GARMIN.

EDGE® 520 PLUS

Owner's Manual

Table of Contents

Introduction

Keys

①	☀ ⏻	Select to adjust the backlight brightness. Hold to turn the device on and off.
②	▲	Select to scroll through the data screens, options, and settings. From the home screen, select to view the status page.
③	▼	Select to scroll through the data screens, options, and settings. From the home screen, select to view the device menu.
④	⟳	Select to mark a new lap.
⑤	▮▶	Select to start and stop the timer.
⑥	↰	Select to return to the previous screen.
⑦	⇲	Select to choose an option or to acknowledge a message. During a ride, select to view menu options such as alerts and data fields.

Pairing Your Smartphone

To use the connected features of the Edge device, it must be paired directly through the Garmin Connect™ Mobile app, instead of from the Bluetooth® settings on your smartphone.

1 From the app store on your smartphone, install and open the Garmin Connect Mobile app.

2 Hold ⏻ to turn on the device.

   The first time you turn on the device, you will select the device language. The next screen prompts you to pair with your smartphone.

   TIP: You can select **Menu** > **Settings** > **Phone** > **Pair Smartphone** to manually enter pairing mode.

3 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 ☰ or ••• menu, select **Garmin Devices** > **Add Device**, and follow the on-screen instructions.

After you pair successfully, a message appears, and your device syncs automatically with your smartphone.

Viewing the Status Page

The status page displays the connection status of the GPS, ANT+® sensors, and your smartphone.

   Select an option:
   - From the home screen, select ▲.
   - During a ride, select ⇲ > **Status Page**.

   The status page appears. A solid icon means the signal was found or the sensor is connected.

Charging the Device

The device is powered by a built-in lithium-ion battery that you can charge using a standard wall outlet or a USB port on your computer.

NOTE: The device will not charge when outside the approved temperature range (*Edge Specifications*, page 18).

1 Pull up the weather cap ① from the USB port ②.

2 Plug the small end of the USB cable into the USB port on the device.

3 Plug the large end of the USB cable into an AC adapter or a computer USB port.

4 Plug the AC adapter into a standard wall outlet.

   When you connect the device to a power source, the device turns on.

5 Charge the device completely.

About the Battery

Installing the Standard Mount

For the best GPS reception, position the bike mount so the front of the device is oriented toward the sky. You can install the bike mount on the stem or the handlebars.

1 Select a secure location to mount the device where it does not interfere with the safe operation of your bike.

2 Place the rubber disk ① on the back of the bike mount.

The rubber tabs align with the back of the bike mount so it stays in place.
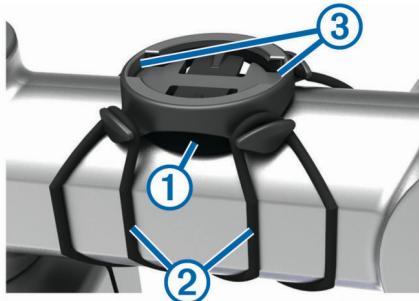
3 Place the bike mount on the bike stem.
4 Attach the bike mount securely using the two bands ②.
5 Align the tabs on the back of the device with the bike mount notches ③.
6 Press down slightly and turn the device clockwise until it locks into place.

Installing the Out-Front Mount

1 Select a secure location to mount the Edge device where it does not interfere with the safe operation of your bike.
2 Use the hex key to remove the screw ① from the handlebar connector ②.

3 Place the rubber pad around the handlebar:
   • If the handlebar diameter is 25.4 mm, use the thicker pad.
   • If the handlebar diameter is 31.8 mm, use the thinner pad.
4 Place the handlebar connector around the rubber pad.
5 Replace and tighten the screw.

   NOTE: Garmin® recommends tightening the screw so the mount is secure, with a maximum torque specification of 7 lbf-in. (0.8 N-m). You should check the tightness of the screw periodically.
6 Align the tabs on the back of the Edge device with the bike mount notches ③.

7 Press down slightly and turn the Edge device clockwise until it locks into place.

Releasing the Edge
1 Turn the Edge clockwise to unlock the device.
2 Lift the Edge off the mount.

Installing the Mountain Bike Mount

1 Select a secure location to mount the Edge device where it does not interfere with the safe operation of your bike.
2 Use the 3 mm hex key to remove the screw ① from the handlebar connector ②.

3 Select an option:
   • If the handlebar diameter is 25.4 mm, place the thicker pad around the handlebar.
   • If the handlebar diameter is 31.8 mm, place the thinner pad around the handlebar.
   • If the handlebar diameter is 35 mm, do not use a rubber pad.
4 Place the handlebar connector around the handlebar, so that the mount arm is above the bike stem.
5 Use the 3 mm hex key to loosen the screw ③ on the mount arm, position the mount arm, and tighten the screw.

   NOTE: Garmin recommends tightening the screw so the mount arm is secure, with a maximum torque specification of 20 lbf-in. (2.26 N-m). You should check the tightness of the screw periodically.

6 If necessary, use the 2 mm hex key to remove the two screws on the back side of the mount ④, remove and rotate the connector, and replace the screws to change the orientation of the mount.

7 Replace and tighten the screw on the handlebar connector.

NOTE: Garmin recommends tightening the screw so the mount is secure, with a maximum torque specification of 7 lbf-in. (0.8 N-m). You should check the tightness of the screw periodically.

8 Align the tabs on the back of the Edge device with the bike mount notches ⑤.

9 Press down slightly and turn the Edge device clockwise until it locks into place.

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.

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.

Using the Backlight

- Select any key to turn on the backlight.
- Select ☀ to adjust the backlight brightness.
- From the home screen, select one or more options:
  ◦ To adjust the brightness, select ▲ > **Brightness** > **Brightness**.
  ◦ To adjust the timeout, select ▲ > **Brightness** > **Backlight Timeout** and select an option.

Training

Going for a Ride

If your device was packaged with an ANT+ sensor, they are already paired and can be activated during initial setup.

1 Hold ⏻ to turn on the device.

2 Go outside, and wait while the device locates satellites.

The satellite bars turn green when the device is ready.

3 From the home screen, select ↩.

4 Select an activity profile.

5 Select ▮▶ to start the timer.
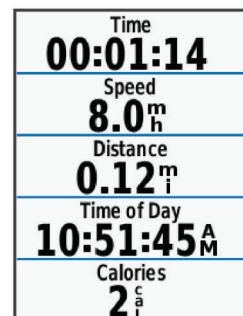
NOTE: History is recorded only while the timer is running.

6 Select ▲ or ▼ for additional data screens.

7 If necessary, select ↩ to view menu options such as alerts and data fields.

8 Select ▮▶ to stop the timer.

TIP: Before you save this ride and share it on your Garmin Connect account, you can change the ride type. Accurate ride type data is important for creating bike friendly courses.

9 Select **Save Ride**.

Using the Shortcut Menu

Shortcut menu options are available for data screens and accessory features. During a ride, ☰ appears on the data screens.

Select ↩ to view the shortcut menu options.

Using Virtual Partner®

Your Virtual Partner is a training tool designed to help you meet your goals.

1 If necessary, enable the Virtual Partner screen for the activity profile (*Customizing the Data Screens*, page 16).

2 Go for a ride.

3 Select ▼ to view the Virtual Partner screen to see who is leading.
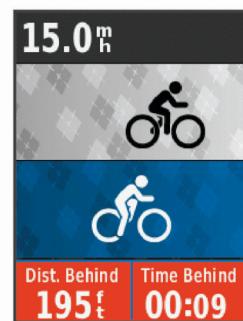
4 If necessary, select ↩ > **Virtual Partner Speed** to adjust the speed of the Virtual Partner during your ride.

Segments

Following a segment: You can send segments from your Garmin Connect account to your device. After a segment is saved to your device, you can follow the segment.

NOTE: When you download a course from your Garmin Connect account, all segments in the course are downloaded automatically.

Racing a segment: You can race a segment, trying to match or exceed your personal record or other cyclists who have ridden the segment.

Strava™ Segments

You can download Strava segments to your Edge 520 Plus device. Follow Strava segments to compare your performance with your past rides, friends, and pros who have ridden the same segment.

To sign up for a Strava membership, go to the segments widget in your Garmin Connect account. For more information, go to www.strava.com.

The information in this manual applies to both Garmin Connect segments and Strava segments.

Following a Segment From Garmin Connect

Before you can download and follow a segment from Garmin Connect, you must have a Garmin Connect account (*Garmin Connect*, page 14).

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

   NOTE: If you are using Strava segments, your favorite segments are transferred automatically to your device when it is connected to Garmin Connect Mobile or your computer.

2 Go to connect.garmin.com.

3 Create a new segment, or select an existing segment.

4 Select **Send to Device**.

5 Disconnect the device, and turn it on.

6 Select **Menu** > **Training** > **Segments**.

7 Select the segment.

8 Select **Ride**.

Enabling Segments

You can enable segment racing and prompts that alert you to approaching segments.

1 Select **Menu** > **Training** > **Segments**.

2 Select a segment.

3 Select **Enable**.

   NOTE: Prompts alerting you to approaching segments appear only for enabled segments.

Racing a Segment

Segments are virtual race courses. You can race a segment, and compare your performance to past activities, other riders' performance, connections in your Garmin Connect account, or other members of the cycling community. You can upload your activity data to your Garmin Connect account to view your segment position.

NOTE: If your Garmin Connect account and Strava account are linked, your activity is automatically sent to your Strava account so you can review the segment position.

1 Select ▶ to start the activity timer, and go for a ride.

   When your path crosses an enabled segment, you can race the segment.

2 Start racing the segment.

   The segment data screen appears automatically.
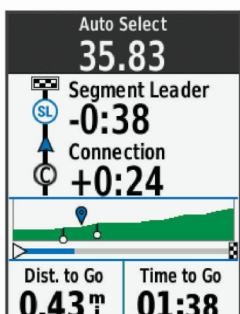
3 If necessary, select ⇄ to change your goal during your race.

You can race against the segment leader, your past performance, or other riders (if applicable). The goal automatically adjusts based on your current performance.

A message appears when the segment is complete.

Viewing Segment Details

1 Select **Menu** > **Training** > **Segments**.

2 Select a segment.

3 Select an option:

   • Select **Map** to view the segment on the map.

   • Select **Elevation** to view an elevation plot of the segment.

   • Select **Leaderboard** to view the ride times and average speeds for the segment leader, group leader or challenger, your personal best time and average speed, and other riders (if applicable).

   TIP: You can select a leaderboard entry to change your segment race goal.

Segment Options

Select **Menu** > **Training** > **Segments** > **Segment Options**.

Auto Select Effort: Enables or disables automatic goal adjustment based on your current performance.

Search: Allows you to search for saved segments by name.

Enable/Disable: Enables or disables the segments currently loaded on the device.

Delete: Allows you to delete all or multiple saved segments from the device.

Deleting a Segment

1 Select **Menu** > **Training** > **Segments**.

2 Select a segment.

3 Select **Delete** > **OK**.

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 14).

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** > **Workouts**.

2 Select a workout.

3 Select **Ride**.

4 Select ▶ to start the timer.

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

Stopping a Workout

• At any time, select ↺ to end a workout step.

- At any time, select ▼ to view the workout steps screen, and select ⮔ > **Stop Workout** > **OK** to end the workout.
- At any time, select |▶ > **Stop Workout** to stop the timer and end the workout.

  TIP: When you save your ride, your workout ends automatically.

Deleting Workouts

1 Select **Menu** > **Training** > **Workouts** > **Workout Options** > **Delete Multiple**.
2 Select one or more workouts.
3 Select **Delete Workouts** > **OK**.

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 from Garmin Connect, you must have a Garmin Connect account (*Garmin Connect*, page 14).

You can browse Garmin Connect to find a training plan, schedule workouts and courses, and download the plan to your device.

1 Connect the device to your computer.
2 Go to www.garminconnect.com.
3 Select and schedule a training plan.
4 Review the training plan in your calendar.
5 Select ⟲, 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 when you are riding 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** > **Intervals** > **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** > **Ride**.

2 Select |▶ to start the timer.
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.

Training Indoors

The device includes an indoor activity profile where GPS is turned off. You can turn off GPS when you are training indoors or to save battery life.

NOTE: Any change to the GPS setting is saved to the active profile.

1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **GPS Mode** > **Off**.

   When GPS is turned off, speed and distance are not available unless you have a compatible sensor or indoor trainer that sends speed and distance data to the device.

Pairing Your ANT+ Indoor Trainer

1 Bring the device within 3 m (10 ft.) of the ANT+ indoor trainer.
2 Select **Menu** > **Training** > **Indoor Trainer** > **Pair ANT+ Bike Trainer**.
3 Select the indoor trainer to pair with your device.
4 Select **Add Sensor**.

   When the indoor trainer is paired with your device, the indoor trainer appears as a connected sensor. You can customize your data fields to display sensor data.

Using an ANT+ Indoor Trainer

Before you can use a compatible ANT+ indoor trainer, you must mount your bike on the trainer and pair it with your device (*Pairing Your ANT+ Indoor Trainer*, page 5).

You can use your device with an indoor trainer to simulate resistance while following a course, activity, or workout. While using an indoor trainer, GPS is turned off automatically.

1 Select **Menu** > **Training** > **Indoor Trainer**.
2 Select an option:
   - Select **Follow a Course** to follow a saved course (*Courses*, page 7).
   - Select **Follow an Activity** to follow a saved ride (*Going for a Ride*, page 3).
   - Select **Follow a Workout** to follow a power-based workout downloaded from your Garmin Connect account (*Workouts*, page 4).
3 Select a course, activity, or workout.
4 Select **Ride**.
5 Select an activity profile.
6 Select |▶ to start the timer.

   The trainer increases or decreases resistance based on the elevation information in the course or ride.
7 Select ▼ to view the trainer screen.

You can view the level of resistance ①, your distance ahead of or behind ②, and your time ahead of or behind ③ the distance and time originally recorded for the course or activity.

Setting Resistance

1. Select **Menu** > **Training** > **Indoor Trainer** > **Set Resistance**.
2. Select ▲ or ▼ to set the resistance force applied by the trainer.
3. Select an activity profile.
4. Start pedaling.
5. If necessary, select ⊕ > **Set Resistance** to adjust the resistance during your activity.

Setting Target Power

1. Select **Menu** > **Training** > **Indoor Trainer** > **Set Target Power**.
2. Set the target power value.
3. Select an activity profile.
4. Start pedaling.

   The resistance force applied by the trainer is adjusted to maintain a constant power output based on your speed.
5. If necessary, select ⊕ > **Set Target Power** to adjust the target power output during your activity.

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, or distance and speed goal. 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.
   - Select **Distance and Speed** to select a distance and speed target.

   The training target screen appears indicating 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 ▼ to view the Virtual Partner screen.
5. After you complete your activity, select ▐▶ > **Save Ride**.

Cancelling a Training Target

Select ⊕ > **Cancel Target** > **OK**.

Personal Records

When you complete a ride, the device displays any new personal records you achieved during that ride. Personal records include your fastest time over a standard distance, longest ride, and most ascent gained during a ride. When paired

with a compatible power meter, the device displays the maximum power reading recorded during a 20-minute period.

Viewing Your Personal Records

Select **Menu** > **My Stats** > **Personal Records**.

Reverting a Personal Record

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

1. Select **Menu** > **My Stats** > **Personal Records**.
2. Select a record to revert.
3. Select **Previous Record** > **OK**.

   NOTE: This does not delete any saved activities.

Deleting All Personal Records

Select **Menu** > **My Stats** > **Personal Records** > **Delete All** > **OK**.

NOTE: This does not delete any saved activities.

Training Zones

- Heart rate zones (*Setting Your Heart Rate Zones*, page 11)
- Power zones (*Setting Your Power Zones*, page 12)

Navigation

Navigation features and settings also apply to navigating courses (*Courses*, page 7) and segments (*Segments*, page 3).

- Locations (*Locations*, page 6)
- Map settings (*Map Settings*, page 8)

Locations

You can record and store locations in the device.

Marking Your Location

Before you can mark a location, you must 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 for a ride.
2. Select ⊕ > **Mark Location** > **OK**.

Navigating to a Saved Location

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

1. Select **Menu** > **Navigation** > **Saved Locations**.
2. Select a location.
3. Select **View Map**.
4. Select **Ride**.
5. Follow the on-screen instructions to your destination.
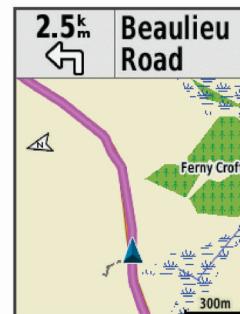
Editing Locations

1. Select **Menu** > **Navigation** > **Saved Locations**.

2 Select a location.

3 Select **Edit**.

4 Select a location detail.

For example, select Change Elevation to enter a known altitude for the location.

5 Edit the value, and select ✔.

Deleting a Location

1 Select **Menu** > **Navigation** > **Saved Locations**.

2 Select a location.

3 Select **Delete Location** > **OK**.

Setting Your Elevation

If you have accurate elevation data for your present location, you can manually calibrate the altimeter on your device.

1 Go for a ride.

2 Select ⊡ > **Set Elevation**.

3 Enter the elevation, and select ✔.

Courses

Following a previously recorded activity: 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.

Racing against a previously recorded activity: 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 an existing ride from Garmin Connect: You can send a course from Garmin Connect to your device. Once it is saved to your device, you can follow the course or race against the course.

Creating a Course on Your Device

Before you can create a course, you must have an activity with GPS data saved to your device.

1 Select **Menu** > **Navigation** > **Courses** > **Course Options** > **Create New**.

2 Select an activity on which to base your course.

3 Enter a name for the course, and select ✔.

The course appears in the list.

4 Select the course, and review the course details.

5 If necessary, select **Settings** to edit the course details.

For example, you can change the name or color of the course.

6 Select � > **Ride**.

Following a Course From Garmin Connect

Before you can download a course from Garmin Connect, you must have a Garmin Connect account (*Garmin Connect*, page 14).

1 Select an option:

- Open the Garmin Connect Mobile app.
- Go to connect.garmin.com.

2 Create a new course, or select an existing course.

3 Select **Send to Device**.

4 Follow the on-screen instructions.

5 On the Edge device, select **Menu** > **Navigation** > **Courses**.

6 Select the course.

7 Select **Ride**.

Tips for Training with Courses

- Use turn guidance (*Course Options*, page 7).

- If you include a warmup, select ▌▶ to begin the course, and warm up as normal.
- Stay away from your course path as you warm up. When you are ready to begin, head toward your course. When you are on any part of the course path, a message appears.

  NOTE: As soon as you select ▌▶, your Virtual Partner starts the course and does not wait for you to warm up.

- Scroll to the map to view the course map.

  If you stray from the course, a message appears.

Stopping a Course

Select ⊡ > **Stop Course** > **OK**.

Displaying a Course on the Map

For each course saved to your device, you can customize how it appears on the map. For example, you can set your commute course to always display on the map in yellow. You can have an alternate course display in green. This allows you to see the courses while you are riding, but not follow or navigate a particular course.

1 Select **Menu** > **Navigation** > **Courses**.

2 Select the course.

3 Select **Settings**.

4 Select **Always Display** to make the course appear on the map.

5 Select **Color**, and select a color.

6 Select **Course Points** to include course points on the map.

The next time you ride near the course, it appears on the map.

Viewing Course Details

1 Select **Menu** > **Navigation** > **Courses**.

2 Select a course.

3 Select an option:

- Select **Summary** to view details about the course.
- Select **Map** to view the course on the map.
- Select **Elevation** to view an elevation plot of the course.
- Select **Laps** to select a lap and view additional information about each lap.

Course Options

Select **Menu** > **Navigation** > **Courses** > **Course Options**.

Turn Guidance: Enables or disables turn prompts.

Off Crs. Warnings: Alerts you if you stray from the course.

Segments: Allows you to race enabled segments included within the course.

Search: Allows you to search for saved courses by name.

Filter: Allows you to filter by course type, such as Strava courses.

Delete: Allows you to delete all or multiple saved courses from the device.

Deleting a Course

1 Select **Menu** > **Navigation** > **Courses**.

2 Select a course.

3 Select **Delete** > **OK**

Zooming the Map

1 Go for a ride.

2 Select ▼ to view the map.

3 Select ⊡ > **Zoom Map In/Out**.

4 Select an option:

- Enable **Auto Zoom** to automatically set a zoom level for the map.

- Disable **Auto Zoom** to zoom in or out manually.
5 If necessary, select **Set Zoom Level**.
6 Select an option:
   - To zoom in manually, select ▲.
   - To zoom out manually, select ▼.
7 Select 🔁 to save the zoom level (optional).

Map Settings

Select **Menu** > **Settings** > **Activity Profiles**, select a profile, and select **Navigation** > **Map**.

Orientation: Sets how the map is shown on the page.

Auto Zoom: Automatically selects a zoom level for the map. When Off is selected, you must zoom in or out manually.

Map Detail: Sets the level of detail on the map. More detail may cause the map to draw slower.

Guide Text: Sets when the turn-by-turn navigation prompts are shown (requires routable maps).

Map Visibility: Allows you to set advanced map features.

Map Information: Enables or disables the maps currently loaded on the device.

Changing the Map Orientation
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Navigation** > **Map** > **Orientation**.
4 Select an option:
   - Select **North Up** to show north at the top of the page.
   - Select **Track Up** to show your current direction of travel at the top of the page.
   - Select **3D Mode** to display the map in three dimensions.

Route Settings

Select **Menu** > **Settings** > **Activity Profiles**, select a profile, and select **Navigation** > **Routing**.

Popularity Routing: Calculates routes based on the most popular rides from Garmin Connect.

Routing Mode: Sets the transportation method to optimize your route.

Calculation Method: Sets the method used to calculate your route.

Lock on Road: Locks the position icon, which represents your position on the map, onto the nearest road.

Avoidance Setup: Sets the road types to avoid while navigating.

Recalculation: Automatically recalculates the route when you deviate from the route.

Selecting an Activity for Route Calculation
You can set the device to calculate the route based on activity type.
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Navigation** > **Routing** > **Routing Mode**.
4 Select an option to calculate your route.
   For example, you can select Road Cycling for on-road navigation or Mountain Biking for off-road navigation.

Bluetooth Connected Features

The Edge device has Bluetooth connected features for your compatible smartphone or fitness device. Some features require you to install the Garmin Connect Mobile app on your smartphone. Go to www.garmin.com/intosports/apps for more information.

NOTE: Your device must be connected to your Bluetooth enabled smartphone to take advantage of some features.

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.

GroupTrack: Allows you to keep track of other riders in your group using LiveTrack directly on screen and in real time. You can send preset messages to other riders in your GroupTrack session who have a compatible Edge device.

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

Course, segment, and workout downloads from Garmin Connect: Allows you to search for activities on Garmin Connect using your smartphone and send them to your device.

Device to device transfers: Allows you to wirelessly transfer files to another compatible Edge device.

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

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

Notifications: Displays phone notifications and messages on your device.

Messages: Allows you to reply to an incoming call or text message with a preset text message. This feature is available with compatible Android™ smartphones.

Audio prompts: Allows the Garmin Connect Mobile app to play status announcements on your smartphone during a ride.

Incident detection: Allows the Garmin Connect Mobile app to send a message to your emergency contacts when the Edge device detects an incident.

Assistance: Allows you to send an automated text message with your name and GPS location to your emergency contacts using the Garmin Connect Mobile app.

Starting a GroupTrack Session

Before you can start a GroupTrack session, you must have a smartphone with the Garmin Connect Mobile app paired to your device (*Pairing Your Smartphone*, page 1).

During a ride, you can see the riders in your GroupTrack session on the map.
1 On the Edge device, select **Menu** > **Settings** > **GroupTrack** to enable viewing connections on the map screen.
2 In the Garmin Connect Mobile app, from the settings menu, select **LiveTrack** > **GroupTrack**.
3 Select **Visible to** > **All Connections**.
   NOTE: If you have more than one compatible device, you must select a device for the GroupTrack session.
4 Select **Start LiveTrack**.
5 On the Edge device, select ▶, and go for a ride.
6 Scroll to the map to view your connections.
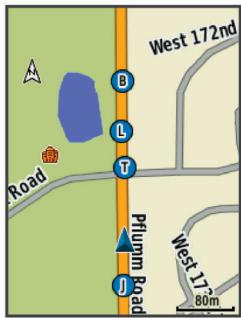
You can tap an icon on the map to view location and heading information for other riders in the GroupTrack session.

7 Scroll to the GroupTrack list.

You can select a rider from the list, and that rider appears centered on the map.

Tips for GroupTrack Sessions

The GroupTrack feature allows you to keep track of other riders in your group using LiveTrack directly on the screen. All riders in the group must be your connections in your Garmin Connect account.

- Ride outside using GPS.
- Pair your Edge 520 Plus device with your smartphone using Bluetooth technology.
- In the Garmin Connect Mobile app, from the settings menu, select **Connections** to update the list of riders for your GroupTrack session.
- Make sure all of your connections pair to their smartphones and start a LiveTrack session in the Garmin Connect Mobile app.
- Make sure all your connections are in range (40 km or 25 mi.).
- During a GroupTrack session, scroll to the map to view your connections.
- Stop riding before you attempt to view location and heading information for other riders in the GroupTrack session.

Transferring Files to Another Edge Device

You can transfer courses, segments, and workouts wirelessly from one compatible Edge device to another using Bluetooth technology.

1 Turn on both Edge devices, and bring them within range (3 m) of each other.
2 From the device that contains the files, select **Menu** > **Settings** > **Device Transfers** > **Share Files**.
3 Select a file type to share.
4 Select one or more files to transfer.
5 From the device that receives the files, select **Menu** > **Settings** > **Device Transfers**.
6 Select a nearby connection.
7 Select one or more files to receive.

A message appears on both devices after the file transfer is complete.

Playing Audio Prompts on Your Smartphone

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

You can set the Garmin Connect Mobile app to play motivational status announcements on your smartphone during a ride or other activity. Audio prompts include the lap number and lap time, navigation, power, 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.

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

Incident Detection and Assistance Features

Incident Detection

⚠ **CAUTION**

Incident detection is a supplemental feature primarily designed for road use. Incident detection should not be relied on as a primary method to obtain emergency assistance. The Garmin Connect Mobile app does not contact emergency services on your behalf.

When an incident is detected by your Edge device with GPS enabled, the Garmin Connect Mobile app can send an automated text message and email with your name and GPS location to your emergency contacts.

A message appears on your device and paired smartphone indicating your contacts will be informed after 30 seconds have elapsed. If assistance is not needed, you can cancel the automated emergency message.

Before you can enable incident detection on your device, you must set up emergency contact information in the Garmin Connect Mobile app. Your paired smartphone must be equipped with a data plan and be in an area of network coverage where data is available. Your emergency contacts must be able to receive text messages (standard text messaging rates may apply).

Assistance

⚠ **CAUTION**

Assistance is a supplemental feature and should not be relied on as a primary method to obtain emergency assistance. The Garmin Connect Mobile app does not contact emergency services on your behalf.

When your Edge device with GPS enabled is connected to the Garmin Connect Mobile app, you can send an automated text message with your name and GPS location to your emergency contacts.

Before you can enable the assistance feature on your device, you must set up emergency contact information in the Garmin Connect Mobile app. Your Bluetooth paired smartphone must be equipped with a data plan and be in an area of network coverage where data is available. Your emergency contacts must be able to receive text messages (standard text messaging rates may apply).

A message appears on your device indicating your contacts will be informed after a countdown has elapsed. If assistance is not needed, you can cancel the message.

Setting Up the Incident Detection and Assistance Features

1 From the app store on your smartphone, install and open the Garmin Connect Mobile app.
2 Pair your smartphone with your device (*Pairing Your Smartphone*, page 1).
3 From the app settings in the Garmin Connect Mobile app, select **Emergency Contacts**, and enter your rider information and your emergency contacts.

Your selected contacts receive a message identifying them as emergency contacts.

NOTE: When you enter emergency contacts, incident detection is automatically enabled on your device.

4 Enable GPS on your Edge device (*Changing the Satellite Setting*, page 16).

Viewing Your Emergency Contacts

Before you can view your emergency contacts on your device, you must set up your rider information and emergency contacts in the Garmin Connect Mobile app.

Select **Menu** > **Contacts**.

Your emergency contacts' names and phone numbers appear.

Requesting Assistance

Before you can request assistance, you must enable GPS on your Edge device.

1 Hold ⏻ for four seconds to activate the assistance feature.

The device beeps, and sends the message after the five-second countdown is complete.

TIP: You can select ↰ before the countdown is complete to cancel the message.

2 If necessary, select ⊡ to send the message immediately.

Turning Incident Detection On and Off

Select **Menu** > **Settings** > **System** > **Incident Detection**.

Cancelling an Automated Message

When an incident is detected by your device, you can cancel the automated emergency message on your device or your paired smartphone before it is sent to your emergency contacts.

Select **Cancel** > **Yes** before the end of the thirty-second countdown.

Sending a Status Update After an Incident

Before you can send a status update to your emergency contacts, your device must detect an incident and send an automated emergency message to your emergency contacts.

You can send a status update to your emergency contacts informing them you are not in need of assistance.

From the status page, select **Incident Detected** > **I'm Okay**.

A message is sent to all emergency contacts.

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.

Putting On the Heart Rate Monitor

NOTE: If you do not have a heart rate monitor, you can skip this task.

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 Snap the heart rate monitor module ① onto the strap.

The Garmin logos on the module and the strap should be right-side up.

2 Wet the electrodes ② and the contact patches ③ on the back of the strap to create a strong connection between your chest and the transmitter.

3 Wrap the strap around your chest, and connect the strap hook ④ to the loop ⑤.

NOTE: The care tag should not fold over.
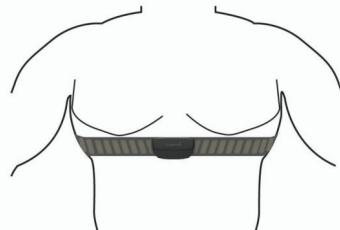
The Garmin logos should be right-side up.

4 Bring the device within 3 m (10 ft.) of the heart rate monitor.

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

TIP: If the heart rate data is erratic or does not appear, see the troubleshooting tips (*Tips for Erratic Heart Rate Data*, page 11).

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.

Viewing Your Recovery Time

Before you can use the recovery time feature, you must put on the heart rate monitor, and pair it with your device (*Pairing Your ANT+ Sensors*, page 12). If your device was packaged with a heart rate monitor, the device and sensor are already paired. For the most accurate estimate, complete the user profile setup (*Setting Up Your User Profile*, page 15), and set your maximum heart rate (*Setting Your Heart Rate Zones*, page 11).

1 Select **Menu** > **My Stats** > **Recovery Advisor** > **Enable**.

2 Go for a ride.

3 After your ride, select **Save Ride**.

The recovery time appears. The maximum time is 4 days, and the minimum time is 6 hours.

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. VO2 max. estimates are provided and supported by Firstbeat. You can use your Garmin device paired with a compatible heart rate monitor and power meter to display your cycling VO2 max. estimate.

Getting Your VO2 Max. Estimate

Before you can view your VO2 max. estimate, you must put on the heart rate monitor, install the power meter, and pair them with your device (*Pairing Your ANT+ Sensors*, page 12). If your device was packaged with a heart rate monitor, the device and sensor are already paired. For the most accurate estimate, complete the user profile setup (*Setting Up Your User Profile*,

page 15), and set your maximum heart rate (*Setting Your Heart Rate Zones*, page 11).

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 Ride**.
3 Select **Menu** > **My Stats** > **VO2 Max.**.

Your VO2 max. estimate appears as a number and position on the color gauge.
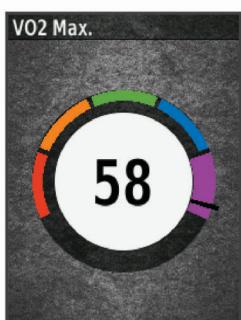
■	Purple	Superior
■	Blue	Excellent
■	Green	Good
■	Orange	Fair
■	Red	Poor

VO2 max. data and analysis is provided with permission from The Cooper Institute®. For more information, see the appendix (*VO2 Max. Standard Ratings*, page 22), and go to www.CooperInstitute.org.

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.

Setting Your Heart Rate Zones

The device uses your user profile information from the initial setup to determine your heart rate zones. You can manually adjust the heart rate zones according to your fitness goals (*Fitness Goals*, page 11). For the most accurate calorie data during your activity, you should set your maximum heart rate, resting heart rate, and heart rate zones.

1 Select **Menu** > **My Stats** > **Training Zones** > **Heart Rate Zones**.
2 Enter your maximum and resting heart rate values.

The zone values update automatically, but you can also edit each value manually.

3 Select **Based On:**.
4 Select an option:
   - Select **BPM** to view and edit the zones in beats per minute.
   - Select **% Max.** 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 resting heart rate.

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.

Fitness Goals

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

- 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 22) 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.

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 18).
- 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.

Installing the Speed Sensor

NOTE: If you do not have this sensor, you can skip this task.

TIP: Garmin recommends you secure your bike on a stand while installing the sensor.

1 Place and hold the speed sensor on top of the wheel hub.
2 Pull the strap ① around the wheel hub, and attach it to the hook ② on the sensor.
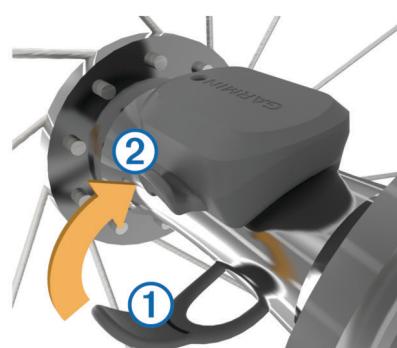
The sensor may be tilted when installed on an asymmetrical hub. This does not affect operation.

3 Rotate the wheel to check for clearance.

The sensor should not contact other parts of your bike.

NOTE: The LED flashes green for five seconds to indicate activity after two revolutions.

Installing the Cadence Sensor

NOTE: If you do not have this sensor, you can skip this task.

TIP: Garmin recommends you secure your bike on a stand while installing the sensor.

1 Select the band size that fits your crank arm ① securely.

The band you select should be the smallest one that stretches across the crank arm.

2 On the non-drive side, place and hold the flat side of the cadence sensor on the inside of the crank arm.

3 Pull the bands ② around the crank arm, and attach them to the hooks ③ on the sensor.
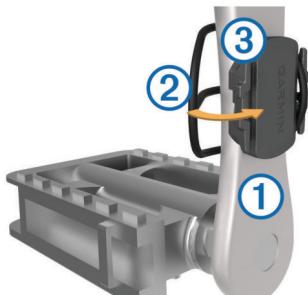
4 Rotate the crank arm to check for clearance.

The sensor and bands should not contact any part of your bike or shoe.

NOTE: The LED flashes green for five seconds to indicate activity after two revolutions.

5 Take a 15 minute test ride and inspect the sensor and bands to ensure there is no evidence of damage.

About the Speed and Cadence Sensors

Cadence data from the cadence sensor is always recorded. If no speed and cadence sensors are paired with the device, GPS data is used to calculate the speed and distance.

Cadence is your rate of pedaling or "spinning" measured by the number of revolutions of the crank arm per minute (rpm).

Data Averaging for Cadence or Power

The non-zero data-averaging setting is available if you are training with an optional cadence sensor or power meter. The default setting excludes zero values that occur when you are not pedaling.

You can change the value of this setting (*Data Recording Settings*, page 17).

Pairing Your ANT+ Sensors

Before you can pair, you must put on the heart rate monitor or install the sensor.

Pairing is the connecting of ANT+ wireless sensors, for example, connecting a heart rate monitor with your Garmin device.

1 Bring the device within 3 m (10 ft.) of the sensor.

NOTE: Stay 10 m (33 ft.) away from other riders' ANT+ sensors while pairing.

2 Select **Menu** > **Settings** > **Sensors** > **Add Sensor**.

3 Select an option:

- Select a sensor type.

- Select **Search All** to search for all nearby sensors.

A list of available sensors appears.

4 Select one or more sensors to pair with your device.

5 Select **Add Sensor**.

When the sensor is paired with your device, the sensor status is Connected. You can customize a data field to display sensor data.

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™).
- 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 12).
- Use range alerts to be notified when you reach a specified power zone (*Setting Range Alerts*, page 16).
- 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. You can manually adjust your zones on the device or using Garmin Connect. If you know your functional threshold power (FTP) value, you can enter it and allow the software to calculate your power zones automatically.

1 Select **Menu** > **My Stats** > **Training Zones** > **Power Zones**.

2 Enter your FTP value.

3 Select **Based On:**.

4 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.

Calibrating Your Power Meter

Before you can calibrate your power meter, you must install it, pair it with your device, and begin actively recording data with it.

For calibration instructions specific to your power meter, see the manufacturer's instructions.

1 Select **Menu** > **Settings** > **Sensors**.

2 Select your power meter.

3 Select **Calibrate**.

4 Keep your power meter active by pedaling until the message appears.

5 Follow the on-screen instructions.

Pedal-Based Power

Vector measures pedal-based power.

Vector measures the force you apply a few hundred times every second. Vector also measures your cadence or rotational pedaling speed. By measuring the force, the direction of force, the rotation of the crank arm, and time, Vector can determine power (watts). Because Vector independently measures left and right leg power, it reports your left-right power balance.

NOTE: The Vector S system does not provide left-right power balance.

Cycling Dynamics

Cycling dynamics metrics measure how you apply power throughout the pedal stroke, and where you apply power on the pedal, allowing you to understand your particular way of riding. Understanding how and where you produce power allows you to train more efficiently and evaluate your bike fit.

NOTE: You must have a dual sensing Edge system to use cycling dynamics metrics.

For more information, go to www.garmin.com/cyclingdynamics.

Using Cycling Dynamics

Before you can use cycling dynamics, you must pair the Vector power meter with your device (*Pairing Your ANT+ Sensors*, page 12).

NOTE: Recording cycling dynamics uses additional device memory.

1. Go for a ride.
2. Scroll to the cycling dynamics screen to view your power phase data ①, total power ②, and platform center offset ③.
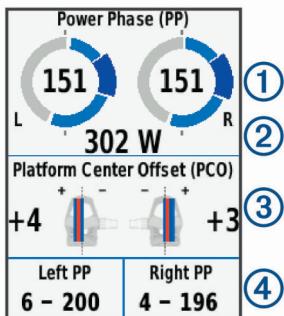
3. If necessary, select **Data Fields** to change a data field (*Customizing the Data Screens*, page 16).

   NOTE: The two data fields at the bottom of the screen ④ can be customized.

You can send the ride to the Garmin Connect Mobile app to view additional cycling dynamics data (*Sending Your Ride to Garmin Connect*, page 14).

Power Phase Data

Power phase is the pedal stroke region (between the start crank angle and the end crank angle) where you produce positive power.

Platform Center Offset

Platform center offset is the location on the pedal platform where you apply force.

Updating the Vector Software Using the Edge Device

Before you can update the software, you must pair your Edge device with your Vector system.

1. Send your ride data to your Garmin Connect account (*Sending Your Ride to Garmin Connect*, page 14).

   Garmin Connect automatically looks for software updates and sends them to your Edge device.
2. Bring your Edge device within range (3 m) of the sensor.
3. Rotate the crank arm a few times. The Edge device prompts you to install all pending software updates.
4. Follow the on-screen instructions.

Getting Your FTP Estimate

The device uses your user profile information from the initial setup to estimate your functional threshold power (FTP). For a more accurate FTP value, you can conduct an FTP test using a paired power meter and heart rate monitor (*Conducting an FTP Test*, page 13).

Select **Menu** > **My Stats** > **FTP**.

Your FTP estimate appears as a value measured in watts per kilogram, your power output in watts, and a position on the color gauge.
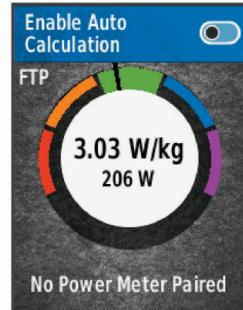
	Purple	Superior
	Blue	Excellent
	Green	Good
	Orange	Fair
	Red	Untrained

For more information, see the appendix (*FTP Ratings*, page 22).

Conducting an FTP Test

Before you can conduct a test to determine your functional threshold power (FTP), you must have a paired power meter and heart rate monitor (*Pairing Your ANT+ Sensors*, page 12).

1. Select **Menu** > **My Stats** > **FTP** > **FTP Test** > **Ride**.
2. Select ▶ to start the timer.

   After you begin your ride, the device displays each step of the test, the target, and current power data. A message appears when the test is complete.
3. Select ▶ to stop the timer.
4. Select **Save Ride**.

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

Automatically Calculating FTP

Before the device can calculate your functional threshold power (FTP), you must have a paired power meter and heart rate monitor (*Pairing Your ANT+ Sensors*, page 12).

1. Select **Menu** > **My Stats** > **FTP** > **Enable Auto Calculation**.
2. Ride at a steady, high intensity for at least 20 minutes outdoors.
3. After your ride, select **Save Ride**.
4. Select **Menu** > **My Stats** > **FTP**.

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

Using Electronic Shifters

Before you can use compatible electronic shifters, such as Shimano® Di2™ shifters, you must pair them with your device (*Pairing Your ANT+ Sensors*, page 12). You can customize the optional data fields (*Customizing the Data Screens*, page 16). The Edge 520 Plus device displays current adjustment values when the sensor is in adjustment mode.

Situational Awareness

Your Edge 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 Edge software before pairing Varia devices (*Updating the Software Using Garmin Express*, page 19).

Using the Weight Scale

If you have an ANT+ compatible weight scale, the device can read the data from the weight scale.

1 Select **Menu** > **Settings** > **Sensors** > **Add Sensor** > **Weight Scale**.

   A message appears when the weight scale is found.

2 Stand on the scale when indicated.

   NOTE: If using a body composition scale, remove shoes and socks to ensure that all body composition parameters are read and recorded.

3 Step off the scale when indicated.

   TIP: If an error occurs, step off the scale. Step on when indicated.

Garmin Index™ Smart Scale Data

If you have a Garmin Index device, the most recent scale data is stored in your Garmin Connect account. The next time you connect the Edge 520 Plus device to your Garmin Connect account, the weight data is updated in your Edge 520 Plus user profile.

History

History includes time, distance, calories, speed, lap data, elevation, and optional ANT+ sensor information.

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

When the device memory is full, a message appears. The device does not automatically delete or overwrite your history. Upload your history to Garmin Connect periodically to keep track of all your ride data.

Viewing Your Ride

1 Select **Menu** > **History** > **Rides**.
2 Select a ride.
3 Select an option.

Viewing Your Time in Each Training Zone

Before you can view your time in each training zone, you must pair your device with a compatible heart rate monitor or power meter, complete an activity, and save the activity.

Viewing your time in each heart rate and power zone can help you adjust your training intensity. You can adjust your power zones (*Setting Your Power Zones*, page 12) and your heart rate zones (*Setting Your Heart Rate Zones*, page 11) to match your goals and abilities. You can customize a data field to display your time in training zones during your ride (*Customizing the Data Screens*, page 16).

1 Select **Menu** > **History** > **Rides**.
2 Select a ride.
3 Select an option:
   - If your ride has data from one sensor, select **Time in HR Zone** or **Time in Power Zone**.
   - If your ride has data from both sensors, select **Time in Zone**, and select **Heart Rate Zones** or **Power Zones**.

Deleting Rides

1 Select **Menu** > **History** > **Rides** > **Delete**.
2 Select one or more rides to delete.
3 Select **Delete Rides** > **OK**.

Viewing Data Totals

You can view the accumulated data you have saved to the device, including the number of rides, time, distance, and calories.

1 Select **Menu** > **History** > **Totals**.
2 Select an option to view device or activity profile totals.

Deleting Data Totals

1 Select **Menu** > **History** > **Totals** > **Delete Totals**.
2 Select an option:
   - Select **Delete All Totals** to delete all data totals from the history.
   - Select an activity profile to delete accumulated data totals for a single profile.

   NOTE: This does not delete any saved activities.

3 Select **OK**.

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.

You can create your free Garmin Connect account when you pair your device with your phone using the Garmin Connect Mobile app, or you can go to connect.garmin.com.

Store your activities: After you complete and save an activity with your device, you can upload that activity to Garmin Connect 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, an overhead map view, pace and speed charts, and customizable reports.

   NOTE: Some data requires an optional accessory such as a heart rate monitor.
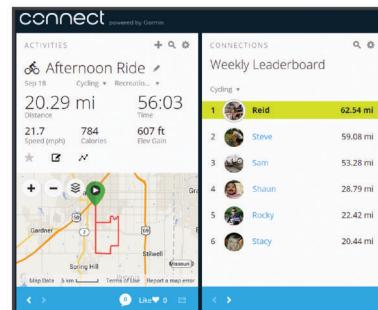
Plan your training: You can choose a fitness goal and load one of the day-by-day training plans.

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.

Sending Your Ride to Garmin Connect

- Sync your Edge device with the Garmin Connect Mobile app on your smartphone.
- Use the USB cable that came with your Edge device to send ride data to your Garmin Connect account on your computer.

Data Recording

The device uses smart recording. It records key points where you change direction, speed, or heart rate.

When a power meter is paired, the device records points every second. Recording points every second provides an extremely detailed track, and uses more of the available memory.

For information about data averaging for cadence and power, see *Data Averaging for Cadence or Power*, page 12.

Data Management

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

Connecting the Device to Your Computer

NOTICE

To prevent corrosion, thoroughly dry the USB port, the weather cap, and the surrounding area before charging or connecting to a computer.

1 Pull up the weather cap from the USB port.
2 Plug the small end of the USB cable into the USB port.
3 Plug the large end of the USB cable into a computer USB port.

Your device appears as a removable drive in My Computer on Windows computers and as a mounted volume on Mac computers.

Transferring Files to Your Device

1 Connect the device to your computer.

On Windows computers, the device appears as a removable drive or a portable device. On Mac computers, the device appears as a mounted volume.

NOTE: Some computers with multiple network drives may not display device drives properly. See your operating system documentation to learn how to map the drive.

2 On your computer, open the file browser.
3 Select a file.
4 Select **Edit** > **Copy**.
5 Open the portable device, drive, or volume for the device.
6 Browse to a folder.
7 Select **Edit** > **Paste**.

The file appears in the list of files in the device memory.

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.

Customizing Your Device

Connect IQ™ Downloadable Features

You can add Connect IQ features to your device from Garmin and other providers using the Connect IQ Mobile app.

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 device, such as new outdoor and fitness activity types.

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.

Profiles

The Edge has several ways for you to customize the device, including profiles. Profiles are a collection of settings that optimize your device based on how you are using it. For example, you can create different settings and views for training and mountain biking.

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

Activity Profiles: You can create activity profiles for each type of biking. For example, you can create a separate activity profile for training, for racing, and for mountain biking. The activity profile includes customized data pages, activity totals, alerts, training zones (such as heart rate and speed), training settings (such as Auto Pause® and Auto Lap®), and navigation settings.

User Profile: You can update your gender, age, weight, height, and lifetime athlete settings. The device uses this information to calculate accurate ride data.

Setting Up Your User Profile

You can update your gender, age, weight, and height settings. The device uses this information to calculate accurate ride data.

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

About Training Settings

The following options and settings allow you to customize your device based on your training needs. These settings are saved to an activity profile. For example, you can set time alerts for your racing profile and you can set an Auto Lap position trigger for your mountain biking profile.

Updating Your Activity Profile

You can customize ten activity profiles. You can customize your settings and data fields for a particular activity or trip.

1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select an option:
   • Select a profile.
   • Select **Options** to add or copy a profile.
3 If necessary, edit the name and color for the profile.
4 Select an option:
   • Select **Data Screens** to customize the data screens and data fields (*Customizing the Data Screens*, page 16).

Customizing Your Device

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- Select **Default Ride Type** to set the type of ride that is typical for this activity profile, such as commuting.

  TIP: After a ride that is not typical, you can manually update the ride type. Accurate ride type data is important for creating bike friendly courses.
- Select **Segments** to turn on your enabled segments (*Enabling Segments*, page 4).
- Select **Alerts** to customize your training alerts (*Alerts*, page 16).
- Select **Auto Features** > **Auto Lap** to set how laps are triggered (*Marking Laps by Position*, page 16).
- Select **Auto Features** > **Auto Pause** to change when the activity timer automatically pauses (*Using Auto Pause*, page 17).
- Select **Auto Features** > **Auto Sleep** to automatically enter sleep mode after five minutes of inactivity (*Using Auto Sleep*, page 17).
- Select **Auto Features** > **Auto Scroll** to customize the display of the training data screens when the activity timer is running (*Using Auto Scroll*, page 17).
- Select **Timer Start Mode** to customize how the device detects the start of a ride and automatically starts the activity timer (*Starting the Timer Automatically*, page 17).
- Select **Navigation** to customize the map settings (*Map Settings*, page 8) and routing settings (*Route Settings*, page 8).
- Select **GPS Mode** to turn off GPS (*Training Indoors*, page 5) or change the satellite setting (*Changing the Satellite Setting*, page 16).

All changes are saved to the activity profile.

Customizing the Data Screens
You can customize data screens for each activity profile.
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Data Screens**.
4 Select a data screen.
5 If necessary, enable the data screen.
6 Select the number of data fields to appear on the screen.
7 Select a data field to change it.

Changing the Satellite Setting
For increased performance in challenging environments and faster GPS position location, you can enable GPS+GLONASS. Using the GPS+GLONASS setting reduces battery life more quickly than using only GPS.
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **GPS Mode**.
4 Select an option.

Alerts
You can use alerts to train toward specific time, distance, calorie, heart rate, cadence, and power goals. Alert settings are saved with your activity profile.

Setting Range Alerts
If you have an optional heart rate monitor, cadence sensor, or power meter, you can set up range alerts. A range alert notifies you when the device measurement is above or below a specified range of values. For example, you can set the device to alert you when your cadence is below 40 RPM and over 90 RPM. You can also use a training zone (*Training Zones*, page 6) for the range alert.
1 Select **Menu** > **Settings** > **Activity Profiles**.

2 Select a profile.
3 Select **Alerts**.
4 Select **Heart Rate Alert**, **Cadence Alert**, or **Power Alert**.
5 If necessary, turn on the alert.
6 Select the minimum and maximum values, or select zones.
7 If necessary, select ✔.

Each time you exceed or drop below the specified range, a message appears. The device also beeps if audible tones are turned on (*Turning the Device Tones On and Off*, page 17).

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** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Alerts**.
4 Select an alert type.
5 Turn on the alert.
6 Enter a value.
7 Select ✔.

Each time you reach the alert value, a message appears. The device also beeps if audible tones are turned on (*Turning the Device Tones On and Off*, page 17).

Auto Lap

Marking Laps by Position
You can use the Auto Lap feature to mark the lap at a specific position automatically. This feature is helpful for comparing your performance over different parts of a ride (for example, a long climb or training sprints). During courses, you can use the By Position option to trigger laps at all of the lap positions saved in the course.
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Auto Features** > **Auto Lap** > **Auto Lap Trigger** > **By Position** > **Lap At**.
4 Select an option:
   - Select **Lap Press Only** to trigger the lap counter each time you select ⟳ and each time you pass any of those locations again.
   - Select **Start and Lap** to trigger the lap counter at the GPS location where you select ▶ and at any location during the ride where you select ⟳.
   - Select **Mark and Lap** to trigger the lap counter at a specific GPS location marked before the ride and at any location during the ride where you select ⟳.
5 If necessary, customize the lap data fields (*Customizing the Data Screens*, page 16).

Marking Laps by Distance
You can use the Auto Lap feature to mark the lap at a specific distance automatically. This feature is helpful for comparing your performance over different parts of a ride (for example, every 10 miles or 40 kilometers).
1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Auto Features** > **Auto Lap** > **Auto Lap Trigger** > **By Distance** > **Lap At**.
4 Enter a value.
5 If necessary, customize the lap data fields (*Customizing the Data Screens*, page 16).

Using Auto Pause

You can use the Auto Pause feature to pause the timer automatically when you stop moving or when your speed drops below a specified value. This feature is helpful if your ride 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** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Auto Features** > **Auto Pause**.
4 Select an option:
   - Select **When Stopped** to pause the timer automatically when you stop moving.
   - Select **Custom Speed** to pause the timer automatically when your speed drops below a specified value.
5 If necessary, customize optional time data fields (*Customizing the Data Screens*, page 16).

Using Auto Sleep

You can use the Auto Sleep feature to automatically enter sleep mode after 5 minutes of inactivity. During sleep mode, the screen is turned off and the ANT+ sensors, Bluetooth, and GPS are disconnected.

1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Auto Features** > **Auto Sleep**.

Using Auto Scroll

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

1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Auto Features** > **Auto Scroll**.
4 Select a display speed.

Starting the Timer Automatically

This feature automatically detects when your device has acquired satellites and is moving. It starts the activity timer or reminds you to start the activity timer so you can record your ride data.

1 Select **Menu** > **Settings** > **Activity Profiles**.
2 Select a profile.
3 Select **Timer Start Mode**.
4 Select an option:
   - Select **Manual**, and select ▐▶ to start the activity timer.
   - Select **Prompted** to display a visual reminder when you reach the start notice speed.
   - Select **Auto** to start the activity timer automatically when you reach the start speed.

Phone Settings

Select **Menu** > **Settings** > **Phone**.

Enable: Enables Bluetooth wireless technology.

   NOTE: Other Bluetooth settings appear only when Bluetooth wireless technology is enabled.

Friendly Name: Allows you to enter a friendly name that identifies your devices with Bluetooth wireless technology.

Pair Smartphone: Connects your device with a compatible Bluetooth enabled smartphone. This setting allows you to use Bluetooth connected features, including LiveTrack and activity uploads to Garmin Connect.

Call and Text Alerts: Allows you to enable phone notifications from your compatible smartphone.

Missed Calls and Texts: Displays missed phone notifications from your compatible smartphone.

System Settings

Select **Menu** > **Settings** > **System**.
- Display Settings (*Display Settings*, page 17)
- Data Recording Settings (*Data Recording Settings*, page 17)
- Unit Settings (*Changing the Units of Measure*, page 17)
- Tone Settings (*Turning the Device Tones On and Off*, page 17)
- Language Settings (*Changing the Device Language*, page 17)

Display Settings

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

Brightness: Sets the backlight brightness.

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

Color Mode: Sets the device to display day or night colors. You can select the Auto option to allow the device to set day or night colors automatically based on the time of day.

Screen Capture: Allows you to save the image of the device screen.

Data Recording Settings

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

Recording Interval: Controls how the device records activity data. The Smart option records key points where you change direction, speed, or heart rate. The 1 Sec option records points every second. It creates a very detailed record of your activity and increases the size of the stored activity file.

Cadence Averaging: Controls whether the device includes zero values for cadence data that occur when you are not pedaling (*Data Averaging for Cadence or Power*, page 12).

Power Averaging: Controls whether the device includes zero values for power data that occur when you are not pedaling (*Data Averaging for Cadence or Power*, page 12).

Changing the Units of Measure

You can customize units of measure for distance and speed, elevation, temperature, weight, position format, and time format.

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

Turning the Device Tones On and Off

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

Changing the Device Language

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

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 Up Extended Display Mode

You can use your Edge 520 Plus device as an extended display to view data screens from a compatible Garmin multisport watch. For example, you can pair a compatible Forerunner® device to display its data screens on your Edge device during a triathlon.

1 From your Edge device, select **Menu** > **Settings** > **Extended Display Mode** > **Connect Watch**.

2 From your compatible Garmin watch, select **Settings** > **Sensors & Accessories** > **Add New** > **Extended Display**.

3 Follow the on-screen instructions on your Edge device and Garmin watch to complete the pairing process.

The data screens from your paired watch appear on the Edge device when the devices are paired.

NOTE: Normal Edge device functions are disabled while using Extended Display mode.

After pairing your compatible Garmin watch with your Edge device, they connect automatically the next time you use Extended Display mode.

Exiting Extended Display Mode

While the device is in Extended Display mode, select ⊇ > **Exit Extended Display Mode** > **OK**.

Device Information

Specifications

Edge Specifications

Battery type	Rechargeable, built-in lithium-ion battery
Battery life	Up to 15 hr.
Operating temperature range	From -20º to 60ºC (from -4º to 140ºF)
Charging temperature range	From 0º to 45ºC (from 32º to 113ºF)
Wireless frequency/protocol	2.4 GHz @ 0 dBm nominal
Water rating	IEC 60529 IPX7*

*The device withstands incidental exposure to water of up to 1 m for up to 30 min. For more information, go to www.garmin.com/waterrating.

Heart Rate Monitor Specifications

Battery type	User-replaceable CR2032, 3 volts
Battery life	Up to 4.5 yr. at 1 hr./day
Water resistance	3 ATM* **NOTE:** This product does not transmit heart rate data while swimming.
Operating temperature range	From -5° to 50°C (from 23° to 122°F)
Radio frequency/protocol	2.4 GHz ANT+ wireless communications protocol

*The device withstands pressure equivalent to a depth of 30 m. For more information, go to www.garmin.com/waterrating.

Speed Sensor and Cadence Sensor Specifications

Battery type	User-replaceable CR2032, 3 volts
Battery life	Approximately 12 months (1 hour per day)
Operating temperature range	From -20º to 60ºC (from -4º to 140ºF)
Radio frequency/protocol	2.4 GHz ANT+ wireless communications protocol
Water rating	1 ATM*

*The device withstands pressure equivalent to a depth of 10 m. For more information, go to www.garmin.com/waterrating.

Device Care

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

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

Secure the weather cap tightly to prevent damage to the USB port.

Cleaning the Device
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.

Caring for the Heart Rate Monitor

NOTICE
You must unsnap and remove the module before washing the strap.

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

- Go to www.garmin.com/HRMcare for detailed washing instructions.
- Rinse the strap after every use.
- Machine wash the strap after every seven uses.
- Do not put the strap in a dryer.
- When drying the strap, hang it up or lay it flat.
- To prolong the life of your heart rate monitor, unsnap the module when not in use.

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 Heart Rate Monitor Battery
1 Use a small Phillips screwdriver to remove the four screws on the back of the module.

2 Remove the cover and battery.

3 Wait 30 seconds.

4 Insert the new battery with the positive side facing up.

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

5 Replace the back cover and the four screws.

NOTE: Do not overtighten.

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

Replacing the Speed Sensor or Cadence Sensor Battery
The LED flashes red to indicate a low battery level after two revolutions.

1 Locate the circular battery cover ① on the back of the sensor.

2 Twist the cover counter-clockwise until the marker points to unlocked and the cover is loose enough to remove.

3 Remove the cover and the battery ②.

TIP: You can use a piece of tape ③ or a magnet to remove the battery from the cover.

4 Wait 30 seconds.

5 Insert the new battery into the cover, observing polarity.

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

6 Twist the cover clockwise until the marker points to locked.

NOTE: The LED flashes red and green for a few seconds after battery replacement. When the LED flashes green and then stops flashing, the device is active and ready to send data.

Troubleshooting

Resetting the Device

If the device stops responding, you may need to reset it. This does not erase any of your data or settings.

Hold ⏻ for 10 seconds.

The device resets and turns on.

Restoring the Default Settings

You can restore the default configuration settings and activity profiles. This will not remove your history or activity data, such as rides, workouts, and courses.

Select **Menu** > **Settings** > **System** > **Device Reset** > **Reset Default Settings** > **OK**.

Clearing User Data and Settings

You can clear all user data and restore the device to its initial setup. This removes your history and data, such as rides, workouts, and courses, and resets the device settings and activity profiles. This will not remove any files you added to the device from your computer.

Select **Menu** > **Settings** > **System** > **Device Reset** > **Delete Data and Reset Settings** > **OK**.

Maximizing Battery Life

- Decrease the backlight brightness or shorten the backlight timeout (*Using the Backlight*, page 3).
- Select the **Smart** recording interval (*Data Recording Settings*, page 17).
- Turn on the **Auto Sleep** feature (*Using Auto Sleep*, page 17).
- Turn off the **Phone** wireless feature (*Phone Settings*, page 17).
- Select the **GPS** setting (*Changing the Satellite Setting*, page 16).
- Remove wireless sensors that you no longer use.

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.

My device is in the wrong language

1 From the home screen, select ▼.

2 Scroll down to the last item in the list, and select ⮐.

3 Scroll down to the last item in the list, and select ⮐.

4 Scroll down to the sixth item in the list, and select ⮐.

5 Scroll down to your language, and select ⮐.

Temperature Readings

The device may display temperature readings that are higher than the actual air temperature if the device is placed in direct sunlight, held in your hand, or is charging with an external battery pack. Also, the device will take some time to adjust to significant changes in temperature.

Replacement O-rings

Replacement bands (O-rings) are available for the mounts.

NOTE: Use Ethylene Propylene Diene Monomer (EPDM) replacement bands only. Go to http://buy.garmin.com, or contact your Garmin dealer.

Viewing Device Information

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

2 Select an option.

- Select **Regulatory Info** to view the regulatory information and model number.
- Select **Copyright Info** to view software information, the unit ID, and the license agreement.

Updating the Software Using Garmin Connect Mobile

Before you can update your device software using the Garmin Connect Mobile app, you must have a Garmin Connect account, and you must pair the device with a compatible smartphone (*Pairing Your Smartphone*, page 1).

1 Synchronize your device with the Garmin Connect Mobile app.

When new software is available, your device alerts you to update the software.

2 Follow the on-screen instructions.

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.

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
- Map 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.

Appendix

Data Fields

Some data fields require ANT+ accessories to display data.

Balance: The current left/right power balance.

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

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

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

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

Balance - Lap: The average left/right power balance for the current lap.

Battery Level: The remaining battery power.

Battery Status: The remaining battery power of a bike light accessory.

Beam Angle Status: The headlight beam mode.

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

Cadence - Avg.: Cycling. The average cadence for the current activity.

Cadence - Lap: Cycling. The average cadence for the current lap.

Calories: The amount of total calories burned.

Calories to Go: During a workout, the remaining calories when you are using a calorie target.

Course Pt. Dist.: The remaining distance to the next point on the course.

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

Di2 Shift Mode: The current shift mode of a Di2 sensor.

Dist. - Lap: The distance traveled for the current lap.

Dist. - Last Lap: The distance traveled for the last completed lap.

Dist. to Dest.: The remaining distance to the final destination. You must be navigating for this data to appear.

Dist. to Go: During a workout or course, the remaining distance when you are using a distance target.

Dist. to Next: The remaining distance to the next waypoint on the route. You must be navigating for this data to appear.

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

Distance Ahead: The distance ahead or behind the Virtual Partner.

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

ETA at Destination: The estimated time of day when you will reach the final destination (adjusted to the local time of the destination). You must be navigating for this data to appear.

ETA at Next: The estimated time of day when you will reach the next waypoint on the route (adjusted to the local time of the waypoint). You must be navigating for this data to appear.

Front Gear: The front bike gear from a gear position sensor.

Gear Battery: The battery status of a gear position sensor.

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

Gear Ratio: The number of teeth on the front and rear bike gears, as detected by a gear position sensor.

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

GPS Accuracy: The margin of error for your exact location. For example, your GPS location is accurate to within +/- 3.65 m (12 ft.).

GPS Signal Strength: The strength of the GPS satellite signal.

Grade: The calculation of rise (elevation) over run (distance). For example, if for every 3 m (10 ft.) you climb you travel 60 m (200 ft.), the grade is 5%.

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

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

HR - Avg.: The average heart rate for the current activity.

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

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

HR Graph: A line graph showing your current heart rate zone (1 to 5).

HR - Lap: The average heart rate for the current lap.

HR - Lap %HRR: The average percentage of heart rate reserve (maximum heart rate minus resting heart rate) for the current lap.

HR - Lap %Max.: The average percentage of maximum heart rate for the current lap.

HR - Last Lap: The average heart rate for the last completed lap.

HR to Go: During a workout, the amount you are above or below the heart rate target.

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).

Laps: The number of laps completed for the current activity.

Light Mode: The light network configuration mode.

Lights Connected: The number of connected lights.

Location at Dest.: The last point on the route or course.

Location at Next: The next point on the route or course.

Odometer: A running tally of distance traveled for all trips. This total does not clear when resetting the trip data.

PCO: The platform center offset. Platform center offset is the location on the pedal platform where force is applied.

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

PCO - Lap: The average platform center offset for the current lap.

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. Your device must be connected to a compatible power meter.

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

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

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

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

Power - Avg.: The average power output for the current activity.

Power - IF: The Intensity Factor™ for the current activity.

Power - kJ: The accumulated work performed (power output) in kilojoules.

Power - Lap: The average power output for the current lap.

Power - Lap Max.: The top power output for the current lap.

Power - Last Lap: The average power output for the last completed lap.

Power - Max.: The top power output for the current activity.

Power - NP: The Normalized Power™ for the current activity.

Power - NP Lap: The average Normalized Power for the current lap.

Power - NP Last Lap: The average Normalized Power for the last completed lap.

Power Phase - L.: The current power phase angle for the left leg. Power phase is the pedal stroke region where positive power is produced.

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

Power Phase - L. Lap: The average power phase angle for the left leg for the current lap.

Power Phase - L. Peak: The current power phase peak angle for the left leg. Power phase peak is the angle range over which the rider produces the peak portion of the driving force.

Power Phase - L. Peak Avg.: The average power phase peak angle for the left leg for the current activity.

Power Phase - L. Peak Lap: The average power phase peak angle for the left leg for the current lap.

Power Phase - R.: The current power phase angle for the right leg. Power phase is the pedal stroke region where positive power is produced.

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

Power Phase - R. Lap: The average power phase angle for the right leg for the current lap.

Power Phase - R. Peak: The current power phase peak angle for the right leg. Power phase peak is the angle range over which the rider produces the peak portion of the driving force.

Power Phase - R. Peak Avg.: The average power phase peak angle for the right leg for the current activity.

Power Phase - R. Peak Lap: The average power phase peak angle for the right leg for the current lap.

Power - TSS: The Training Stress Score™ for the current activity.

Power - watts/kg: The amount of power output in watts per kilogram.

Power Zone: The current range of power output (1 to 7) based on your FTP or custom settings.

Rear Gear: The rear bike gear from a gear position sensor.

Reps to Go: During a workout, the remaining repetitions.

Speed: The current rate of travel.

Speed - Avg.: The average speed for the current activity.

Speed - Lap: The average speed for the current lap.

Speed - Last Lap: The average speed for the last completed lap.

Speed - Max.: The top speed for the current activity.

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

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

Target Power: The target power output during an activity.

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

Time: The stopwatch time for the current activity.

Time Ahead: The time ahead or behind the Virtual Partner.

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

Time - Elapsed: 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.

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

Time - Lap: The stopwatch time for the current lap.

Time - Last Lap: The stopwatch time for the last completed lap.

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

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.

Time to Dest.: The estimated time remaining before you reach the destination. You must be navigating for this data to appear.

Time to Go: During a workout, the remaining time when you are using a time target.

Time to Next: The estimated time remaining before you reach the next waypoint in the route. You must be navigating for this data to appear.

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

Total Ascent: The total elevation distance ascended since the last reset.

Total Descent: The total elevation distance descended since the last reset.

Trainer Resistance: The resistance force applied by an indoor trainer.

Vertical Speed: The rate of ascent or descent over time.

VS - 30s Avg.: The 30-second moving average of vertical speed.

Workout Step: During a workout, the current step out of the total number of steps.

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

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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).

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

Wheel Size and Circumference

Your speed sensor automatically detects your wheel size. If necessary, you can manually enter your wheel circumference in the speed sensor settings.

The tire size is marked on both sides of the tire. This is not a comprehensive list. You can also measure the circumference of your wheel or use one of the calculators available on the internet.

Tire Size	Wheel Circumference (mm)
20 × 1.75	1515
20 × 1-3/8	1615
22 × 1-3/8	1770
22 × 1-1/2	1785
24 × 1	1753
24 × 3/4 Tubular	1785
24 × 1-1/8	1795
24 × 1.75	1890
24 × 1-1/4	1905
24 × 2.00	1925
24 × 2.125	1965
26 × 7/8	1920
26 × 1-1.0	1913
26 × 1	1952
26 × 1.25	1953
26 × 1-1/8	1970
26 × 1.40	2005
26 × 1.50	2010
26 × 1.75	2023
26 × 1.95	2050
26 × 2.00	2055
26 × 1-3/8	2068
26 × 2.10	2068
26 × 2.125	2070
26 × 2.35	2083
26 × 1-1/2	2100
26 × 3.00	2170
27 × 1	2145
27 × 1-1/8	2155
27 × 1-1/4	2161
27 × 1-3/8	2169
29 x 2.1	2288

Tire Size	Wheel Circumference (mm)
29 x 2.2	2298
29 x 2.3	2326
650 x 20C	1938
650 x 23C	1944
650 × 35A	2090
650 × 38B	2105
650 × 38A	2125
700 × 18C	2070
700 × 19C	2080
700 × 20C	2086
700 × 23C	2096
700 × 25C	2105
700C Tubular	2130
700 × 28C	2136
700 × 30C	2146
700 × 32C	2155
700 × 35C	2168
700 × 38C	2180
700 × 40C	2200
700 × 44C	2235
700 × 45C	2242
700 × 47C	2268

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