetooth Smart.**

1. Make sure you have the latest version of the PulseOn application (1.1.6 or higher) installed and your device SW is updated.

2. Press and hold both device buttons for 20 seconds (the device will reset itself), then press the right button for 3 seconds to turn on the device again. Your device will then be ready to be paired with 3rd party applications.

3. Open your 3rd party application’s settings and find PulseOn under the Bluetooth Smart settings list and pair it. Your PulseOn device will now send your HR data automatically to the 3rd party app!
Using the PulseOn device with both; third party app & PulseOn app (iOS only)

NOTICE! Available for iOS phones supporting Bluetooth LE / Bluetooth Smart.

1. Open your PulseOn application and let your PulseOn device sync.

2. After syncing with PulseOn app you can open the 3rd party app.

3. Connect your PulseOn device with your 3rd party application.

4. Start event from PulseOn device and 3rd party application before training.

5. To save battery, turn off the event from PulseOn device after training session.
Additional screens

Here are some of the other screens and use cases you might need when using the PulseOn device:

- You will see a blinking line when the device is searching for your heart rate.
- The line will stop blinking if the device cannot detect your heart rate signal.
- Check your device battery level by pressing 🍃 for 3 seconds. Press any button to return.
- If you need to pair your device with a new phone, press both buttons for 7 seconds.
  **NOTICE!** When you see this screen, stop pressing the buttons. If you keep on pressing, the device will reset itself.
- You will see this progress bar when the device SW is being updated.
- This screen means that your device has lost its time/date settings and it needs to be synced. Open the PulseOn application and the device will be synced automatically.
- The line in this screen will blink when the device is searching for a GPS fix.
- If the device cannot get a GPS fix, the line will stop blinking.
- You will see this screen if the device cannot connect to your phone during GPS check.
- This screen means that the device is broken and needs to be returned to your local retailer.

To find more about how to use these screens, refer to Troubleshooting at p.34.
Syncing

After ending your exercise, open the PulseOn application and the device will automatically transfer your exercise data and give you a summary. The application will also give you written feedback based on your performance.

Make sure that your mobile phone’s Bluetooth connection is on!
PulseOn Application

The application consists of 3 basic screens, the **home page** in the middle, the **latest event page** on the left and the **history page** on the right.

You can navigate through these pages by swiping left and right.

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### Latest event page

- **Date:** 2.4.2014 17:43
- **Time:** 13:52
- **Intensity:** High
- **Duration:** 1:15
- **Distance:** 20 km
- **Calories:** 540 kcal

**Training Effect:** 4.2

*Highly improving*

*This exercise has a very good effect on your overall fitness.*

**Time to full recovery:** 12:30 (50%)

**Next workout:** Today, an easy 60 min workout (Target TEF 3.6) is best for you. For example, run 7.8 km.

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### Home page

- **Date:** 2.4.2014
- **Time:** 13:52

**Training Effect:** 4.2

*Highly improving*

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### History page

<table>
<thead>
<tr>
<th>Week</th>
<th>Event</th>
<th>Duration</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 13 / 2014</td>
<td>3/28</td>
<td>01:37</td>
<td>7.2 km</td>
</tr>
<tr>
<td>Week 12 / 2014</td>
<td>3/20</td>
<td>00:45</td>
<td>7.2 km</td>
</tr>
<tr>
<td>Week 11 / 2014</td>
<td>3/18</td>
<td>00:53</td>
<td>7.2 km</td>
</tr>
<tr>
<td>Week 10 / 2014</td>
<td>3/15</td>
<td>00:15</td>
<td>7.2 km</td>
</tr>
</tbody>
</table>

---
The home page

This page shows the date, duration, Training Effect and Recovery Time of your latest event. On the bottom of the page you will find a coaching message based on your training history.
Latest event page

This page gives you more details about your sport event, for example verbal coaching based on the training effect of your sport event.

Change the information focus by pressing the buttons on the bottom of the page.
Landscape view

Turn your smartphone landscape and get a more profound analysis of your sport event details.

Landscape view available for all screens.
History page

On the history page you can check all the details of your past exercises either as a full summary or as a list of your past week, month or year. Use the tabs on the top of the page to change the view.

You can also navigate to a full summary by pressing a single exercise in the list view.

You can delete an exercise from the application memory by pressing and holding it until the delete button appears.
Progress

Check your training progress from the landscape view of your history page.

Your fitness level change will only appear on a month/year level, since it changes slowly.
Settings

Note that your personal settings affect your exercise analysis, so make sure you give us accurate information about yourself.

In the settings page you can customize your application by changing units and other country related settings.

If you have doubts about the terms used in the application, go under settings and tap on “Support” > “Terminology”.

Tap this icon for settings
Device screen settings

For longer events and sports during which you don’t need to know your exercise details frequently, we recommend using the **SPORT MODE** Power save option.

Open the device screen settings from the app settings menu and choose the “Power save” option. You can still check your details by pressing any button. The screen will turn off automatically after a few seconds.
Device software update

The application will automatically inform you when a new device software update is available. The application will then ask you if you wish to start the update immediately.

If you choose "YES", follow the instructions.

If you choose "NO" you can update the software later from the Settings.

Mandatory software update

Sometimes the device will require an immediate software update. You will need to connect your device to the charger before starting the update.
Terminology

You can find brief explanations of all terms used in the application under the settings button.

This section of the extended guide is going to explain them more thoroughly and give some insights to training.

- Training effect?
- Training intensity?
- Recovery time?
- Fitness level?
Training Effect allows you to discover how effective your exercise actually is, i.e. what is the effect on your fitness level. Training Effect is personalized to your fitness level, therefore performing the same workout, less fit will end up with higher value as the workout’s impact to body has been greater compared with more fit.

While you use the device, personalization is done automatically on the background based on your observed fitness level and workout data.

What is Training Effect?

Training Effect measures workout’s impact on aerobic fitness at a scale of 1.0-5.0. Low intensity makes Training Effect accumulate slower and higher intensity faster.

<table>
<thead>
<tr>
<th>Training Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>No Training Effect</td>
</tr>
<tr>
<td>1.0-1.9</td>
<td>Helps recovery (short activities). Improves endurance with longer activities (more than 40 minutes).</td>
</tr>
<tr>
<td>2.0-2.9</td>
<td>Maintains your aerobic fitness</td>
</tr>
<tr>
<td>3.0-3.9</td>
<td>Improves your aerobic fitness if repeated as part of your weekly program.</td>
</tr>
<tr>
<td>4.0-4.9</td>
<td>Highly improves your aerobic fitness if repeated 1-2 times per week with adequate recovery time</td>
</tr>
<tr>
<td>5.0</td>
<td>Causes temporary overload with high improvement. Train up to this number with extreme care. Requires additional recovery days.</td>
</tr>
</tbody>
</table>

Person with low fitness level

Person with high fitness level

<table>
<thead>
<tr>
<th>Training Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.9</td>
</tr>
<tr>
<td>2.2</td>
</tr>
</tbody>
</table>
What is Training Intensity?

It describes the relative training intensity of your exercise scaled to your maximal performance.

The chart below will tell you how the different intensity levels feel like and who they are recommended to.

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Recommended</th>
<th>Feels like</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All from beginners to very fit</td>
<td>Very light, slow walking</td>
</tr>
<tr>
<td>2</td>
<td>All from beginners to very fit</td>
<td>Light, can be kept on for hour(s)</td>
</tr>
<tr>
<td>3</td>
<td>All from beginners to very fit</td>
<td>Starts to feel in breathing but still able to talk, can be well sustained up to an hour</td>
</tr>
<tr>
<td>4</td>
<td>For moderately fit</td>
<td>Already winded but can be sustained for a longer time</td>
</tr>
<tr>
<td>5</td>
<td>Only for fit</td>
<td>Heavy breathing, can be sustained only for few minutes</td>
</tr>
</tbody>
</table>
Recovery time tells you when your body is fully recovered from the previous effort. This helps you plan the timing of your workouts optimally and ensure sufficient balance for training and recovery.

Recovery in progress. Maybe take it easy, for example Training Effect < 3.0

Completely ready for next exercise, for example Training Effect > 3.0
Fitness level shows if you are keeping fit or even getting fitter as a result of your exercises. When you exercise successfully and your fitness increases, as a reward you’ll see the number also improving across weeks and months.

The fitness level result is shown to you as compared to the average of people of your age and gender.

**VO2max**

Fitness level is based on a measure called VO2max (maximal oxygen consumption). It indicates your body’s capacity to deliver oxygen to muscles and the level of your body’s capability for aerobic exercise, such as jogging, running or cycling.

It is a golden standard measure for fitness level.
Troubleshooting

My Fitness Level estimate seems inaccurate. What should I do?

The Fitness Level test is validated against golden standard VO2Max tests and on average it is accurate to estimate Fitness Level in most individuals. However, if for some reason the heart rate or speed data has been inaccurate during the test, the Fitness Level may also be erroneous. Furthermore, if the terrain has been containing a lot of uphill or downhill or if your speed has been very varying during the test the accuracy of the VO2Max estimation may be compromised. Also, your real fitness level does vary depending on external or internal factors, such as tiredness etc.

Please repeat the tests as instructed and see if the result changes. For most accurate results, repeat this for a couple of times while you are training.

Calories and Training Effect do not seem correct. What should I do?

Calorie and Training Effect estimation are highly related to your Fitness Level estimate. If your Fitness Level has not been estimated, or if your Fitness Level has for some reason been not estimated correctly, Calories and Training Effect may also be under- or overestimated. Please complete the Fitness Level test as instructed and enjoy more accurate results!

My heart rate value does not seem reliable to me. What should I do?

For reliable heart rate monitoring, the contact between the skin and the sensor needs to be firm. Please make sure that you have positioned the device correctly, at least 1-2 finger widths from the ulna bone towards your wrist. If you have tried this already, you may also try placing the sensor even more towards the elbow, some 5-8cm from the ulna bone. In some cases the wrist anatomy does not provide solid skin-sensor contact when the sensor is placed too close to wrist and that causes compromised reliability.

PulseOn sensor measures your blood perfusion close to skin on your wrist. In cold conditions, when the skin is cold, the blood perfusion close to skin may be dramatically reduced or even stopped, and despite its advanced technology, this may affect also PulseOn sensor. For optimal results also in cold conditions, warm up some minutes before your actual training (this is also recommended for best training results!) and wear proper clothing to prevent extremely cold skin.

Make also sure that the strap tightness is optimal – the device should be firmly against your skin even during rapid hand movements. Also, try to avoid (if possible) fast hand movements – for example, in racket sports, use PulseOn in the opposite hand to your racket.
Troubleshooting

The device does not react at all, not even to charging

Sometimes it is possible that the device has drained its battery on very low level. In this case please put it on charger and after a couple of minutes charging icon should appear.

   If this does not help, you can reset the device. Please press both buttons for 20 seconds. After this press right button for 3 seconds to turn the device on. The device will turn on into “HR-only”-mode. Press both buttons for 6 seconds to enter pairing mode and pair with your mobile device.
   (If you are using iOS please see how to re-pair Bluetooth.)

Pairing problem. My application does not synchronize with the device?

   First check that your mobile phone has Bluetooth turned on.

   **Android:** Please do the following steps in Android to fix the Bluetooth connection:
   1. Close the application. Long-press the middle bottom button on your phone. When the application list opens just swipe the application to close it
   2. Go to phone settings / Connections / Bluetooth
   3. Un-pair the Bluetooth with PulseOn if this is already on the list
   4. Put the PulseOn device on pairing mode. This is done by pressing both buttons down for 6 seconds when the screen is on

   **iOS:** Please do the following steps in iOS to fix the Bluetooth connection:
   1. Close the application. Long-press the middle bottom button on your device. When the application list opens just swipe the application to close it
   2. Go to your iPhone settings and choose Bluetooth
   3. On the Bluetooth devices list select PulseOn (tap letter i next to it) and choose ‘Forget this Device’
   4. Open your PulseOn application
   5. Please put the device in pairing mode by pressing both buttons for 6 seconds
   6. Application will soon ask to pair with the PulseOn device

Pairing problem. My PulseOn device shows pairing screen, but nothing happens?

   First check that your mobile phone has Bluetooth turned on.

   **iOS users:** You need to unpair previously paired PulseOn device from the Bluetooth settings.
   1. Go to your iPhone settings and choose Bluetooth
   2. On the Bluetooth devices list tap (i) PulseOn and choose ‘Forget this Device’
   3. Open your PulseOn app and it will soon ask to pair with the PulseOn device
PRODUCT USE AND SAFETY

Please read this section carefully. Failure to follow these instructions may void the product warranty.

- Consult your physician or healthcare provider before starting an exercise program or weight reduction.
- PulseOn provides very accurate heart rate measurements. However, it is not a medical device. All the information provided by PulseOn are indicative and include margin of error.
- This product is intended to measure HR during exercises such as running, walking, cycling and other daily activities. In racket sports such as tennis and badminton the measurement accuracy is affected by hand movements.
- Clean sensor area regularly with water to maintain optimal performance.
- The product is waterproof (IPx7) until one meter. Therefore do not use product when diving.
- Keep product out of the reach of small children.
- Do not attempt to remove the battery from the device.
- Do not use a damaged USB cable.
- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas (over 45˚ C or 113˚ F).
- Do not store the device in cold areas (Under 5˚ C or 41˚ F).
- Do not open the device.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Use and standby times are estimates only. Actual times are affected by, for example, device settings, features being used, battery condition, and temperature.

LIMITED WARRANTY

PulseOn Inc. ("PulseOn") warrants that this product is free from defects in material and workmanship that result in Product failure during normal usage, according to the following terms and conditions.

1. The limited warranty for the Product extends for ONE (1) year beginning on the date of the sale of the Product to the original purchaser ("Consumer") of the Product.

2. During the limited warranty period, PulseOn will repair, or replace, at PulseOn sole option, defective parts, or parts that will not properly operate for their intended use, with new or refurbished parts if needed because of product malfunction or failure during normal usage. The limited warranty does not cover defects in appearance, cosmetics, decorative or structural items including framing and non-operative parts, and expenses related to removing or reinstalling the Product. PulseOn does not warrant uninterrupted or error-free operation of the Product.

3. Consumer shall have no coverage or benefits under this limited warranty if any of the following conditions are applicable:
   1. The Product has been subjected to physical abuse, exposure to water over 1m depth, abnormal use, abnormal conditions, improper storage, unauthorized modifications, unauthorized connections, unauthorized repair, misuse, neglect, improper installation, shipping damage or other acts which are not the fault of PulseOn.
   2. The product has been damaged from external causes such as collision with an object, or from fire, flooding, sand, dirt, windstorm, lightning, earthquake or damage from exposure to weather conditions, theft, or improper use of any electrical source, or damage caused by software viruses, bugs, worms, Trojan Horses, or by connection to products not recommended for interconnection by PulseOn.
   3. PulseOn was not advised in writing by Consumer of the alleged defect or malfunction of the Product within fourteen (14) days after the expiration of the applicable limited warranty period.

4. If warranty repair is needed, Consumer should contact PulseOn for instructions for returning the Product (See www.pulseon.com/support). PulseOn will repair or replace the Product within thirty (30) days after receipt of the item and a copy of an itemized receipt showing the date of purchase. PulseOn may, at its sole option, refund the price paid by Consumer less a reasonable amount for usage. PulseOn is not responsible for any loss of data during repair.
5. Any implied warranty of merchantability, or fitness for a particular purpose or use, shall be limited to the duration of the foregoing limited written warranty. Otherwise, the foregoing limited warranty is consumer’s sole and exclusive remedy and is in lieu of all other warranties, express or implied. Pulseon shall not be liable for special, incidental or consequential damages, including but not limited to loss of anticipated benefits or profits, loss of savings or revenue, loss of data, punitive damages, loss of use of the product or any associated equipment, cost of capital, cost of any substitute equipment or facilities, downtime, the claims of any third parties, including customers, and injury to property, resulting from the purchase or use of the product or arising from breach of the warranty, breach of contract, negligence, strict tort, or any other legal or equitable theory, even if Pulseon knew of the likelihood of such damages. Pulseon shall not be liable for delay in rendering service under the limited warranty, or loss of use during the period that the product is being repaired.

6. Under no circumstances shall Pulseon liability under this limited warranty exceed the actual cash value of the product at the time consumer returns the product for repair, determined by the price paid by Consumer for the Product less a reasonable amount for usage.

7. Pulseon neither assumes nor authorizes any authorized service center or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty. This is the entire warranty between Pulseon and Consumer, and supersedes all prior and contemporaneous agreements or understandings, oral or written, relating to the Product, and no representation, promise or condition not contained herein shall modify these terms. This limited warranty allocates the risk of failure of the product between Consumer and Pulseon. The allocation is recognized by Consumer and is reflected in the purchase price.

* Pulseon is a registered trademark of Pulseon Inc.

REGULATORY INFORMATION

We, Pulseon declare under our sole responsibility that the product is in conformity with the provisions of the following Council Directive: 1999/5/EC. A copy of the Declaration of Conformity can be found at http://Pulseon.com/declaration_of_conformity/.

FCC regulatory information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user’s authority to operated the equipment under FCC rules.

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Bluetooth™ Smart is a registered trademark of Bluetooth SIG, Inc.

The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of-life. Do not dispose of these products as unsorted municipal waste.

IC Statement

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B)/NMB-3(B)