Polar Tempo™ Heart Rate Monitor

User's manual

Manufactured by:
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www.polar.fi
CONGRATULATIONS on purchasing the Polar Tempo Heart Rate Monitor. We are proud to assist you in achieving your personal fitness goals.

This guide will provide you with the basic information on how to exercise with your Polar Heart Rate Monitor and how to get the maximum benefit from its functions.

Thank you for choosing Polar.

VISUAL CUES TO READ THIS GUIDE

Indicates important issues. Please, pay attention!

Indicates a useful tip. It is good to know these things.

See also.

IMPORTANT TO REMEMBER!

• Adjust the strap length snug enough and wet the Polar Transmitter electrodes to ensure flawless heart rate measurement.

• Do not bend or stretch the transmitter.

• Wash and dry your transmitter regularly after use; never store it wet.

• Keep the Polar Heart Rate Monitor out of extreme cold and heat.

How Does Polar Tempo Work

POLAR TEMPO PARTS

Your Polar Tempo consists of three parts:

1. Polar T31™ Transmitter
   • Grooved electrode areas

2. Elastic strap

3. Polar Tempo wrist receiver

POLAR TEMPO SYMBOLS

The flashing heart: Ongoing heart rate measurement. The heart symbol flashes at the pace of your heart.

Elapsed exercise time. The symbol runs during heart rate measurement.

The middle spot appears after 30 minutes of exercise time which is a recommended daily exercise quota.

The total exercise time in hours and minutes. The heart rate measurement has been stopped.

The total exercise time in hours and minutes. The exercise has lasted more than 30 minutes if the middle spot is displayed.

Heart rate measurement is off.
**GETTING GOING**

1. Attach the Polar Transmitter to the elastic strap.

2. Adjust the strap length to fit snugly and comfortably. Secure the strap around your chest, below the chest muscles. Lock the buckle.

3. Raise the transmitter a little off your chest and **wet the grooved electrode areas on the back** of it. It is important that the electrodes are wet during exercise.

4. Check that the wet electrode areas are firmly against your skin and the Polar logo is in a central upright position.

5. Wear the wrist receiver as you would wear an ordinary watch.

Alternatively, if you go biking, you may attach the wrist receiver to a Polar Bike Mount™.

**Polar Books and Accessories**

Keep the wrist receiver within the transmission range (1 metre/3 feet).

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**Start the Heart Rate Measurement**

1. Wear the Polar Transmitter and the Polar Tempo wrist receiver as described in the chapter Getting going. Remember to wet the electrodes of the transmitter.

2. Bring the face of the wrist receiver up to your chest near the transmitter’s Polar logo.

   - The elapsing exercise time symbol starts running.
   - The exercise time appears in the display.

3. Bring the wrist receiver away from your chest.

   - A flashing heart appears in the heart shaped frame in 5 seconds.
   - Your heart rate (in beats per minute) appears in the display.

4. You are ready to start your workout with Polar Tempo!

   If you wish to wear a watch at the same time when exercising with Polar Tempo, it is recommended that you wear the Polar wrist receiver and your watch on different wrists to avoid interference.

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**Start the heart rate measurement by the Heart Touch**

- no buttons,
  only touch and go.
Functions during Heart Rate Measurement

SEE YOUR HEART RATE

You can see your heart rate in beats per minute. A flashing heart symbol indicates an ongoing heart rate measurement. The inner heart symbol flashes at the pace of your heart.

CHECK ELAPSED EXERCISING TIME

1. Bring the face of the wrist receiver up to your chest near the transmitter’s Polar logo.
2. Hold the wrist receiver in this position 15 seconds.
   After about 10 seconds, the exercise time starts flashing for 5 seconds.
   The exercise time will be reset to 0:00.
   When you move the wrist receiver further away from the transmitter the exercise time starts running again from 0:00.

   A flashing elapsed time is a pre-warning that you are soon about to reset it. If you bring the wrist receiver further from the transmitter during the flashing, the elapsed time will not be reset.

Stop the Heart Rate Measurement

Remove the transmitter from your chest.
1. The exercise time and its symbol will continue running a 1-minute-check to ensure the heart rate measurement has been stopped.
2. Polar Tempo subtracts the 1-minute-check time from the elapsed time.
3. The total exercise time (in hours and minutes) is displayed for 9 minutes.
4. The wrist receiver turns itself automatically into the OFF mode after 9 minutes.

After exercising, to preserve the electrodes and battery life:
1. Wash the transmitter carefully with a mild soap water solution.
2. Rinse it with pure water.
3. Dry the transmitter carefully.

TEMPO MAN/GBR/C 27.12.2000, 14:54
Any physical activity that increases heart rate above the resting heart rate may provide health benefits. It is recommended that all people should accumulate at least 30 minutes of endurance-type physical activity every day, including climbing stairs, brisk walking etc. But only greater increments above resting heart rate are associated with both health and fitness benefits.

Resting heart rate is the heart rate after a person has rested, either sitting or lied down, for 5 - 15 minutes, breathing deeply and relaxing muscles.

If you are a beginner, sedentary or overweight, a recommended target is to exercise at light or light to moderate intensity. At this target, the exercise is easy-paced and causes only slight breathlessness and sweating.

If you aim for improved fitness or exercise for competitive reasons, your exercise intensity is moderate or heavy paced, and it causes clear breathlessness and sweating.

Target zones are typically calculated using the person’s maximum heart rate as a reference. The most reliable way to determine your individual Target Zone is to have your maximum heart rate measured at an exercise stress test. For more information on an exercise stress test, consult your physiologist or doctor.

However, according to ACSM (American College of Sports Medicine) most people can estimate their maximum heart rate by the formula:

\[
220 - \text{Age} = \text{Maximum Heart Rate}
\]

For example a 35-year old person’s Maximum Heart Rate would be:

\[
220 - 35 = 185 \text{ beats per minute.}
\]

The following Target Heart Rate Zone Chart helps you find the right Target Zone for your needs. The percentages for the Target Zones are counted from the maximum heart rate (measured or predicted).
How to find your Target Zone?

If you have had your maximum heart rate measured, use the upper axis for measured HR\(_{\text{max}}\). This gives you the precise values for your Target Zone. In case you do not know your exact maximum heart rate, use the lower axis for age.

1. Locate one of the four intensity targets, which would be most suitable for you. Each target is shaded differently.

2. Locate your age on the down axis or your measured maximum heart rate on the upper axis.

3. Read up from your age / read down from your measured maximum heart rate to the target you chose.

4. Draw a straight line from the upper edge of the target to the left and you will find the upper limit of your Target Zone.

5. Then draw another straight line from the lower edge of the target to the left and you will find the lower limit for your Target Zone.

6. You have now found your Target Zone. As you exercise, make sure that your heart rate stays within the Target Zone (between the lower and the upper limit) to get the maximum benefit from your workout.

See the examples above:

**Example 1:** A person, whose maximum heart rate has been measured at an exercise stress test. His HR\(_{\text{max}}\) is 170 bpm and his goal is to exercise for health at Light to Moderate Intensity. The Target Zone limits are 102 - 119 bpm.

**Example 2:** A person, who does not know his HR\(_{\text{max}}\). He is 35 years old and his goal is to improve fitness at Moderate Intensity. The Target Zone limits are 130 - 157 bpm.

**FREQUENCY OF TRAINING**

It is recommended that you exercise 3-5 times a week. You can improve your performance by increasing the frequency of training. Remember to let your body recover properly between the training sessions.

**TYPE OF ACTIVITY**

Select activities that you enjoy and vary your exercise modes. Recommended activities are all activities which use large muscle groups. To build a solid base for your aerobic conditioning, choose continuous activities such as jogging, running, walking, swimming, bicycling, rowing and cross-country skiing.

To improve your muscular endurance and strength as well as flexibility, resistance training can play an important part.
It is vital in helping to build lean muscle mass and increase cardiovascular exercise benefits. Other intermittent activities such as tennis or aerobics can also be recommended.

**STRUCTURE OF AN EXERCISE SESSION**

Begin each workout slowly and give your body a chance to warm up for at least 5 minutes so that your heart rate is below the selected Target Zone. Gradually increase the intensity of your exercise until you are in your Target Zone.

Remain in your Target Zone for the desired time. After that, gradually reduce the intensity of your exercise and let your heart rate fall below the Target Zone with a 5 minute cool-down period. Remember to stretch your muscles after the exercise session.

As an example of an exercise session for a 35-year-old person with ‘Improved Fitness’ as the target, please see the following chart.

<table>
<thead>
<tr>
<th>Target Zone cool down</th>
<th>Resting</th>
<th>Warm up</th>
<th>Target Zone</th>
<th>cool down</th>
<th>Resting</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-10 min</td>
<td>5-10 min</td>
<td>20-60 min</td>
<td></td>
<td>5-10 min</td>
<td></td>
</tr>
</tbody>
</table>

Heart Rate/Beats Per Minute

150

130

TARGET ZONE

It is recommended by ACSM that the exercise session would last 20-60 minutes in the aerobic zone.

**REFERENCES**


Developing a Personal Exercise Program

Before beginning, you should ask yourself two key questions:
- How much time do I spend today participating in physical activity?
- What are my goals?

The following steps help you answer the two key questions, get the most out of your Polar Heart Rate Monitor, and achieve your personal exercise goals.

CLASSIFY YOURSELF BY LEVEL OF ACTIVITY

You may have a clear understanding of your present physical condition. In this case you can move to the next step to specify your goals. You can also define the amount of your physical activity by answering the questionnaire which is modified from the “Code for Physical Activity” developed by NASA/Johnson Space Center (Jackson et al. 1990).

The questionnaire is an easy and quick way to define whether you are a beginner, a moderate exerciser, an active exerciser or a serious exerciser. It is recommended to review the questionnaire every 1-2 months and revise if the amount of your physical activity has changed.

Which alternative best describes your general activity level for the previous month?

**A beginner** who does not participate regularly in programmed recreational sports or heavy physical activity.
- Avoid walking or exertion whenever possible.
- Walk for pleasure, routinely use stairs, occasionally exercise sufficiently to cause heavy breathing or perspiration.

**A moderate exerciser** who participates regularly in recreation or work requiring modest physical activity, such as golf, gymnastics or yard work.
- 10 to 60 min. a week
- Over one hour a week

**An active exerciser** who participates regularly in heavy physical exercise such as jogging, swimming, cycling or engages in vigorous aerobic activity type exercise such as tennis.
- Run less than 1 mile a week or spend less than 30 min. a week in comparable physical activity.
- Run 1 to 5 miles a week or spend 30 to 60 min. a week in comparable physical activity.

**A serious exerciser** who participates in a regimented workout program consisting of heavy physical exercise.
- Run 5 to 10 miles a week or spend 1 to 3 hours a week in comparable physical activity.
- Run over 10 miles a week or spend over 3 hours a week in comparable physical activity.
DETERMINE YOUR EXERCISE GOALS

It is easier to stay motivated when you determine your reason for exercising and establish a goal. That is why you should determine your personal exercise goal very clearly. Your goal may be one of these:
- Get used to regular physical exercise
- Lose or maintain weight
- Maintain or improve health
- Maintain or improve fitness
- Compete with yourself
- Achieve competitive results

EXAMPLES OF EXERCISE RECOMMENDATIONS

Recommendation for a beginner:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Duration in Target Zone</th>
<th>Times a week</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve fitness</td>
<td>15-40 min. at a time</td>
<td>2-4</td>
<td>Light</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Light to moderate</td>
</tr>
</tbody>
</table>

Recommendations for a moderate exerciser:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Duration in Target Zone</th>
<th>Times a week</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain fitness</td>
<td>20-40 min. at a time</td>
<td>2-4</td>
<td>Light to moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Moderate</td>
</tr>
<tr>
<td>Improve fitness and</td>
<td>30-60 min. at a time</td>
<td>2-4</td>
<td>Light to moderate</td>
</tr>
<tr>
<td>lose weight</td>
<td></td>
<td>1</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

Recommendations for an active exerciser:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Duration in Target Zone</th>
<th>Times a week</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain fitness</td>
<td>30-60 min. at a time</td>
<td>2-4</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Heavy</td>
</tr>
<tr>
<td>Improve fitness</td>
<td>60-90 min. at a time</td>
<td>2-4</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Heavy</td>
</tr>
</tbody>
</table>

Recommendation for a serious exerciser:

Have your maximum heart rate measured at an exercise stress test and find your personal Target Zone to get the maximum benefit from your training sessions. For more information on heart rate monitoring

Polar Books and Accessories

Exercise may include some risk, especially for those who have been sedentary. To minimise possible risks consider the following advice.

Before beginning a regular exercise program consult your doctor
- if you are over 35 years of age and have not been following a regular exercise program during the past 5 years
- if you smoke
- if you have high blood pressure
- if you have high blood cholesterol
- if you have any signs or symptoms of any disease
- if you are recovering from a serious illness or a medical treatment e.g. surgery
- if you use a pacemaker or another implanted electronic device.

Note also that the heart rate can be affected by, amongst others, heart, circulation (particularly high blood pressure) and asthma medications, as well as some medicines used as sprays for the breathing system and also some medical plasters and chewing gum containing nicotine.
BATTERIES

POLAR TRANSMITTER
The estimated average battery life of the Polar Transmitter is 2500 hours of use. Contact your distributor or dealer for a transmitter replacement.

Service for detailed instructions.

Polar recycles used transmitters.

POLAR TEMPO RECEIVER
The estimated average battery life of the Polar Tempo wrist receiver is 1 year in normal use (2h/day, 7 days a week). However, because the battery is inserted at the factory, the actual life of your first battery once in your possession may be less than the estimated battery life.

Do not open the Polar wrist receiver yourself. To ensure the water resistance properties and the use of qualified components, the wrist receiver battery should be replaced only by a person authorised by Polar Electro Oy. At the same time a full periodic check of the Polar Heart Rate Monitor will be done.

Service for detailed instructions.

Care and Maintenance

Your Polar Heart Rate Monitor is a high-tech instrument of superior design and workmanship and should be treated with care. The suggestions below will help you fulfill the warranty obligations and enjoy this product for many years to come.

TAKING CARE OF YOUR POLAR HEART RATE MONITOR

• Wash the Polar Transmitter regularly after use with a mild soap and water solution. Dry it carefully after washing.

• Never store the transmitter wet. Sweat and moisture can keep its electrodes wet and the transmitter activated, which shortens the battery life.

• Store your Polar Heart Rate Monitor in a cool and dry place. Do not store it in any kind of non-breathing material, such as a plastic bag or a sports bag, if it is wet.

• Do not bend or stretch the transmitter. This may damage the electrodes.

• Keep your Polar Heart Rate Monitor out of extreme cold (below -10 °C/14 °F) and heat (above 50 °C/122 °F).

• Do not expose the Polar Heart Rate Monitor to direct sunlight for extended periods, such as by leaving it in a car.

• Do not dry the transmitter in any other way than with a towel. Hard-handed handling may damage the electrodes.
If you stay in close proximity to a source of electromagnetic interference for longer than one minute, the heart rate measurement may stop and time registration will be interrupted. In this case go further from the source of interference and restart the measurement. Before restarting, note the elapsed time in the display, because the time registration will restart from 0:00.

CROSSTALK
The non-coded Polar wrist receiver picks up transmitter signals within 1 metre/3 feet. Therefore, when you are using your Polar Heart Rate Monitor, make sure no other transmitter is within that range. Signals from more than one transmitter picked up simultaneously can cause an incorrect readout.

EXERCISE EQUIPMENT
Several pieces of exercise equipment with electronic or electrical components such as LED displays, motors and electrical brakes may cause interfering stray signals. To try to tackle these problems, relocate the Polar wrist receiver as follows:
1. Remove the transmitter from your chest and use the exercise equipment as you would normally.
2. Move the wrist receiver around until you find an area in which it displays no stray reading or flashing of the heart symbol. Interference is often worst right in front of the display panel of the equipment, while the left or right side of the display is relatively free of disturbance.
3. Put the transmitter back on the chest and keep the wrist receiver in this interference free area.
4. If the Polar Heart Rate Monitor still does not work with the exercise equipment, that piece of equipment may be electrically too noisy for wireless heart rate measurement.

Notice for persons with pacemakers
Persons who have a pacemaker use the Polar Heart Rate Monitor at their own risk. Before starting use, we always recommend an exercise test under doctor's supervision. The test is to ensure the safety and reliability of the simultaneous use of the pacemaker and the heart rate monitor.
Frequently Asked Questions

WHAT SHOULD I DO IF ...

... THERE IS NO HEART RATE READING?
1. Check that the elastic strap is snug enough.
2. Check that the electrodes of the transmitter are moistened and that you are wearing it as instructed.
3. Check that you have kept the transmitter clean.
   Care and maintenance
4. Check that there are no sources of electromagnetic radiation in the close vicinity of the Polar wrist receiver, such as TV sets, cellular phones, CRT monitors etc.
   Precautions
5. Have you had a cardiac event which may have altered your ECG waveform? In this case consult your physician.

... HEART RATE READING BECOMES ERRATIC OR EXTREMELY HIGH?
You may have come within range of strong electromagnetic signals which cause erratic readings on the wrist receiver display. Check your surroundings and move further away from the source of disturbance. Precautions

... THE DISPLAY IS BLANK OR FADING?
Have the batteries checked. Service

... IF THE BATTERY OF THE WRIST RECEIVER MUST BE REPLACED?
We recommend having all service done by an authorised Polar service personnel. This is especially necessary to ensure the warranty remains valid and is not affected by incorrect repair procedures done by an unauthorised agent. Polar Service will test your wrist receiver for water resistance after battery replacement and make a full periodic check of the complete Polar Heart Rate Monitor. Care and maintenance/Batteries and Service.

5. Water resistance cannot be guaranteed after an unauthorised service.
Technical Specifications

Polar Heart Rate Monitor is designed to indicate the level of physiological strain and intensity in sports and exercise. No other use is intended or implied. Heart rate is displayed as number of heart beats per minute (bpm).

POLAR TRANSMITTER

Battery type: Built-in Lithium Cell  
Battery life: Average 2500 hours of use  
Operating temperature: -10 °C to +50 °C / 14 °F to 122 °F

POLAR WRIST RECEIVER

Battery type: CR 2032  
Battery life: Average 1 year (2h/day, 7 days/week)  
Operating temperature: -10 °C to +50°C / 14 °F to 122 °F  
Accuracy of heart rate measurement: ± 1% or ± 1 beats per minute, whichever larger, definition applies to steady state conditions  
Water resistance: to 20 metres

POLAR BOOKS AND BOOKLETS:

Roy Benson, MPE .................... Precision Running  
Dr. Matthew Brick ................... Precision Multi-Sport  
Edmund R. Burke, Ph.D ............... Precision Cycling  
Neil Craig ............................ Scientific Heart Rate Training  
Sally Edwards ...................... The Heart Rate Monitor Book  
Mark Fenton and Dave McGovern ..... Precision Walking  
Ute Haas, M.Sc., Tarja Suomi, M.Sc. and Dr. Raija Laukkanen, Ph.D........... Precision Aerobics  
Dr. Peter J.G.M. Janssen ............. Training, Lactate, Pulse Rate  
Dr. Katriina Kukkonen-Harjula, MD and Dr. Raija Laukkanen, Ph.D........... Precision Weight Management  
Dr. Raija Laukkanen, Ph.D .......... Research Index  
Yvonne Lin .......................... Precision Sports Aerobics  
Dr. James M. Rippe .................. Target Your Fitness and Weight Management Goals  
Dr. James M. Rippe .................. The Polar Fat Free and Fit Forever Program

POLAR ACCESSORIES

- Polar Bike Mount for all bikes and Polar Heart Rate Monitors  
- Elastic straps of different lengths  
- Extra transmitter for other family members  
- Polar Heart Bra for women

POLAR HEART RATE MONITORS

Several models of heart rate monitors by Polar are readily available for different needs of measuring the physical activity.

Ask your local dealer or distributor for more details.
Polar Service will help you get the most out of your Polar Heart Rate Monitor. Should your Polar Heart Rate Monitor need service, please follow the instructions below.

**CHECK LIST**

Before you return your Polar Heart Rate Monitor for service, please check the following:

1. **IS THE TRANSMITTER BEING WORN CORRECTLY?**
   The Polar logo should be right side up and the transmitter flat against the skin. The elastic strap should be adjusted for a snug and comfortable fit.

2. **ARE THE ELECTRODES MOIST ON THE TRANSMITTER?**
   It is important that the electrodes are wet during the heart rate measurement. If water does not ensure the flawless transmission, you can use moisturising cream instead.

3. **IS THE TRANSMITTER CLEAN?**
   Regular washing with mild soap and water solution and thorough dry afterwards will ensure good conductivity.

4. **ARE YOU HAVING DISTURBANCES CAUSED BY OTHER PEOPLE WITH HEART RATE MONITORS OR MOTOR DRIVEN EXERCISE EQUIPMENT?**
   [Precautions / Polar Heart Rate Monitor and Interference](#) for more details.

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**SENDING INSTRUCTIONS**

1. Pack the product carefully to avoid damage.
2. Include all parts of the Polar Heart Rate Monitor. A full periodic check will be done on the whole product.
3. Include proof of purchase (a receipt or its photocopy) if the product is under warranty.
4. Include a detailed description of the problem. Indicate if the receiver battery should be replaced. Use the return sheet of the Customer Care Charter.
5. Include your name, return address and daytime telephone number.
6. Ship postage prepaid to your dealer or distributor. For contact information, see the Customer Care Charter.

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**POLAR’S SERVICE PROCEDURE**

Any service is recommended to be done by an authorised Polar service personnel. Our standard test and check procedure will be performed on all Polar Heart Rate Monitors. The test includes the following elements:

**POLAR TRANSMITTER**
1. Visual inspection
2. Check of the transmission range
3. Check of electrode conductivity
4. Cleaning of electrodes if necessary

**POLAR WRIST RECEIVER**
1. Visual inspection
2. Check of battery voltage
3. Re-assembly, including seal renewal if necessary
4. Water resistance test
5. Operational test
• Polar Electro Oy warrants to the original consumer/purchaser of this heart rate monitor that the product will be free from defects in material or workmanship for one year from the date of purchase. **Please keep the receipt which is your proof of purchase!**

• Warranty does not cover receiver battery, damage due to misuse, abuse, accidents or negligence of the precautions; improper maintenance, commercial use, cracked or broken cases.

• Warranty does not cover damage or consequential damage caused by service not authorised by Polar Electro Oy.

• During the warranty period the product will be either repaired or replaced at an authorised service centre free of charge.

• This warranty does not affect the consumer’s statutory rights under applicable national or state laws in force, or the consumer’s rights.

The material in this manual is for informational purposes only. The products it describes are subject to change without prior notice, due to the manufacturer’s continuous development program.

Polar Electro Oy makes no representations or warranties with respect to this manual or with respect to the products described herein. Polar Electro Oy shall not be liable for any damages, direct or incidental, consequential or special, arising out of, or related to, the use of this material or the products described herein.
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