

GBR

User's Manual

POLAR VANTAGE NV™



HEART RATE MONITOR

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INTRODUCTION

Congratulations on purchasing the Polar Vantage NV Heart Rate Monitor ! You are now the owner of the most advanced and sophisticated HRM in the world offering features and performance exceeding any other HRM available, including:

WATCH FUNCTIONS

- watch with alarm clock, calendar and weekday indicator
- 12/24 h display
- stopwatch with split / lap time counter
- alternate displays in measurement mode (total exercising time or time of day)

HEART RATE MONITORING FUNCTIONS

- wireless heart rate monitoring with ECG accurate continuous measurement
- coded transmission of heart rate
- two freely programmable target zones
- visual and audible alarm for each target zone limit
- time spent above, within and below each target zone
- with each lap/split time corresponding heart rate information
- two programmable, alternating timers
- average heart rate for each lap
- maximum, average and minimum heart rate of the total exercise period
- Recovery Heart Rate / Recovery Time after each lap
- freely programmable Training thresholds
- time below Lower Training threshold, between Lower and Upper Training thresholds and above Upper Training threshold
- graphic and numeric display of Relaxation Rate
- two ranges of heart rate reception distance

RECORDING FUNCTIONS

- ability to record up to 134 hours of performance information with unlimited number of files
- complete file identification system (date, time of day, number of file)
- automatic recording ability with RR (beat to beat) -intervals and every 5, 15, 60 seconds
- ability to use the Polar Vantage NV Receiver as a stopwatch with manual heart rate recording
- ability to let the oldest file be replaced by a new one during recording
- an indicator for the amount of free memory shows up on display each time when starting a new recording

OTHER FUNCTIONS

- electroluminescent backlight
- ability to activate the backlight and to check time of day / split time, Heart Rate Limits in use and the transmission code while exercising
- ability to recall the memory file by file on receiver display

DATA TRANSFER AND OTHER FUNCTIONS WITH OPTIONAL INTERFACE

- ability to download performance data into a computer for detailed analysis
- ability to upload settings for watch and HRM functions from PC
- ability to show user's ID on the display of the receiver

This user's manual is designed to show precisely what the Polar Vantage NV Heart Rate Monitor can do and how you can use each feature to best accomplish your personal fitness and performance goals.

Precautions

- Do not stretch or bend the Transmitter especially when storing it.
- Do not operate the buttons of your Polar Vantage NV HRM under water.
- Wash and dry your Polar Transmitter regularly after use; never store it wet.
- Do not store your Polar Vantage NV HRM in any kind of non-breathable material, such as a plastic bag or sports bag. Store it in a dry place.
- Keep your Polar Vantage NV HRM out of extreme cold or heat.

Before you begin

Before starting any exercise program, always consult your physician. If you have a pacemaker or other implanted electronic device, consult your physician and/or the manufacturer of the device prior to using the Polar Vantage NV Heart Rate Monitor.

HOW DOES POLAR VANTAGE NV WORK

Polar Vantage NV parts

The Polar Vantage NV HRM consists of three parts:

1. The Polar Coded Transmitter

2. The Elastic Strap

Grooved electrode areas

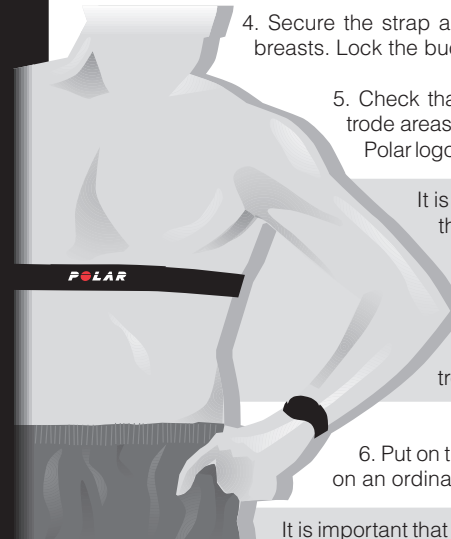
3. The Wrist Receiver



Wearing the Polar Vantage NV HRM

1. Attach the Polar Coded Transmitter to the elastic strap.
2. Adjust the strap length to fit snugly and comfortably.
3. Wet the **grooved electrode areas** on the backside of the Polar Coded Transmitter.

The key to flawless operation is to wet the grooved electrode areas carefully.



4. Secure the strap around your chest, below the breasts. Lock the buckle.
5. Check that the grooved and wet electrode areas are against your skin and the Polar logo is in a central upright position.

It is recommended that you wear the Transmitter against your bare skin to ensure flawless operation. However, if you wish to wear the Transmitter over a shirt, moisten the shirt well under the electrodes.

6. Put on the Receiver as you would put on an ordinary watch.

It is important that the electrodes are wet during the exercise. However, after exercising, wash and dry the Transmitter carefully to save the electrodes and battery life.

HOW TO SET THE WATCH

In the Time of Day display you can set the following three watch functions:

- Alarm
- Time
- Date

Each function is represented by a block in the graphic bar in the above order. A flashing block means that you are setting the corresponding function.


Setting the 12/24h display

1. In the Time of Day display, press and hold SET/START/STOP. Release.
12 h mode with AM/PM indicator is activated.
2. Press and hold again. Release.
24 h mode is activated.
3. The chosen mode is now used in all watch and alarm functions.



If you chose the 24 h mode you can skip those parts in the following instructions, which advise you to set AM or PM.



Start here for the setting of alarm, time and/or date:

1. In the Time of Day display press the SET/START/STOP-button.
 - SET starts to flash in the upper right corner of the display.
 - ALM appears on the display.
 - Alarm symbol  starts to flash.
 - The uppermost block of the graphic bar on the right, representing the setting of Alarm, starts to flash.
2. Go through the setting of alarm, time and date step by step by following the instructions.

You can also go directly to set just one particular function by pressing SET/START/STOP shortly as many times as needed until you see the corresponding symbol of the desired function in the display and the block flashing. Now follow the instructions for setting that particular function.

Setting the alarm

Alarm Symbol  is flashing.

1. Press SIGNAL/LIGHT to set the alarm on ( appears) or alarm off ( disappears).
2. Press STORE/LAP/RECOVERY to lock your selection.
AM starts flashing.
3. Press SIGNAL/LIGHT to select AM or PM.
4. Press STORE/LAP/RECOVERY to lock your selection.
The first two digits, representing the hours, start flashing.
5. Press SIGNAL/LIGHT to select the desired hour.



The digits run faster if you press and hold the SIGNAL/LIGHT button. Release the button when the desired value is approaching.

6. Press STORE/LAP/RECOVERY to lock your selection.
The last two digits, representing the minutes, start flashing.
7. Press SIGNAL/LIGHT to select the desired minutes.
8. Press STORE/LAP/RECOVERY to lock your selection.
9. Press SET/START/STOP to enter the time setting mode.
AM starts flashing.
10. Now continue from **Setting the time.**

To return immediately to Time of Day display, press the SELECT button twice.

When the alarm comes on it will sound for one minute or you can turn it off by pressing STORE/LAP/RECOVERY button.

Setting the time

AM/PM (alternatively the first two digits) are flashing.

1. Press SIGNAL/LIGHT to select AM or PM.
2. Press STORE/LAP/RECOVERY to lock your selection.
The first two digits, representing the hours, start flashing.
3. Press SIGNAL/LIGHT to select the desired hour.
4. Press STORE/LAP/RECOVERY to lock your selection.
The next two digits, representing the minutes, start flashing.
The last two digits representing the seconds go to zero.
5. Press SIGNAL/LIGHT to select the desired minutes.
6. Press STORE/LAP/RECOVERY to lock your selection.
7. Press SET/START/STOP to enter the date setting mode.
The seconds start running.
The two first digits of date, representing the year, start flashing.
8. Now continue from **Setting the date**.



3. Press SIGNAL/LIGHT to select the month.
4. Press STORE/LAP/RECOVERY to lock your selection.
The last two digits, representing the day, start flashing.
5. Press SIGNAL/LIGHT to select the desired day.
6. Press STORE/LAP/RECOVERY to lock your selection.
The digits in the lower right corner, representing the weekdays, start flashing.
7. Press SIGNAL/LIGHT to select the desired weekday.
8. Press STORE/LAP/RECOVERY to lock your selection.
The two digits, representing the year, start flashing.
9. Press SET/START/STOP to enter the **alarm setting** mode. Press the SELECT button to return to the time of day display.

To return to time of day display immediately, press the SELECT button twice.

Setting the date

The first two digits are flashing.

1. Press SIGNAL/LIGHT to select the year.
2. Press STORE/LAP/RECOVERY to lock your selection.
The second digits, representing the month, start flashing.



HOW TO SET THE HRM FUNCTIONS

In the SET-mode you can set the following ten different HRM functions in your Polar Vantage NV HRM:

- Timer 1
- Timer 2
- Heart Rate Limits 1
- Heart Rate Limits 2
- Training thresholds
- Recovery Heart Rate / Recovery Time
- Heart Rate Reception Distance
- Time Display
- Relaxation / Lap Display
- Memory deletion



Each of these functions is represented by a block in the graphic bar in the above order. A flashing block means that you are setting the corresponding function.

Start here to set any of these functions:

1. In the Time of Day display press the SELECT-button three times.
*SET starts to flash in the upper right corner of the display.
The uppermost block of the graphic bar on the right, representing the setting of **Timer 1**, starts to flash.*
2. Go through the settings step by step for each of these functions by following the instructions.

You can also go directly to set any particular function. If you prefer this, press SET /START/STOP shortly as many times as needed until you see the corresponding symbol of the desired function in the display and the block flashing. Now follow the instructions for setting that particular function.

Setting the Timers 1 and 2

The first two digits, representing the minutes of Timer 1, flash.

If you don't want to use the timer, set the value to zero.

1. Press SIGNAL/LIGHT to select the desired minutes.

The digits will run faster if you press and hold the SIGNAL/LIGHT button. Release the button when the desired value is approaching.

2. Press STORE/LAP/RECOVERY to lock your selection.

The last two digits, representing the seconds of the Timer, start to flash.

3. Press SIGNAL/LIGHT to select the desired seconds.

4. Press STORE/LAP/RECOVERY to lock your selection.

5. Press SET/START/STOP to enter the setting mode of Timer 2.

*The second block of the graphic bar on the right, representing the setting of **Timer 2**, starts to flash.*

The first two digits, representing the minutes of the Timer 2, start to flash.

6. Repeat the steps from 1 to 4 to set the Timer 2.

You can set the Timer 2 only if the Timer 1 has been set.

If you want to set only the Timer 1, set the value for Timer 2 in zero.

Timers start running when you start the stopwatch. Timer 2 will follow Timer 1 and they will alternate accordingly when the stopwatch is running.

7. Press SET/START/STOP to set the Heart Rate Limits.

*The third block of the graphic bar on the right, representing the setting of the **Heart Rate Limits 1**, starts to flash.*

The upper reading, representing the Upper Limit 1, starts to flash.



Setting the Heart Rate Limits 1&2

The upper reading is flashing.

1. Press SIGNAL/LIGHT to select the desired value for the Upper Limit 1.

The digits will run faster if you press and hold the SIGNAL button. Release the button when the desired value is approaching.

You can not set the upper limit lower than the lower limit.

The range for the heart rate limits is 10 - 240.



2. Press STORE/LAP/RECOVERY to lock your selection.
The lower reading, representing the Lower Limit 1, starts to flash.
3. Press SIGNAL/LIGHT to select the desired Lower Limit 1.
4. Press STORE/LAP/RECOVERY to lock your selection.
5. Press SET/START/STOP to enter the setting mode of Heart Rate Limits 2.
*The fourth block of the graphic bar on the right, representing the setting of the **Heart Rate Limits 2**, starts to flash.*
The upper reading, representing the Upper Limit 2, starts to flash.
6. Repeat the steps 1 to 4 to set the Heart Rate Limits 2.
7. Press SET/START/STOP to enter the setting mode of Training thresholds.
*The fifth block of the graphic bar on the right, representing the setting of the **Upper/lower training thresholds**, starts to flash.*
The upper reading, representing the Upper Training threshold, starts to flash.

Setting the Training thresholds

The upper reading is flashing.

1. Press SIGNAL/LIGHT to select the desired value for the Upper training threshold.

Training thresholds can be used to analyse your training with respect to predefined thresholds such as aerobic threshold and anaerobic threshold (Lactate threshold, OBLA). Training thresholds are very individual and can be determined most accurately in the laboratory tests. The programming range for Upper/Lower Threshold is 10-240.



2. Press STORE/LAP/RECOVERY to lock your selection.
The lower reading, representing the Lower training threshold, starts to flash.
3. Press SIGNAL/LIGHT to select the desired value for the Lower training threshold.
4. Press STORE/LAP/RECOVERY to lock your selection.
5. Press SET/START/STOP to set the Recovery Heart Rate or alternatively Recovery Time.
*The sixth block of the graphic bar on the right, representing the setting of the **Recovery Heart Rate/Recovery Time**, starts to flash. The upper right digits (HR), representing the Recovery Heart Rate mode, start to flash.*

Setting the Recovery Heart Rate / Recovery Time

HR (alternatively TI) is flashing.

CHOOSE FROM THESE RECOVERY FUNCTIONS:

Recovery Heart Rate (RECO HR)

Measures how much the heart rate decreases during the pre-set period of time. You define the period of time in minutes and seconds.

Recovery Time (RECO TI)

Measures the time until a certain heart rate reading is reached. You define the heart rate reading you want to reach.



1. Press SIGNAL/LIGHT to choose RECO HR or RECO TI.
2. Press STORE/LAP/RECOVERY to lock your selection.
If you selected RECO HR, 00:00 appears on the display and starts to flash.
If you selected RECO TI, 00 appears on the display and starts to flash.
3. Press SIGNAL/LIGHT to select the desired value.
If you selected earlier RECO HR, first select the desired value for the minutes.
Press STORE/LAP/RECOVERY to lock your selection. Then press SIGNAL/LIGHT to select the desired value for the seconds.

If you selected earlier RECO TI, select now the desired heart rate value.

The digits run faster if you press and hold the SIGNAL/LIGHT button. Release the button when the desired value is approaching.

4. Press STORE/LAP/RECOVERY to lock your selection.
HR/TI starts to flash.

5. Press SET/START/STOP to enter the setting of the Heart Rate Reception Distance.
DIST appears on the display.
*The seventh block of the graphic bar on the right, representing the setting of the **Heart Rate Reception Distance** starts to flash.*
The reading starts to flash.

Setting the Heart Rate Reception Distance

The reading is flashing.

1. Press SIGNAL/LIGHT to select the Heart Rate Reception Distance.

Choose 100 % as the normal Heart Rate Reception Distance. Also, if you have extra long arms, if you are rowing or attaching the Wrist Receiver to something other than your wrist, choose 100 %.

Choose 70 % if you think there are going to be possible interferences, for example exercise equipment near you. If you choose the 70 % distance, you should make sure that you keep the Receiver within approximately 70 centimeters from the Transmitter.

2. Press SET/START/STOP to enter the setting of the Time Display.
DISP 1 appears on the display.
*The eighth block of the graphic bar on the right, representing the setting of the **Time Display**, starts to flash.*



Setting the Time Display

00:00.0 (alternatively time of day) is flashing.

1. Press SIGNAL/LIGHT to select the desired Time Display.

CHOOSE FROM THESE ALTERNATIVES:

00:00.0 Displays stopwatch time during heart rate measurement.

Time of Day Displays time of day during heart rate measurement.



2. Press SET/START/STOP to enter the setting of the Relaxation/Lap Display.
DISP 2 appears on the display.
The ninth block of the graphic bar on the right, representing the setting of the Relaxation/Lap Display, starts to flash.
RLX (alternatively RLX/LAP or LAP) starts to flash.

Setting the Relaxation/Lap Display

RLX (alternatively RLX/LAP or LAP) is flashing.

1. Press SIGNAL/LIGHT to select the desired Relaxation/Lap Display.

CHOOSE FROM THESE ALTERNATIVES:

RLX During heart rate measurement graphic and numeric display indicating Relaxation Rate is shown when no lap time is taken. Shows lap number for 5 seconds after each LAP press. (See Polar Glossary for more information about Relaxation Rate).

LAP Displays lap number all the time.

RLX/LAP During heart rate measurement scans 5 seconds lap number and 5 seconds Relaxation Rate.



2. Press SET/START/STOP to enter the setting of the Memory Deletion
DEL FILES appears on the display.
*The last block of the graphic bar on the right, representing the setting of the **Memory Deletion**, starts to flash.*
NO (alternatively YE) starts to flash.

Setting the Memory Deletion

NO (alternatively YE) is flashing.

1. Press SIGNAL/LIGHT to select the desired option.

CHOOSE FROM THESE ALTERNATIVES:

NO With this selection, when the memory is getting full, the oldest file is not deleted and you can not save more information. To continue saving more training information you have to delete files manually. (See Deleting the most recent file)

YE With this selection, when the memory is getting full during exercise, the oldest file is deleted automatically to free some memory for the current file. However, if the current recording is consuming the whole memory into one single file, the stopwatch stops but the file will not be deleted.

2. Press SELECT to return to the beginning of the SET mode.
The uppermost block of the graphic bar starts to flash.
TIME 1 appears in the display.

Press SELECT to return to Time of Day mode.



HOW TO START THE HEART RATE MEASUREMENT

CHOOSE FROM THESE ALTERNATIVES:

Quick start

1. Wear the Transmitter and the Receiver as described earlier.
2. In the Time of Day mode, press STORE/LAP/RECOVERY.
Heart Rate Measurement starts.
The search for transmission code starts.
The heart rate reading appears on the bottom line in a few seconds.
Stopwatch starts running.
Automatic recording of heart rate information starts.

Two touch start

1. Wear the Transmitter and the Receiver as described earlier.
2. In the Time of Day mode, press SELECT.
Heart Rate Measurement starts.
The search for transmission code starts.
The heart rate reading appears on the bottom line in a few seconds.
3. Start the stopwatch by pressing SET/START/STOP.
Stopwatch starts running.
Automatic recording of heart rate information starts.

You will see immediately how many percent of the memory is left with the default settings.

For example if all the memory is available, you'll see MEM with 99 and % scanning in the lower right corner of the display.

HOW YOUR POLAR VANTAGE NV AUTOMATICALLY SETS THE TRANSMISSION CODE


The transmission code will be selected automatically by your Polar Coded Transmitter in the beginning of each training session. Once you have started the heart rate measurement as described earlier, the following will happen:

1. The Wrist Receiver starts searching for your coded transmission within 70 cms.
-- appears in the bottom of the display indicating that the Receiver is searching for a code.

2. Make sure that the code search is successful:

During the code search (max. 30 seconds) keep the Wrist Receiver near to your Polar Coded Transmitter, which you are wearing.

Also check that there are no disturbances near you during the code search (for example other people with heart rate monitors, high voltage power lines, televisions, cars, exercise equipment, etc.)

3. If the code search was successful, you'll notice borders around the heart symbol  during measurement in the lower left corner of the display. You can now start exercising normally.
4. If the code search was not successful (no borders around the heart symbol), the Wrist Receiver treats Polar Coded Transmitter as a regular Polar Transmitter. You can either start exercising normally with uncoded transmission or check your environment, keep your Wrist Receiver nearer to the Polar Coded Transmitter and restart the heart rate measurement and code search.
5. The benefit of the coding is that you will not normally pick up other people's heart rate transmission and certain kinds of disturbances are more efficiently filtered. How ever your training partner may coincidentally have exactly the same transmission code. To check your code number, bring the Polar Vantage NV Receiver next to the Polar-logo of your Polar Coded Transmitter. The code in use and TC start scanning in the lower right corner of the display. If you have the same code number with your training partner you have the following alternatives:
 1. Keep distance to your training partner and continue your training session normally
or
 2. Stop the heart rate measurement and enter back to Time mode. Pull the transmitter off your chest for 15 seconds (code will be changed) and restart the heart rate measurement. In some cases you may need to dry the transmitter electrodes to ensure that the transmitter is turned off and on again, as the sweat may keep it active even when it is off the chest.

WHAT CAN YOU DO WITH THE POLAR VANTAGE NV DURING THE HEART RATE MEASUREMENT?

1. Illuminate the display Press SIGNAL/LIGHT or bring the Wrist Receiver very close to the Transmitter for a moment.
2. Turn the sound signal off/on Press and hold SIGNAL/LIGHT for 1 second.
3. Stop/start the stopwatch Press SET/START/STOP to stop/start the stopwatch.

The following information is calculated only from the time the stopwatch is running.

- average heart rate
- minimum heart rate
- maximum heart rate
- time below, within and above the target zones

4. Change Heart Rate Limits When the stopwatch is running, press SELECT and there will be an indication of the activated Heart Rate Limits on the display.
5. Check transmission code, Heart Rate Limits and Time of Day/total exercising time During the heart rate measurement bring the Wrist Receiver next to the Polar logo on the transmitter for a moment. The following information will appear automatically on the illuminated display for 5 seconds.
 - Heart Rate Limits in use
 - Time of day (alternatively total exercising time)
 - transmission code (TC)
6. Check split/lap time and corresponding average heart rate During the heart rate measurement press the STORE/LAP/RECOVERY to freeze
 - split/lap time for 5 seconds
 - average heart rate (AVG) from the corresponding lap for 5 seconds.

The sequence number of the next lap will be displayed after 5 seconds and lap timer starts again from zero.

7. Check Relaxation Rate

During the heart rate measurement if you have chosen RLX or RLX/LAP in the Relaxation/Lap Display (see Setting the Relaxation/Lap Display) you can follow Relaxation Rate graphically and numerically on the right side of the display.

Relaxation Rate principle

The Relaxation Rate is indicated in milliseconds (ms). The higher the reading and the taller the graphic bar, the higher is your heart rate variation and the better your Relaxation Rate and vice versa - the lower the reading and the shorter the graphic bar, the lower is your heart rate variation and the higher your physical and/or mental stress level.



In this display you can see an example of a Relaxation Rate of a person at rest. The Relaxation Rate is 35 ms (HR 80 bpm) and five blocks are highlighted in graphic bar correspondingly.

In this display you can see the Relaxation Rate of the same person during moderate exercise. The Relaxation Rate is 9 ms (HR 120 bpm) and two blocks are highlighted correspondingly.

For more information, see Polar Glossary.

8. Start Recovery calculation

When the stopwatch and heart rate measurement are on, press and hold STORE/LAP/RECOVERY for 2 seconds:

- You'll hear three beeps and the name of your selection (RECO HR/RECO TI) appears in the upper row of the display.
- The graphic bar starts to indicate the counting of the Recovery Time/Heart Rate.
- If your setting is Recovery Time, you'll hear two beeps at the same time you reach the preset heart rate reading. The Recovery Time (time to reach the preset heart rate reading) appears in the display in minutes and seconds.
- If your setting is Recovery Heart Rate, you'll hear two beeps when the time for the recovery calculation is up. The Recovery Heart Rate (drop in your heart rate during the preset time) appears in the display.

9. Reset the stopwatch

Press SET/START/STOP to stop the stopwatch. Then press and hold SET/START/STOP until all stopwatch numbers are back to zero. Release the button. The current file is deleted and you can start again.

10. Stop recording operations

Press SET/START/STOP to stop the stopwatch. Then press SELECT to enter the FILE mode, to recall the results recorded during the exercise period.

HOW TO REVIEW THE RECORDED INFORMATION

Before viewing the recorded information:

1. Stop the stopwatch by pressing the SET/START/STOP
2. Press SELECT to enter the FILE mode, where you can recall the results recorded during the exercise period.
 - FILE starts flashing in the upper middle of the display.*
 - LEFT and FILES start scanning on the display.*
 - INT starts flashing in the lower right corner of the display.*

INT Indicates the selected recording interval.

LEFT Indicates the amount of memory left with the selected recording interval.

FILES Indicates the amount of files in the memory. Each training session is recorded as one file.



Changing the recording interval

1. Press SIGNAL/LIGHT to change the recording interval.
 - INT and the symbol of the current selection for the recording interval is flashing on the lower right corner of the display.*

CHOOSE FROM THE FOLLOWING ALTERNATIVES:

RECORDING INTERVAL	FULL MEMORY
RR <i>Each heart beat is recorded.</i>	4000 heart beats
5 <i>Heart rate is recorded every 5 seconds.</i>	11h 13min
15 <i>Heart rate is recorded every 15 seconds.</i>	33h 41min
60 <i>Heart rate is recorded every 60 seconds.</i>	134h 46min
- - <i>Automatic heart rate recording is disabled and INT is replaced by LAP.</i>	
(Recording has to be done manually by pressing the STORE/LAP/RECOVERY every time you want to save a heart rate reading.)	730 laps

Besides each alternative you can see the amount of memory left when using that particular choice of recording interval. The selected recording interval defaults for the next measurement period. For more information of R-R-recording see Polar Glossary; R-R-recording.

Recalling the training information




LEFT and FILES scan on the display.

1. Press STORE/LAP/RECOVERY to be able to select the file you want to recall.
The front page of the last recorded file including file number, time and date is shown on the display. On the bottom line you can see the maximum (MAX), average (AVG) and minimum (MIN) heart rate of the training session scanning and the total number of LAPs.

2. Press SIGNAL/LIGHT if you like to see the front page of the previous file.

To get back to the beginning of recalling the training information, press SELECT.

3. Once you have the front page of the desired file on the display, press STORE/LAP/RECOVERY to recall the contents of the file.
The following figures will appear on the display one after another as you press the STORE/LAP/RECOVERY button:

LIM 1	Settings for Target Zone 1	
LIM 2	Settings for Target Zone 2	
TH	Setting for Threshold values	
LIM 1 TZ	Exercising time above the Target Zone 1	
LIM 1 TZ	Exercising time within the Target Zone 1	
LIM 1 TZ	Exercising time below the Target Zone 1	
LIM 2 TZ	Exercising time above the Target Zone 2	
LIM 2 TZ	Exercising time within the Target Zone 2	
LIM 2 TZ	Exercising time below the Target Zone 2	
TH TZ	Exercising time above the Upper threshold	
TH TZ	Exercising time between the thresholds	
TH TZ	Exercising time below the Lower threshold	

4. Press again STORE/LAP/RECOVERY to continue reviewing the following file information:

Recorded heart rate readings

Lap/Split times scanning with corresponding Recovery Heart Rates / Recovery Times

Swappings between Heart Rate Limits 1 and 2

When reviewing these details, the digits will run faster if you press and hold the STORE/LAP/RECOVERY button. Release the button when you want to see a certain reading for a longer time. The button is released automatically in case a split/lap time or change of Heart Rate Limits is showing up on the display.

To view the file backwards, press SIGNAL/LIGHT instead of STORE/LAP/RECOVERY.

5. Finally you will see the end of the file.

“End” at the end of each file
Total exercising time with last lap and heart rate

6. Press SELECT to stop reviewing the files.
LEFT and FILES start flashing.
7. Press SELECT twice to return to the time of day display.

Deleting the most recent file

LEFT and FILES scan on the display.

1. To delete the most recent file, press SET/START/STOP.
DEL FILE with the number of the most recently recorded file appears on the display.
2. Confirm the deleting of the file by pressing STORE/LAP/RECOVERY.
The most recent file is deleted.

If you decide not to delete the most recent file, press SELECT.

Press SELECT twice to return to the time of day display.

HOW TO GET MORE OUT OF YOUR POLAR VANTAGE NV

To be able to use all the built-in computer options of your Polar Vantage NV HRM you need a Polar Advantage Interface with Software and a Personal Computer.

With the Advantage Interface, Software and PC you can program your HRM and watch settings as well as transfer training data from your HRM to PC for further analysis. The management of training files is easy as you can see all the files at a glance. You are also able to program your initials or player number onto the display of your Polar Vantage NV HRM for easier monitor recognition in multiuser situation.

With the Advantage Interface and a PC you are able to create on-line measurement situations with the interface acting like a receiver for heart rate data. The advanced diary driven software enables you to manage the total training year of an individual or a team through Planner, Diary, Tests, Reports and HR Analysis portions.

Tip for coaches, teachers, trainers and whoever needs to manage a multiuser situation: Polar Advantage Interface with Software enables you to easily program all your Vantage NV HRMs with any predefined settings.

Please note the following requirements from your PC:

PC	386 25 MHz or higher recommended (minimum 286)
Operating system	Windows 3.1 or newer
Hard disk	4 MB of free space (minimum)
RAM	4 MB minimum
Disk drive	3.5" (1.44 MB)
Serial port	Free RS-232 serial port
Graphic board	Windows accelerator recommended
Mouse	

Polar Advantage Interface with Software is available through your local dealer or distributor.

CARE AND MAINTENANCE

1. Keep the Wrist Receiver and Transmitter clean. Wipe off any moisture before storing.
2. Wash the Transmitter regularly after use with a mild soap and water solution.
3. Dry the Transmitter carefully after washing.
4. Store your Polar Vantage NV HRM in a breathable material when not in use, not in a gym bag or plastic bag.
5. The Polar Vantage NV HRM is water resistant but do not press the Receiver buttons under water.
6. Do not stretch or bend the Transmitter. This may damage the electrodes.

The estimated average battery life of the Wrist Receiver is **1 year** in normal use. To ensure the water resistance properties, the Wrist Receiver Battery should be replaced only by a person authorised by Polar Electro Oy. See **Service**.

The estimated average battery life of the Polar Coded Transmitter is **2500 hours of use**. Contact your local Polar dealer or distributor for a replacement Transmitter. NOTE: Polar recycles used Transmitters.

HELP !

Troubleshooting

- TROUBLE:** YOU DON'T KNOW WHERE YOU ARE IN THE PROGRAMMING CYCLE
- CURE:** Press SELECT several times until you are back in the Time of Day mode.
- TROUBLE:** IRREGULAR READINGS
- CURE:** 1. Reset the Polar Vantage NV HRM by pressing the reset button with a pen tip.

Resetting clears totally all data from the memory and installs default settings.

- TROUBLE:** NO HEART RATE READING
- CURE:** 1. Check that the elastic strap is tight enough.
2. Check that the electrodes of the Transmitter are moistened.
3. Check that you have kept the Transmitter clean. See care and maintenance.
- TROUBLE:** HEART SYMBOL FLASHES IRREGULARLY
- CURE:** 1. Check that your Wrist Receiver is inside the transmission range.
2. Check that the elastic strap has not become too loose during exercise.
3. Make sure that the electrodes of the Transmitter are moistened.
4. Check settings for the Heart Rate Reception Distance
- TROUBLE:** BLANK MONITOR OR FADING DISPLAY
- CURE:** Have the batteries checked. See Service.

Helpful hints

- LIGHT** Press SIGNAL to illuminate the display.
- TIME OF DAY** Press and hold SET/START/STOP
12 h/24 h time of day mode is activated.
- DATE** Press and hold SIGNAL.
The date appears on the display.
Press and hold SIGNAL again.
The time appears on the display.

RESETTING THE HRM


1. Press the reset button with a pen tip to reset the HRM and to clear the memory.
The display becomes full of digits.
2. Press STORE/LAP/RECOVERY to enter the time of day display.
3. Start the settings from beginning.


Pressing the reset button clears the memory totally.


EASY FILE MANAGEMENT

When the memory is getting full during the exercise period, the oldest file is deleted automatically to free some memory for the new files. You don't need to worry about the amount of memory you have left. To activate this function see Setting the Memory Deletion.

Polar glossary

 In the MEASURE mode the flashing heart symbol indicates the ongoing heart rate measurement. The heart symbol flashes at the pace of the beating of your heart.

 In the MEASURE mode borders around the heart symbol indicate that the transmission is coded. If the borders are missing, your heart rate transmission is non-coded.

 In the TIME mode indicates that the alarm is on or off. In the MEASURE mode indicates that the sound signal to alarm if you are exercising below or above your target heart rate zone is on or off.

ALM: ALARM mode

AM/PM: 12 hour mode of TIME

AVERAGE HEART RATE; AVG: Average of heart rates measured during an exercise period. The average heart rate is calculated from the time the stopwatch is running.

BPM: Beats per minute

DATE: Indicates the date in the DATE setting mode.

DAY: Indicates the day in the TIME setting mode.

DEL FILE X: You can delete the newest file manually.

DEL FILES (No/Ye): You can disable/enable the automatic deletion of your oldest files as your memory becomes full.

DISP 1: In DISP 1 mode (Time Display) you can choose whether you prefer to see the stopwatch or the time of day displayed during the heart rate measurement.

DISP 2: In DISP 2 mode (Relaxation/Lap Display) you can choose one of three alternatives to be displayed during the heart rate measurement:

1. Relaxation Rate in milliseconds and corresponding graphic bar are always displayed when no lap times have been recorded and again after 5 seconds after each LAP press
2. all the time LAP
3. 5 seconds LAP and 5 seconds Relaxation Rate scanning.

DIST: You can set the heart rate reception distance manually.

ECG: Electrocardiogram

ELECTRODES: Pick up the heart's electrical impulses and are encased in the Transmitter, behind the two grooved areas.

END: A recording has stopped and / or you have run out of memory.

FILE: File mode

FULL: In the measure mode FULL indicates that memory is full and you should delete files to be able to continue recording.

GRAPHIC BAR: In the graphic bar there are ten blocks. In the SET mode the blocks indicate the different heart rate measurement functions you can set. A flashing block means that the setting of a function is possible. In the MEASURE mode the graphic bar indicates the Relaxation Rate or an ongoing Recovery calculation.

HALT: HALT appears on the display to indicate that stopwatch is stopped after 99:59:59. This function is designed to save battery energy.

HEART RATE: The number of heart beats per minute

HRM: Heart Rate Monitor; includes Polar Transmitter, Wrist Receiver and Elastic Strap

INT: Interval for automatic heart rate recording

LAP: Together with a number indicates how many lap times are used in MEASURE and FILE modes.

Lap time: Time needed to move once around a closed course or track.

LEFT: Tells you amount of memory left.

LIM 1/LIM 2: Heart Rate Limits 1 and 2

LOWER THRESHOLD; AeT: Physiological point during exercise of increasing intensity at which the blood lactate begins to accumulate above resting level, but body is simultaneously able to synthesize most of it. This is known as Aerobic Threshold (AeT) and corresponds usually to 2 mMol lactate per liter of blood.

MAX: Maximum heart rate of exercising period

MEASURE: Measure mode.

MEM: Indicates memory available.

MEMORY DELETION: During the exercise period, you can record information in the memory of the HRM. The number of exercising sessions is unlimited. If the memory is getting full, the oldest file is erased automatically. (To activate this function see Setting the Memory Deletion.) It is also possible to erase the newest file manually (See Deleting the most recent file).

MIN: Minimum heart rate of exercising period.

MONTH: Shows the month in TIME mode.

MS: Millisecond

NV: Personal Identification (optional with Advantage Interface)

PC: Personal Computer

Polar Coded Transmitter: Automatically picks a code to transmit your heart rate to the Wrist Receiver. In coded transmission the Receiver accepts heart rate information from your transmitter only. Coding reduces significantly crosstalk caused by other users of heart rate monitors, however, it does not necessarily reduce all environmental interference.

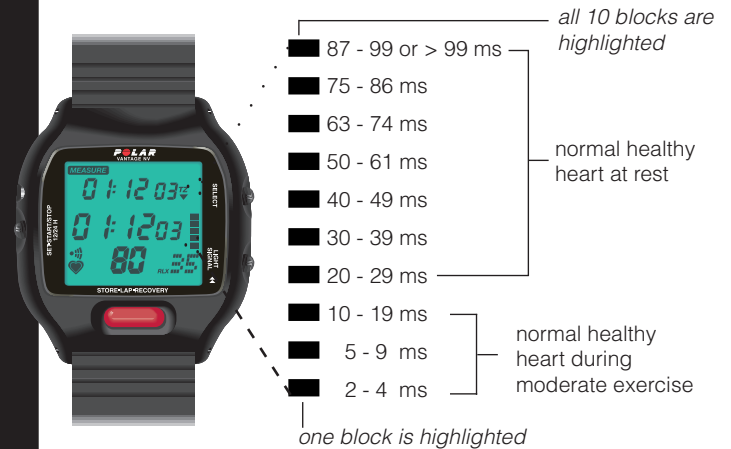
Recovery Heart Rate (RECO HR): Decrease in heart rate during the pre-set period of time.

Recovery Time (RECO TI): Time until certain heart rate reading is reached.

-- When starting the heart rate measurement, this flashing symbol indicates the search for coded transmission. This symbol appears also when the wrist receiver stops receiving the heart rate information due to missing heart rate signals. This function is designed to save battery life. To continue, restart the heart rate measurement.

RELAXATION RATE

On the basis of heart rate variation, the Polar Vantage NV Heart Rate Monitor measures the Relaxation Rate of your body. The Relaxation Rate (RLX) indicates heart rate variation as a graphic bar on the right of the display and as a numerical value under the bar. The value is a modified standard deviation value for the heart rate variation, and the measuring unit used is milliseconds.



The higher the bar and the higher the value, the higher is heart rate variation and the more relaxed is your body as well as your mind. Respectively, the lower the bar and the value, the smaller is the variation and the higher your stress level, physical or mental. Heart rate variation is a typical feature of a healthy heart, and the degree of variation is highly individual. Therefore, compare the results you get only with the former data of your own.

The Relaxation Rate is best suitable for measuring heart rate variation in situations such as rest, daily activities and light exercise. In a strenuous exercise, the heart rate remains on a high level and the variation is so small that the relaxation bar disappears from the display on the whole. After the exercise, for example the following morning, by monitoring the heart rate and its variation, you can see the state of your physical recovery. A resting heart rate significantly higher and a heart rate variation smaller than normal at rest may be an

indication of incomplete recovery or, for example, a flu that is about to break out, suggesting that you should lighten your exercise that day. States of mind such as anxiety, oppression, tension or anger typically increase heart rate and decrease its variation. A high degree of concentration also has the same effect.

In order to find your own natural Relaxation Rate, check it for example right after you wake up on three consecutive mornings after a sufficient amount of sleep. Then compare these normal values of your Relaxation Rate to situations when you are tired, stressed, when you have a flu, or when you have not slept well. Note also that heart rate variation decreases with the years.

In conscious relaxation training, such as meditation and breathing exercises, you can lower your heart rate and increase its variation. For example, try the following breathing exercise: sit down, close your eyes and let your mind relax. Breathe deeply in a peaceful manner approximately six times in one minute. Open your eyes and check the effect of the exercise from the wrist receiver display.

The Polar Vantage NV Heart Rate Monitor helps you recognize stressful situations and makes it easier for you to deal with the sources of stress. The better you are familiar with the sources of stress, the better you may eliminate their negative effect and the more relaxed you are.

RR: R-R-recording indicates the heart rate variability and measures the time in milliseconds between two successive heart beats. R-R-recording is suitable for measuring heart rate variability in non-exercise and at resting situations. We recommend using Contact Gel (ECG gel) to ensure good contact between your skin and the Transmitter. We also suggest to minimize the use of the following Vantage NV receiver functions: lap times, timers and backlight to avoid disturbance during R-R-recording. However, if you decide to make an R-R-recording during exercise, we recommend you to do it on a bicycle. Use the Polar Bike Mount to attach the Receiver to the handlebar of your bike.

SET: Set mode.

SPLIT TIME: A part of an exercise period

TARGET ZONE: An area between upper and lower target zone limits. Target zone selection is based on individual's personal fitness goals.

TARGET ZONE LIMITS: Target zone limits are determined as percentages of maximum heart rate. The percentages are converted into the heart rate in beats per minute.

TC: Transmission code.

TIME: Time of Day display

TIMER 1 AND 2: Timer-function helps you to divide your exercise session into separate phases (e.g. warm-up, exercise phase, cool down). Timers can be programmed to alarm for example at two minute intervals.

TRAINING THRESHOLDS: Training thresholds are very individual and can be determined accurately in the laboratory tests. See Lower threshold, Upper threshold

TZ: During exercise, in MEASURE mode the symbol indicates that you are exercising within the Target Zone. In FILE mode indicates the time spent within the Target Zone.

▲
TZ: During exercise in MEASURE mode indicates that the heart rate is above the Target Zone. In FILE mode indicates the time spent above the Target Zone.

▼
TZ: During exercise in MEASURE mode indicates that the heart rate is below the Target Zone. In FILE mode indicates the time spent below the Target Zone.

UPPER THRESHOLD; AT, LT, OBLA: Physiological point during exercise of increasing intensity at which the blood lactate continues to accumulate so that body is not able to synthesize it, i.e. muscles require more oxygen than can be transported. This is known as Anaerobic Threshold (AT), Lactate Threshold (LT) or Onset of Blood Lactate Accumulation (OBLA) and corresponds usually to 4 mMol lactate per liter of blood.

YEAR: Shows the year in TIME mode.

Compatibility with other Polar products

You can use also other Polar Transmitters with Polar Vantage NV Wrist Receiver. Then, however, you cannot benefit from the coded transmission of the Vantage NV. To get the most out of your Polar Vantage NV Heart Rate Monitor you should wear Polar Coded Transmitter.

Polar Vantage NV is compatible with the Polar Advantage Interface. You can not download your Polar Vantage NV with other Polar Interfaces.

	Polar Vantage NV	Polar Vantage XL/ Polar Sport Tester
Polar Transmitter		
Polar Coded Transmitter		*
Polar Interface		
Polar Advantage Interface		
Data upload capability between Receiver and Advantage Interface system		
Data download capability between Receiver and Advantage Interface system		

compatible

non-compatible

*) excluding the coded transmission

Technical specifications

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

POLAR CODED TRANSMITTER

Battery type: Built-in Lithium Cell

Battery life: Average 2500 hours of use

Operating temperature: -10 to +50 °C / 14 to 122 °F

WRIST RECEIVER

Display: 14 seven segment digits, 2 dot matrix

..... areas, 46 symbols, total 184 segments

Case: 48 x 42 x 11 mm

Operating temperature: -10 °C to +50 °C / 14 to 122 °F

Battery type: CR 2032

Battery life: Average 1 year (1h/day, 7 days/week)

Memory: 8 kbytes RAM

Accuracy of heart rate

measurement: ±1% or ±1 beats per minute,
whichever larger, definition applies
to steady state conditions

POLAR BOOKS AND ACCESSORIES

Polar books and booklets:

Roy Benson, MPE: Precision Running

Dr. Matthew Brick: Precision Multi-Sport

Edmund R. Burke, Ph.D.: Precision Cycling

Neil Craig: Scientific Heart Rate Training

Sally Edwards The Heart Rate Monitor Book

Mark Fenton and Dave McGovern: Precision Walking

Ute Haas, M.Sc., Tarja Suomi, M.Sc. and Dr. Raija Laukkanen, Ph.D.:

Precision Aerobics

Dr. Peter J.G.M. Janssen: Training, Lactate, Pulse Rate

Dr. Katriina Kukkonen-Harjula, MD and Dr. Raija Laukkanen, Ph.D.:

Precision Weight Management

Dr. Raija Laukkanen, Ph.D.: Research Index

Yvonne Lin: Precision Sports Aerobics

Dr. James M. Rippe: Target Your Fitness and Weight Management Goals

Dr. James M. Rippe: The Polar Fat Free and Fit Forever Program

Polar accessories:

- Polar Bike Mount for all bikes and Polar Heart Rate Monitors
- Extra Transmitter for other family members
- Polar Heart Bra for women
- Test handle for groups and trainers

Contact your local dealer or distributor for more details.

SERVICE

To ensure continuous improvement of Polar products, please complete and mail the enclosed Warranty Registration Card within two weeks of the date of purchase.

Polar Service will help you get the most out of your Polar Heart Rate Monitor. Should your Polar Heart Rate Monitor need service, please follow the instructions below:

1. Pack the product carefully to avoid further damage.
2. Include all the parts of the Polar Heart Rate Monitor. A full periodic check will be done on the whole product.
3. Include proof of purchase (a receipt or its photocopy) if the product is under warranty.
4. Include a detailed description of the problem.
5. Include your name, return address and daytime telephone number.
6. Ship postage prepaid to your dealer or distributor. For contact details see the back cover of this manual.

Any service is recommended to be done by an authorised Polar service personnel. Water resistance cannot be guaranteed after unauthorised service.

LIMITED POLAR WARRANTY

- Polar Electro Oy warrants the original consumer/purchaser of this heart rate monitor that the product will be free from defects in material or workmanship for one year from the date of purchase. Please keep the receipt which is your proof of purchase!
- Warranty does not cover receiver battery or damage due to misuse, abuse, accidents or negligence of the precautions; improper maintenance, commercial use, cracked or broken cases.
- Warranty does not cover damage or consequential damage caused by service not authorised by Polar Electro Oy.
- During the warranty period the product will be either repaired or replaced at an authorised service centre free of charge.
- For more details, please see the warranty card.

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