

GARMIN[®]

Forerunner[®] 735XT



Owner's Manual

© 2016 Garmin Ltd. or its subsidiaries

All rights reserved. Under the copyright laws, this manual may not be copied, in whole or in part, without the written consent of Garmin. Garmin reserves the right to change or improve its products and to make changes in the content of this manual without obligation to notify any person or organization of such changes or improvements. Go to www.garmin.com for current updates and supplemental information concerning the use of this product.

Garmin®, the Garmin logo, ANT+®, Auto Lap®, Auto Pause®, Edge®, Forerunner®, VIRB®, and Virtual Partner® are trademarks of Garmin Ltd. or its subsidiaries, registered in the USA and other countries. Connect IQ™, Garmin Connect™, Garmin Express™, HRM-Run™, HRM-Tri™, HRM-Swim™, tempe™, Varia™, Varia Vision™, and Vector™ are trademarks of Garmin Ltd. or its subsidiaries. These trademarks may not be used without the express permission of Garmin.

Android™ is a trademark of Google Inc. Apple® and Mac® are trademarks of Apple Inc., registered in the U.S. and other countries. The Bluetooth® word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Garmin is under license. The Cooper Institute®, as well as any related trademarks, are the property of The Cooper Institute. Shimano® and Di2™ are trademarks of Shimano, Inc. Advance heartbeat analytics by Firstbeat. Training Stress Score™, Intensity Factor™, and Normalized Power™ are trademarks of Peakware, LLC. Windows® is a registered trademark of Microsoft Corporation in the United States and other countries. Other trademarks and trade names are those of their respective owners.

This product is ANT+® certified. Visit www.thisisant.com/directory for a list of compatible products and apps.

M/N: A02924

Table of Contents

Introduction	1	Turning On Activity Tracking.....	9
Keys.....	1	Using the Move Alert.....	9
Locking and Unlocking the Device Keys.....	1	Sleep Tracking.....	9
Opening the Menu.....	1	Auto Goal.....	9
Icons.....	1	Intensity Minutes.....	9
Earning Intensity Minutes.....	9		
Training	1	Smart Features	9
Going for a Run.....	1	Pairing Your Smartphone.....	9
Multisport Activities.....	1	Phone Notifications.....	9
Triathlon Training.....	1	Enabling Bluetooth Notifications.....	9
Heart Rate While Swimming.....	2	Viewing Notifications.....	9
Going for a Pool Swim.....	2	Managing Notifications.....	9
Swimming in Open Water.....	2	Playing Audio Prompts on Your Smartphone During Your	
Swim Terminology.....	2	Activity.....	10
Indoor Activities.....	2	Opening the Music Controls.....	10
Workouts.....	2	Locating a Lost Smartphone.....	10
Following a Workout From the Web.....	2	Widgets.....	10
Starting a Workout.....	2	Viewing the Widgets.....	10
About the Training Calendar.....	2	About My Day.....	10
Using Garmin Connect Training Plans.....	2	Bluetooth Controls Widget.....	10
Interval Workouts.....	2	Viewing the Weather Widget.....	10
Creating an Interval Workout.....	3	VIRB Remote.....	10
Starting an Interval Workout.....	3	Controlling a VIRB Action Camera.....	10
Stopping a Workout.....	3	Using Do Not Disturb Mode.....	11
Canceling a Workout.....	3	Bluetooth Connected Features.....	11
Using Virtual Partner®.....	3	Turning On the Smartphone Connection Alert.....	11
Setting a Training Target.....	3	Turning Off Bluetooth Technology.....	11
Canceling a Training Target.....	3	Connect IQ Features.....	11
Racing a Previous Activity.....	3	Downloading Connect IQ Features.....	11
Personal Records.....	3	Downloading Connect IQ Features Using Your	
Viewing Your Personal Records.....	3	Computer.....	11
Restoring a Personal Record.....	4	Changing the Watch Face.....	11
Clearing a Personal Record.....	4		
Clearing All Personal Records.....	4	History	11
Heart Rate Features	4	Viewing History.....	11
Viewing the Heart Rate Widget.....	4	Viewing Your Time in Each Heart Rate Zone.....	11
Wearing the Device.....	4	Viewing Data Totals.....	12
Turning Off the Wrist Heart Rate Monitor.....	4	Deleting History.....	12
Tips for Erratic Heart Rate Data.....	4	Data Management.....	12
Setting Your Heart Rate Zones.....	4	Deleting Files.....	12
Letting the Device Set Your Heart Rate Zones.....	5	Disconnecting the USB Cable.....	12
Broadcasting Heart Rate Data to Garmin® Devices.....	5	Sending Data to Your Computer.....	12
Running Dynamics.....	5	Garmin Connect.....	12
Training with Running Dynamics.....	5	Navigation	12
Color Gauges and Running Dynamics Data.....	5	Adding the Map.....	12
Ground Contact Time Balance Data.....	6	Map Features.....	12
Tips for Missing Running Dynamics Data.....	6	Marking Your Location.....	13
Physiological Measurements.....	6	Editing a Location.....	13
About VO2 Max. Estimates.....	6	Deleting a Location.....	13
Getting Your VO2 Max. Estimate for Running.....	6	Viewing Your Current Elevation and Coordinates.....	13
Getting Your VO2 Max. Estimate for Cycling.....	7	Navigating to a Saved Location.....	13
Viewing Your Predicted Race Times.....	7	Navigating Back to Start.....	13
Recovery Time.....	7	Courses.....	13
Turning On the Recovery Advisor.....	7	Following a Course From the Web.....	13
Recovery Heart Rate.....	7	Viewing Course Details.....	13
Viewing Your Stress Score.....	7	Deleting a Course.....	13
Performance Condition.....	7	Stopping Navigation.....	13
Viewing Your Performance Condition.....	8	ANT+ Sensors	13
Lactate Threshold.....	8	Pairing ANT+ Sensors.....	13
Performing a Guided Test to Determine Your Lactate		Foot Pod.....	14
Threshold.....	8	Going for a Run Using a Foot Pod.....	14
Getting Your FTP Estimate.....	8	Foot Pod Calibration.....	14
Conducting an FTP Test.....	8	Training with Power Meters.....	14
		Setting Your Power Zones.....	14
Activity Tracking	9	Using Electronic Shifters.....	14
		Situational Awareness.....	14

Compatible Heart Rate Monitors	14	Clearing User Data	20
HRM-Swim Accessory	14	Restoring All Default Settings	20
Sizing the Heart Rate Monitor	14	Viewing Device Information	20
Putting On the Heart Rate Monitor	14	Updating the Software Using Garmin Express	20
Tips for Using the HRM-Swim Accessory	15	Maximizing Battery Life	20
Caring for the Heart Rate Monitor	15	My daily step count does not appear	20
HRM-Tri Accessory	15	My device does not beep in cold weather	20
Pool Swimming	15	Appendix	20
Putting On the Heart Rate Monitor	15	Data Fields	20
Data Storage	15	Fitness Goals	23
HRM-Run Accessory	15	About Heart Rate Zones	23
Putting On the Heart Rate Monitor	15	Heart Rate Zone Calculations	23
Caring for the Heart Rate Monitor	15	VO2 Max. Standard Ratings	23
Tips for Erratic Heart Rate Data	16	FTP Ratings	24
Extended Display Mode	16	Index	25
Customizing Your Device	16		
Setting Up Your User Profile	16		
Activity Profiles	16		
Creating a Custom Activity Profile	16		
Changing Your Activity Profile	16		
Activity Settings	16		
Customizing the Data Screens	16		
Alerts	17		
Setting Range Alerts	17		
Setting a Recurring Alert	17		
Setting Walk Break Alerts	17		
Editing an Alert	17		
Using Auto Pause®	17		
Running with the Metronome	17		
Marking Laps by Distance	17		
Customizing the Lap Alert Message	17		
Using Auto Scroll	17		
Changing the GPS Setting	17		
Using UltraTrac Mode	18		
Power Save Timeout Settings	18		
Activity Tracking Settings	18		
System Settings	18		
Changing the Device Language	18		
Time Settings	18		
Time Zones	18		
Setting the Time Manually	18		
Setting the Alarm	18		
Deleting an Alarm	18		
Backlight Settings	18		
Setting the Device Sounds	18		
Changing the Units of Measure	18		
Format Settings	18		
Data Recording Settings	18		
Device Information	18		
Charging the Device	18		
Specifications	19		
Forerunner Specifications	19		
HRM-Swim Specifications and HRM-Tri Specifications	19		
HRM-Run Specifications	19		
Device Care	19		
Cleaning the Device	19		
User Replaceable Batteries	19		
Replacing the HRM-Swim Battery and the HRM-Tri Battery	19		
Troubleshooting	20		
Product Updates	20		
Getting More Information	20		
Acquiring Satellite Signals	20		
Improving GPS Satellite Reception	20		
Restarting the Device	20		

Introduction

⚠ WARNING

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

Always consult your physician before you begin or modify any exercise program.

Keys



①		Hold to turn the device on and off. Select to turn the backlight on and off.
②		Select to start and stop the timer. Select to choose an option or to acknowledge a message.
③		Select to mark a new lap. Select to return to the previous screen.
④		Select to scroll through the widgets, data screens, options, and settings. Select > to select an activity profile. Select > to open the menu. Hold to view the options menu.

Locking and Unlocking the Device Keys

You can lock the device keys to avoid accidental key presses during an activity or in watch mode.

- 1 Hold .
- 2 Select **Lock Device**.
- 3 Hold to unlock the device keys.

Opening the Menu

- 1 Select .
- 2 Select .

Icons

A flashing icon means the device is searching for a signal. A solid icon means the signal was found or the sensor is connected.

	GPS status
	Bluetooth® technology status
	Heart rate monitor status
	Foot pod status
	LiveTrack status
	Speed and cadence sensor status
	Varia™ bike light status
	Varia bike radar status
	Varia Vision™ status
	tempe™ sensor status

	VIRB® camera status
	Forerunner alarm status
	Power status

Training

Going for a Run

The first fitness activity you record on your device can be a run, ride, or any outdoor activity. You may need to charge the device (*Charging the Device*, page 18) before starting the activity.

- 1 Select , and select an activity profile.
- 2 Go outside, and wait while the device locates satellites.
- 3 Select to start the timer.
- 4 Go for a run.



- 5 After you complete your run, select to stop the timer.
- 6 Select an option:
 - Select **Resume** to restart the timer.
 - Select **Save** to save the run and reset the timer. You can select the run to view a summary.



- Select **Discard** > **Yes** to delete the run.

Multisport Activities

Triathletes, duathletes, and other multisport competitors can take advantage of the custom multisport profiles (*Creating a Custom Activity Profile*, page 16). When you set up a multisport profile, you can switch between sport modes and still view your total time for all sports. For example, you can switch from biking mode to running mode and view your total time for biking and running throughout your workout.

Triathlon Training

When you participate in a triathlon, you can use the triathlon activity profile to quickly transition to each sport segment, to time each segment, and to save the activity.

- 1 Select > > **Triathlon**.
- 2 Select to start the timer.
- 3 Select at the beginning and end of each transition.
The transition feature can be turned on or off for the triathlon activity profile.
- 4 After you complete your activity, select > **Save**.

Heart Rate While Swimming

NOTE: Wrist-based heart rate is not available while swimming.

The HRM-Tri™ accessory and the HRM-Swim™ accessory record and store your heart rate data while swimming. Heart rate data is not visible on compatible Forerunner devices while the heart rate monitor is underwater.

You must start a timed activity on your paired Forerunner device to view stored heart rate data later. During rest intervals when out of the water, the heart rate monitor sends your heart rate data to your Forerunner device.

Your Forerunner device automatically downloads stored heart rate data when you save your timed swim activity. Your heart rate monitor must be out of the water, active, and within range of the device (3 m) while data is downloaded. You can review your heart rate data in the device history and on your Garmin Connect™ account.

Going for a Pool Swim

- 1 Select **▶** > **▲** > **Pool Swim**.
- 2 Select your pool size, or enter a custom size.
- 3 Select **▶** to start the timer.
History is recorded only while the timer is running.
- 4 Start your activity.
The device automatically records swim intervals and lengths.
- 5 Select **▲** or **▼** to view additional data pages (optional).
- 6 When resting, select **⏸** to pause the timer.
- 7 Select **⏪** to restart the timer.
- 8 After you finish the activity, select **▶** > **Save**.

Swimming in Open Water

You can use the device for open water swimming. You can record swim data including distance, pace, and stroke rate. You can add data screens to the default open water swimming activity profile (*Customizing the Data Screens, page 16*) or create your own profile (*Creating a Custom Activity Profile, page 16*).

- 1 Select **Menu** > **▲** > **Open Water**.
- 2 Go outside and wait while the device locates satellites.
It may take a few minutes.
The satellite bars turn green when the device is ready.
- 3 Select **▶** to start the timer.
- 4 After you complete your activity, select **▶** > **Save**.

Swim Terminology

Length: One trip down the pool.

Interval: One or more consecutive lengths. A new interval starts after a rest.

Stroke: A stroke is counted every time your arm wearing the device completes a full cycle.

Swolf: Your swolf score is the sum of the time for one pool length and the number of strokes for that length. For example, 30 seconds plus 15 strokes equals a swolf score of 45. Swolf is a measurement of swimming efficiency and, like golf, a lower score is better.

Indoor Activities

The Forerunner device can be used for training indoors, such as running on an indoor track or using a stationary bike. GPS is turned off for indoor activities.

When running or walking with GPS turned off, speed, distance, and cadence are calculated using the accelerometer in the device. The accelerometer is self-calibrating. The accuracy of the speed, distance, and cadence data improves after a few outdoor runs or walks using GPS.

TIP: Holding the handrails of the treadmill reduces accuracy. You can use an optional foot pod to record pace, distance, and cadence.

When cycling with GPS turned off, speed and distance are not available unless you have an optional sensor that sends speed and distance data to the device (such as a speed or cadence sensor).

Workouts

You can create custom workouts that include goals for each workout step and for varied distances, times, and calories. You can create workouts using Garmin Connect or select a training plan that has built-in workouts from Garmin Connect, and transfer them to your device.

You can schedule workouts using Garmin Connect. You can plan workouts in advance and store them on your device.

Following a Workout From the Web

Before you can download a workout from Garmin Connect, you must have a Garmin Connect account (*Garmin Connect, page 12*).

- 1 Connect the device to your computer.
- 2 Go to www.garminconnect.com.
- 3 Create and save a new workout.
- 4 Select **Send to Device**, and follow the on-screen instructions.
- 5 Disconnect the device.

Starting a Workout

Before you can start a workout, you must download a workout from your Garmin Connect account.

- 1 Select **Menu** > **Training** > **My Workouts**.
- 2 Select a workout.
- 3 Select **Do Workout**.
- 4 Select **▶** to start the workout.

After you begin a workout, the device displays each step of the workout, the target (if any), and current workout data.

About the Training Calendar

The training calendar on your device is an extension of the training calendar or schedule you set up in Garmin Connect. After you have added a few workouts to the Garmin Connect calendar, you can send them to your device. All scheduled workouts sent to the device appear in the training calendar list by date. When you select a day in the training calendar, you can view or do the workout. The scheduled workout stays on your device whether you complete it or skip it. When you send scheduled workouts from Garmin Connect, they overwrite the existing training calendar.

Using Garmin Connect Training Plans

Before you can download and use a training plan, you must have a Garmin Connect account (*Garmin Connect, page 12*).

You can browse your Garmin Connect account to find a training plan, schedule workouts, and send them to your device.

- 1 Connect the device to your computer.
- 2 From your Garmin Connect account, select and schedule a training plan.
- 3 Review the training plan in your calendar.
- 4 Select **⋮** > **Send Workouts to Device**, and follow the on-screen instructions.

Interval Workouts

You can create interval workouts based on distance or time. The device saves your custom interval workout until you create another interval workout. You can use open intervals for track workouts and when you are running a known distance. When

you select , the device records an interval and moves to a rest interval.

Creating an Interval Workout

- 1 Select **Menu > Training > Intervals > Edit > Interval > Type**.
- 2 Select **Distance, Time, or Open**.
TIP: You can create an open-ended interval by setting the type to Open.
- 3 Select **Duration**, enter a distance or time interval value for the workout, and select .
- 4 Select **Rest > Type**.
- 5 Select **Distance, Time, or Open**.
- 6 If necessary, enter a distance or time value for the rest interval, and select .
- 7 Select one or more options:
 - To set the number of repetitions, select **Repeat**.
 - To add an open-ended warm up to your workout, select **Warm Up > On**.
 - To add an open-ended cool down to your workout, select **Cool Down > On**.

Starting an Interval Workout

- 1 Select **Menu > Training > Intervals > Do Workout**.
- 2 Select .
- 3 When your interval workout has a warm up, select  to begin the first interval.
- 4 Follow the on-screen instructions.

When you complete all of the intervals, a message appears.

Stopping a Workout

- At any time, select  to end a workout step.
- At any time, select  to stop the timer.

Canceling a Workout

- 1 During the workout, hold **A**.
- 2 Select **Cancel Workout > Yes**.

Using Virtual Partner®

Your Virtual Partner is a training tool designed to help you meet your goals. You can customize the Virtual Partner to train (run, bike, other) at a target speed or pace.

NOTE: Virtual Partner is not available in swim mode.

- 1 Select an activity profile.
- 2 Select **Menu > Activity Settings > Data Screens > Virtual Partner > Status > On**.
- 3 Select **Set Pace or Set Speed**.
You can use pace or speed as your format (*Format Settings, page 18*).
- 4 Enter a value.
- 5 Select  to start the timer.
- 6 During your activity, select **A** or **V** to view the Virtual Partner screen and see who is leading.



Setting a Training Target

The training target feature works with the Virtual Partner feature so you can train toward a set distance, distance and time, distance and pace, or distance and speed goal. This feature can be used with the running, cycling, and other single sport activity profiles (excludes swimming). During your training activity, the device gives you real-time feedback about how close you are to achieving your training target.

- 1 Select **Menu > Training > Set a Target**.
 - 2 Select an option:
 - Select **Distance Only** to select a preset distance or enter a custom distance.
 - Select **Distance and Time** to select a distance and time target.
You can enter the time target, use prediction (based on your VO2 max. estimate), or use your personal record time.
 - Select **Distance and Pace** or **Distance and Speed** to select a distance and pace or speed target.
- The training target screen displays your estimated finish time. The estimated finish time is based on your current performance and the time remaining.
- 3 Select  to start the timer.
 - 4 If necessary, select **A** or **V** to view the screen.
 - 5 After you complete your activity, select  > **Save**.
A summary screen appears indicating that you finished ahead of or behind the target.

Cancelling a Training Target

- 1 During the activity, select **A** to view the target screen.
- 2 Hold **A**.
- 3 Select **Cancel Target > Yes**.

Racing a Previous Activity

You can race a previously recorded or downloaded activity. This feature can be used with the running, cycling, and other single sport activity profiles (excludes swimming). This feature works with the Virtual Partner feature so you can see how far ahead or behind you are during the activity.

- 1 Select **Menu > Training > Race an Activity**.
- 2 Select an option:
 - Select **From History** to select a previously recorded activity from your device.
 - Select **Downloaded** to select an activity you downloaded from your Garmin Connect account.
- 3 Select the activity.
The Virtual Partner screen displays your estimated finish time.
- 4 Select  to start the timer.
- 5 After you complete your activity, select  > **Save**.
A summary screen appears indicating that you finished the race ahead of or behind the previously recorded or downloaded activity.

Personal Records

When you complete an activity, the device displays any new personal records you achieved during that activity. Personal records include your fastest time over several typical race distances and longest run or ride.

NOTE: For cycling, personal records also include most ascent and best power (power meter required).

Viewing Your Personal Records

- 1 Select **Menu > My Stats > Records**.
- 2 Select a sport.

- 3 Select a record.
- 4 Select **View Record**.

Restoring a Personal Record

You can set each personal record back to the one previously recorded.

- 1 Select **Menu > My Stats > Records**.
- 2 Select a sport.
- 3 Select a record to restore.
- 4 Select **Previous > Yes**.

NOTE: This does not delete any saved activities.

Clearing a Personal Record

- 1 Select **Menu > My Stats > Records**.
- 2 Select a sport.
- 3 Select a record to delete.
- 4 Select **Clear Record > Yes**.

NOTE: This does not delete any saved activities.

Clearing All Personal Records

- 1 Select **Menu > My Stats > Records**.
- 2 Select a sport.
- 3 Select **Clear All Records > Yes**.

The records are deleted only for that sport.

Heart Rate Features

The Forerunner device has a wrist-based heart rate monitor and is also compatible with ANT+® chest heart rate monitors. You can view wrist-based heart rate data on the heart rate widget. When both wrist-based heart rate and ANT+ heart rate data are available, your device uses the ANT+ heart rate data. You must have a heart rate monitor to use the features described in this section.

Viewing the Heart Rate Widget

The widget displays your current heart rate in beats per minute (bpm), resting heart rate for today, and a graph of your heart rate.

- 1 From the time of day screen, select **V**.



- 2 Select **▶** to view your average resting heart values for the last 7 days.

Wearing the Device

- Wear the device above your wrist bone.

NOTE: The device should be snug but comfortable. For more accurate heart rate readings on the Forerunner 735XT device, it should not move while running or exercising.



NOTE: The optical sensor is located on the back of the device.

- See [Tips for Erratic Heart Rate Data](#), page 4 for more information about wrist-based heart rate.
- For more information about accuracy, go to www.garmin.com/ataccuracy.

Turning Off the Wrist Heart Rate Monitor

The default heart rate setting for the Forerunner is Auto. The device uses wrist-based heart rate automatically unless there is an accessory heart rate monitor connected to the device.

Select **Menu > Settings > Heart Rate Monitor > Off**.

Tips for Erratic Heart Rate Data

If the heart rate data is erratic or does not appear, you can try these tips.

- Clean and dry your arm before putting on the device.
 - Avoid wearing sunscreen, lotion, and insect repellent under the device.
 - Avoid scratching the heart rate sensor on the back of the device.
 - Wear the device above your wrist bone. The device should be snug but comfortable.
 - Wait until the **♥** icon is solid before starting your activity.
 - Warm up for 5 to 10 minutes and get a heart rate reading before starting your activity.
- NOTE:** In cold environments, warm up indoors.
- Rinse the device with fresh water after each workout.

Setting Your Heart Rate Zones

The device uses your user profile information from the initial setup to determine your default heart rate zones. You can manually enter heart rate values and set the range for each zone. The device supports separate heart rate zones for running, cycling, and swimming.

- 1 Select **Menu > My Stats > User Profile > Heart Rate**.
- 2 Select **Max. HR**, and enter your maximum heart rate.
- 3 Select **LTHR**, and enter your lactate threshold heart rate.
- 4 Select **Resting HR**, and enter your resting heart rate.
- 5 Select **Zones > Based On**.
- 6 Select an option:
 - Select **BPM** to view and edit the zones in beats per minute.
 - Select **%Max. HR** to view and edit the zones as a percentage of your maximum heart rate.
 - Select **%HRR** to view and edit the zones as a percentage of your heart rate reserve (maximum heart rate minus resting heart rate).
 - Select **%LTHR** to view and edit the zones as a percentage of your lactate threshold heart rate.
- 7 Select **Add Sport Heart Rate** to add different zones for each sport.
- 8 Select a zone, and enter a value for each heart rate zone.

Letting the Device Set Your Heart Rate Zones

The default settings allow the device to detect your maximum heart rate and set your heart rate zones as a percentage of your maximum heart rate.

- Verify that your user profile settings are accurate ([Setting Up Your User Profile](#), page 16).
- Run often with the wrist or chest heart rate monitor.
- Try a few heart rate training plans, available from your Garmin Connect account.
- View your heart rate trends and time in zones using your Garmin Connect account.

Broadcasting Heart Rate Data to Garmin® Devices

You can broadcast your heart rate data from your Forerunner device and view it on paired Garmin devices. For example, you can broadcast your heart rate data to an Edge® device while cycling, or to a VIRB action camera.

NOTE: Broadcasting heart rate data decreases battery life.

- 1 Select **V** to view the heart rate widget.
- 2 Hold **A**.
- 3 Select **Broadcast Heart Rate**.

The Forerunner device starts broadcasting your heart rate data, and  appears.

NOTE: You can view only the heart rate page while broadcasting heart rate data.

- 4 Pair your Forerunner device with your Garmin ANT+ compatible device.

NOTE: The pairing instructions differ for each Garmin compatible device. See your owner's manual.

TIP: To stop broadcasting your heart rate data, select any key, and select Yes.

Running Dynamics

You can use your compatible Forerunner device paired with the HRM-Run™ accessory or other running dynamics accessory to provide real-time feedback about your running form. If your Forerunner device was packaged with the HRM-Run accessory, the devices are already paired.

The running dynamics accessory has an accelerometer that measures torso movement in order to calculate six running metrics.

Cadence: Cadence is the number of steps per minute. It displays the total steps (right and left combined).

Vertical oscillation: Vertical oscillation is your bounce while running. It displays the vertical motion of your torso, measured in centimeters.

Ground contact time: Ground contact time is the amount of time in each step that you spend on the ground while running. It is measured in milliseconds.

Color Gauges and Running Dynamics Data

The running dynamics screens display a color gauge for the primary metric. You can display cadence, vertical oscillation, ground contact time, ground contact time balance, or vertical ratio as the primary metric. The color gauge shows you how your running dynamics data compare to those of other runners. The color zones are based on percentiles.

Garmin has researched many runners of all different levels. The data values in the red or orange zones are typical for less experienced or slower runners. The data values in the green, blue, or purple zones are typical for more experienced or faster runners. More experienced runners tend to exhibit shorter ground contact times, lower vertical oscillation, lower vertical ratio, and higher cadence than less experienced runners. However, taller runners typically have slightly slower cadences, longer strides, and slightly higher vertical oscillation. Vertical ratio is your vertical oscillation divided by stride length. It is not correlated with height.

NOTE: The color gauge for ground contact time balance is different ([Ground Contact Time Balance Data](#), page 6).

Go to www.garmin.com/runningdynamics for more information on running dynamics. For additional theories and interpretations of running dynamics data, you can search reputable running publications and websites.

NOTE: Ground contact time and balance are not available while walking.

Ground contact time balance: Ground contact time balance displays the left/right balance of your ground contact time while running. It displays a percentage. For example, 53.2 with an arrow pointing left or right.

Stride length: Stride length is the length of your stride from one footfall to the next. It is measured in meters.

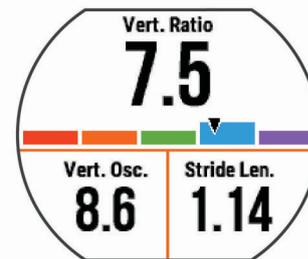
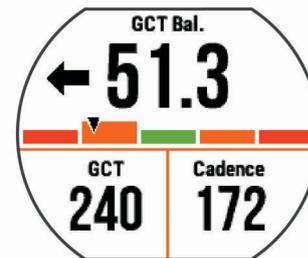
Vertical ratio: Vertical ratio is the ratio of vertical oscillation to stride length. It displays a percentage. A lower number typically indicates better running form.

Training with Running Dynamics

Before you can view running dynamics, you must put on the HRM-Run accessory, HRM-Tri accessory, or Running Dynamics Pod, and pair it with your device ([Pairing ANT+ Sensors](#), page 13).

If your Forerunner was packaged with the heart rate monitor, the devices are already paired, and the Forerunner is set to display running dynamics.

- 1 Select , and select a running activity.
- 2 Select .
- 3 Go for a run.
- 4 Scroll to the running dynamics screens to view your metrics.



- 5 If necessary, hold **A** to edit how the running dynamics data appears.

Color Zone	Percentile in Zone	Cadence Range	Vertical Oscillation Range	Vertical Ratio	Ground Contact Time Range
Purple	>95	>183 spm	<6.4 cm	<6.1%	<218 ms
Blue	70–95	174–183 spm	6.4–8.1 cm	6.1–7.4%	218–248 ms
Green	30–69	164–173 spm	8.2–9.7 cm	7.5–8.6%	249–277 ms
Orange	5–29	153–163 spm	9.8–11.5 cm	8.7–10.1%	278–308 ms
Red	<5	<153 spm	>11.5 cm	>10.1%	>308 ms

Ground Contact Time Balance Data

Ground contact time balance measures your running symmetry and appears as a percentage of your total ground contact time. For example, 51.3% with an arrow pointing left indicates the runner is spending more time on the ground when on the left foot. If your data screen displays both numbers, for example 48–52, 48% is the left foot and 52% is the right foot.

Color Zone	Red	Orange	Green	Orange	Red
Symmetry	Poor	Fair	Good	Fair	Poor
Percent of Other Runners	5%	25%	40%	25%	5%
Ground Contact Time Balance	>52.2% L	50.8–52.2% L	50.7% L–50.7% R	50.8–52.2% R	>52.2% R

While developing and testing running dynamics, the Garmin team found correlations between injuries and greater imbalances with certain runners. For many runners, ground contact time balance tends to deviate further from 50–50 when running up or down hills. Most running coaches agree that a symmetrical running form is good. Elite runners tend to have quick and balanced strides.

You can watch the color gauge or data field during your run or view the summary on your Garmin Connect account after your run. As with the other running dynamics data, ground contact time balance is a quantitative measurement to help you learn about your running form.

Tips for Missing Running Dynamics Data

If running dynamics data does not appear, you can try these tips.

- Make sure you have a running dynamics accessory, such as the HRM-Run accessory.
Accessories with running dynamics have  on the front of the module.
- Pair the running dynamics accessory with your Forerunner device again, according to the instructions.
- If the running dynamics data display shows only zeros, make sure the accessory is worn right-side up.
NOTE: Ground contact time and balance appears only while running. It is not calculated while walking.

Physiological Measurements

These physiological measurements require wrist-based heart rate or a compatible heart rate monitor. The measurements are estimates that can help you track and understand your training activities and race performances. These estimates are provided and supported by Firstbeat.

NOTE: The estimates may seem inaccurate at first. The device requires you to complete a few activities to learn about your performance.

VO2 max.: VO2 max. is the maximum volume of oxygen (in milliliters) you can consume per minute per kilogram of body weight at your maximum performance.

Predicted race times: Your device uses the VO2 max. estimate and published data sources to provide a target race time based on your current state of fitness. This projection also presumes you have completed the proper training for the race.

Recovery advisor: The recovery advisor displays how much time remains before you are fully recovered and ready for the next hard workout.

Stress score: Stress score requires a chest heart rate monitor. Stress score measures your heart rate variability while standing still for 3 minutes. It provides your overall stress level. The scale is 1 to 100, and a lower score indicates a lower stress level.

Performance condition: Your performance condition is a real-time assessment after 6 to 20 minutes of activity. It can be added as a data field so you can view your performance

condition during the rest of your activity. It compares your real-time condition to your average fitness level.

Lactate threshold: Lactate threshold requires a chest heart rate monitor. Lactate threshold is the point where your muscles start to rapidly fatigue. Your device measures your lactate threshold level using heart rate and pace.

About VO2 Max. Estimates

VO2 max. is the maximum volume of oxygen (in milliliters) you can consume per minute per kilogram of body weight at your maximum performance. In simple terms, VO2 max. is an indication of athletic performance and should increase as your level of fitness improves. The Forerunner device requires wrist-based heart rate or a compatible chest heart rate monitor to display your VO2 max. estimate.

Your VO2 max. estimate appears as a number and position on the color gauge.



Purple	Superior
Blue	Excellent
Green	Good
Orange	Fair
Red	Poor

VO2 max. data is provided by FirstBeat. VO2 max. analysis is provided with permission from The Cooper Institute®. For more information, see the appendix (*VO2 Max. Standard Ratings*, page 23), and go to www.CooperInstitute.org.

Getting Your VO2 Max. Estimate for Running

This feature requires a heart rate monitor.

For the most accurate estimate, complete the user profile setup (*Setting Up Your User Profile*, page 16), and set your maximum heart rate (*Setting Your Heart Rate Zones*, page 4).

The estimate may seem inaccurate at first. The device requires a few runs to learn about your running performance.

- 1 Run for at least 10 minutes outdoors.
- 2 After your run, select **Save**.
- 3 Select **Menu > My Stats > VO2 Max.**

Getting Your VO2 Max. Estimate for Cycling

Before you can view your VO2 max. estimate, you must have a compatible heart rate monitor and a power meter. The power meter must be paired with your Forerunner device ([Pairing ANT+ Sensors, page 13](#)). For the most accurate estimate, complete the user profile setup ([Setting Up Your User Profile, page 16](#)) and set your maximum heart rate ([Setting Your Heart Rate Zones, page 4](#)).

NOTE: The estimate may seem inaccurate at first. The device requires a few rides to learn about your cycling performance.

- 1 Ride at a steady, high intensity for at least 20 minutes outdoors.
- 2 After your ride, select **Save**.
- 3 Select **Menu > My Stats > VO2 Max. > Cycling**.

Tips for Cycling VO2 Max. Estimates

The success and accuracy of the VO2 max. calculation improves when your ride is a sustained and moderately hard effort, and where heart rate and power are not highly variable.

- Before your ride, check that your device, heart rate monitor, and power meter are functioning properly, paired, and have good battery life.
- During your 20 minute ride, maintain your heart rate at greater than 70% of your maximum heart rate.
- During your 20 minute ride, maintain a fairly constant power output.
- Avoid rolling terrain.
- Avoid riding in groups where there is a lot of drafting.

Viewing Your Predicted Race Times

This feature requires a heart rate monitor.

For the most accurate estimate, complete the user profile setup ([Setting Up Your User Profile, page 16](#)), and set your maximum heart rate ([Setting Your Heart Rate Zones, page 4](#)). Your device uses the VO2 max. estimate ([About VO2 Max. Estimates, page 6](#)) and published data sources to provide a target race time based on your current state of fitness. This projection also presumes you have completed the proper training for the race.

NOTE: The projections may seem inaccurate at first. The device requires a few runs to learn about your running performance.

Select **Menu > My Stats > Race Predictor**.

Your projected race times appear for 5K, 10K, half marathon, and marathon distances.

Recovery Time

You can use your Garmin device with wrist-based heart rate or a compatible chest heart rate monitor to display how much time remains before you are fully recovered and ready for the next hard workout.

NOTE: The recovery time recommendation uses your VO2 max. estimate and may seem inaccurate at first. The device requires you to complete a few activities to learn about your performance.

The recovery time appears immediately following an activity. The time counts down until it is optimal for you to attempt another hard workout.

Turning On the Recovery Advisor

For the most accurate estimate, complete the user profile setup ([Setting Up Your User Profile, page 16](#)), and set your maximum heart rate ([Setting Your Heart Rate Zones, page 4](#)).

- 1 Select **Menu > My Stats > Recovery Advisor > Status > On**.
 - 2 Go for a run.
 - 3 After your run, select **Save**.
- The recovery time appears. The maximum time is 4 days.



Recovery Heart Rate

If you are training with wrist-based heart rate or a compatible chest heart rate monitor, you can check your recovery heart rate value after each activity. Recovery heart rate is the difference between your exercising heart rate and your heart rate two minutes after the exercise has stopped. For example, after a typical training run, you stop the timer. Your heart rate is 140 bpm. After two minutes of no activity or cool down, your heart rate is 90 bpm. Your recovery heart rate is 50 bpm (140 minus 90). Some studies have linked recovery heart rate to cardiac health. Higher numbers generally indicate healthier hearts.

TIP: For best results, you should stop moving for two minutes while the device calculates your recovery heart rate value. You can save or discard the activity after this value appears.

Viewing Your Stress Score

Before you can view your stress score, you must put on a chest heart rate monitor and pair it with your device ([Pairing ANT+ Sensors, page 13](#)).

Stress score is the result of a three-minute test performed while standing still, where the Forerunner device analyzes heart rate variability to determine your overall stress. Training, sleep, nutrition, and general life stress all impact how a runner performs. The stress score range is 1 to 100, where 1 is a very low stress state, and 100 is a very high stress state. Knowing your stress score can help you decide if your body is ready for a tough training run or yoga.

TIP: Garmin recommends that you measure your stress score at approximately the same time and under the same conditions every day.

- 1 Select **Apps > HRV Stress Test > Measure**.
- 2 Stand still, and rest for 3 minutes.



Performance Condition

As you complete your activity, such as running or cycling, the performance condition feature analyzes your pace, heart rate, and heart rate variability to make a real-time assessment of your ability to perform compared to your average fitness level. It is approximately your real-time percentage deviation from your baseline VO2 max. estimate.

Performance condition values range from -20 to +20. After the first 6 to 20 minutes of your activity, the device displays your performance condition score. For example, a score of +5 means that you are rested, fresh, and capable of a good run or ride. You can add performance condition as a data field to one of your training screens to monitor your ability throughout the activity. Performance condition can also be an indicator of fatigue level, especially at the end of a long training run or ride.

NOTE: The device requires a few runs or rides with a heart rate monitor to get an accurate VO2 max. estimate and learn about your running or riding ability (*About VO2 Max. Estimates*, page 6).

Viewing Your Performance Condition

1 Add **Performance Condition** to a data screen (*Customizing the Data Screens*, page 16).

2 Go for a run.

After 6 to 20 minutes, your performance condition appears.



3 Scroll to the data screen to view your performance condition throughout the run.

Lactate Threshold

Lactate threshold is the exercise intensity at which lactate (lactic acid) starts to accumulate in the bloodstream. In running, it is the estimated level of effort or pace. When a runner exceeds the threshold, fatigue starts to increase at an accelerating rate. For experienced runners, the threshold occurs at approximately 90% of their maximum heart rate and between 10k and half-marathon race pace. For average runners, the lactate threshold often occurs well below 90% of maximum heart rate. Knowing your lactate threshold can help you determine how hard to train or when to push yourself during a race.

If you already know your lactate threshold heart rate value, you can enter it in your user profile settings (*Setting Your Heart Rate Zones*, page 4).

Performing a Guided Test to Determine Your Lactate Threshold

Before you can perform the guided test, you must put on a chest heart rate monitor and pair it with your device (*Pairing ANT+ Sensors*, page 13). You must also have a VO2 max. estimate from a previous run (*About VO2 Max. Estimates*, page 6).

TIP: The device requires a few runs with a heart rate monitor to get an accurate VO2 max. estimate. The device will automatically detect your lactate threshold during high intensity runs with a chest heart rate monitor.

- 1 Select an outdoor running profile.
GPS is required to complete the test.
- 2 Select **Menu > My Stats > Lactate Threshold > Do Guided Test**.
- 3 Follow the on-screen instructions.



4 Select an option:

- Select **Accept** to save the new lactate threshold.
- Select **Decline** to keep your current lactate threshold.

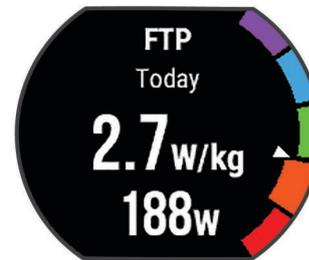
Getting Your FTP Estimate

Before you can get your Functional Threshold Power (FTP) estimate, you must pair a chest heart rate monitor and power meter with your device (*Pairing ANT+ Sensors*, page 13), and you must get your VO2 max. estimate for cycling (*About VO2 Max. Estimates*, page 6).

The device uses your user profile information from the initial setup and your VO2 max. estimate to estimate your functional threshold power (FTP).

1 Select **Menu > My Stats > Functional Threshold Power > Auto Detect > On**.

Your FTP estimate appears as a value measured in watts per kilogram, your power output in watts, and a position on the color gauge.



Purple	Superior
Blue	Excellent
Green	Good
Orange	Fair
Red	Untrained

For more information, see the appendix (*FTP Ratings*, page 24).

2 Select an option:

- Select **Accept** to save the new FTP.
- Select **Decline** to keep your current FTP.

Conducting an FTP Test

Before you can conduct a test to determine your functional threshold power (FTP), you must pair a chest heart rate monitor and a power meter with your device (*Pairing ANT+ Sensors*, page 13), and you must get your VO2 max. estimate for cycling (*About VO2 Max. Estimates*, page 6).

- 1 Select **Menu > My Stats > Functional Threshold Power > Do Guided Test**.
- 2 Follow the on-screen instructions.
After you begin your ride, the device displays each step duration, the target, and current power data. A message appears when the test is complete.
- 3 After you complete the guided test, complete the cool down.

Your FTP appears as a value measured in watts per kilogram, your power output in watts, and a position on the color gauge.

4 Select an option:

- Select **Accept** to save the new FTP.
- Select **Decline** to keep your current FTP.

Activity Tracking

Turning On Activity Tracking

The activity tracking feature records your daily step count, step goal, and distance traveled, and calories burned for each recorded day. Your calories burned includes your base metabolism plus activity calories.

1 Select **Menu > Settings > Activity Tracking > Status > On**.

Your step count does not appear until the device locates satellites and sets the time automatically. The device may need a clear view of the sky to locate satellite signals.

2 From the time of day screen, select **V** to view the activity tracking widget.

The step count is updated periodically.

Using the Move Alert

Sitting for prolonged periods of time can trigger undesirable metabolic state changes. The move alert reminds you to keep moving. After one hour of inactivity, Move! and the red bar appear. Additional segments appear after every 15 minutes of inactivity. The device also beeps or vibrates if audible tones are turned on (*Setting the Device Sounds*, page 18).

Go for a short walk (at least a couple of minutes) to reset the move alert.

Sleep Tracking

While you are sleeping, the device automatically detects your sleep and monitors your movement during your normal sleep hours. You can set your normal sleep hours in the user settings on your Garmin Connect account. Sleep statistics include total hours of sleep, sleep levels, and sleep movement. You can view your sleep statistics on your Garmin Connect account.

NOTE: Naps are not added to your sleep statistics. You can use do not disturb mode to turn off notifications and alerts, with the exception of alarms.

Auto Goal

Your device creates a daily step goal automatically, based on your previous activity levels. As you move during the day, the device shows your progress toward your daily goal **1**.



If you choose not to use the auto goal feature, you can set a personalized step goal on your Garmin Connect account.

Intensity Minutes

To improve your health, organizations such as the U.S. Centers for Disease Control and Prevention, the American Heart Association®, and the World Health Organization, recommend at least 150 minutes per week of moderate intensity activity, such

as brisk walking, or 75 minutes per week of vigorous intensity activity, such as running.

The device monitors your activity intensity and tracks your time spent participating in moderate to vigorous intensity activities (heart rate data is required to quantify vigorous intensity). You can work toward achieving your weekly intensity minutes goal by participating in at least 10 consecutive minutes of moderate to vigorous intensity activities. The device adds the amount of moderate activity minutes with the amount of vigorous activity minutes. Your total vigorous intensity minutes are doubled when added.

Earning Intensity Minutes

Your Forerunner device calculates intensity minutes by comparing your heart rate data to your average resting heart rate. If heart rate is turned off, the device calculates moderate intensity minutes by analyzing your steps per minute.

- Start a timed activity for the most accurate calculation of intensity minutes.
- Exercise for at least 10 consecutive minutes at a moderate or vigorous intensity level.
- Wear your device all day and night for the most accurate resting heart rate.

Smart Features

Pairing Your Smartphone

You should connect your Forerunner device to a smartphone to complete the setup and use the full features of the device.

1 Go to www.garmin.com/intosports/apps, and download the Garmin Connect Mobile app to your smartphone.

2 From the Forerunner device, select **Menu > Settings > Bluetooth > Pair Mobile Device**.

3 Open the Garmin Connect Mobile app.

4 Select an option to add your device to your Garmin Connect account:

- If this is the first device you have paired with the Garmin Connect Mobile app, follow the on-screen instructions.
- If you have already paired another device with the Garmin Connect Mobile app, from the settings, select **Garmin Devices > Add Device**, and follow the on-screen instructions.

Phone Notifications

Phone notifications require a compatible smartphone to be in range and paired with the device. When your phone receives messages, it sends notifications to your device.

Enabling Bluetooth Notifications

1 Select **Menu > Settings > Bluetooth > Smart Notifications**.

2 Select **During Activity > Notifications**.

3 Select **Off, Show Calls Only, or Show All**.

4 Select **Not During Activity > Notifications**.

5 Select **Off, Show Calls Only, or Show All**.

NOTE: You can change the audible sounds for notifications.

Viewing Notifications

- When a notification appears on your Forerunner device, select **▶** to view the notification.
- Select **V** to clear the notification.
- From the time of day screen, select **▲** to view all of your notifications on the notifications widget.

Managing Notifications

You can use your compatible smartphone to manage notifications that appear on your Forerunner device.

Select an option:

- If you are using an Apple® smartphone, use the notifications settings on your smartphone to select the items to show on the device.
- If you are using a smartphone with Android™, from the Garmin Connect Mobile app, select **Settings > Smart Notifications**.

Playing Audio Prompts on Your Smartphone During Your Activity

Before you can set up audio prompts, you must have a smartphone with the Garmin Connect Mobile app paired to your Forerunner device.

You can set the Garmin Connect Mobile app to play motivational status announcements on your smartphone during a run or other activity. Audio prompts include the lap number and lap time, pace or speed, and heart-rate data. During an audio prompt, the Garmin Connect mobile app mutes the primary audio of the smartphone to play the announcement. You can customize the volume levels on the Garmin Connect Mobile app.

NOTE: The Lap Alert audio prompt is enabled by default.

- 1 From the settings in the Garmin Connect Mobile app, select **Garmin Devices**.
- 2 Select your device.
- 3 Select **Activity Options > Audio Prompts**.

Opening the Music Controls

Music controls require a compatible smartphone to be paired with the device.

Hold **Λ**, and select **Music Controls**.

Locating a Lost Smartphone

You can use the find my phone feature to help locate a lost smartphone that is paired using Bluetooth wireless technology and currently within range.

- 1 From the time of day screen, select **Λ** to view the controls widget.
- 2 Select **▶ > Find My Phone**.
The Forerunner device begins searching for your paired smartphone. Bars appear on the Forerunner device screen corresponding to the Bluetooth signal strength, and an audible alert sounds on your smartphone.
- 3 Select **↶** to stop searching.

Widgets

Your device comes preloaded with widgets that provide at-a-glance information. Some widgets require a Bluetooth connection to a compatible smartphone.

Some widgets are not visible by default. You can add them to the widget loop manually.

Notifications: Alerts you to incoming calls, texts, social network updates, and more, based on your smartphone notification settings.

Calendar: Displays upcoming meetings from your smartphone calendar.

Weather: Displays the current temperature and weather forecast.

Displays a dynamic summary of your activity today. The metrics include your last recorded sport, intensity minutes, steps, calories burned, and more.

Activity tracking: Tracks your daily step count, step goal, distance traveled, calories, and sleep statistics.

Intensity minutes: Tracks your time spent participating in moderate to vigorous activities, your weekly intensity minutes goal, and progress toward your goal.

Heart rate: Displays your current heart rate in beats per minute (bpm), resting heart rate for today, and a graph of your heart rate.

Last sport: Displays a brief summary of your last recorded sport and your total distance for the week.

Controls: Allows you to turn on and off the Bluetooth connectivity and features including do not disturb, find my phone, and manual syncing.

VIRB controls: Provides camera controls when you have a VIRB device paired with your Forerunner device.

Last activity: Displays a brief summary of your last recorded activity, such as your last run, last ride, or last swim.

Calories: Displays your calorie information for the current day.

Viewing the Widgets

Your device comes preloaded with widgets that provide at-a-glance information. Some widgets require a Bluetooth connection to a compatible smartphone.

From the time of day screen, select **Λ** or **∇**.

Available widgets include heart rate and activity tracking.

About My Day

The My Day widget is a daily snapshot of your activity. This is a dynamic summary that updates throughout the day. The metrics include your last recorded sport, intensity minutes for the week, steps, calories burned, and more. You can select **▶** to view additional metrics.

Bluetooth Controls Widget

	Turns on or off do not disturb mode.
	Turns on or off Bluetooth technology.
	Synchronizes your data with the Garmin Connect Mobile app.
	Activates the find my phone feature. It sends a beacon to your smartphone that is paired and in range of your Forerunner device.

Viewing the Weather Widget

- 1 From the time of day screen, select **∇** to view the weather widget.
- 2 Select **▶** to view hourly weather data.
- 3 Scroll down to view daily weather data.

VIRB Remote

The VIRB remote function allows you to control your VIRB action camera using your device. Go to www.garmin.com/VIRB to purchase a VIRB action camera.

Controlling a VIRB Action Camera

Before you can use the VIRB remote function, you must enable the remote setting on your VIRB camera. See the *VIRB Series Owner's Manual* for more information.

- 1 Turn on your VIRB camera.
- 2 Pair the VIRB camera with your Forerunner device (*Pairing ANT+ Sensors, page 13*).
- 3 On the Forerunner device, select the VIRB accessory.
When the VIRB accessory is paired, the VIRB screen is added to the data screens for the active profile.
- 4 Select an option:

- Select **Timer Start/Stop** to control the camera using the timer **▶**.

Video recording automatically starts and stops with the Forerunner device timer.

- Select **Manual** to control the camera using the shortcut menu. From the VIRB widget, you can hold **▶** to control the camera.

Using Do Not Disturb Mode

Before you can use do not disturb mode, you must pair your device with a smartphone (*Pairing Your Smartphone*, page 9).

You can use do not disturb mode to turn off tones, vibrations, and the backlight for alerts and notifications. For example, you can use this mode while sleeping or watching a movie.

NOTE: You can set your normal sleep hours in the user settings on your Garmin Connect account.

- 1 From the time of day screen, select **▲** to view the controls widget.
- 2 Select **▶ > Do Not Disturb > On**.
You can turn off do not disturb mode from the controls widget.
- 3 If necessary, select **Menu > Settings > Do Not Disturb > Sleep Time > On**.
The device enters do not disturb mode during your normal sleep hours.

Bluetooth Connected Features

The Forerunner device has several Bluetooth connected features for your compatible smartphone using the Garmin Connect Mobile app.

Activity uploads: Automatically sends your activity to the Garmin Connect Mobile app as soon as you finish recording the activity.

Connect IQ™: Allows you to extend your device features with new watch faces, widgets, apps, and data fields.

Find my phone: Locates your lost smartphone that is paired with your Forerunner device and currently within range.

Find my watch: Locates your lost Forerunner device that is paired with your smartphone and currently within range.

LiveTrack: Allows friends and family to follow your races and training activities in real time. You can invite followers using email or social media, allowing them to view your live data on a Garmin Connect tracking page.

Phone notifications: Displays phone notifications and messages on your Forerunner device.

Social media interactions: Allows you to post an update to your favorite social media website when you upload an activity to the Garmin Connect Mobile app.

Software updates: Allows you to update your device software.

Weather updates: Sends real-time weather conditions and notifications to your device.

Workout and course downloads: Allows you to browse for workouts and courses in the Garmin Connect Mobile app and wirelessly send them to your device.

Turning On the Smartphone Connection Alert

You can set the Forerunner device to alert you when your paired smartphone connects and disconnects using Bluetooth wireless technology.

Select **Menu > Settings > Bluetooth > Connection Alert > On**.

Turning Off Bluetooth Technology

- From the Forerunner home screen, select **Menu > Settings > Bluetooth > Status > Off**.
- Refer to the owner's manual for your mobile device to turn off Bluetooth wireless technology.

Connect IQ Features

You can add Connect IQ features to your watch from Garmin and other providers using the Connect IQ Mobile app. You can customize your device with watch faces, data fields, widgets, and apps.

Watch Faces: Allow you to customize the appearance of the clock.

Data Fields: Allow you to download new data fields that present sensor, activity, and history data in new ways. You can add Connect IQ data fields to built-in features and pages.

Widgets: Provide information at a glance, including sensor data and notifications.

Apps: Add interactive features to your watch, such as new outdoor and fitness activity types.

Downloading Connect IQ Features

Before you can download features from the Connect IQ Mobile app, you must pair your Forerunner device with your smartphone (*Pairing Your Smartphone*, page 9).

- 1 From the app store on your smartphone, install and open the **Connect IQ Mobile** app.
- 2 If necessary, select your device.
- 3 Select a Connect IQ feature.
- 4 Follow the on-screen instructions.

Downloading Connect IQ Features Using Your Computer

- 1 Connect the device to your computer using a USB cable.
- 2 Go to apps.garmin.com, and sign in.
- 3 Select a Connect IQ feature, and download it.
- 4 Follow the on-screen instructions.

Changing the Watch Face

Before you can activate a Connect IQ watch face, you must install a watch face from the Connect IQ store (*Downloading Connect IQ Features*, page 11).

- 1 From the watch face, hold **▲**.
- 2 Select **Clock Options > Watch Face > Connect IQ**.
- 3 Select **▲** or **▼** to view the watch faces.
- 4 Select **▶** to select a watch face.

History

History includes time, distance, calories, average pace or speed, lap data, and optional sensor information.

NOTE: When the device memory is full, your oldest data is overwritten.

Viewing History

- 1 Select **Menu > History > Activities**.
- 2 Select **▲** or **▼** to view your saved activities.
- 3 Select an activity.
- 4 Select an option:
 - Select **Details** to view additional information about the activity.
 - Select **Laps** to select a lap and view additional information about each lap.
 - Select **Map** to view your activity (GPS required).
 - Select **Time in Zone** to view your time in each heart rate zone.
 - Select **Delete** to delete the selected activity.

Viewing Your Time in Each Heart Rate Zone

Before you can view heart rate zone data, you must complete an activity with heart rate and save the activity.

Viewing your time in each heart rate zone can help you adjust your training intensity.

- 1 Select **Menu > History > Activities**.
- 2 Select an activity.

- 3 Select **Time in Zone**.

Viewing Data Totals

You can view the accumulated distance and time data saved to your device.

- 1 Select **Menu > History > Totals**.
- 2 If necessary, select the activity type.
- 3 Select an option to view weekly or monthly totals.

Deleting History

- 1 Select **Menu > History > Options**.
- 2 Select an option:
 - Select **Delete All Activities** to delete all activities from the history.
 - Select **Reset Totals** to reset all distance and time totals.

NOTE: This does not delete any saved activities.

- 3 Confirm your selection.

Data Management

NOTE: The device is not compatible with Windows® 95, 98, Me, Windows NT®, and Mac® OS 10.3 and earlier.

Deleting Files

NOTICE

If you do not know the purpose of a file, do not delete it. Your device memory contains important system files that should not be deleted.

- 1 Open the **Garmin** drive or volume.
- 2 If necessary, open a folder or volume.
- 3 Select a file.
- 4 Press the **Delete** key on your keyboard.

NOTE: If you are using an Apple computer, you must empty the Trash folder to completely remove the files.

Disconnecting the USB Cable

If your device is connected to your computer as a removable drive or volume, you must safely disconnect your device from your computer to avoid data loss. If your device is connected to your Windows computer as a portable device, it is not necessary to safely disconnect the device.

- 1 Complete an action:
 - For Windows computers, select the **Safely Remove Hardware** icon in the system tray, and select your device.
 - For Apple computers, select the device, and select **File > Eject**.
- 2 Disconnect the cable from your computer.

Sending Data to Your Computer

You can upload your activity data manually to your Garmin Connect account using the USB cable.

- 1 Connect the device to your computer using the USB cable.
- 2 Go to www.garminconnect.com.
- 3 Follow the on-screen instructions.

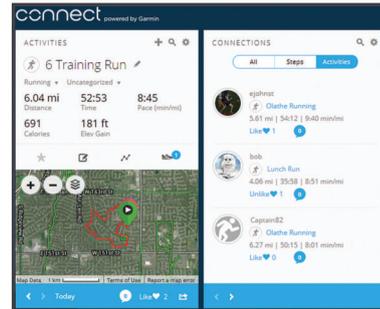
Garmin Connect

You can connect with your friends on Garmin Connect. Garmin Connect gives you the tools to track, analyze, share, and encourage each other. Record the events of your active lifestyle including runs, walks, rides, swims, hikes, triathlons, and more. To sign up for a free account, go to www.garminconnect.com.

Store your activities: After you complete and save an activity with your device, you can upload that activity to your Garmin Connect account and keep it as long as you want.

Analyze your data: You can view more detailed information about your activity, including time, distance, elevation, heart rate, calories burned, cadence, running dynamics, an overhead map view, pace and speed charts, and customizable reports.

NOTE: Some data requires an optional accessory such as a heart rate monitor.



Plan your training: You can choose a fitness goal and load one of the day-by-day training plans.

Track your progress: You can track your daily steps, join a friendly competition with your connections, and meet your goals.

Share your activities: You can connect with friends to follow each other's activities or post links to your activities on your favorite social networking sites.

Manage your settings: You can customize your device and user settings on your Garmin Connect account.

Access the Connect IQ store: You can download apps, watch faces, data fields, and widgets.

Navigation

You can use the GPS navigation features on your device to view your path on a map, save locations, and find your way home.

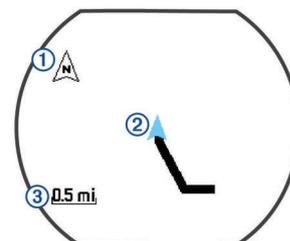
Adding the Map

You can add the map to the data screens loop for an activity profile.

- 1 Select an activity profile.
- 2 Select **Menu > Activity Settings > Data Screens > Map > Status > On**.

Map Features

When you start the timer and begin to move, a black line appears on the map, showing you where you have traveled.



①	Points to north
②	Your current location and heading
③	Zoom level

Marking Your Location

Before you can mark a location, you must enable the map screen for your activity profile and locate satellites.

A location is a point that you record and store in the device. If you want to remember landmarks or return to a certain spot, you can mark a location.

- 1 Go to the place where you want to mark a location.
- 2 Select **V** to view the map.
- 3 Hold **A**.
- 4 Select **Save Location**.
The location appears on the map with the date and time.

Editing a Location

You can edit the name of the saved location.

- 1 Select **Menu > Navigation > Saved Locations**.
- 2 Select a location.
- 3 Select **Name**.
- 4 Edit the name, and select **✓**.

Deleting a Location

- 1 Select **Menu > Navigation > Saved Locations**.
- 2 Select a location.
- 3 Select **Delete > Yes**.

Viewing Your Current Elevation and Coordinates

TIP: This procedure provides location details and another way to save your current location.

- 1 Select **Menu > Navigation > Where Am I?**.
Your device must locate satellites before it can display your location information.
- 2 If necessary, select **Save Location**.

Navigating to a Saved Location

Before you can navigate to a saved location, your device must locate satellites.

- 1 Select **Menu > Navigation > Saved Locations**.
- 2 Select a location.
- 3 Select **Go To**.
The compass appears. The arrow points toward the saved location.
- 4 Select **V** to view the map (optional).
A line appears on the map from your current location to the saved location.
- 5 Select **▶** to start the timer and record the activity.

Navigating Back to Start

Before you can navigate back to start, you must locate satellites, start the timer, and start your activity.

At any time during your activity, you can return to your starting location. For example, if you are running in a new city, and you are unsure how to get back to the trail head or hotel, you can navigate back to your starting location. This feature is not available for all activities.

- 1 Hold **A**.
- 2 Select **Navigation > Back to Start**.
The compass appears.
- 3 Move forward.
The compass arrow points toward your starting point.
TIP: For more accurate navigation, orient your device toward the direction in which you are navigating.

Courses

You can send a course from your Garmin Connect account to your device. After it is saved to your device, you can navigate the course on your device.

You can follow a saved course simply because it is a good route. For example, you can save and follow a bike friendly commute to work.

You can also follow a saved course, trying to match or exceed previously set performance goals. For example, if the original course was completed in 30 minutes, you can race against a Virtual Partner trying to complete the course in under 30 minutes.

Following a Course From the Web

Before you can download a course from your Garmin Connect account, you must have a Garmin Connect account ([Garmin Connect](#), page 12).

- 1 Connect the device to your computer using the USB cable.
- 2 Go to www.garminconnect.com.
- 3 Create a new course, or select an existing course.
- 4 Select **Send to Device**.
- 5 Disconnect the device, and turn it on.
- 6 Select **Menu > Navigation > Courses**.
- 7 Select a course.
- 8 Select **Do Course**.
- 9 Select **▶** to start the timer.

The map displays the course and status information at the top of the screen.

- 10 If necessary, select **V** to view additional data screens.

Viewing Course Details

- 1 Select **Menu > Navigation > Courses**.
- 2 Select a course.
- 3 Select an option:
 - Select **Map** to view the course on the map.
 - Select **Elevation Profile** to view an elevation plot of the course.
 - Select **Name** to view and edit the name of the course.

Deleting a Course

- 1 Select **Menu > Navigation > Courses**.
- 2 Select a course.
- 3 Select **Delete > Yes**.

Stopping Navigation

- 1 During the activity, select **V** to view the compass or map.
- 2 Hold **A**.
- 3 Select **Stop Navigation > Yes**.

ANT+ Sensors

Your device can be used with wireless ANT+ sensors. For more information about compatibility and purchasing optional sensors, go to <http://buy.garmin.com>.

Pairing ANT+ Sensors

Pairing is the connecting of ANT+ wireless sensors, for example, connecting a heart rate monitor with your Garmin device. The first time you connect an ANT+ sensor to your device, you must pair the device and sensor. After the initial pairing, the device automatically connects to the sensor when you start your activity and the sensor is active and within range.

NOTE: If your device was packaged with an ANT+ sensor, they are already paired.

- 1 Install the sensor or put on the heart rate monitor.
- 2 Bring the device within 1 cm of the sensor, and wait while the device connects to the sensor.
When the device detects the sensor, a message appears. You can customize a data field to display sensor data.
- 3 If necessary, select **Menu > Settings > Sensors and Accessories** to manage ANT+ sensors.

Foot Pod

Your device is compatible with the foot pod. You can use the foot pod to record pace and distance instead of using GPS when you are training indoors or when your GPS signal is weak. The foot pod is on standby and ready to send data (like the heart rate monitor).

After 30 minutes of inactivity, the foot pod powers off to conserve the battery. When the battery is low, a message appears on your device. Approximately five hours of battery life remain.

Going for a Run Using a Foot Pod

Before you go for a run, you must pair the foot pod with your Forerunner device (*Pairing ANT+ Sensors, page 13*).

You can run indoors using a foot pod to record pace, distance, and cadence. You can also run outdoors using a foot pod to record cadence data with your GPS pace and distance.

- 1 Install your foot pod according to the accessory instructions.
- 2 Select a running activity.
- 3 Go for a run.

Foot Pod Calibration

The foot pod is self-calibrating. The accuracy of the speed and distance data improves after a few outdoor runs using GPS.

Training with Power Meters

- Go to www.garmin.com/intosports for a list of ANT+ sensors that are compatible with your device (such as Vector™ system).
- For more information, see the owner's manual for your power meter.
- Adjust your power zones to match your goals and abilities (*Setting Your Power Zones, page 14*).
- Use range alerts to be notified when you reach a specified power zone (*Setting Range Alerts, page 17*).
- Customize the power data fields (*Customizing the Data Screens, page 16*).

Setting Your Power Zones

The values for the zones are default values and may not match your personal abilities. If you know your functional threshold power (FTP) value, you can enter it and allow the software to calculate your power zones automatically. You can manually adjust your zones on the device or using your Garmin Connect account.

- 1 From the home screen, select **Menu > My Stats > User Profile > Power Zones > Based On**.
- 2 Select an option:
 - Select **Watts** to view and edit the zones in watts.
 - Select **%FTP** to view and edit the zones as a percentage of your functional threshold power.
- 3 Select **FTP**, and enter your FTP value.
- 4 Select a zone, and enter a value for each zone.
- 5 If necessary, select **Minimum**, and enter a minimum power value.

Using Electronic Shifters

Before you can use compatible electronic shifters, such as Shimano® Di2™ shifters, you must pair them with your device (*Pairing ANT+ Sensors, page 13*). You can customize the optional data fields (*Customizing the Data Screens, page 16*). The Forerunner device displays current adjustment values when the sensor is in adjustment mode.

Situational Awareness

Your Forerunner device can be used with the Varia Vision device, Varia smart bike lights, and rearview radar to improve situational awareness. See the owner's manual for your Varia device for more information.

NOTE: You may need to update the Forerunner software before pairing Varia devices (*Updating the Software Using Garmin Express, page 20*).

Compatible Heart Rate Monitors

This device is compatible with all Garmin heart rate monitors. This device can be packaged with these premium heart rate monitors.

- HRM-Swim accessory (*HRM-Swim Accessory, page 14*)
- HRM-Tri accessory (*HRM-Tri Accessory, page 15*)
- HRM-Run accessory (*HRM-Run Accessory, page 15*)

HRM-Swim Accessory

Sizing the Heart Rate Monitor

Before your first swim, take some time sizing the heart rate monitor. It should be tight enough to stay in place when pushing off the pool wall.

- Select a strap extender, and attach it to the elastic end of the heart rate monitor.

The heart rate monitor comes with three extender straps to fit different chest sizes.

TIP: The medium strap extender works for most shirt sizes (from medium to extra-large).

- Put on the heart rate monitor backward to easily adjust the slider on the strap extender.
- Put on the heart rate monitor forward to easily adjust the slider on the heart rate monitor.

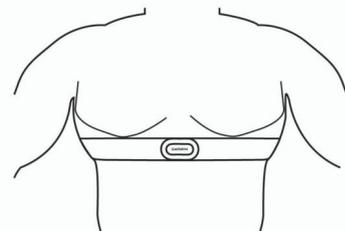
Putting On the Heart Rate Monitor

You should wear the heart rate monitor directly on your skin, just below your sternum.

- 1 Select a strap extender for the best fit.
- 2 Wear the heart rate monitor with the Garmin logo facing right-side up.
The hook ① and loop ② connection should be on your right side.



- 3 Wrap the heart rate monitor around your chest, and connect the strap hook to the loop.



NOTE: Make sure the care tag does not fold over.

- 4 Tighten the heart rate monitor so it is snug around your chest, but not restrictive.

After you put on the heart rate monitor, it is active, storing, and sending data.

Tips for Using the HRM-Swim Accessory

- Adjust the tightness of the heart rate monitor and strap extender if the heart rate monitor slides down your chest when pushing off the pool wall.
- Stand up between intervals so that the heart rate monitor is out of the water to see your heart rate data.

Caring for the Heart Rate Monitor

NOTICE

A buildup of sweat and salt on the strap can decrease the ability of the heart rate monitor to report accurate data.

- Rinse the heart rate monitor after every use.
- Hand wash the heart rate monitor after every seven uses, using a tiny amount of mild detergent, such as dishwashing liquid.

NOTE: Using too much detergent may damage the heart rate monitor.

- Do not put the heart rate monitor in a washing machine or dryer.
- When drying the heart rate monitor, hang it up or lay it flat.

HRM-Tri Accessory

The HRM-Swim section of this manual explains recording heart rate during your swim (*Swimming in Open Water*, page 2).

Pool Swimming

NOTICE

Hand wash the heart rate monitor after exposure to chlorine or other pool chemicals. Prolonged exposure to these substances can damage the heart rate monitor.

The HRM-Tri accessory is designed primarily for open water swimming, but it can be used occasionally for pool swimming. The heart rate monitor should be worn under a swim suit or triathlon top during pool swimming. Otherwise, it may slide down your chest when pushing off the pool wall.

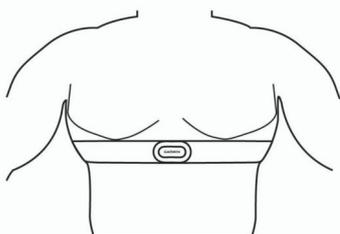
Putting On the Heart Rate Monitor

You should wear the heart rate monitor directly on your skin, just below your sternum. It should be snug enough to stay in place during your activity.

- 1 If necessary, attach the strap extender to the heart rate monitor.
- 2 Wet the electrodes ① on the back of the heart rate monitor to create a strong connection between your chest and the transmitter.



- 3 Wear the heart rate monitor with the Garmin logo facing right-side up.



The loop ② and hook ③ connection should be on your right side.

- 4 Wrap the heart rate monitor around your chest, and connect the strap hook to the loop.

NOTE: Make sure the care tag does not fold over.

After you put on the heart rate monitor, it is active and sending data.

Data Storage

The heart rate monitor can store up to 20 hours of data in a single activity. When the heart rate monitor memory is full, your oldest data is overwritten.

You can start a timed activity on your paired Forerunner device, and the heart rate monitor records your heart rate data even if you move away from your device. For example, you can record heart rate data during fitness activities or team sports where watches cannot be worn. Your heart rate monitor automatically sends your stored heart rate data to your Forerunner device when you save your activity. Your heart rate monitor must be active and within range (3 m) of the device while data is uploaded.

HRM-Run Accessory

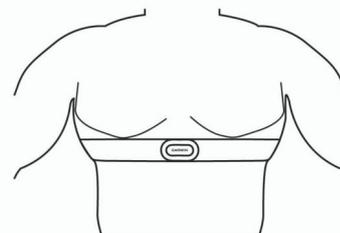
Putting On the Heart Rate Monitor

You should wear the heart rate monitor directly on your skin, just below your sternum. It should be snug enough to stay in place during your activity.

- 1 If necessary, attach the strap extender to the heart rate monitor.
- 2 Wet the electrodes ① on the back of the heart rate monitor to create a strong connection between your chest and the transmitter.



- 3 Wear the heart rate monitor with the Garmin logo facing right-side up.



The loop ② and hook ③ connection should be on your right side.

- 4 Wrap the heart rate monitor around your chest, and connect the strap hook to the loop.

NOTE: Make sure the care tag does not fold over.

After you put on the heart rate monitor, it is active and sending data.

Caring for the Heart Rate Monitor

NOTICE

A buildup of sweat and salt on the strap can decrease the ability of the heart rate monitor to report accurate data.

- Rinse the heart rate monitor after every use.
- Hand wash the heart rate monitor after every seven uses or one pool swim, using a tiny amount of mild detergent, such as dishwashing liquid.

NOTE: Using too much detergent may damage the heart rate monitor.

- Do not put the heart rate monitor in a washing machine or dryer.
- When drying the heart rate monitor, hang it up or lay it flat.

Tips for Erratic Heart Rate Data

If the heart rate data is erratic or does not appear, you can try these tips.

- Reapply water to the electrodes and contact patches (if applicable).
- Tighten the strap on your chest.
- Warm up for 5 to 10 minutes.
- Follow the care instructions (*Caring for the Heart Rate Monitor*, page 15).
- Wear a cotton shirt or thoroughly wet both sides of the strap. Synthetic fabrics that rub or flap against the heart rate monitor can create static electricity that interferes with heart rate signals.
- Move away from sources that can interfere with your heart rate monitor.

Sources of interference may include strong electromagnetic fields, some 2.4 GHz wireless sensors, high-voltage power lines, electric motors, ovens, microwave ovens, 2.4 GHz cordless phones, and wireless LAN access points.

Extended Display Mode

You can use Extended Display mode to display data screens from your Forerunner device on a compatible Edge device during a ride or triathlon. See your Edge owner's manual for more information.

Customizing Your Device

Setting Up Your User Profile

You can update your gender, birth year, height, weight, and heart rate zone settings. The device uses this information to calculate accurate training data.

- 1 Select **Menu** > **My Stats** > **User Profile**.
- 2 Select an option.

Activity Profiles

Activity profiles are a collection of settings that optimize your device based on how you are using it. For example, the settings and data screens are different when you are using the device for running than for riding your bike.

When you are using a profile and you change settings such as data fields or alerts, the changes are saved automatically as part of the profile.

Creating a Custom Activity Profile

- 1 Select **Menu** > **Settings** > **Activity Profiles** > **Add New**.
- 2 Select a sport.
- 3 Select an accent color.
- 4 Select a profile name or enter a custom name.
Duplicate profile names include a number. For example, Run(2).
- 5 Select an option:
 - Select **Use Default** to create your custom profile starting from the system default settings.
 - Select a copy of an existing profile to create your custom profile starting from one of your saved profiles.

NOTE: If you are creating a custom multisport profile, you can select two or more profiles and include transitions.

6 If necessary, select an option:

- Select **Yes** to turn on the GPS during your activity.
- Select **No** to turn off the GPS during your activity.

7 Select an option:

- Select **Edit Settings** to customize specific profile settings.
- Select **Done** to save and use the custom profile.

Changing Your Activity Profile

The device has default activity profiles. You can modify each of the saved activity profiles.

TIP: The default activity profiles use a specific accent color for each sport. The multisport activity profile changes the accent color when you switch sport segments.

- 1 Select **Menu** > **Settings** > **Activity Profiles**.
- 2 Select a profile.
You can apply, edit, or remove the activity profile.

Activity Settings

These settings allow you to customize each preloaded activity app based on your needs. For example, you can customize data pages and enable alerts and training features. Not all settings are available for all activity types.

Select **▶** > **A**, select an activity profile, and select **▼** > **Activity Settings**

Alerts: Sets the training or navigation alerts for the activity.

Auto Pause: Sets the device to stop recording data when you stop moving or when you drop below a specified speed (*Using Auto Pause*, page 17).

Auto Scroll: Enables you to move through all of the activity data screens automatically while the timer is running (*Using Auto Scroll*, page 17).

Countdown Start: Enables a countdown timer for pool swimming intervals.

Data Screens: Enables you to customize data screens and add new data screens for the activity (*Customizing the Data Screens*, page 16).

GPS: Sets the mode for the GPS antenna. Using GPS + GLONASS provides increased performance in challenging environments and faster position acquisition. Using the GPS + GLONASS option can reduce battery life more than using the GPS option only. Using the UltraTrac option records track points and sensor data less frequently (*Using UltraTrac Mode*, page 18).

Laps: Sets the options for the Auto Lap® feature (*Marking Laps by Distance*, page 17) and the lap alert message (*Customizing the Lap Alert Message*, page 17).

Metronome: Plays tones at a steady rhythm to help you improve your performance by training at a faster, slower, or more consistent cadence (*Running with the Metronome*, page 17).

Pool Size: Sets the pool length for pool swimming.

Power Save Timeout: Sets the power-save timeout setting for the activity (*Power Save Timeout Settings*, page 18).

Repeat: Enables the repeat option for multisport activities. For example, you can use this option for activities that include multiple transitions, such as a swimrun.

Segment Alerts: Enables prompts that alert you to approaching segments.

Stroke Type: Enables stroke detection for pool swimming.

Transitions: Enables transitions for multisport activities.

Customizing the Data Screens

You can customize data screens based on your training goals or optional accessories. For example, you can customize one of the data screens to display your lap pace or heart rate zone.

- 1 Select **Menu** > **Activity Settings** > **Data Screens**.
- 2 Select a screen.
Some screens can only be turned on or off.
- 3 If necessary, edit the number of data fields.
- 4 Select a data field to change it.

Alerts

You can use alerts to train toward specific heart rate, pace, time, distance, cadence, and calories goals and to set run/walk time intervals.

Setting Range Alerts

A range alert notifies you when the device is above or below a specified range of values. For example, if you have an optional heart rate monitor, you can set the device to alert you when your heart rate is below zone 2 and over zone 5 ([Setting Your Heart Rate Zones, page 4](#)).

- 1 Select **Menu** > **Activity Settings** > **Alerts** > **Add New**.
- 2 Select the type of alert.
Depending on your accessories and the activity profile, the alerts may include heart rate, pace, speed, and cadence.
- 3 If necessary, turn on the alert.
- 4 Select a zone or enter a value for each alert.

Each time you exceed or drop below the specified range, a message appears. The device also beeps or vibrates if audible tones are turned on ([Setting the Device Sounds, page 18](#)).

Setting a Recurring Alert

A recurring alert notifies you each time the device records a specified value or interval. For example, you can set the device to alert you every 30 minutes.

- 1 Select **Menu** > **Activity Settings** > **Alerts** > **Add New**.
- 2 Select an option:
 - Select **Custom**, select a message, and select an alert type.
 - Select **Time**, **Distance**, or **Calories**.
- 3 Enter a value.

Each time you reach the alert value, a message appears. The device also beeps or vibrates if audible tones are turned on ([Setting the Device Sounds, page 18](#)).

Setting Walk Break Alerts

Some running programs use timed walking breaks at regular intervals. For example, during a long training run, you can set the device to alert you to run for 4 minutes, and then walk for 1 minute, and repeat. You can use the Auto Lap feature while using the run/walk alerts.

NOTE: Walk break alerts are available only for running profiles.

- 1 Select **Menu** > **Activity Settings** > **Alerts** > **Run/Walk** > **Status** > **On**.
- 2 Enter a time for the run interval.
- 3 Enter a time for the walk interval.

Each time you reach the alert value, a message appears. The device also beeps or vibrates if audible tones are turned on ([Setting the Device Sounds, page 18](#)).

Editing an Alert

- 1 Select **Menu** > **Activity Settings** > **Alerts**.
- 2 Select an alert.
- 3 Edit the alert values or settings.

Using Auto Pause®

You can use the Auto Pause feature to pause the timer automatically when you stop moving or when your pace or speed drops below a specified value. This feature is helpful if your activity includes stop lights or other places where you need to slow down or stop.

NOTE: History is not recorded while the timer is stopped or paused.

- 1 Select **Menu** > **Activity Settings** > **Auto Pause**.
- 2 Select an option:
 - Select **When Stopped** to pause the timer automatically when you stop moving.
 - Select **Custom** to pause the timer automatically when your pace or speed drops below a specified value.

Running with the Metronome

The metronome feature plays tones at a steady rhythm to help you improve your performance by training at a faster, slower, or more consistent cadence.

NOTE: The metronome is not available for cycling or swimming profiles.

- 1 Select **Menu** > **Activity Settings** > **Metronome** > **Status** > **On**.
- 2 Select an option:
 - Select **Beats Per Minute** to enter a value based on the cadence you want to maintain.
 - Select **Alert Frequency** to customize the frequency of the beats.
 - Select **Sounds** to customize the metronome sound.
- 3 If necessary, select **Preview** to listen to the metronome feature before you run.
- 4 Select  to return to the timer screen.
- 5 Select  to start the timer.
- 6 Go for a run.
The metronome starts automatically.
- 7 During your run, select  to view the metronome screen.
- 8 If necessary, hold  to change the metronome settings.

Marking Laps by Distance

You can use the Auto Lap feature to mark a lap at a specific distance automatically. This feature is helpful for comparing your performance over different parts of a run (for example, every 1 mi. or 5 km).

- 1 Select **Menu** > **Activity Settings** > **Laps** > **Auto Distance**.
- 2 Select a distance.

Each time you complete a lap, a message appears that displays the time for that lap. The device also beeps or vibrates if audible tones are turned on ([Setting the Device Sounds, page 18](#)).

If necessary, you can customize the data screens to display additional lap data.

Customizing the Lap Alert Message

You can customize one or two data fields that appear in the lap alert message.

- 1 Select **Menu** > **Activity Settings** > **Laps** > **Lap Alert**.
- 2 Select a data field to change it.
- 3 Select **Preview** (optional).

Using Auto Scroll

You can use the auto scroll feature to cycle through all of the training data screens automatically while the timer is running.

- 1 Select **Menu** > **Activity Settings** > **Auto Scroll**.
- 2 Select a display speed.

Changing the GPS Setting

By default, the device uses GPS to locate satellites. For increased performance in challenging environments and faster GPS position location, you can enable GPS and GLONASS. Using GPS and GLONASS reduces battery life more than using only GPS.

Select **Menu** > **Activity Settings** > **GPS** > **GPS + GLONASS**.

Using UltraTrac Mode

Before using UltraTrac mode, you should run outdoors a few times using normal GPS mode to calibrate the device.

You can use UltraTrac mode for extended activities. UltraTrac mode is a GPS setting that periodically turns off GPS to save battery power. When GPS is off, the device uses the accelerometer to calculate speed and distance. Speed, distance, and track data accuracy are reduced in UltraTrac mode. The accuracy of the data improves after a few outdoor runs using GPS.

Select **Menu** > **Activity Settings** > **GPS** > **UltraTrac**.

TIP: For extended activities, you should consider other battery saving options (*Maximizing Battery Life*, page 20).

Power Save Timeout Settings

The timeout settings affect how long your device stays in training mode, for example, when you are waiting for a race to start. Select **Menu** > **Activity Settings** > **Power Save Timeout**.

Normal: Sets the device to enter low-power watch mode after 5 minutes of inactivity.

Extended: Sets the device to enter low-power watch mode after 25 minutes of inactivity. The extended mode can result in shorter battery life between charges.

Activity Tracking Settings

Select **Menu** > **Settings** > **Activity Tracking**.

Status: Enables the activity tracking feature.

Move Alert: Displays a message and move bar on the time of day screen. The device also beeps or vibrates if audible tones are turned on (*Setting the Device Sounds*, page 18).

System Settings

Select **Menu** > **Settings** > **System**.

- Language Settings (*Changing the Device Language*, page 18)
- Time Settings (*Time Settings*, page 18)
- Backlight Settings (*Backlight Settings*, page 18)
- Sound Settings (*Setting the Device Sounds*, page 18)
- Unit Settings (*Changing the Units of Measure*, page 18)
- Format Settings (*Format Settings*, page 18)
- Data Recording Settings (*Data Recording Settings*, page 18)

Changing the Device Language

Select **Menu** > **Settings** > **System** > **Language**.

Time Settings

Select **Menu** > **Settings** > **System** > **Clock**.

Watch Face: Allows you to select a watch face design.

Use Profile Color: Sets the accent color for the time of day screen to be the same as the activity profile color.

Background: Sets the background color to black or white.

Time Format: Sets the device to show time in a 12-hour or a 24-hour format.

Set Automatically: Allows you to set the time manually or automatically based on your GPS position.

Time Zones

Each time you turn on the device and acquire satellites or sync with your smartphone, the device automatically detects your time zone and the current time of day.

Setting the Time Manually

By default, the time is set automatically when the device acquires satellite signals.

- 1 Select **Menu** > **Settings** > **System** > **Clock** > **Set Automatically** > **Off**.
- 2 Select **Set Time**, and enter the time of day.

Setting the Alarm

- 1 Select **Menu** > **Settings** > **Alarms** > **Add New** > **Status** > **On**.
- 2 Select **Time**, and enter a time.
- 3 Select **Sounds**, and select an option.
- 4 Select **Repeat**, and select an option.

Deleting an Alarm

- 1 Select **Menu** > **Settings** > **Alarms**.
- 2 Select an alarm.
- 3 Select **Remove** > **Yes**.

Backlight Settings

Select **Menu** > **Settings** > **System** > **Backlight**.

Keys and Alerts: Sets the backlight to turn on for key presses and alerts.

Wrist Turn: Allows your device to turn on the backlight automatically when you rotate your wrist toward your body.

Timeout: Sets the length of time before the backlight turns off.

Setting the Device Sounds

The device sounds include key tones, alert tones, and vibrations.

Select **Menu** > **Settings** > **System** > **Sounds**.

Changing the Units of Measure

You can customize the units of measure for distance, pace and speed, weight, height, and temperature.

- 1 Select **Menu** > **Settings** > **System** > **Units**.
- 2 Select a measurement type.
- 3 Select a unit of measure.

Format Settings

Select **Menu** > **Settings** > **System** > **Format**.

Pace/Speed Preference: Sets the device to display speed or pace for running, cycling, or other activities. This preference affects several training options, history, and alerts.

Start of Week: Sets the first day of the week for your weekly history totals.

Data Recording Settings

Select **Menu** > **Settings** > **System** > **Data Recording**.

Smart: Records key points where you change direction, pace, or heart rate. Your activity record is smaller, allowing you to store more activities on the device memory.

Every Second: Records points every second. It creates a very detailed record of your activity and increases the size of the activity record.

Device Information

Charging the Device

WARNING

This device contains a lithium-ion battery. See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

NOTICE

To prevent corrosion, thoroughly clean and dry the contacts and the surrounding area before charging or connecting to a computer. Refer to the cleaning instructions in the appendix.

- 1 Align the charger posts with the contacts on the back of the device, and connect the charging clip ① securely to the device.



- 2 Plug the USB cable into a USB charging port.
- 3 Charge the device completely.
- 4 Press ② to remove the charger.

Specifications

Forerunner Specifications

Battery type	Rechargeable, built-in lithium-ion battery
Battery life, watch mode	Up to 9 wk. Up to 8 wk. with activity tracking Up to 4 wk. with activity tracking and smartphone notifications Up to 11 days with activity tracking, smartphone notifications, and wrist-based heart rate
Battery life, activity mode	Up to 16 hr. in GPS mode Up to 14 hr. in GPS mode and wrist-based heart rate Up to 10 hr. in GPS + GLONASS mode and wrist-based
Battery life, UltraTrac mode	Up to 24 hr. Up to 21 hr. with wrist-based heart rate
Water rating	Swim, 5 ATM*
Operating temperature range	From -20° to 50°C (from -4° to 122°F)
Charging temperature range	From 0° to 45°C (from 32° to 113°F)
Radio frequency/protocol	2.4 GHz ANT+ wireless communications protocol Bluetooth Smart wireless technology

*The device withstands pressure equivalent to a depth of 50 m. For more information, go to www.garmin.com/waterrating.

HRM-Swim Specifications and HRM-Tri Specifications

Battery type	User-replaceable CR2032 (3 V)
HRM-Swim battery life	Up to 18 mo. (approximately 3 hr./wk.)
HRM-Tri battery life	Up to 10 mo. for triathlon training (approximately 1 hr./day)
Operating temperature range	From -10° to 50°C (from 14° to 122°F)
Radio frequency/protocol	2.4 GHz ANT+ wireless communications protocol
Water rating	Swim, 5 ATM*

*The device withstands pressure equivalent to a depth of 50 m. For more information, go to www.garmin.com/waterrating.

HRM-Run Specifications

Battery type	User-replaceable CR2032, 3 V
Battery life	1 yr. (approximately 1 hr./day)

Operating temperature range	From -10° to 50°C (from 14° to 122°F)
Radio frequency/protocol	2.4 GHz ANT+ wireless communications protocol
Water rating	5 ATM*

*The device withstands pressure equivalent to a depth of 50 m. For more information, go to www.garmin.com/waterrating.

Device Care

NOTICE

Avoid extreme shock and harsh treatment, because it can degrade the life of the product.

Avoid pressing the keys under water.

Do not use a sharp object to clean the device.

Avoid chemical cleaners, solvents, and insect repellents that can damage plastic components and finishes.

Thoroughly rinse the device with fresh water after exposure to chlorine, salt water, sunscreen, cosmetics, alcohol, or other harsh chemicals. Prolonged exposure to these substances can damage the case.

Do not store the device where prolonged exposure to extreme temperatures can occur, because it can cause permanent damage.

Cleaning the Device

NOTICE

Even small amounts of sweat or moisture can cause corrosion of the electrical contacts when connected to a charger. Corrosion can prevent charging and data transfer.

- 1 Wipe the device using a cloth dampened with a mild detergent solution.
- 2 Wipe it dry.

After cleaning, allow the device to dry completely.

TIP: For more information, go to www.garmin.com/fitandcare.

User Replaceable Batteries

⚠ WARNING

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

Replacing the HRM-Swim Battery and the HRM-Tri Battery

- 1 Remove the sleeve ① from the heart rate monitor module.



- 2 Use a small Phillips (00) screwdriver to remove the four screws on the front of the module.
- 3 Remove the cover and battery.
- 4 Wait 30 seconds.
- 5 Insert the new battery under the two plastic tabs ② with the positive side facing up.

NOTE: Do not damage or lose the O-ring gasket.

The O-ring gasket should remain around the outside of the raised plastic ring.

6 Replace the front cover and the four screws.

Observe the orientation of the front cover. The raised screw ③ should fit in the matching raised screw hole on the front cover.

NOTE: Do not overtighten.

7 Replace the sleeve.

After you replace the heart rate monitor battery, you may need to pair it with the device again.

Troubleshooting

Product Updates

On your computer, install Garmin Express™ (www.garmin.com/express). On your smartphone, install the Garmin Connect Mobile app.

This provides easy access to these services for Garmin devices:

- Software updates
- Data uploads to Garmin Connect
- Product registration

Getting More Information

- Go to support.garmin.com for additional manuals, articles, and software updates.
- Go to www.garmin.com/intosports.
- Go to www.garmin.com/learningcenter.
- Go to buy.garmin.com, or contact your Garmin dealer for information about optional accessories and replacement parts.

Acquiring Satellite Signals

The device may need a clear view of the sky to acquire satellite signals. The time and date are set automatically based on the GPS position.

TIP: For more information about GPS, go to www.garmin.com/aboutGPS.

1 Go outdoors to an open area.

The front of the device should be oriented toward the sky.

2 Wait while the device locates satellites.

It may take 30–60 seconds to locate satellite signals.

Improving GPS Satellite Reception

- Frequently sync the device to your Garmin Connect account:
 - Connect your device to a computer using the USB cable and the Garmin Express application.
 - Sync your device to the Garmin Connect Mobile app using your Bluetooth enabled smartphone.

While connected to your Garmin Connect account, the device downloads several days of satellite data, allowing it to quickly locate satellite signals.

- Take your device outside to an open area away from tall buildings and trees.
- Remain stationary for a few minutes.

Restarting the Device

If the device stops responding, you may need to restart it.

NOTE: Restarting the device may erase your data or settings.

1 Hold for 15 seconds.

The device turns off.

2 Hold for one second to turn on the device.

Clearing User Data

You can restore all of the device settings to the factory default values.

NOTE: This deletes all user-entered information, but it does not delete your history.

1 Hold , and select **Yes** to turn off the device.

2 While holding , hold to turn on the device.

3 Select **Yes**.

Restoring All Default Settings

NOTE: This deletes all user-entered information and activity history.

You can reset all settings back to the factory default values.

Select **Menu > Settings > System > Restore Defaults > Yes**.

Viewing Device Information

You can view the unit ID, software version, regulatory information (e-label), and license agreement.

Select **Menu > Settings > System > About**.

Updating the Software Using Garmin Express

Before you can update your device software, you must have a Garmin Connect account, and you must download the Garmin Express application.

1 Connect the device to your computer using the USB cable.

When new software is available, Garmin Express sends it to your device.

2 Follow the on-screen instructions.

3 Do not disconnect your device from the computer during the update process.

Maximizing Battery Life

- Shorten the backlight timeout (*Backlight Settings, page 18*).
- Shorten the timeout to watch mode (*Power Save Timeout Settings, page 18*).
- Turn off activity tracking (*Activity Tracking Settings, page 18*).
- Select the **Smart** recording interval (*Data Recording Settings, page 18*).
- Turn off GLONASS (*Changing the GPS Setting, page 17*).
- Turn off the Bluetooth wireless feature (*Turning Off Bluetooth Technology, page 11*).
- Turn off wrist-based heart rate monitoring (*Turning Off the Wrist Heart Rate Monitor, page 4*).

My daily step count does not appear

The daily step count is reset every night at midnight.

If dashes appear instead of your step count, allow the device to acquire satellite signals and set the time automatically.

My device does not beep in cold weather

For optimal performance in cold weather, the device automatically turns off key tones and alert tones.

Appendix

Data Fields

Some data fields require ANT+ accessories to display data.

%FTP: The current power output as a percentage of functional threshold power.

%HRR: The percentage of heart rate reserve (maximum heart rate minus resting heart rate).

10s Avg. Balance: The 10-second moving average of the left/right power balance.

10s Avg. Power: The 10-second moving average of power output.

24-Hour Max.: The maximum temperature recorded in the last 24 hours.

24-Hour Min.: The minimum temperature recorded in the last 24 hours.

30s Avg. Balance: The 30-second moving average of the left/right power balance.

30s Avg. Power: The 30-second moving average of power output.

3s Avg. Balance: The three-second moving average of the left/right power balance.

3s Avg. Power: The three-second moving average of power output.

Average %HRR: The average percentage of heart rate reserve (maximum heart rate minus resting heart rate) for the current activity.

Average Balance: The average left/right power balance for the current activity.

Average Cadence: Running. The average cadence for the current activity.

Average Cadence: Cycling. The average cadence for the current activity.

Average Heart Rate: The average heart rate for the current activity.

Average HR %Max.: The average percentage of maximum heart rate for the current activity.

Average Lap Time: The average lap time for the current activity.

Average Pace: The average pace for the current activity.

Average Power: The average power output for the current activity.

Average Speed: The average speed for the current activity.

Average Stroke Distance: The average distance traveled per stroke during the current activity.

Average Stroke Rate: Swimming. The average number of strokes per minute (spm) during the current activity.

Average Strokes/Length: The average number of strokes per pool length during the current activity.

Average SWOLF: The average swolf score for the current activity. Your swolf score is the sum of the time for one length plus the number of strokes for that length (*Swim Terminology, page 2*). In open water swimming, 25 meters is used to calculate your swolf score.

Avg. GCT Bal.: The average ground contact time balance for the current session.

Avg. Ground Contact Time: The average amount of ground contact time for the current activity.

Avg. L. Pwr. Phase: The average power phase angle for the left leg for the current activity.

Avg. Left PPP: The average power phase peak angle for the left leg for the current activity.

Avg. PCO: The average platform center offset for the current activity.

Avg. R. Pwr. Phase: The average power phase angle for the right leg for the current activity.

Avg. Right PPP: The average power phase peak angle for the right leg for the current activity.

Avg. Stride Len.: The average stride length for the current session.

Avg. Vert. Ratio: The average ratio of vertical oscillation to stride length for the current session.

Avg. Vertical Oscillation: The average amount of vertical oscillation for the current activity.

Balance: The current left/right power balance.

Cadence: Running. The steps per minute (right and left).

Cadence: Cycling. The number of revolutions of the crank arm. Your device must be connected to a cadence accessory for this data to appear.

Calories: The amount of total calories burned.

Di2 Battery: The remaining battery power of a Di2 sensor.

Distance: The distance traveled for the current track or activity.

Elapsed Time: The total time recorded. For example, if you start the timer and run for 10 minutes, then stop the timer for 5 minutes, then start the timer and run for 20 minutes, your elapsed time is 35 minutes.

Elevation: The altitude of your current location above or below sea level.

Front: The front bike gear from a Di2 sensor.

GCT Balance: The left/right balance of ground contact time while running.

Gear Combo: The current gear combination from a gear position sensor.

Gear Ratio: The number of teeth on the front and rear bike gears.

Gears: The front and rear bike gears from a Di2 sensor.

Ground Contact Time: The amount of time in each step that you spend on the ground while running, measured in milliseconds. Ground contact time is not calculated while walking.

Heading: The direction you are moving.

Heart Rate: Your heart rate in beats per minute (bpm). Your device must be connected to a compatible heart rate monitor.

HR %Max.: The percentage of maximum heart rate.

HR Zone: The current range of your heart rate (1 to 5). The default zones are based on your user profile and maximum heart rate (220 minus your age).

Int. Avg. %HRR: The average percentage of heart rate reserve (maximum heart rate minus resting heart rate) for the current swim interval.

Int. Avg. %Max.: The average percentage of maximum heart rate for the current swim interval.

Int. Avg. HR: The average heart rate for the current swim interval.

Int. Max. %HRR: The maximum percentage of heart rate reserve (maximum heart rate minus resting heart rate) for the current swim interval.

Int. Max. %Max.: The maximum percentage of maximum heart rate for the current swim interval.

Int. Max. HR: The maximum heart rate for the current swim interval.

Intensity Factor: The Intensity Factor™ for the current activity.

Interval Distance: The distance traveled for the current interval.

Interval Lengths: The number of pool lengths completed during the current interval.

Interval Pace: The average pace for the current interval.

Interval Stroke Rate: The average number of strokes per minute (spm) during the current interval.

Interval Strokes/Length: The average number of strokes per pool length during the current interval.

- Interval Stroke Type:** The current stroke type for the interval.
- Interval SWOLF:** The average swolf score for the current interval.
- Interval Time:** The stopwatch time for the current interval.
- L. Pwr. Phase:** The current power phase angle for the left leg. Power phase is the pedal stroke region where you produce positive power.
- Lap %HRR:** The average percentage of heart rate reserve (maximum heart rate minus resting heart rate) for the current lap.
- Lap Balance:** The average left/right power balance for the current lap.
- Lap Cadence:** Running. The average cadence for the current lap.
- Lap Cadence:** Cycling. The average cadence for the current lap.
- Lap Distance:** The distance traveled for the current lap.
- Lap GCT Bal.:** The average ground contact time balance for the current lap.
- Lap Ground Contact Time:** The average amount of ground contact time for the current lap.
- Lap HR:** The average heart rate for the current lap.
- Lap HR %Max.:** The average percentage of maximum heart rate for the current lap.
- Lap L. Pwr. Phase:** The average power phase angle for the left leg for the current lap.
- Lap Left PPP:** The average power phase peak angle for the left leg for the current lap.
- Lap Normalized Power:** The average Normalized Power for the current lap.
- Lap Pace:** The average pace for the current lap.
- Lap PCO:** The average platform center offset for the current lap.
- Lap Power:** The average power output for the current lap.
- Lap R. Pwr. Phase:** The average power phase angle for the right leg for the current lap.
- Lap Right PPP:** The average power phase peak angle for the right leg for the current lap.
- Laps:** The number of laps completed for the current activity.
- Lap Speed:** The average speed for the current lap.
- Lap Stride Len.:** The average stride length for the current lap.
- Lap Stroke Distance:** Swimming. The average distance traveled per stroke during the current lap.
- Lap Stroke Rate:** Swimming. The average number of strokes per minute (spm) during the current lap.
- Lap Strokes:** Swimming. The total number of strokes for the current lap.
- Lap SWOLF:** The swolf score for the current lap.
- Lap Time:** The stopwatch time for the current lap.
- Lap Vert. Ratio:** The average ratio of vertical oscillation to stride length for the current lap.
- Lap Vertical Oscillation:** The average amount of vertical oscillation for the current lap.
- Last Interval Strokes/Length:** The average number of strokes per pool length during the last completed interval.
- Last Lap Cadence:** Running. The average cadence for the last completed lap.
- Last Lap Cadence:** Cycling. The average cadence for the last completed lap.
- Last Lap Distance:** The distance traveled for the last completed lap.
- Last Lap Normalized Pwr.:** The average Normalized Power for the last completed lap.
- Last Lap Pace:** The average pace for the last completed lap.
- Last Lap Power:** The average power output for the last completed lap.
- Last Lap Speed:** The average speed for the last completed lap.
- Last Lap Stroke Distance:** Swimming. The average distance traveled per stroke during the last completed lap.
- Last Lap Stroke Rate:** Swimming. The average number of strokes per minute (spm) during the last completed lap.
- Last Lap Strokes:** Swimming. The total number of strokes for the last completed lap.
- Last Lap SWOLF:** The swolf score for the last completed lap.
- Last Lap Time:** The stopwatch time for the last completed lap.
- Last Length Pace:** The average pace for your last completed pool length.
- Last Length Stroke Rate:** The average number strokes per minute (spm) during the last completed pool length.
- Last Length Strokes:** The total number of strokes for the last completed pool length.
- Last Length Stroke Type:** The stroke type used during the last completed pool length.
- Last Length SWOLF:** The swolf score for the last completed pool length.
- Left PPP:** The current power phase peak angle for the left leg. Power phase peak is the angle range over which you produce the peak portion of the driving force.
- Lengths:** The number of pool lengths completed during the current activity.
- Max. Lap Power:** The top power output for the current lap.
- Max. Power:** The top power output for the current activity.
- Maximum Speed:** The top speed for the current activity.
- Multisport Time:** The total time for all sports in a multisport activity, including transitions.
- Muscle Oxygen Saturation %:** The estimated muscle oxygen saturation percentage for the current activity.
- Normalized Power:** The Normalized Power™ for the current activity.
- Pace:** The current pace.
- PCO:** The platform center offset. Platform center offset is the location on the pedal platform where you apply force.
- Pedal Smoothness:** The measurement of how evenly a rider is applying force to the pedals throughout each pedal stroke.
- Performance Condition:** The performance condition score is a real-time assessment of your ability to perform.
- Power:** The current power output in watts.
- Power To Weight:** The current power measured in watts per kilogram.
- Power Zone:** The current range of power output (1 to 7) based on your FTP or custom settings.
- R. Pwr. Phase:** The current power phase angle for the right leg. Power phase is the pedal stroke region where you produce positive power.
- Rear:** The rear bike gear from a Di2 sensor.
- Repeat On:** The timer for the last interval plus the current rest (pool swimming).
- Rest Timer:** The timer for the current rest (pool swimming).
- Right PPP:** The current power phase peak angle for the right leg. Power phase peak is the angle range over which you produce the peak portion of the driving force.
- Speed:** The current rate of travel.

Stride Length: The length of your stride from one footfall to the next, measured in meters.

Stroke Rate: Swimming. The number of strokes per minute (spm).

Strokes: The total number of strokes for the current activity.

Sunrise: The time of sunrise based on your GPS position.

Sunset: The time of sunset based on your GPS position.

Temperature: The temperature of the air. Your body temperature affects the temperature sensor.

Time in Zone: The time elapsed in each heart rate or power zone.

Time of Day: The time of day based on your current location and time settings (format, time zone, daylight saving time).

Timer: The stopwatch time for the current activity.

Time Seated: The time spent seated while pedaling for the current activity.

Time Seated Lap: The time spent seated while pedaling for the current lap.

Time Standing: The time spent standing while pedaling for the current activity.

Time Standing Lap: The time spent standing while pedaling for the current lap.

Torque Effectiveness: The measurement of how efficiently a rider is pedaling.

Total Hemoglobin: The estimated total hemoglobin concentration in the muscle.

Training Effect: The current impact (1.0 to 5.0) on your aerobic fitness.

Training Stress Score: The Training Stress Score™ for the current activity.

Vertical Oscillation: The amount of bounce while you are running. The vertical motion of your torso, measured in centimeters for each step.

Vertical Ratio: The ratio of vertical oscillation to stride length.

Work: The accumulated work performed (power output) in kilojoules.

- Your heart rate is a good measure of exercise intensity.
- Training in certain heart rate zones can help you improve cardiovascular capacity and strength.

If you know your maximum heart rate, you can use the table ([Heart Rate Zone Calculations, page 23](#)) to determine the best heart rate zone for your fitness objectives.

If you do not know your maximum heart rate, use one of the calculators available on the Internet. Some gyms and health centers can provide a test that measures maximum heart rate. The default maximum heart rate is 220 minus your age.

About Heart Rate Zones

Many athletes use heart rate zones to measure and increase their cardiovascular strength and improve their level of fitness. A heart rate zone is a set range of heartbeats per minute. The five commonly accepted heart rate zones are numbered from 1 to 5 according to increasing intensity. Generally, heart rate zones are calculated based on percentages of your maximum heart rate.

Heart Rate Zone Calculations

Zone	% of Maximum Heart Rate	Perceived Exertion	Benefits
1	50–60%	Relaxed, easy pace, rhythmic breathing	Beginning-level aerobic training, reduces stress
2	60–70%	Comfortable pace, slightly deeper breathing, conversation possible	Basic cardiovascular training, good recovery pace
3	70–80%	Moderate pace, more difficult to hold conversation	Improved aerobic capacity, optimal cardiovascular training
4	80–90%	Fast pace and a bit uncomfortable, breathing forceful	Improved anaerobic capacity and threshold, improved speed
5	90–100%	Sprinting pace, unsustainable for long period of time, labored breathing	Anaerobic and muscular endurance, increased power

Fitness Goals

Knowing your heart rate zones can help you measure and improve your fitness by understanding and applying these principles.

VO2 Max. Standard Ratings

These tables include standardized classifications for VO2 max. estimates by age and gender.

Males	Percentile	20–29	30–39	40–49	50–59	60–69	70–79
Superior	95	55.4	54	52.5	48.9	45.7	42.1
Excellent	80	51.1	48.3	46.4	43.4	39.5	36.7
Good	60	45.4	44	42.4	39.2	35.5	32.3
Fair	40	41.7	40.5	38.5	35.6	32.3	29.4
Poor	0–40	<41.7	<40.5	<38.5	<35.6	<32.3	<29.4

Females	Percentile	20–29	30–39	40–49	50–59	60–69	70–79
Superior	95	49.6	47.4	45.3	41.1	37.8	36.7
Excellent	80	43.9	42.4	39.7	36.7	33	30.9
Good	60	39.5	37.8	36.3	33	30	28.1
Fair	40	36.1	34.4	33	30.1	27.5	25.9
Poor	0–40	<36.1	<34.4	<33	<30.1	<27.5	<25.9

Data reprinted with permission from The Cooper Institute. For more information, go to www.CooperInstitute.org.

FTP Ratings

These tables include classifications for functional threshold power (FTP) estimates by gender.

Males	Watts per Kilogram (W/kg)
Superior	5.05 and greater
Excellent	From 3.93 to 5.04
Good	From 2.79 to 3.92
Fair	From 2.23 to 2.78
Untrained	Less than 2.23

Females	Watts per Kilogram (W/kg)
Superior	4.30 and greater
Excellent	From 3.33 to 4.29
Good	From 2.36 to 3.32
Fair	From 1.90 to 2.35
Untrained	Less than 1.90

FTP ratings are based on research by Hunter Allen and Andrew Coggan, PhD, *Training and Racing with a Power Meter* (Boulder, CO: VeloPress, 2010).

Index

A

accessories **13, 14, 20**
activities **16**
activity tracking **9, 18**
alarms **18**
alerts **17**
ANT+ sensors **13, 14**
 pairing **13**
applications **11**
 smartphone **9**
Auto Lap **17**
Auto Pause **17**
Auto Scroll **17**

B

backlight **1, 18**
battery
 charging **18**
 maximizing **11, 18, 20**
 replacing **19**
Bluetooth technology **9–11**

C

cadence **5, 17**
calendar **2**
calorie, alerts **17**
charging **18**
cleaning the device **15, 19**
clock **1, 18**
Connect IQ **11**
coordinates **13**
courses **13**
 deleting **13**
 loading **13**
customizing the device **16**
cycling **7**

D

data
 recording **18**
 sharing **16**
 storing **12, 15**
 transferring **12**
data fields **11, 16, 20**
deleting
 all user data **12, 20**
 history **12**
 personal records **4**
distance, alerts **17**

E

elevation **13**
extended display **16**

F

foot pod **1, 14**

G

Garmin Connect **2, 9–13**
Garmin Connect Mobile **10**
Garmin Express, updating software **20**
GLONASS **17**
goals **3**
GPS **1, 17, 18**
 signal **20**
ground contact time **5, 6**

H

heart rate **1, 4, 17**
 monitor **2, 4, 6, 7, 14–16, 19**
 pairing sensors **5**
 zones **4, 5, 11, 23**
history **2, 10–12, 18**
 deleting **12**
 sending to computer **12**

I

icons **1**
indoor training **2, 14**

intensity minutes **9**
intervals **2**
 workouts **2, 3**

K

keys **1, 10, 19**

L

lactate threshold **8**
language **18**
laps **1**
lengths **2**
locations **13**
 deleting **13**
 editing **13**
locking, keys **1**

M

maps **12, 13**
menu **1**
metronome **17**
multisport **1**

N

navigation **12, 13**
 stopping **13**
notifications **9**

P

pace **17, 18**
pairing
 ANT+ sensors **5**
 smartphone **9**
pairing ANT+ sensors **13**
performance condition **6–8**
personal records **3, 4**
 deleting **4**
pool size **2**
power (force)
 meters **7, 8, 14, 24**
 zones **14**
profiles **16**
 activity **1**
 user **16**
projected finish time **7**

R

racing **3**
recovery **6, 7**
replacing the battery **19**
resetting the device **20**
running dynamics **5, 6**

S

satellite signals **1, 20**
saving activities **1, 2**
screen **18**
settings **16, 18, 20**
 device **18**
sharing data **16**
sleep mode **9, 11**
smartphone **10, 11**
 applications **11**
 apps **10**
 pairing **9**
 software
 license **20**
 updating **20**
 version **20**
specifications **19**
speed **18**
speed and cadence sensors **1**
stress score **6, 7**
stride length **5**
strokes **2**
swimming **2, 15**
swolf score **2**
system settings **18**

T

target **3**

time **18**
 alerts **17**
 settings **18**
time zones **18**
timer **1, 2, 11**
tones **17, 18, 20**
training **1, 3, 11, 17**
 plans **2**
triathlon training **1**
troubleshooting **4, 6, 15, 16, 20**

U

UltraTrac **18**
unit ID **20**
units of measure **18**
updates, software **20**
USB **20**
 disconnecting **12**
user data, deleting **12**
user profile **16**

V

vertical oscillation **5**
vertical ratio **5**
vibration **18**
VIRB remote **10**
Virtual Partner **3**
VO2 max. **3, 6, 7, 23**

W

walking intervals **17**
watch faces **11**
watch mode **18, 20**
weather **10**
widgets **4, 9–11**
workouts **2, 3**
 loading **2**

Z

zones
 heart rate **4, 5**
 power **14**
 time **18**

