



Polar CS400 User manual

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1. INTRODUCTION

Congratulations! You have purchased a complete training system to tailor-fit your training needs. This user manual includes complete instructions, helping you get the most out of your cycling computer.

COMPLETE TRAINING SYSTEM

Plan your exercise with Polar ProTrainer 5 software. Transfer your plans to your cycling computer.

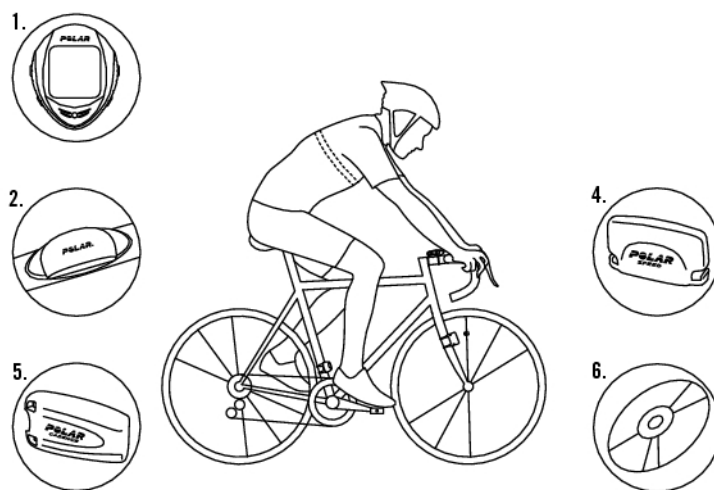
See detailed information of your exercise. Store your training data for long term follow-up and analysis in the Polar ProTrainer 5.



Your cycling computer guides you through your exercise and stores your training data. After the exercise, transfer your results to the Polar ProTrainer 5.

The latest version of this user manual can be downloaded at www.polar.fi/support. For video tutorials, go to http://www.polar.fi/en/support/video_tutorials.

2. CYCLING COMPUTER COMPONENTS



1. Polar CS400 Cycling Computer: Cycling and exercise data are recorded and displayed during exercise.
2. The WearLink®+ transmitter transmits the heart rate signal to the training computer. The transmitter consists of a connector and strap.
3. Polar Bike Mount™: Secure the bike mount to your bike and attach the cycling computer to it.
4. Polar Speed Sensor™: A wireless speed sensor measuring speed and distance during cycling.
5. Optional Cadence Sensor™: A wireless cadence sensor measuring the speed at which you turn the cranks of your bicycle, expressed in revolutions per minute (rpm).
6. CD-ROM: Including Polar ProTrainer 5™ software and a complete User Manual to help you make the most out of your cycling computer.

3. GETTING STARTED

Before activating your cycling computer, measure the wheel size of your bicycle.

Measuring Wheel Size

Wheel size settings are a prerequisite for correct cycling information. There are two ways of determining the wheel size of your bike:

Method 1

Look for the diameter in inches or in ETRTO printed on the wheel. Match it to the wheel size in millimeters in the right column of the chart.

ETRTO	Wheel size diameter (inches)	Wheel size setting (mm)
25-559	26 x 1.0	1884
23-571	650 x 23C	1909
35-559	26 x 1.50	1947
37-622	700 x 35C	1958
47-559	26 x 1.95	2022
20-622	700 x 20C	2051
52-559	26 x 2.0	2054
23-622	700 x 23C	2070
25-622	700 x 25C	2080
28-622	700 x 28	2101
32-622	700 x 32C	2126
42-622	700 x 40C	2189
47-622	700 x 47C	2220

 *Wheel sizes on the chart are advisory as wheel size depends on the wheel type and air pressure.*

Method 2

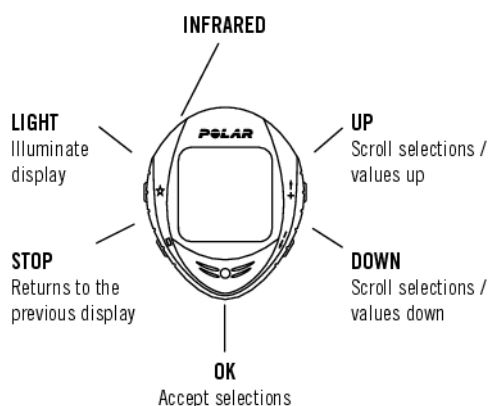
Measure the wheel manually for the most accurate result.

Use the valve to mark the point where the wheel touches the ground. Draw a line on the ground to mark that point. Move your bike forward on a flat surface for one complete rotation. The tire should be perpendicular to the ground. Draw another line on the ground at the valve to mark a full rotation. Measure the distance between the two lines.

Subtract 4 mm to account for your weight on the bike to get your wheel circumference. Enter this value in the cycling computer.


Basic Settings

Before using your cycling computer for the first time, customize the basic settings. Enter as accurate data as possible to ensure correct feedback based on your performance.



To adjust the data, use UP, DOWN and accept with OK. The values scroll faster if you press and hold UP or DOWN.

1. To activate your cycling computer, press OK twice. Once activated, it cannot be switched off!
2. **Welcome to Polar Cycling World!** is displayed. Press OK.
3. **Language:** Select **English, Deutsch, Español, Français** or **Italiano**. Press OK
4. **Start with bike settings** is displayed. Press OK.
5. Number of bikes: Select 1 or 2 depending on how many bicycles you will be using. If you only use one bicycle, settings for bike 2 can be entered later. For further information, see Bike Settings (page 29).
6. **Wheel:** Enter the wheel size (**mm**) for each of your bicycles. For further information, see Measuring Wheel Size (page 6).
7. **Start with basic settings** is displayed. Press OK and adjust the following data:
8. **Time:** Select **12h** or **24h**. With **12h**, select **AM** or **PM**. Enter the local time.
9. **Date:** Enter current date; dd = day, mm = month, yy = year. If you use imperial units, set the date; mm = month, dd = day, yy = year.
10. **Units:** Select metric (**kg/cm/km**) or imperial (**lb/ft/mi**) units.
11. **Weight:** Enter your weight. To change units, press and hold the LIGHT.
12. **Height:** Enter your height. In LB/FT format, first enter feet then inches.
13. **Birthday:** Enter your date of birth; dd=day, mm=month, yy=year.
14. **Sex:** Select **Male** or **Female**.
15. **Settings OK?** is displayed. Select **Yes** or **No**. Select **Yes** to accept and save settings. The cycling computer will display time of day. Select **No** if settings are incorrect and need to be changed. Press STOP to return to the data you want to change.

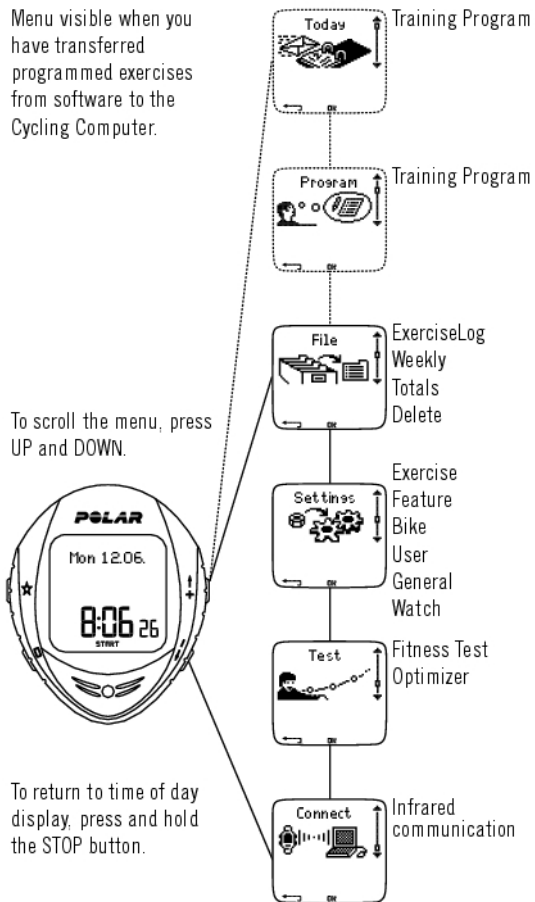
 Use the Polar ProTrainer 5 software to enter all basic settings.

Menu Structure

Menu visible when you have transferred programmed exercises from software to the Cycling Computer.

To scroll the menu, press UP and DOWN.

To return to time of day display, press and hold the STOP button.



4. PREPARE FOR TRAINING

Installation of the sensors

Polar Bike Mount and CS400 Cycling Computer

For instructions on how to install the Polar Bike Mount and the Polar CS400 Cycling Computer, consult Speed Sensor user manual.

Polar Speed and Cadence Sensors

For instructions on how to install the sensors, consult the separate Speed or Cadence user manuals.

Plan your training

Exercise Types

You can utilize the installed ready-made exercises or create new ones on your cycling computer. Plan and create more versatile exercises and transfer them to your cycling computer by using the Polar ProTrainer 5 training software. For more information on how to transfer the exercises, see ???.

Select **Settings** > **Exercise**



The **Exercises** menu shows a list of exercises.

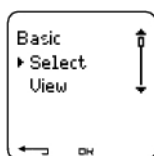
Navigate through the options with UP or DOWN




- **Free:** Free exercise with no settings.
- **Basic:** Training with moderate intensity. Duration around 45 min.
- **OwnZone:** OwnZone-based exercise with moderate intensity. The cycling computer is able to automatically determine your individual aerobic (cardiovascular) heart rate zone during warm-up. This is called OwnZone. Suggested duration 45 minutes. For further information, see ???. For additional background information, see OwnZone Training (page 42)
- **Interval:** Interval training starts with a 15-minute warm-up, followed by a 5 km interval (work phase) and a 5-minute recovery period, repeated 3 times. The session ends with a 15-minute cool-down.
- **Add new:** Create and save your own exercise. Store a total of 10 exercises + 1 Free exercise in your cycling computer.

Select the desired exercise (Free, Basic, OwnZone, Interval or Add new), and press OK, the following options are displayed:

- **Select** the exercise as a default exercise.



 *The next time you train, your cycling computer will offer this exercise as default.*

- **View** the exercise settings. Scroll UP or DOWN to view:
 1. **Basic exercise** with 1-3 exercise zones: target heart rate or cadence* limits for each zone, timer/distance for the zone, or
 2. **Exercise with phases**: name, description, target exercise time. (Press and hold LIGHT to view the exercise phases and chosen sport profile.)
- **Edit** Basic or OwnZone exercise to fit your needs. You can also edit exercise created with the cycling computer. For further information, see Create New Exercises With Your Cycling Computer (page 10). If you created exercise with the Polar ProTrainer 5 software that includes phases, you cannot edit them with the cycling computer.
- **Rename** Basic, Interval or other exercise created with the cycling computer.
- **Default** Return to default settings of Basic, Interval or OwnZone exercise.
- **Delete** exercise you created using the cycling computer or the Polar ProTrainer 5 software.

* Optional sensor required.

Create New Exercises With Your Cycling Computer

Create a New Exercise with Zones

Create your own exercise with the cycling computer.

Select **Settings > Exercise > Add new**

1. Set the number of zones for the exercise (**0-3**) and press OK. Also see Creating a New Exercise Without Zones.

2. Choose zone type:

A. Heart rate

B. Cadence*

Press OK.

A. For *heart rate*, select Sport zone, or Manual to set heart rate zone manually. Press OK.

- **Sport zone**: Select one of the sport zones (e.g. **Z1: 50-59%HR_{max}**) for your exercise. Press OK to continue to step 3.

Polar sport zones are heart rate intensity areas expressed in percentages of your maximum heart rate. Five different sport zones are set in the cycling computer as a default: **very light** (50-59% HR_{max}), **light** (60-69% HR_{max}), **moderate** (70-79% HR_{max}), **hard** (80-89% HR_{max}), and **maximum** (90-99% HR_{max}). Default HR_{max} value is age-based, but if you know your exact aerobic and anaerobic thresholds, have had your maximum heart rate (HR_{max} -p) predicted in a Polar Fitness Test™, tested your maximum heart rate yourself or in a lab, then you can define sport zones will better suit your training needs.

- **Manual**: Set the high and low zone HR limits as beats per minute (bpm) or HR% and press OK to continue to step 3.

B. If you selected **cadence* zones**, set the high and low zone limits. Press OK to continue to step 3.

- If you choose cadence as a zone type, the zones will be expressed in rounds per minute (rpm).

3. Set **Zone guide** to change zones after a specified time or distance. During your workout, the cycling computer will alert you when changing zones.

- **Timers**: Set a timer for the zone (minutes and seconds) and press OK.

- **Distances:** Set distance for the zone and press OK.
- **Off:** Deactivate timers and distances and press OK.

Once you have defined the first zone, **Zone 1 OK** is displayed. For more than one exercise zone, repeat steps 2 and 3 until all zones are defined.

When the exercise is ready, **New exercise added** is displayed. The new exercise (**NewExe**) is stored in the Exercises menu, where you can select it for your next workout. Rename the exercise by selecting **Rename** from the list.

Create a New Exercise Without Zones

To create a new exercise without zones, you can use timers or distances to guide your training.

Select **Settings > Exercise > Add new**

1. **Number of zones:** Set the number of zones to 0.
2. **Guide type:** Choose to sound a timer during workout (reminding you to drink, for example), or set a distance (for following lap times without recording them).

Timers

- **Number of timers:** Choose the number of timers (1-3) for the session. Press OK.
- **Timer 1:** Define minutes and seconds for the timer and press OK.

Distances

- **Number of distances:** Choose the number of distances (1-3) for the session. Press OK.
- **Distance 1:** Enter the distance(s) and press OK.

Repeat step 2 until you have defined timers or distances. When the exercise is ready, **New exercise added** is displayed. The new exercise (**NewExe**) is stored in the Exercises menu, where you can select it for your next exercise. Rename the exercise by selecting **Rename** from the list.

* Optional sensor required.

Create New Exercises with Polar ProTrainer 5

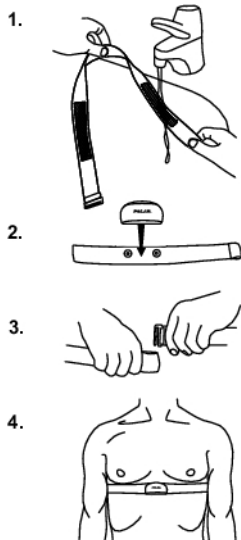
Create more diversified exercises by using Polar ProTrainer 5. For further information, consult Polar ProTrainer 5 help.

5. TRAINING

Wear the Transmitter

Wear the transmitter to measure heart rate.

1. Wet the electrode areas of the strap under running water.
2. Attach the connector to the strap. Adjust the strap length to fit tightly but comfortably.
3. Tie the strap around your chest, just below the chest muscles, and attach the hook to the other end of the strap.
4. Check that the wet electrode areas are firmly against your skin and that the Polar logo of the connector is in a central and upright position.



i Detach the connector from the strap after every use, to maximize the transmitter battery lifetime. Sweat and moisture may keep the electrodes wet and the transmitter activated. This will reduce the transmitter battery life.

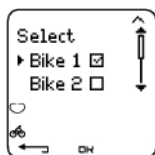
See detailed washing instructions in **Customer Service Information** chapter.

The Polar WearLink transmitter can be used with specific apparel that has built-in soft textile electrodes. Wet the electrode areas of the apparel. Clip the connector of the transmitter straight onto the apparel without the strap so that connector's Polar logo is in an upright position.


Start Training

Wear the transmitter and attach the cycling computer to the bike mount.

1. Start heart rate measurement by pressing the OK button. The cycling computer goes into pause mode.
2. Select the bike you are going to exercise with. Bike 1 is set as a default. Select **Settings > Bike > Bike 1** > OK. Select **Other** if you only want to record heart rate.



i Only the bikes that are switched **ON** are shown on this selection list. For further information see *Bike Settings* (page 29).

 *The number on the bottom, right hand corner indicates the bike that is going to be used. By pressing and holding the DOWN button, you can switch the bike quickly or switch to heart rate recording only. By pressing and holding the UP button you can switch the exercise quickly.*

3. Within 15 seconds, your heart rate appears on the display. The frame around the heart symbol indicates that transmission is coded. The cyclist symbol on the bottom, left hand corner indicates that bike 1 or 2 is in use.


If you want to change or view different exercise settings before you start training select **Settings** > **Exercise**. Select an exercise type or view exercise settings.

Exercise: Select Free, Basic, OwnZone or Interval, and press OK. (If you created new exercises, these will be listed, as well.)


Select: Set a default exercise to be performed the next time you train.

View: View exercise settings.


- **Altitude**: Calibrate altitude.
- **Rec.rate**: Set the recording rate.
- **TZ Alarm**: Switch target zone alarm sounds on or off.
- **HR view**: Choose to view heart rate in beats per minute (bpm), or as a percentage of maximum heart rate (HR%).
- **HeartTouch**: Set the HeartTouch function.
- **Bike**: Select bike 1 or 2.
- **A.Lap** (Automatic Lap): Switch the automatic lap function On/Off.
- **Arr. time**: Set the arrival time function On/Off and set the distance of your ride.
- **Display**: Modify the display. For further information, see Personalize the Cycling Computer Display (page ?).

 *Here are some shortcuts you can use, when in Exercise pause menu:*

- Press and hold UP to quickly change training session type. The default training session type is **Free** exercise.
- Press and hold DOWN to quickly change the bikes.
- Press BACK to enter to Time mode.
- Press and hold LIGHT to view the **Settings** menu

 *If you activate the AutoStart function, the cycling computer will automatically start and stop exercise recording when you start and stop cycling. For further information on AutoStart, see Autostart: On / Off (page 29). The cycling computer automatically chooses the bike you have used during the previous exercise.*

4. Start exercising by pressing OK. The exercise type is displayed in the upper left-hand corner.

 *If the following message is displayed: (Exercise name) requires Speed/ Cadence* sensor. **Turn Speed/ Cadence sensor on**, your exercise requires this sensor to display speed/ cadence* data (e.g. you have defined speed or cadence zones for the exercise). Select **Yes** to turn the sensor function on. If **Exercise displays updated** is displayed, speed/ cadence* data will be shown during exercise.*

* Optional sensor required.

Information on the Display

Your cycling computer offers you a simultaneous view of three different lines of exercise information. By pressing UP or DOWN, you can view different displays. The name of the display appears for a few seconds.

The name indicates the lower row information. The display varies depending on the sensors you have installed, which features are set **ON** and what kind of exercise you are performing.

 *Customize the cycling computer display easily with Polar ProTrainer 5 software.*

Default Views on Your Display When Using Speed Sensor



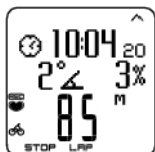
Speed
Heart rate
Trip distance
Speed in km/h



Heart Rate
Burned calories/ hour
Trip distance
Current heart rate



Stopwatch
Average heart rate
Average speed
Stopwatch



Altitude
Time of day
Incline
Altitude in meters




Graph
Heart rate graph
Altitude in graph
Stopwatch (Total duration of the exercise so far)



Zonelock
Countdown timer
Zone pointer
Current heart rate

Customize the cycling computer display to show information you want to see. See Personalize the Cycling Computer Display (page 34).

 *If a cadence sensor is installed, you have a variety of ways to display data.*

















Graph view

The graph view enables comparison in graphs of two values during exercise. For example, choose a graphical overview of your heart rate and speed.



The graph view can be customized. For the upper and middle rows, you can choose to view **Speed**, **Altitude** or **Heart rate** in graphs.

Symbols on the Display

Text on the display	Symbol	Explanation
Time of day		Time of day
Cycling symbol		Recording mode: indicates that bike 1 or 2 on and bike date is recorded.
Bike number	2	The number on right, bottom corner indicates which bike is in use during this exercise.
Key lock on		Indicates that the key lock is on.
Rec -symbol		Displayed in the exercise mode when stopwatch time is running and the recordings are on. The symbol is blinking when memory is low.
Interval icon		Indicates that Interval exercise is chosen.
Countd. Timer		Countdown timer
Lap number and time		Lap number and lap time
Lap distance*		<p>This will show the distance of the current lap.</p> <p> <i>If you record a lap time by pressing OK, it will also reset the Trip distance. This will be done automatically if the Autolap function is ON.</i></p>
Stopwatch		Total duration of the exercise so far
Heart rate		Current heart rate
Heart rate		Average heart rate
Calories		Expended calories in kcal or Cal
Distance		Distance cycled
Trip		<p>Distance between points A and B. This distance is reset every time OK button is pressed.</p> <p> <i>Pressing OK will also reset the Lap distance. This will be done automatically if the Autolap function is ON.</i></p>

Text on the display	Symbol	Explanation
Arrival time		Estimated time of arrival
Ascent		Ascended meters/ feet
Inclinometer		Uphill/downhill steepness in percentages and grades. Estimates in numerical form how steep uphill or downhill you are cycling and helps you to adjust cycling effort accordingly.
Altitude		Current altitude
Cadence*		Measures the speed at which you turn the cranks of your bicycle (i.e. cadence), in revolutions per minute (rpm).
Speed		Speed you are currently cycling on
Max speed		The maximum speed during you training
Avg speed		The average speed you are cycling on
Zone pointer (heart rate)		If the heart symbol is not visible and/or an alarm sounds, your heart rate is outside the target zone.
Zone pointer*(cadence)		If the cadence symbol is not visible and/or an alarm sounds, you are outside the target cadence zone limits.
Time in zone		Time spent on the zone

Button Functions During Exercise

Take a Lap

Press OK to record a lap. The display will show:



Lap number
Average heart rate of the lap
Lap time



Lap number
Lap distance
Average speed

Lock a Zone

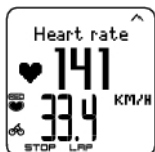
When training without preset target zones (FREE exercise), you can lock your heart rate into a sport zone. For more information see Polar Sport Zones (page 41). This way, if you haven't had time to define preset target zones prior to exercise, you can set a target zone on the go during a session.

Press and hold **LAP** (OK) to **Lock /Unlock zone**.



If, for example, you are cycling with a heart rate of 130 bpm which is 75% of your maximum heart rate, and matches sport zone 3, you can press and hold LAP to lock your heart rate into this zone. **Sport zone3 Locked 70-79** is displayed. An alarm sounds if you are below or above the sport zone (if the target zone alarm function is on). Unlock the sport zone by pressing and holding OK again: **Sport zone3 Unlocked** is displayed.

Zoom the Display



Press and hold UP to zoom into the upper row, and DOWN to zoom into the middle row. Return to the normal display by pressing and holding the button again.

Illuminate the Display (Night mode on)

To illuminate your display, press LIGHT during the exercise. Night mode is turned on, and the display illuminates automatically when any button is pressed or exercise phase is changed.

View Settings Menu

Press and hold LIGHT > **Settings**

The **Settings** menu is displayed when pressing and holding LIGHT. In the settings menu you can change certain settings without pausing the exercise recording. The contents of this menu vary according to the exercise type. For further information, see ???.

- **Prev. phase:** View summary information of the previous phase or repetition (displayed when you have created an exercise with phases with the Polar ProTrainer 5 software).
- **Keylock:** Lock/unlock buttons to prevent accidental button presses.
- **Autoscr.:** Select the Auto scroll On/ Off and displays will scroll during the exercise.
- **TZ Alarm:** Turn target zone alarm sound on/off.
- **Change zone:** Switch target zones (displayed when you have defined multiple target zones, except when an exercise with phases is created with the Polar ProTrainer 5 software).
- **HR view:** Select how to view your heart rate.
- **HeartTouch:** Select HeartTouch to view data during exercise without pressing buttons, by bringing the cycling computer near the Polar logo on the transmitter.
- **A.Lap:** Switch the automatic lap function on or off.
- **Arr. time:** Set the arrival time On/Off.

Once modify the settings, the cycling computer will return to exercise mode.

Pause Exercise

Pause exercise recording by pressing STOP.

In pause mode you can:

- **Continue:** Continue exercise recording.
- **Exit:** Stop exercise recording.
- **Summary:** View a summary of functions that were activated during exercise.
- **Settings:** Change all the same settings as during exercise. Additionally, you can also change display personalization, which cannot be done during exercise.
- **Reset:** Delete recorded exercise information. Confirm with OK and press OK again to restart recording.

- **Free mode:** Change your exercise profile to free exercise type. This does not delete the exercise you have performed, but will continue the exercise without settings. If you switch to **Free mode**, you can restart the original exercise by pausing the exercise again, and choosing **Restart P1**.

Determine Your OwnZone

For background information on Polar OwnZone®, see ???.

Select **Settings > Exercise > OwnZone**

Find your OwnZone in 1-5 minutes during a warm-up period by cycling or walking/jogging. You should start exercising gently at a light intensity and gradually increase intensity to raise your heart rate.

Redefine your OwnZone:

- When changing exercise environment or exercise mode.
- When taking up exercise after more than a week's break.
- If you are not completely sure of your physical or mental state – for example, if you are not recovered from previous training, not feeling well, or are stressed.
- After changing user settings.

Before you start determining your OwnZone, make sure that:

- Your user settings are correct.
 - The OwnZone function is activated. The cycling computer will automatically determine OwnZone every time you start exercising if the OwnZone function is on.
1. Wear the transmitter as instructed. Start measurement by pressing OK twice.
 2. When your exercise starts, **OZ** is displayed and OwnZone determination begins.

Determination of your OwnZone occurs in five stages. If the sound setting is activated, a beep will indicate the end of each stage.

OZ > Cycle at a slow pace for 1 min. Keep your heart rate below 100 bpm/ 50% HR_{max} during this first stage.

OZ >> Cycle at a normal pace for 1 min. Slowly increase your heart rate by 10 bpm/ 5% HR_{max}.

OZ >>> Cycle at a brisk pace for 1 min. Increase your heart rate by 10 bpm/ 5% HR_{max}.

OZ >>>> Cycle at a brisk pace for 1 min. Increase your heart rate by 10bpm/ 5% HR_{max}.

OZ >>>>> Cycle brisk pace for 1 min. Increase your heart rate by approximately 10 bpm/ 5 % HR_{max}.

3. Once you hear two consecutive beeps this means your OwnZone has been determined.
4. **OwnZone Updated** and the heart rate zone are then displayed. The zone is displayed in beats per minute (bpm) or as a percentage of maximum heart rate (HR%), depending on your settings.
5. If OwnZone determination was not successful, your previously determined OwnZone will be used and **OwnZone Limits** is displayed. If OwnZone has not previously been recorded, age-based limits are automatically applied.

You can now continue with your exercise. Try to keep inside the given heart rate zone to maximize exercise benefits.

Alternatively, to skip OwnZone determination and use the previously determined OwnZone, press OK at any phase of the process.

The elapsed time used for OwnZone determination is included in your recorded exercise time.

Stop Exercise

Interrupt exercise recording by pressing **STOP**. To stop recording completely, select **EXIT**.

6. AFTER TRAINING

Care for your transmitter after exercise. **Detach the connector from the strap after use.** Keep the transmitter dry and clean.

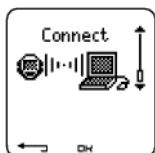
For complete care and maintenance instructions, see Care and Maintenance (page).

Analyze Exercise Results



To view basic data on your performance, see **File** on your cycling computer. For more comprehensive analysis, transfer the data to Polar ProTrainer 5 software. The software offers you different additional analysis options to analyze data with.

1. Open Polar ProTrainer 5 software.
2. Select **Connect** in the cycling computer and place the device in front of the computer's infrared window.



3. Click **Transfer Data** on the software toolbar.

For more information on transferring data, consult software help.

To view file on cycling computer

Select **File** > OK for the following options:

- **Exercise log** lists a maximum of 99 exercise files.
- **Weekly** includes summaries of the past 16 weeks.
- **Totals** shows cumulative exercise information.
- In the **Delete** menu, you can delete exercise files.

Exercise Log

Select **File** > **Exercise log**



You can view detailed information on your exercise sessions in the **Exercise log**. The following info will appear:

- Exercise name.
- A graphic bar representing an exercise session. The height of the bar indicates exercise duration.
- Date of the exercise.

Information appearing on the display (a - e displays below) depends on the settings and exercise type and settings (e.g. if your exercise does not include phases, phase information will not appear).

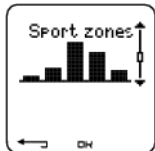
Scroll the exercise bars with UP or DOWN and press OK to view:



a. Basic information



b. Bike information



c. Sport zones information



d. Phases information



e. Laps information

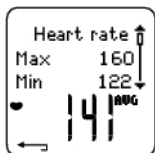
a. Basic information

Select **File > Exercise log**. Scroll UP and DOWN to select the exercise and press OK. Scroll UP and DOWN to view the following information:

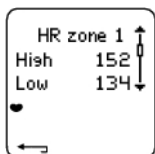


Name of exercise

Time when exercise began
Distance traveled
Total time of exercise



Heart rate in beats per minute (bpm), alternating with a percentage of your maximum heart rate (HR%).
Maximum heart rate
Minimum heart rate
Average heart rate



Target zones (HR / cadence*), alternating zone 1, zone 2, and zone 3.
Upper limit
Lower limit



Time in, above, and below zone 1/2/3 (phase name displayed in programmed exercise).

Time above zone

Time below zone

Time in zone



Calories expended during exercise.

Energy expenditure indicates overall exertion during exercise.

Press BACK to return to the basic information view.

Additional Basic Information

To add your own exercise information or delete the exercise from **File**, press and hold LIGHT in basic information view.

Select **File** > **OK** > **Exercise log** > **OK** > **Basic** > **OK**, press and hold LIGHT > **Add info** > **OK**

- **Rank:** Grade your exercise.
- **Feeling:** Evaluate your subjective feeling during the exercise.
- **Temperat.:** Set the temperature with UP or DOWN.
- **Distance:** Set the distance for Bike 1, Bike 2 or Other.

 *If you change the distance, it will effect also on the Totals distance*

b. Bike information

Select **File** > **Exercise log** > **Bike information**.



Press OK and scroll UP and DOWN to view the bike information:

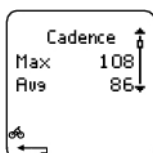


Speed

Maximum speed

Average speed

Distance



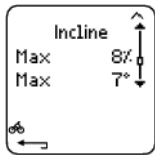
Cadence

Maximum cadence

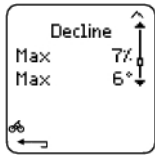
Average cadence



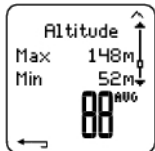
Calories per kilometer



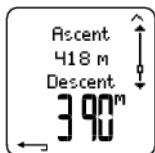
Incline
Maximum incline in %
Maximum incline in degrees



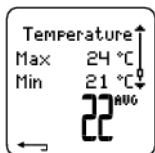
Decline
Maximum decline in %
Maximum decline in degrees



Altitude
Maximum altitude
Minimum altitude
Average altitude



Ascent/ Descent
Ascended meters/feet
Descended meters/feet



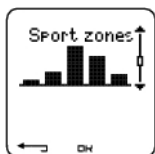
Temperature
Maximum °C degrees
Minimum °C degrees
Average °C degrees



Odometer
Bike 1 or 2
Kilometers

c. Sport Zones

Select **File** > **Exercise log** > **Basic** > **OK**



In the basic information view, press DOWN to see **Sport zones** information.



Press OK and scroll UP or DOWN to view time spent in each sport zone. Here, the variation of your sessions is presented in graphical format.

Press BACK to return to the **Sport zones** information view.

d. Phases

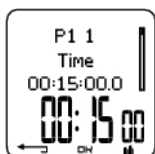
Select **File** > **Exercise log** > **Phases**

The **Phases** menu is displayed only if the exercise is created with the Polar ProTrainer 5 software and includes phases.



In the **Sport zones** information view, press DOWN to view **Phases** information. Each phase can be viewed separately.

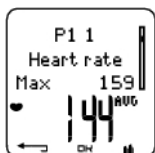
Scroll data of an individual phase by pressing OK. Compare phases by pressing UP or DOWN.



Phase name

Split time

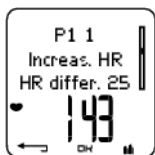
Duration of current phase



Heart rate in beats per minute (bpm), alternating with a percentage of maximum heart rate (HR%).

Maximum heart rate

Average heart rate



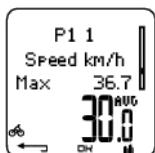
Increased HR / Recovery HR / HR differ.

The difference between heart rate at the beginning and end of the phase. Current heart rate in beats per minute (bpm), alternating with a percentage of your maximum heart rate (HR%).

Increased HR: If heart rate was lower in the beginning of the phase than it was at the end, the cycling computer will show the difference in heart rate (heart rate at the end minus heart rate in the beginning). During the working phase, the cycling computer will show the increased heart rate value.

Recovery HR: If the heart rate was higher in the beginning of the phase than it was at the end, the cycling computer will show the difference in heart rate (heart rate in the beginning minus heart rate at the end). During the recovery phase, the cycling computer will show the recovery heart rate value.

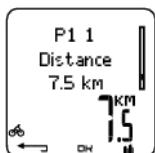
HR differ: If the heart rate value was the same at the beginning and end of the phase, the cycling computer will show an HR difference value of 0.



Speed

Maximum speed

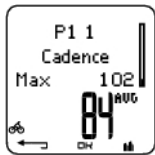
Average speed



Distance

Split distance

Distance of current phase



Cadence*
Maximum cadence
Average cadence of the current phase

Press BACK to return to **Phases**.

* Optional sensor required.

e. Laps

Select **File** > **Exercise log** > **Basic** > **Laps**

In the Phases information view, see Laps information by pressing DOWN. Laps are shown only if more than one lap is stored in the memory.



Number of recorded laps
Average lap time
Best (fastest) lap number alternating with its time

The last lap is never shown as the best lap, even if it is the fastest lap. If you are in a cycling event and wish to include your last lap, press OK on the finishing line instead of STOP. You can then stop recording after the finishing line.

Scroll lap information by pressing OK.

Compare information on different laps by pressing UP or DOWN.

For easy view of lap information, transfer the exercise file to the Polar ProTrainer 5 software and analyze the exercise in the Curve view.



Time
Split time
Lap time



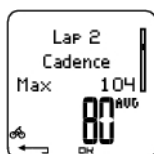
Heart rate in beats per minute (bpm) alternating with percentage of maximum heart rate (HR%).
Maximum heart rate
Average heart rate
End heart rate of lap



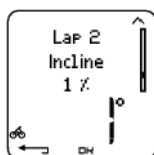
Speed min/km
Average speed
End speed of lap
Press and hold LIGHT to switch speed.



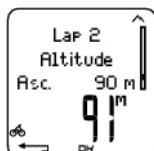
Distance
Lap distance



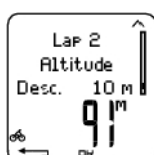
Cadence*
Maximum
Average cadence of the lap



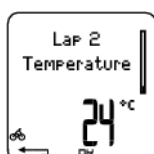
Incline
Incline in %
Incline in degrees



Altitude
Ascent
Altitude



Altitude
Descent
Altitude



Temperature

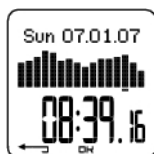
Press BACK to return to Laps information view.

*Optional sensor required.

Weekly Summary

Select **File** > **Weekly**

In **Weekly** summary, you can view the accumulated data on 16 weeks of exercise. The bar on the far right named **This week** displays exercise summary for the current week. The previous bars are dated the Sunday of the week in question. Scroll the displayed weeks with UP or DOWN, and view total exercise duration on the lower row.



Select the week with OK to see the week's total calories, distance, and exercise time.



Press DOWN to see week's sport zones.



To see time spent in each sport zone, press OK and scroll the sport zones UP or DOWN.

Totals

Select **File** > **Totals**

Totals includes cumulative information recorded during training sessions since the last reset. Use the Total values file as a seasonal or monthly counter of training data. The values are updated automatically when exercise recording is stopped.

Use UP or DOWN to scroll through the following information:

- **Bike 1 distance** (Cumulative distance with bike 1; can be reset)
- **Bike 2 distance**
- **Total distance** (Cumulative distance; can be reset)
- **Total duration**
- **Total calories**
- **Total exerc. count**
- **Total ascent**
- **Total odometer** (Cumulative distance; cannot be reset)
- **Reset totals**

To reset total values

Select **File** > **Totals** > **Reset totals**

Select the value you wish to reset in the menu and confirm with OK. Select **Yes** to confirm resetting. **The deleted information cannot be retrieved.** Select **No** to return to the **Reset** menu.

Delete Files

Select **File** > **Delete** > **Exercise**

In **Delete**, you can delete previous exercises one by one, all exercises at the same time, or total values.

Scroll through the following information with UP or DOWN:

- **Exercise**: Select a single exercise to delete.
- **All exerc.**: Delete all exercises.
- **Totals**: Delete the total values one by one or all totals at the same time.

Confirm by selecting **Yes**.

7. SETTINGS

Change settings easily by using the Polar ProTrainer 5 software. For further information, consult software help.

Exercise types

Select **Settings** > **Exercise**

For more information on Exercises, see Exercise Types (page)

Feature Settings

Select **Settings** > **Features**.



Altitude

The cycling computer measures and displays altitude. Change the settings of the altimeter in the **Altitude** menu. You can calibrate the altimeter manually or automatically.

Calibrating the Altitude Manually

Select **Settings** > **Features** > **Altitude** > **Calibrate** > **set the altitude of current location**

If the altitude of your location differs significantly from the displayed altitude value **Calibrate to xx?** is displayed.

Yes: **Altitude calibrated to xx** is displayed.

No: **Altitude calibration canceled** is displayed.

Calibrate the altitude to ensure it remains accurate. Set the reference altitude whenever a reliable reference, such as a peak or a topographic map, is available or when at sea level.

Calibrating the Altitude Automatically

Select **Settings** > **Features** > **Altitude** > **AutoCalib** > **On / Off**

By using the altitude Automatic Calibration option, you can adjust the starting elevation to be set always the same in the beginning of the exercise. Calibrate the elevation manually and turn the Automatic Calibration (**AutoCalib**) on. From now on, this elevation will be always used as the base elevation in the beginning of the exercise, when automatic altitude calibration is in use. Also, if the Automatic Calibration is turned on and you calibrate the cycling computer manually, this new value will be used as a new starting elevation for the Automatic Calibration option.

If the elevation or air pressure changes significantly, you are prompted to confirm the change. If you change the elevation, **Altitude calibrated to xx m/ft** indicates that calibration has succeeded. If **Altitude calibration failed** is displayed, re-calibrate the altitude.

You can also set the elevation for the Automatic Calibration also by using the Polar ProTrainer 5 software. For more information see software help.



Select this option if you train in the same environment. This way, altitude values are always correct. If the sport profile of the exercise includes automatic calibration, altitude measurement always begins at this elevation regardless of the general elevation settings.

Recording Rate


Select **Settings** > **Features** > **Rec.rate** > **1 / 5 / 15 / 60 sec**

The cycling computer can store your heart rate, speed, cadence, power and altitude in 1, 5, 15 or 60 second intervals. A longer interval gives you more recording time, while a shorter interval allows you to record more heart and other data. This enables accurate data analysis using the Polar ProTrainer 5 software.

A shorter recording rate consumes the memory of the cycling computer more rapidly. The remaining recording time is displayed on the lower row when setting the rate. Default recording rate is 5 seconds.

When less than 30 minutes of maximum recording time is left, the recording rate changes automatically to longer recording time (1s > 5s > 15s > 60s). This will maximize recording time to record exercise data. When the session ends, the current recording rate will be used in the next training session.

The following table shows the maximum recording times for each recording rate. The maximum recording time can be shorter, if you record a large number of short exercises.

 *Recording rate will change when less than 30 minutes of recording time is left. **Memory low** is displayed 60 minutes before the memory runs out.*

Recording Rates for Speed and Cadence

Speed	Cadence	Rec Rate 1s	Rec Rate 5s	Rec Rate 15s	Rec Rate 60s
Off	Off	10h 30min	52h 40min	158h	633h
Off	On	7h 50 min	39h 30min	118h	474h
On	Off	5h 10min	26h 20min	67h 50min	271h
On	On	4h 30min	22h 30min	59h 20min	237h

Automatic Lap Recording

Set the automatic lap recording

Select **Settings** > **Features** > **A.Lap** > **On** > **set the lap distance**


The cycling computer will automatically record laps. Choose **Off** to deactivate.

Using the HeartTouch Function CS400

Setting the HeartTouch Function

Select **Settings** > **Features** > **HeartTouch**

HeartTouch enables you to view information during training without pressing buttons. By bringing the cycling computer near the transmitter, your target heart rate zone will appear on the display.

 *It is not recommended to use the HeartTouch function when the Polar CS400 Cycling Computer is attached to the bike.*

Options for the HeartTouch function include:

- **Show limits**
- **Take lap**
- **Change view**
- **Light**
- **Off**

Heart Rate View

Choose a format to view your heart rate

Select **Settings** > **Features** > **HR view** > **HR** / **HR%**

Sport Zones


Define Polar Sport Zones (page 41) in the cycling computer

Select **Settings** > **Features** > **Sport zones** > **Sport zone low limit**

Set the lower limit of sport zone 1 by pressing UP or DOWN. Then press OK. Set the lower limits of each sport zone in the same way. When setting the lower limit, the upper limit of the previous zone is set automatically.

Press and hold LIGHT to switch between sport zone views: **HR%** (percentage of maximum heart rate) or **BPM** (beats per minute).

You can change settings easily by using the Polar ProTrainer 5 software. For further information, consult software help.

 *You can lock/unlock sport zone by pressing and holding the LAP button during your ride.*

Bike Settings

Select **Settings** > **Bike**

You can set three bike preferences for the cycling computer. Prepare the settings for the bikes and when you start training, select bike 1 or 2. Bike 1 is set as a default.



Select **Settings** > **Bike** > **Bike 1**, **Bike 2**, or **Other**. Bike 2 and Bike 3 can be turned on or off. Select **Other** to deactivate speed and cadence sensors, and to measure heart rate, altitude, and temperature data only.

Wheel Size

Select **Bike** > **Bike 1** > **Wheel**

Wheel size settings are a prerequisite for correct cycling information. For more information on measuring the wheel size, see Measuring Wheel Size (page 6).

Autostart: On / Off

Select **Settings** > **Bike** > **Bike1** > **Autostart**

The Autostart function starts or stops automatically the exercise recording when you start or stop cycling. The Autostart function requires Polar Speed Sensor.

Arrival time

Select **Settings** > **Bike** > **Bike 1** > **Arr. time**

Set the distance you are going to ride, and the cycling computer will calculate and display the estimated time of arrival based on cycling speed. Install the Polar Speed Sensor on your bike to measure speed and distance. For further information on installing the speed sensor, consult Polar Speed Sensor user manual.



- Select by pressing OK
- Select **On/Off** to set the feature on or off.
- Select **Set dist.** to set the distance you are going to ride.

Speed: On / Off

Select **Settings** > **Bike** > **Bike 1** > **Speed** > **On/Off**

As default the speed is **Off** for bike 1.

Select **On** and **Add speed?** is displayed.

Select **Yes** to activate the feature. **Exercise displays updated** is displayed.

Select **Off** and **Exercise Displays Updated** is displayed. All speed information will be removed from the displays.

 *Speed settings are either done manually or with the Polar ProTrainer 5 software.*

Cadence*: On / Off

You can install an optional Polar Cadence Sensor to your bicycle.

Select **Settings** > **Bike** > **Bike 1** > **Cadence** > **On/Off**

Select **On** and **Add cadence?** is displayed. Select **Yes** to activate the feature. **Exercise displays updated** is displayed i.e. cadence information is added to displays.

Select **Off** will remove the cadence information from all displays.

*Optional sensor required.

User Settings

Enter accurate user information in the cycling computer to receive the correct feedback on your performance.

To set user information in the cycling computer, select **Settings** > **User**



- **Weight:** To change units, press and hold LIGHT
- **Height:** To change units, press and hold LIGHT
- **Birth day:** dd=day, mm=month, yy=year
- **Sex:** Male/Female
- **Activity:** Top/High/Moderate/Low
- **Heart Rate:** HR_{max}, HR_{sit}
- **VO_{2max}:** Maximal oxygen intake

Activity Level

Activity level is an assessment of your level of long-term physical activity. Select the alternative that best describes the overall amount and intensity of your physical activity during the past three months.

- **Top:** You participate in heavy physical exercise at least 5 times a week, or you exercise to improve performance for competitive purposes.
- **High:** You participate at least 3 times a week in heavy physical exercise, e.g. you cycle 2-4 hours (40-120 km / 25-75 miles) per week or spend that time in comparable physical activity.
- **Moderate:** You participate regularly in recreational sports, e.g. you cycle 1/2-2 hours (15-40 km / 3-25 miles) per week or spend that time in comparable physical activity, or your work requires modest physical activity.
- **Low:** You do not participate regularly in recreational sport or heavy physical activity, e.g. you exercise hard enough to cause heavy breathing or perspiration only occasionally.

In the cycling computer, these values are used to calculate your energy expenditure.

Heart Rate: HR_{max} , HR_{sit}

HR_{max} (Maximum heart rate): Your age-predicted HR_{max} value ($220 - \text{age}$) is used as a default. Set your HR_{max} manually if your maximum heart rate has been determined in a lab, if you have performed the Fitness test with the Polar CS400 cycling computer, or if you have tested your maximum heart rate in the field yourself.

HR_{sit} (Heart rate value in a sitting position): Your age-predicted HR_{sit} value is used as a default. Set your HR_{sit} value if you have determined it according to the instructions. For instructions, see Heart Rate Value in a Sitting Position (page 43) in Background Information.

Maximal Oxygen Intake: VO_{2max}

VO_{2max} is your body's maximum capacity for oxygen consumption during maximum exertion. The most accurate way of determining VO_{2max} is to perform a maximal stress test in a laboratory. If you know your exact clinically-tested VO_{2max} , set the value in the cycling computer. Otherwise, measure a comparable value, OwnIndex, by taking the Polar Fitness Test. For further information, see Polar Fitness Test™ (page ?).

If changes are made to the user settings, **User settings updated** is displayed.

You can enter and edit user settings by using the Polar ProTrainer 5 software. For further information, consult software help.

General Settings



Sound

Select **Settings** > **General** > **Sound**

Volume

Select **Settings** > **General** > **Sound** > **Volume** > **On / Off**

Volume settings control button sounds and activity sounds during exercise. This does not affect the watch or target zone alarms (TZ Alarm).

TZ Alarm (Target Zone Alarm)

You can set the TZ Alarm On/ Off:

Select **Settings** > **General** > **Sound** > **TZ Alarm** > **On / Off**

If the target zone alarm is deactivated, the heart rate reading will flash when you are outside the target zone.

Keylock

To define keylock settings

Select **Settings** > **General** > **Keylock** > **Manual / Automatic**

Keylock prevents accidental button presses.

Manual: Activate the manual keylock.

Automatic: Keylock is activated in time mode when buttons have not been pressed for one minute.

To turn the keylock **On/Off**, press and hold the LIGHT for at least a second.

Units

Set preferred units in the cycling computer

Select **Settings** > **General** > **Units** > **kg/cm/km or lb/ft/mi**

Language

Select language

Select **Settings** > **General** > **Language** > **English / Deutsch / Español / Français / Italiano**

Sleep

Activate the sleep function

Select **Settings** > **General** > **Sleep** > **Activate sleep mode?** > **Yes**

Activating the sleep mode will help save the battery when the cycling computer is not in use for a long period of time. The watch alarm will still function in sleep mode.

To reawaken the cycling computer

Press any button > **Turn display on?** > **Yes / No**

Yes: the cycling computer is activated.

No: the cycling computer returns to sleep mode.

Watch Settings



Reminder

Set a reminder for different tasks or exercises

Select **Settings** > **Watch** > **Reminders** > **Add new**

Date: Enter the date of the task, dd=day, mm=month, yy=year.

Reminder time: Enter the time for the reminder.

Alarm: Set alarm to sound on time, or 10 min / 30 min / 1 hour prior to the task.

Sound: Select alarm sound Silent / Beep / Normal.

Repeat: Select reminder to repeat Once / Hourly / Daily / Weekly / Monthly / Yearly.

Exercise: Select an exercise to link to the reminder. When the reminder goes off, the cycling computer will present this exercise as default. Select NONE if you do not want to link the reminder to an exercise session.

Rename: To rename the reminder, select letters with UP or DOWN, and accept with OK.

You can program seven reminders in the cycling computer.

To see active reminders and modify them:

Select **Settings** > **Watch** > **Reminders**

Select a reminder to view, edit, rename or delete.

Event

To set an event countdown in the cycling computer

Select **Settings** > **Watch** > **Event**

Event day: dd=day, mm=month.

Rename: To rename the event, select letters with UP or DOWN, and accept with OK.

To modify the event countdown

Select **Settings** > **Watch** > **Event**

You can view the event countdown, set a new date, rename or delete it.

In time mode, hide or view the event countdown again by pressing and holding UP.

Alarm

Set an alarm on your cycling computer

Select **Settings** > **Watch** > **Alarm** > **Off** / **Once** / **Mon-Fri** / **Daily**

You can set the alarm to go off either once (**Once**), everyday between Monday and Friday (**Mon-Fri**), daily (**Daily**) or you can set it **Off**. The alarm sounds in all modes except in exercise mode, and will do so for a minute unless you press STOP. The watch alarm also functions in sleep mode and even if you have turned the sound off in the **General** settings.

To snooze the alarm an extra 10 minutes, press UP or DOWN buttons or OK: **Snooze** is displayed and the snooze time starts counting. To exit the snooze alarm, press STOP.

If a battery symbol appears in the display, the alarm cannot be activated.

Time

Set time 1 in the cycling computer

Select **Settings** > **Watch** > **Time 1** > **24h** / **12h**

Set time 2 in the cycling computer

Select **Settings** > **Watch** > **Time 2**

Set the desired time difference between time 1 and time 2 in hours with UP/ DOWN buttons.

Time zone

Switch between time zones

Select **Settings** > **Watch** > **Time zone** > **Time 1** / **Time 2**

Select a time zone

In time mode, change the time zone by pressing and holding DOWN. Number 2 on the lower right corner of the display indicates that Time 2 is in use.

Date

To set the date in the cycling computer

Select **Settings** > **Watch** > **Date**

dd=day, mm=month, yy=year

Change settings easily by using the Polar ProTrainer 5 software. For further information, see software help.

Personalize the Cycling Computer Display

In time mode, select OK > **Settings** > **Display** > **Edit**


Personalize your cycling computer display to show information you want to see during training. Adjust the displays also by using the Polar ProTrainer 5 software. An exercise attached to the training program has its own display settings that cannot be modified. The information on the display depends on the features that are activated. For example, if speed measurement is not activated, speed information can not be shown in the display.

For further information on display symbols, see Symbols on the Display (page 15).

Select the display you want to change by pressing UP or DOWN, and press OK. Set the information for the blinking upper row with UP or DOWN, and press OK. The information on the display depends on the features that are activated. For further information, see Feature Settings (page 27).

Repeat the same for the middle and lowest rows. Each display is named after the information shown on the lower row. To return the default settings of the display, press and hold LIGHT when the rows are blinking.

Activate **Titles** to view the name of the display while changing displays during exercise: In time mode, select OK > **Settings** > **Display** > **Titles**

 *The display settings are separate for each bike (bike 1, 2, 3). If you change the displays for one bike, the changes do not affect the other bike displays. The display views depend on the features that are activated. For further information see Feature Settings (page 27) and Bike Settings (page 29).*

Shortcut Button (Quick Menu)

Some settings can be changed with a shortcut button in time mode.

Press and hold LIGHT > **Quick menu**

- **Keylock**
- **Reminders**
- **Alarm**
- **Time zone**
- **Sleep**

8. TRAINING PROGRAM

View Program

Create and download a personalized training program to your cycling computer by using Polar ProTrainer 5 software. This chapter includes the basic instructions on how to navigate and manage the program once you have downloaded it to your cycling computer. For further information on creating programmed exercises with the software, transferring them to your cycling computer, and analyzing your performance after training, consult Polar ProTrainer 5 help.

After downloading the training program, two additional menus are shown in your cycling computer where you can view your program and check your daily schedule. Scroll weeks, days, and exercises with UP or DOWN. Select week and day with OK.



To view your weekly program

Select **Program** > **Week view**

The week view offers an overview of your weekly exercises. The white bar represents planned exercise time and the black bar represents performed exercise time. Weekly target exercise time is shown below the bars.

Press and hold LIGHT to view the following information on the week:

- **Week info:** Week name and description.
- **Targets:** Summary of targets for the week. Calories, distance, and duration. Planned time for sport zones: press OK and scroll between sport zones with UP or DOWN.
- **Results:** Summary of results for the week. Calories, distance and duration. Performed time in sport zones: press OK and scroll between sport zones with UP or DOWN.
- **Reminder:** Set alarm (on time, 10 min, 30 min or 1 hour before the exercise) and define sound type (Silent, Beep, Normal).
- **Program off:** Remove the program from your cycling computer.

To view your daily program

Select **Program** > **Week view** > **Day view**

Select **Today** > **Exercise view**

The day view offers an overview of your daily exercises. The white bar represents planned exercise time and the black bar represents performed exercise time. Daily target exercise time is shown below the bars.

Press and hold LIGHT to view additional information on the day:

- **Targets:** Summary of targets for the day. Calories, distance, and duration. Planned time for sport zones: press OK and scroll between sport zones with UP or DOWN.
- **Results:** Summary of results for the day. Calories, distance, and duration. Performed time in sport zones: press OK and scroll between sport zones with UP or DOWN.

View your daily exercise

Select **Program** > **Week view** > **Day view** > **Exercise view**

The exercise view shows the following information: exercise name, description, and target duration.

Press and hold LIGHT to view following information:

- **Targets:** Summary of targets for the training session. Calories, distance and duration. Planned time for sport zones: press OK and scroll between sport zones with UP or DOWN.
- **Phases:** Summary of phases for the training session.
- **Sport profile:** View the name of chosen sport profile. For further information, consult Polar ProTrainer 5 software help.
- **Reminder:** Set the reminder time.

Perform Programmed Exercise

Start Exercising

If you set a reminder, your cycling computer will remind you to train according to plan on the scheduled date. View the planned exercise information by pressing OK when the reminder has gone off.

Start Daily Exercise

Select **Today** > **Exercise view** (name of the exercise) > OK

Select **Program** > **Week view** > **Day view** > **Exercise view** > OK > OK

For further information on exercise recording, see Start Training (page 12). Your cycling computer will guide you through the session.

Exercise with Phases

Below is an example of an interval exercise, which is divided into four phases:

Warm up / P1: Cycle 15 minutes at a heart rate between 60-70% of your maximum heart rate.

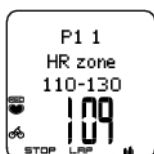
Interval / P2: Cycle 5 km at a heart rate between 80-90% of your maximum heart rate.

Recovery / P3: Cycle 5 min at heart rate between 55-65% of your maximum heart rate. Repeat phases 2 and 3 for three times each.

Cool down / P4: Cycle 15 minutes at a heart rate between 55-65% of your maximum heart rate.

Views during the exercise

During the exercise you will see the following display types:



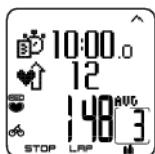
Every phase starts with a display showing:

Phase name
Zone type
Zone limits



During exercise the phase display shows:

Countdown timer/distance, count up timer, number of current phase
Target zone in graphical format (updated every 10 seconds, showing the last 8 minutes on the display)
Heart rate
Number of phase repeats left



Every phase ends with a phase-end display showing:

Phase duration or distance
Heart rate difference (how much you have increased or decreased your heart rate during the phase) or average speed
Average heart rate
Number of ended phase



Once a programmed exercise is over, this display shows that the exercise is completed, **Ride 1 completed** will appear.

The cycling computer enters Free exercise mode, and you can continue exercising without settings. The exercise is recorded and filed.

For further information on planning the sessions and transferring them to your cycling computer with the Polar ProTrainer 5 software, consult software help.

Functions During Exercise

Change the same settings in a programmed exercise as with any other exercise type. For further information on different functions during exercise, see Button Functions During Exercise (page 16).

The programmed exercise uses the sport profile settings set in the Polar ProTrainer 5 software. If you change the cycling computer settings during exercise (e.g. calibration factor), the changes will only apply to the current exercise. Next time you start the same exercise, the cycling computer will use the sport profile settings defined in the software.

Lap Menu

To see the lap menu during programmed exercise, press and hold OK. Scroll between options with UP or DOWN and select with OK. The contents of the lap menu depend on your exercise.

- **End Phase:** End current phase and move to the next phase in the exercise.
- **Jump to:** Move to any other phase in your exercise.

To view exercise results, Select **File** > **Exercise log**.

After completing a programmed exercise, your training data will be saved under **File**. For further information, see Analyze Exercise Results (page 19).

9. TESTS

Polar Fitness Test™

Select **Test** > **Fitness**



The Polar Fitness Test™ is an easy, safe, and quick way to measure your aerobic (cardiovascular) fitness at rest. The result, Polar OwnIndex, is comparable to maximal oxygen uptake (VO_{2max}), which is commonly used to evaluate aerobic fitness. Your long-term level of physical activity, heart rate, heart rate variability at rest, gender, age, height, and body weight all influence OwnIndex. The Polar Fitness Test is developed for use by healthy adults.

Aerobic fitness relates to how well your cardiovascular system works to transport oxygen to your body. The better your aerobic fitness, the stronger and more efficient your heart is. Good aerobic fitness has many health benefits. For example, it helps in decreasing high blood pressure and your risk of cardiovascular diseases and stroke. If you want to improve your aerobic fitness it takes, on average, six weeks of regular training to see a noticeable change in your OwnIndex. Less fit individuals see progress even more rapidly. The better your aerobic fitness, the smaller the improvements in your OwnIndex.

Aerobic fitness is best improved by exercise types that use large muscle groups. Such activities include running, cycling, walking, rowing, swimming, skating, and cross-country skiing.

To monitor your progress, start by measuring your OwnIndex a couple of times during the first two weeks in order to get a baseline value, and then repeat the test approximately once a month.

With the Polar Fitness Test, you can also calculate the predicted maximum heart rate value (HR_{max-p}). The HR_{max-p} score predicts your individual maximum heart rate more accurately than the age-based formula ($220 - \text{age}$). For further information on HR_{max} , see User Settings (page 30).

To make sure the test results are reliable, the following basic requirements apply:

- You can perform the test anywhere - at home, at the office, at a health club - provided the testing environment is peaceful. There should be no disturbing noises (e.g. television, radio, or telephone) and no other people talking to you.
- Always take the test in the same environment and at the same hour.
- Avoid eating a heavy meal or smoking 2-3 hours prior to testing.
- Avoid heavy physical exertion, alcohol, and pharmacological stimulants on the test day and the previous day.
- You should be relaxed and calm. Lie down and relax for 1-3 minutes before starting the test.

Before the Test

Wear the Transmitter

For further information, see Wear the Transmitter (page 12).

Enter User Information

Select **Settings** > **User**

To carry out the Polar Fitness Test, enter your personal user information (if you entered the personal user information before, there is no need to do this again) and long-term physical activity level in the User settings.

Set HR_{max-p} On

If you want to obtain your predicted maximum heart rate value, turn HR_{max-p} on.

Select **Test** > **Fitness** > **HR max -p** > **On**

Performing the Test

Select **Test** > **Fitness** > **Start** > **Fitness Test Lie Down**

The fitness test begins in five seconds. Arrows indicate that the test is ongoing. Stay relaxed and limit body movements and communication with other people.

If you have not set your long-term physical activity level in User Settings, **Set your personal activity level** is displayed. Select **Top**, **High**, **Moderate**, or **Low**. For further information on activity levels, see User Settings (page 30).

If your cycling computer does not receive your heart rate at the beginning or during the test, the test fails and **Test failed, check WearLink** is displayed. Check that the transmitter electrodes are wet and that the textile strap is snug enough, and start the test again.

When the test is over, you will hear two beeps. **OwnIndex** is displayed with a numerical value and level evaluation. For further information on evaluations, see Fitness Level Classes.

To display your **Predicted maximum heart rate** value press DOWN. Press OK to exit.

Update to VO2 max? is displayed.

- Select **Yes** to save the OwnIndex value to your user settings and **Fitness Test Trend** menu.
- Select **No** only if you know your laboratory-measured VO_{2max} value, and if it differs more than one fitness level class from the OwnIndex result. Your OwnIndex value is saved only to the **Fitness Test Trend** menu only. For further information, see Fitness Test Trend.

Update to HR max? (if HR_{max-p} (if HR_{max-p} is on) is displayed.

- Select **Yes** to save the value to your user settings.
- Select **No** if you know your laboratory-measured HR_{max} .

Stop the test at any time by pressing STOP. **Fitness Test canceled** is displayed for a few seconds.

Saved OwnIndex and HR_{max-p} values, they will be used for calculating calorie consumption.

After the Test

Fitness Level Classes

Your OwnIndex is most meaningful when comparing your individual values and changes in them over time. OwnIndex can also be interpreted based on gender and age. Locate your OwnIndex on the table below, and find out how your aerobic fitness compares to others of the same gender and age.

Top athletes typically score OwnIndex values above 70 (men) and 60 (women). Olympic-level endurance athletes can reach values as high as 95. OwnIndex is highest in sports that involve large muscle groups, such as running and cross-country skiing.

Men

Age / Years	Very low	Low	Fair	Moderate	Good	Very good	Elite
20-24	< 32	32-37	38-43	44-50	51-56	57-62	> 62
25-29	< 31	31-35	36-42	43-48	49-53	54-59	> 59
30-34	< 29	29-34	35-40	41-45	46-51	52-56	> 56
35-39	< 28	28-32	33-38	39-43	44-48	49-54	> 54
40-44	< 26	26-31	32-35	36-41	42-46	47-51	> 51
45-49	< 25	25-29	30-34	35-39	40-43	44-48	> 48

Age / Years	Very low	Low	Fair	Moderate	Good	Very good	Elite
50-54	< 24	24-27	28-32	33-36	37-41	42-46	> 46
55-59	< 22	22-26	27-30	31-34	35-39	40-43	> 43
60-65	< 21	21-24	25-28	29-32	33-36	37-40	> 40

Women

Age / Years	Very low	Low	Fair	Moderate	Good	Very good	Elite
20-24	< 27	27-31	32-36	37-41	42-46	47-51	> 51
25-29	< 26	26-30	31-35	36-40	41-44	45-49	> 49
30-34	< 25	25-29	30-33	34-37	38-42	43-46	> 46
35-39	< 24	24-27	28-31	32-35	36-40	41-44	> 44
40-44	< 22	22-25	26-29	30-33	34-37	38-41	> 41
45-49	< 21	21-23	24-27	28-31	32-35	36-38	> 38
50-54	< 19	19-22	23-25	26-29	30-32	33-36	> 36
55-59	< 18	18-20	21-23	24-27	28-30	31-33	> 33
60-65	< 16	16-18	19-21	22-24	25-27	28-30	> 30

The classification is based on a literature review of 62 studies where VO_{2max} was measured directly in healthy adult subjects in the USA, Canada and 7 European countries. Reference: Shvartz E, Reibold RC. Aerobic fitness norms for males and females aged 6 to 75 years: a review. **Aviat Space Environ Med**; **61:3-11**, 1990.

Fitness Test Trend

Select **Test** > **Fitness** > **Trend**

See how your OwnIndex value has been developing in the **Trend** menu. Up to 16 OwnIndex values and respective dates are included in the display. When the test trend file becomes full, the oldest result is automatically deleted.

The most recent test date, a graph of your OwnIndex results, and the latest OwnIndex value are displayed. Scroll UP or DOWN to view other values.

Delete OwnIndex Value

Select **Test** > **Fitness** > **Trend**

Select the value you wish to delete and press and hold LIGHT > **Delete value? No/Yes** is displayed. Confirm with OK.






Analyzing OwnIndex Results with Polar ProTrainer 5 Software

Downloading test results to the Polar ProTrainer 5 software offers you the possibility of analyzing results in various ways, as well as accessing more detailed information about your progress. The software also allows you to make graphical comparisons with previous results. The Polar Fitness Test results are downloaded automatically to the software when you download exercise data using the Transfer data option.

10. BACKGROUND INFORMATION

Polar Sport Zones

Polar sport zones offer a new level of effectiveness in heart rate-based training. Training is divided into five sport zones based on percentages of your maximum heart rate. With sport zones, you can easily select and monitor training intensities and follow Polar's sport zones-based training programs.

Target zone	Intensity % of HR_{max} , bpm	Example durations	Training benefit
MAXIMUM 	90–100% 171–190 bpm	less than 5 minutes	Benefits: Maximal or near maximal effort for breathing and muscles. Feels like: Very exhausting for breathing and muscles. Recommended for: Very experienced and fit cyclists. Short intervals only, usually final preparation for short riding events.
HARD 	80–90% 152–171 bpm	2–20 minutes	Benefits: Increased ability to sustain high speed endurance. Feels like: Muscular fatigue and heavy breathing. Recommended for: Experienced cyclists for all year round training varying length. Becomes more important during pre-competition season.
MODERATE 	70–80% 133–152 bpm	10–60 minutes	Benefits: Enhances general training pace, makes moderate intensity efforts easier and improves efficiency. Feels like: Riding in at good pace with constantly high cadence. Recommended for: Cyclists progressing towards events or looking for performance gains.
LIGHT 	60–70% 114–133 bpm	60–300 minutes	Benefits: Improves general base fitness, improves recovery and boosts metabolism. Feels like: Comfortable and easy, low muscle and cardiovascular load. Recommended for: Everybody for long training sessions during base training periods and for recovery exercises during competition season.
VERY LIGHT 	50–60% 104–114 bpm	20–60 minutes	Benefits: Helps to warm up and cool down and assists recovery. Feels like: Very easy, little strain. Recommended for: For recovery and cool-down exercises throughout the training season.

HR_{max} = Maximum heart rate (220-age). Example: 30 years old, 220–30=190 bpm.

Cycling in **sport zone 1 (Very light)** is done at very low intensity. The main training principle is that performance level improves after training during the recovery period, not only during training. You can accelerate your recovery process with very light intensity training.

Sport zone 2 (Light) is for endurance training, an essential part of any training program. Cycling sessions in this zone are easy and aerobic. Long-duration training in this light zone results in effective energy

expenditure. Progress will require persistence.

Aerobic power is enhanced in **sport zone 3 (Moderate)**. The training intensity is higher than in sport zones 1 and 2, but still mainly aerobic. Training in sport zone 3 may, for example, consist of intervals followed by recovery. Cycling in this zone is especially effective for improving the efficiency of blood circulation in the heart and skeletal muscles.

If your goal is to compete at top potential, you will have to train in **sport zones 4 (Hard) and 5 (Maximum)**. In these zones, cycling is aerobic, in intervals of up to 12 minutes. The shorter the interval, the higher the intensity. Sufficient recovery between intervals is very important. The training pattern in zones 4 and 5 is designed to produce peak performance.

When cycling in a certain sport zone, the mid-section of the zone is a good target, but don't keep your heart rate at that exact point all the time. Training intensity, recovery level, environmental and other such factors will all contribute to heart rate responses. It is, therefore, important to pay attention to subjective feelings of tiredness and to adjust the training program accordingly.

A simple way of making use of the sport zones is making your target heart rate zones. For further instructions, see Plan your training (page 9).

After the session is over exercise duration in the sport zone is displayed. Access the **Weekly** display for the sport zones you have been exercising in, and the time spent exercising in one. The Polar ProTrainer 5 software offers up to 10 sport zones to better serve your training needs and heart rate reserve.

OwnZone Training

Your cycling computer automatically determines an individual and safe exercise intensity zone: your OwnZone. The unique Polar OwnZone defines your personal training zone for aerobic training. The function guides you through your warm-up, and takes your present physical and mental condition into account. For most adults, OwnZone corresponds to 65-85% of maximum heart rate

OwnZone can be determined in 1-5 minutes during a warm-up period by cycling, walking, jogging, or doing some other sport. The idea is to start exercising slowly at a light intensity, and to gradually increase intensity and heart rate. OwnZone is developed for healthy people. Some health conditions may cause heart rate variability-based OwnZone determination to fail. These conditions include high blood pressure, cardiac arrhythmias, and certain medications.

Listening to and interpreting the signals your body sends during physical exertion is an important part of getting fit. Since warm-up routines differ for different types of exercise, and since your physical and mental state may also vary from day to day (due to stress or illness), using the OwnZone function for every session guarantees the most effective heart rate target zone for that particular type of exercise and day.

For more information on how to determine your OwnZone see ???.

Maximum Heart Rate

Maximum heart rate (HR_{max}) is the highest number of heartbeats per minute (bpm) during maximum physical exertion. It is individual and depends on age, hereditary factors, and fitness level. It may also vary for different types of sports. HR_{max} is used to express exercise intensity.

Determining Maximum Heart Rate

Your HR_{max} can be determined in several ways.

The most accurate way is to have your HR_{max} clinically measured. A stress test supervised by a cardiologist or exercise physiologist is usually performed on a treadmill or a maximal treadmill/ bicycle.

You can also determine your HR_{max} by taking a field test together with a training partner.

An estimate or a HR_{max} -p score that predicts your HR_{max} can be obtained by taking a Polar Fitness Test.

The commonly used formula: $220 - \text{age}$, although research shows that the method is not very accurate, especially for older persons or those who have been fit for many years.

If you have done some hard training in recent weeks and know that you can safely reach maximum heart rate, you can safely take a test to determine your HR_{max} yourself. Having a training buddy during the test is recommended. If you are uncertain, consult your physician before undertaking the test.

Here is an example of a simple test.

Step 1: Warm up for 20 minutes on a flat surface, building up to your usual training pace.

Step 2: Choose a hill that will take more than 2 minutes to climb. Cycle up the hill once, building to as hard a pace as you can hold for 20 minutes. Return to the base of the hill.

Step 3: Cycle up the hill again, building towards a pace you could just about hold for 10 minutes. Note your highest heart rate. Your maximum is approximately 10 beats higher than the noted value.

Step 4: Cycle back down the hill, allowing your heart rate to drop 30-40 beats per minute.

Step 5: Cycle up the hill once again at a pace that you can only hold for 1 minute. Try to cycle halfway up the hills. Note your highest heart rate. This brings you close to your maximum heart rate. Use this value as your maximum heart rate to set training zones.

Step 6: Make sure you get a good cool-down, a minimum of 15 minutes.

Heart Rate Value in a Sitting Position

HR_{sit} is your average heart rate when completely still (i.e. while sitting). To easily determine HR_{sit} , wear your transmitter, sit down, and do not engage in any physical activity. For a more precise measurement, repeat the procedure several times and calculate your average.

Heart Rate Reserve

Heart rate reserve (HRR) is the difference between maximum heart rate (HR_{max}), and resting heart rate (HR_{rest})*. HRR is used to calculate exercise heart rates. It is the range within which heart rate varies depending on exertion level. HRR equals oxygen uptake reserve (VO_{2R}).

Exercise heart rate can be determined by using the Karvonen formula**. Add the given percentage of heart rate reserve to resting heart rate.

Exercise HR = % of target intensity ($HR_{max} - HR_{rest}$) + HR_{rest}

Example:

Target intensity 70 % HRR for a person with HR_{max} 201 bpm and HR_{rest} 50 bpm

Exercise HR= 70% (201-50) + 50

Exercise HR=156 bpm

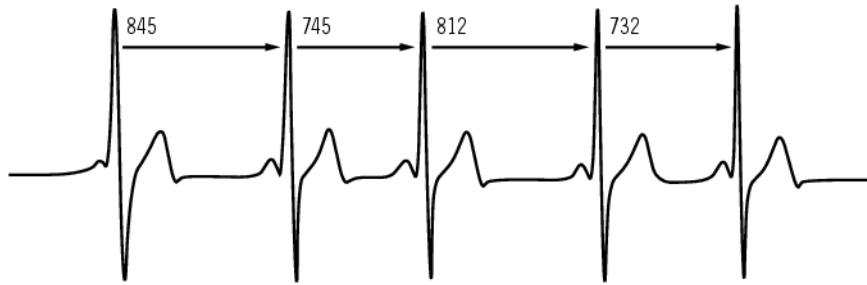
For a precise exercise heart rate, you need your exact HR_{max} and HR_{rest} . When using estimated HR_{max} , exercise heart rate values are always estimates.

**In Polar CS400 and CS600 cycling computers, the heart rate value during a resting state is measured in a sitting position (HR_{sit}). This is for practical reasons since HR_{sit} is used in energy expenditure calculation because of accuracy. HR_{sit} matches the low intensity to which different exercise intensities can be compared.*

****Karvonen M, Kentala K, Mustala O. The effects of training on heart rate: a longitudinal study. *Ann Med Exp Biol Fenn* 1957; 35: 307-315.**

Heart Rate Variability

Heart rate varies with every heartbeat. Heart rate variability (HRV) is the variation of beat-to-beat intervals, also known as R-R intervals.



HRV indicates the fluctuations of heart rate around an average heart rate. An average heart rate of 60 beats per minute (bpm) does not mean that the interval between successive heartbeats would be exactly 1.0 sec, instead they may fluctuate/vary from 0.5 sec up to 2.0 sec.

HRV is affected by aerobic fitness. HRV of a well-conditioned heart is generally large at rest. Other factors that affect HRV are age, genetics, body position, time of day, and health status. During exercise, HRV decreases as heart rate and exercise intensity increase. HRV also decreases during periods of mental stress.

HRV is regulated by the autonomic nervous system. Parasympathetic activity decreases heart rate and increases HRV, whereas sympathetic activity increases heart rate and decreases HRV.

HRV is used in the Ownzone and OwnIndex features.

Polar Article Library

For more facts and know-how to enhance your cycling, visit Polar Article Library [http://articles.polar.fi/en/1_segment.html].

11. CUSTOMER SERVICE INFORMATION

Care and Maintenance

Caring of Your Product

Like any electronic device, the Polar cycling computer should be treated with care. The suggestions below will help you fulfill guarantee obligations and enjoy this product for many years to come.

Detach the transmitter connector from the strap and rinse the strap under running water after every use.

Dry the connector with a soft towel. Never use alcohol or any abrasive material (steel wool or cleaning chemicals).

Wash the strap regularly in a washing machine at 40°C/104°F or at least after every fifth use. This ensures reliable measurement and maximizes the life span of the transmitter. Use a washing pouch. Do not soak, spin-dry, iron, dry clean or bleach the strap. Do not use detergent with bleach or fabric softener. Never put the transmitter connector in the washing machine or drier!

Dry and store the strap and connector separately, to maximize the transmitter battery lifetime. Wash the strap in a washing machine before long-term storage and always after use in pool water with high chlorine content.

Keep your cycling computer, transmitter, speed, cadence and power sensors in a cool and dry place. Do not keep them in a damp environment, in non-breathable material (a plastic bag or a sports bag) nor with conductive material (a wet towel). The cycling computer and the speed and cadence* sensors are water resistant, so you can use them in the rain. To maintain the water resistance, do not wash the cycling computer or the speed or cadence* sensors with a pressure washer or sink them under water. Do not expose to direct sunlight for extended periods.

Keep your cycling computer clean. Clean the cycling computer, speed and cadence* sensors with a mild soap and water solution and in the end rinse them with clean water. Do not immerse them in water. Dry them carefully with a soft towel. Never use alcohol or any abrasive material such as steel wool or cleaning chemicals.

Avoid hard hits to the cycling computer and speed and cadence as these may damage the sensor units.

* Optional sensors.

Service

During the two-year guarantee/warranty period, we recommend that you service the product at an authorized Polar Service Center only. The warranty does not cover damage or consequential damage caused by service not authorized by Polar Electro. For further information, see Limited International Polar Guarantee (page 51).

For more information on local after sales services, consult the Polar Customer Service Card.

Changing Batteries

We recommend that you have the battery replaced by an authorized Polar Service Center. Avoid opening the sealed battery cover, but if you choose to change the battery yourself, follow the instructions carefully on the next page.

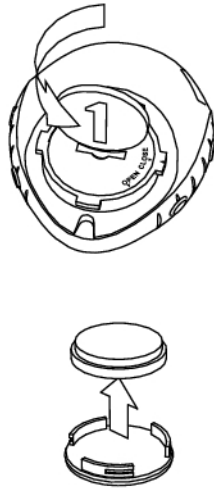
To change the batteries of the cycling computer and transmitter yourself, carefully follow the instructions in Changing Cycling Computer Battery. All batteries are changed the same way.

If you would prefer Polar to replace the battery, contact an authorized Polar Service Center.

Changing Cycling Computer Battery

To change the cycling computer battery, you need a coin and a battery (CR 2354).

1. Using a coin that sits tight into the back cover groove, open the battery cover by pressing slightly and turning counter clockwise.
2. Remove the battery cover. The battery is attached to the cover, which should be lifted carefully. Remove the battery and replace with a new one. Be careful not to damage the threads of the back cover.
3. Place the positive (+) side against the cover and negative (-) side of the battery against the cycling computer.
4. The sealing ring of the battery cover is also attached to the cover. Only replace the sealing ring if it is damaged. Before closing the battery cover, make sure that the cover's sealing ring is undamaged and it is placed correctly in its groove.
5. Put the battery cover in its place and turn the cover clockwise with a coin to CLOSE position. Make sure that the cover is closed properly!



Excessive use of the backlight drains the cycling computer's battery more rapidly. In cold conditions, the low battery indicator may appear, and disappear again when you return to a warmer environment. To ensure the maximum lifespan of the battery cover, open it only when changing battery. When changing the battery, make sure the sealing ring is not damaged, in which case you should replace it with a new one. Battery kits with sealing rings are available at well-equipped Polar retailers and authorized Polar Service Centers. In the USA and Canada, sealing rings are available at authorized Polar Service Centers only.

i *Keep batteries away from children. If swallowed, contact a doctor immediately. Batteries should be properly disposed of according to local regulations.*

Transmitter connector

To change the battery yourself, follow below instructions.

1. Using a coin, open the battery cover by turning it counterclockwise to OPEN.
2. Insert the battery (CR2025) inside the cover with



the positive (+) side against the cover. Make sure the sealing ring is in the groove to ensure water resistance.

3. Press the cover back into the connector.
4. Use the coin to turn the cover clockwise to CLOSE.

Open the cover only when changing the battery to ensure a long life, and make sure the sealing ring is not damaged, in which case you should replace it with a new one.

Battery kits with sealing rings are available at Polar retailers and authorized Polar Service Centers. In the USA and Canada, sealing rings are available at authorized Polar Service Centers only.

Speed and Cadence Sensors Battery

Contact your authorized Polar Service Center for replacement speed and cadence sensors. The Service will test the sensor after replacing the battery.

Precautions

Interference During Exercise

Electromagnetic Interference and Exercise Equipment

Disturbance may occur near high-voltage power lines, traffic lights, overhead lines of electric railways, electric bus lines or trams, televisions, car motors, bike computers, some motor-driven exercise equipment, cellular phones, or at electric security gates. To avoid erratic readings, move away from possible sources of disturbance.

Exercise equipment with electronic or electrical components such as LED displays, motors and electrical brakes may cause interfering stray signals. To solve these problems, try the following:

1. Remove the transmitter from your chest and use the exercise equipment as you would normally.
2. Move the cycling computer around until you find an area in which it displays no stray reading or does not flash the heart symbol. Interference is often strongest directly 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 your chest and keep the cycling computer in this interference-free area as much as possible.

If the cycling computer still does not work with the exercise equipment, it may be electrically too noisy for wireless heart rate measurement.

Minimizing Risks When Exercising

Exercise may include some risk. Before beginning a regular exercise program, it is recommended that you answer the following questions concerning your health status. If you answer yes to any of these questions, we recommend that you consult a doctor before starting any training program.

- Have you been physically inactive for the past 5 years?
- Do you have high blood pressure or high blood cholesterol?
- Do you have symptoms of any disease?
- Are you taking any blood pressure or heart medication?
- Do you have a history of breathing problems?
- Are you recovering from a serious illness or medical treatment?
- Do you use a pacemaker or other implanted electronic device?
- Do you smoke?
- Are you pregnant?


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Note that in addition to exercise intensity, medications for heart conditions, blood pressure, psychological conditions, asthma, breathing, etc., as well as some energy drinks, alcohol, and nicotine may also affect heart rate.

It is important to be sensitive to your body's responses during exercise. **If you feel unexpected pain or excessive fatigue when exercising, it is recommended that you stop the exercise or continue at a lighter intensity.**

Notice to individuals with pacemakers, defibrillators or other implanted electronic devices. Individuals who have a pacemaker use the Polar cycling computer at their own risk. Before starting use, we always recommend a maximal exercise stress test under a doctor's supervision. The test is to ensure the safety and reliability of the simultaneous use of the pacemaker and the Polar cycling computer.

If you are allergic to any substance that comes into contact with your skin or if you suspect an allergic reaction due to using the product, check the listed materials in Technical Specifications. To avoid any skin reaction to the transmitter, wear it over a shirt, but moisten the shirt well under the electrodes to ensure flawless operation.

 *The combined impact of moisture and intense abrasion may cause a black color to come off the transmitter's surface, possibly staining light-colored clothes. If you use insect repellent on your skin, you must ensure that it does not come into contact with the transmitter.*

Technical Specifications

Cycling computer

The wrist unit is a class 1 Laser Product

Battery life:	Average 1 year (1h/day, 7 days/week)
Battery type:	CR 2354
Battery sealing ring:	O-ring 20.0 x 1.0 Material: silicone
Operating temperature:	-10 °C to +50 °C / 14 °F to 122 °F
Materials:	Thermoplastic polymer
Watch accuracy:	Better than ± 0.5 seconds / day at 25 °C / 77 °F temperature.
Accuracy of heart rate monitor:	$\pm 1\%$ or 1 bpm, whichever larger. Definition applies to stable conditions.
Heart rate measuring range:	15-240
Current speed display range:	0-127 km/h or 0-75 mph
Altitude display range:	-550 m ... +9000 m / -1800 ft ... +29500 ft
Ascent resolution:	5 m / 20 ft

Cycling computer limit values

Maximum files:	99
Maximum time:	99 h 59 min 59 s
Maximum laps:	99
Total distance:	999 999 km / 621370 mi
Total duration:	9999h 59min 59s
Total calories:	999 999 kcal
Total exercise count:	9999
Total ascent:	304795 m / 999980 ft

Transmitter

Battery type	CR 2025
Battery life	Average 700 hours of use
Battery sealing ring	O-ring 20.0 x 1.0 Material FPM
Operating temperature	-10 °C to +50 °C / 14 °F to 122 °F
Connector material	Polyamide
Strap material	35% Polyester, 35% Polyamide, 30% Polyurethane
Water resistance	30 m (Suitable for bathing and swimming)

Polar WebLink using IrDA Communication, Polar ProTrainer 5™

System Requirements:	PC Windows® 2000/XP (32bit)
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IrDA compatible port (an external IrDA device or an internal IR port)
 Additionally, for the software your PC must have a Pentium II 200 MHz processor or faster, SVGA or higher resolution monitor, 50 MB hard disk space and a CD-ROM drive.

The Polar cycling computer displays your performance indicators. It indicates the level of physiological strain and intensity during exercise. It also measures speed and distance when cycling with a Polar Speed sensor. The Polar Cadence Sensor is designed to measure cadence when cycling. No other use is intended or implied.

The Polar Cycling Computer should not be used for obtaining environmental measurements that require professional or industrial precision. Furthermore, the device should not be used to obtain measurements when engaged in airborne or underwater activities.

Water resistance of Polar products is tested according to International Standard ISO 2281. Products are divided into three different categories according to water resistance. Check the back of your Polar product for the water resistance category and compare it to the chart below. Please note that these definitions do not necessarily apply to products of other manufacturers.

Marking on case back	Wash splashes, sweat, raindrops etc.	Bathing and swimming	Skin diving with snorkel (no air tanks)	SCUBA diving (with air tanks)	Water resistant characteristics
Water resistant	x				Splashes, raindrops etc.
Water resistant 50m	x	x			Minimum for bathing and swimming*.
Water resistant 100m	x	x	x		For frequent use in water but not SCUBA diving.

*These characteristics also apply to Polar WearLink+ transmitters marked Water resistant 30m.

Frequently Asked Questions

What should I do if...

...the battery symbol and Battery low is displayed?

The low battery indicator is usually the first sign of an expired battery. However, in cold conditions the low battery indicator may appear. The indicator will disappear as soon as you return to a normal temperature. When the symbol appears, the cycling computer sounds and backlight are automatically deactivated. For further information on changing the battery, see Care and Maintenance (page 45).

...I do not know where I am in the menu?

Press and hold STOP until the time of day is displayed.

...there are no reactions to any buttons?

Reset the cycling computer by pressing all the side buttons simultaneously for 2 seconds. After the reset, press the red button, **Start with bike settings** is displayed. You can either accept the bike settings with OK or change the bike settings. Then **Basic Settings** is displayed. Set the time and date, all the rest of the settings are saved. For more information see Basic Settings (page 6) and Measuring Wheel Size (page 6). If you do not want to change the rest of the settings you can skip them by pressing and holding STOP. All the exercise data is saved.

...the cycling computer does not measure the calories?

Burnt calories are calculated only when you are wearing the transmitter and all the basic settings are done correctly. For more information see Basic Settings (page 6).

...another person with a cycling computer or a heart rate monitor is causing interference?

See Precautions (page 47).

...the heart rate reading becomes erratic, extremely high or shows nil (00)?

- Make sure the cycling computer is no further than 1 m / 3 ft from the transmitter.
- Make sure the transmitter belt has not loosened during exercise.
- Make sure the textile electrodes in the sports apparel fit snugly.
- Make sure that the electrodes of the transmitter / sports apparel are moistened.
- Make sure the transmitter / sports apparel is clean.
- Make sure that there is no other heart rate transmitter within 1 m / 3 ft.
- Strong electromagnetic signals can cause erratic readings. For further information, see Precautions (page 47).
- If the erratic heart rate reading continues despite moving away from the source of disturbance, slow down your speed and check your pulse manually. If you feel it corresponds to the high reading on the display, you may be experiencing cardiac arrhythmia. Most cases of arrhythmia are not serious, but consult your doctor nevertheless.
- A cardiac event may have altered your ECG waveform. In this case, consult your physician.

...Check WearLink! is displayed and your cycling computer cannot find your heart rate signal?

- Make sure the cycling computer is no further than 1 m / 3 ft from the transmitter.
- Make sure the transmitter belt has not loosened during exercise.
- Make sure the textile electrodes in sports apparel fit snugly.
- Make sure that the electrodes of the transmitter / sports apparel are moistened.
- Make sure the transmitter / electrodes in the sports apparel are clean and undamaged.
- If the heart rate measurement does not work with the sports apparel, try using a WearLink strap. If your heart rate is detected with the strap, the problem is most probably in the apparel. Please contact the apparel retailer / manufacturer.
- If you have done all of the above-mentioned actions, and the message still appears and heart rate measurement does not work, the battery of your transmitter may be empty. For further information, see Care and Maintenance (page 45).

Check Speed! is displayed?

For further information, consult Speed Sensor user manual.

...the altitude keeps changing even if I am not moving?

The cycling computer converts measured air pressure into an altitude reading. This is why changes in the weather may cause changes in altitude readings.

...the altitude readings are inaccurate?

Your altimeter may show faulty altitude if it is exposed to external interference like strong wind or air conditioning. In this case, try to calibrate the altimeter. If the readings are constantly inaccurate, dirt may be blocking the air pressure channels. In this case, send the cycling computer to a Polar Service Center.

...Memory low is displayed?

Memory low is displayed when there is approximately one hour of memory space left. Once the memory has been depleted **Memory full** is displayed. To free memory space, transfer exercise data to Polar ProTrainer 5 software, and delete from the cycling computer memory.

Limited International Polar Guarantee

- This guarantee does not affect the consumer's statutory rights under applicable national or state laws in force, or the consumer's rights against the dealer arising from their sales/purchase contract.
- This limited Polar international guarantee is issued by Polar Electro Inc. for consumers who have purchased this product in the USA or Canada. This limited Polar international guarantee is issued by Polar Electro Oy for consumers who have purchased this product in other countries.
- Polar Electro Oy/Polar Electro Inc. guarantees the original consumer/purchaser of this device that the product will be free from defects in material or workmanship for two (2) years from the date of purchase.
- **The receipt of the original purchase is your proof of purchase!**
- The guarantee does not cover the battery, normal wear and tear, damage due to misuse, abuse, accidents or non-compliance with the precautions; improper maintenance, commercial use, cracked, broken or scratched cases/displays, elastic strap and Polar apparel.
- The guarantee does not cover any damage/s, losses, costs or expenses, direct, indirect or incidental, consequential or special, arising out of, or related to the product.
- Items purchased second hand are not covered by the two (2) year warranty, unless otherwise stipulated by local law.
- During the guarantee period, the product will be either repaired or replaced at any of the authorized Polar Service Centers regardless of the country of purchase.

Guarantee with respect to any product will be limited to countries where the product has been initially marketed.

CE 0537

This product is compliant with Directives 93/42/EEC. The relevant Declaration of Conformity is available at www.support.polar.fi/declaration_of_conformity [http://www.support.polar.fi/declaration_of_conformity].



This crossed out wheeled bin marking shows that Polar products are electronic devices and are in the scope of Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) and batteries and accumulators used in products are in the scope of Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators. These products and batteries/accumulators inside Polar products should thus be disposed of separately in EU countries.



This marking shows that the product is protected against electric shocks.

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US5486818, DE9219139.8, GB2258587, FR2681493, HK306/1996, FI96380, W095/05578, EP665947, US5611346, JP3568954, DE69414362, FI110303, W096/20640, EP 0748185, US6104947, FI100924, EP 836165, US 6229454, DE 69709285, FI112028, EP 0984719, US 6361502, FI 111801, US 6418394, EP1124483, W09855023, FI114202, US 6537227, FI112844, EP 724859 B1, US 5628324, DE 69600098T2, FI110915, FI 113614.

Other patents pending.

Manufactured by:

Polar Electro Oy

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