DeLORME

Earthmate® GPS PN-20

An All-in-One Handheld GPS Solution from DeLorme, the Leading Digital Mapping and GPS Company

User Manual

Earthmate® GPS PN-20 Accessories

We offer a variety of products designed to help you get the most out of your Earthmate GPS PN-20. For more information, be sure to visit www.delorme.com/pn20.

And, remember to use your compatible DeLorme software's NetLink tab to access aerial imagery and data downloads from DeLorme.

Also Available from DeLorme

DeLorme is a leading provider of mapping software for both consumer and professional markets. Our Street Atlas USA® software titles deliver intelligent mapping, routing, and GPS navigation solutions for laptop PCs and PDAs. XMap® is a three-tiered GIS software suite that integrates advanced geospatial data management into DeLorme's core GPS mapping framework.

We also publish the Atlas & Gazetteer™ series of topographic map books for individual states.

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Getting Started

Thank you for purchasing the DeLorme Earthmate GPS PN-20. This versatile and compact GPS receiver lets you create tracks of your travels, create routes so you never get lost, find points of interest, and more!

This manual provides instructions for using all of the functionality available on the Earthmate GPS PN-20. Most of the chapters are based on pages, which are the main screens on the Earthmate GPS PN-20. Each chapter describes the features of that particular page and the menu options that are available from that page. In addition, this manual also discusses basic functions (such as map panning, battery information, map data information, and more), as well as frequently asked questions, warranty information, and so on.

Step 1 — Installing the Batteries

The Earthmate GPS PN-20 is a battery-powered device. It can be powered by one rechargeable Lithium-ion (Li-ion) battery or two AA batteries (NiCd, NiMH, alkaline, or lithium).

To install the batteries, unscrew the D-rings on the back of the Earthmate GPS PN-20 until you can remove the battery cover. Then, insert the batteries according to the polarity symbols found inside the battery compartment. Position the battery cover on the Earthmate GPS PN-20 and re-screw the D-rings into the Earthmate GPS PN-20.

Step 2 — Turning On the Earthmate GPS PN-20

The Power button is located at the bottom-right corner of the button area. To turn on the Earthmate GPS PN-20, press and hold the Power button for 1.5 seconds. The first page that displays on the screen after you turn on the Earthmate GPS PN-20 is the Satellites Page. Your GPS status displays in the upper-left corner of the Satellites Page. If you press the PAGE button, the Map Page displays on the screen. The map will not center on your current location until you have achieved a 2-D or 3-D fix. The default view when a GPS fix cannot be obtained is your last GPS position.

If it is taking a long time for the device to obtain a 2-D or 3-D fix, verify it has a clear view of the sky. Be sure that trees, buildings, and other obstacles are not blocking the Earthmate GPS PN-20. If the device still cannot obtain a 2-D or 3-D fix, press the QUIT button to return to the Satellites Page, press the MENU button, highlight the **Set Current Location** option, and then press ENTER. The Map Page automatically displays. Pan the map to your current location and press ENTER.

Tips:

* *Setting the correct battery type will optimize the battery's performance. For more information on selecting battery type, see To Modify the System Settings on page 68.*

* *Because the Earthmate GPS PN-20 has a real-time clock that requires power even when the device is powered off, your batteries are constantly in use. If you use your Earthmate GPS PN-20 sporadically (for example, more than a month between uses), remove the batteries for long-term storage and then reinsert them when you want to use the device.*

Tip: If the Earthmate GPS PN-20 does not turn on, ensure that the batteries are inserted into the device properly and that they are mostly or fully charged.

To turn off the Earthmate GPS PN-20, press the Power button and then press the ENTER button to confirm you want to turn the Earthmate GPS PN-20 off.

Step 3 — Using the Buttons on the Earthmate GPS PN-20

The buttons on the Earthmate GPS PN-20 give you access to all of the functions on the device.
Each button has a unique purpose:

In/Out

Use the IN and OUT button to zoom in or zoom out on the map.

* Press the IN (left) side of the button once to zoom the map in one level and show more detail.
* Press and hold the IN side of the button to zoom the map in to its maximum level.
* Press the OUT (right) side of the button once to zoom the map out one level and show less detail.
* Press and hold the OUT side of the button to zoom the map out to its maximum level.
* Press IN and OUT to scroll through a list one page at a time.

Page

Use the PAGE button to scroll through the enabled pages on the Earthmate GPS PN-20. The default page button sequence is:

* Satellites
* Map
* Compass
* Trip Info
* Route Directions (available when navigating)

For an overview of what you can view and do on each page, as well as each page's menu functions, see *Appendix A* on page 74.

Menu

The MENU button provides access to many functions. Some menus are divided into top and bottom sections that are separated by a line. The items in the top section are specific to the active page. The items in the bottom section are standard menu options that are available from any page.

*Tip: Use the Device Setup/ Page Order settings to add, remove, or reorder the pages that display when you press the Page button. For more information, see the **To Modify the Page Order Settings** section on page 71.*

Find

The Find button is labeled with a magnifying glass. Use it to search for a point of interest, waypoint, address, coordinate, and more. You can search for a location based on its name or its proximity to the current map center.

Mark Waypoint

The Mark button is labeled with a push pin. Use it to mark a waypoint at your current GPS location or the cursor location (when panning). Once you mark a location, you can edit the waypoint name, coordinates, elevation, and provide comments about the waypoint; view the waypoint on the map; navigate to the waypoint; average the waypoint for greater accuracy; save the waypoint; or delete the waypoint.

Arrow Keypad

You can use the arrow keypad to:

- Move the map cursor left, right, up, or down.
- Pan the map by moving the cursor on the edge of the map.
- Highlight options in menus or lists. Press down to move to the next entry, press up from the first entry to go to the last entry, or down from the last entry to go to the first entry. Press and hold to quickly scroll through a menu or list.
- Highlight characters in the keyboard screen.

Enter

You can use the ENTER button to:

- Select a menu entry or on-screen button/field.
- Get information about a point on the map. Press the ENTER button at any time when viewing the Map Page to see detailed information, if available.

Quit

The function of the QUIT button varies depending on the current status of the Earthmate GPS PN-20. You can use the QUIT button to cancel actions, such as panning, keyboard entry, to delete individual points when measuring distance, and so on. If you are performing an action, pressing the QUIT button moves you backward through the page sequence.

Power

Use the Power button to turn the Earthmate GPS PN-20 on and off, to change the backlight settings, or to reset the Earthmate GPS PN-20:

- To turn the Earthmate GPS PN-20 on, press and hold the **Power** button for 1.5 seconds.

- To turn the Earthmate GPS PN-20 off, press the **Power** button. When you see the "Press ENTER to power down" message, press the ENTER button to confirm that you want to turn off the Earthmate GPS PN-20. If you do not want to turn the Earthmate GPS PN-20 off, wait five seconds or press the QUIT button.

- To change the backlight intensity percentage, press and hold the **Power** button (for approximately two seconds if the device is powered on) until you see the backlight screen display. Press the arrow keypad to the left to move the slider and decrease the backlight intensity. Press the arrow keypad to the right to move the slider and increase the backlight intensity. Each level of intensity represents a 10% interval (100% is the maximum backlight intensity, 10% is the minimum backlight intensity).

- To turn the backlight off, press and hold the **Power** button for three seconds (while the device is powered on) until the backlight shuts off.

  Note: The backlight turns on any time you press a button unless you turned it off using the Device Setup menu. For more information, see the *To Modify the Display Settings* section on page 68.

- When you charge the Earthmate GPS PN-20, the backlight intensity is automatically reduced to decrease charging time.

- To reset the Earthmate GPS PN-20 when it is on, press and hold the **Power** button for seven seconds.

Step 4 — Transferring Map Data to the Earthmate GPS PN-20

Your Earthmate GPS PN-20 comes equipped with an overview-level base map showing world and U.S. coverage. While this provides a great view of a large area, chances are that you will want a detailed view of a smaller area for hiking, geocaching, and other activities. You can transfer more detailed maps to the Earthmate GPS PN-20 using:

Press ENTER to confirm that you want to turn the device off

Tip: *Decrease the backlight timer to help conserve battery life.*

- **Compatible DeLorme Mapping Software**—Instructions for sending maps to your Earthmate GPS PN-20 vary by application. For more information, see the mapping application's Help system for instructions on sending maps to your Earthmate GPS PN-20.
- **Online Map Cutter for Earthmate GPS PN-20**—Visit http://data.delorme.com. You must have an Internet connection to use this website. For instructions on sending maps to your Earthmate GPS PN-20 with this online application, see the Online Map Cutter for Earthmate GPS PN-20 Help system.

You can transfer many types of data, such as satellite imagery, aerial imagery, USGS Topo Quad maps, NOAA nautical charts, and more. Save maps in internal memory or on a removable memory (SD) card in the Maps directory.

Step 5 — Use the Pages to Track, View Your Position While You Travel, and More

This manual describes all of the functions found in each page on the Earthmate GPS PN-20. See the Table of Contents to find the headings that are most important to you.

About GPS

What is GPS?

The Global Positioning System (GPS) applies modern technology to the ancient art of navigation. The U.S. Department of Defense has developed and launched a series of positioning satellites in an orbiting "constellation." These satellites are used as reference points much the same way stars have been used in conventional navigation.

Using these satellites, a GPS receiver can determine your position anywhere on the globe. GPS provides accurate information about coordinate position, elevation, speed, and direction of travel. Many people have discovered the benefits of GPS for recording tracks and much more.

How Does GPS Work?

The GPS constellation consists of at least 24 satellites, each carrying several atomic clocks to ensure the most accurate time possible. The satellites broadcast low-power radio waves containing the satellite's identity code and the exact time (to the nanosecond) that the message was sent.

When a GPS receiver picks up a satellite signal, it identifies the satellite and compares the signal time with its own clock. The time difference represents the time it has taken for that radio wave to

travel from the satellite to the receiver. Since radio waves travel at the speed of light, the time difference can be used to calculate the distance from the satellite to the GPS receiver.

The satellite's identity code provides the location of the satellite, and the distance to the receiver creates a sphere of possible locations for the GPS receiver. Without more information, the receiver knows only that it is located somewhere on that sphere.

Two additional satellites are necessary to narrow down the receiver's position. Each of these satellites sends a similar radio message containing time and identity information. The GPS receiver checks the orbital location of each satellite and uses the elapsed time to create two additional spheres of possible locations. These three spheres intersect at two points; however, one of these points is eliminated because it is far away from the Earth's surface. Therefore, the second point is assumed to be correct. The data from these three satellites provides the receiver with a two-dimensional location.

Data acquired from a fourth satellite pinpoints the receiver's exact location. This additional positioning information allows the GPS receiver to calculate its elevation, which is particularly important for GPS users in mountainous locations.

GPS Position Accuracy

Any buildings, natural structures, or heavy foliage that obstruct the GPS antenna's view of the sky prevent satellite signals from reaching the receiver and decrease the accuracy of your position.

Frequently Asked Questions

Can I install non-DeLorme maps on the Earthmate GPS PN-20?

DeLorme's professional GIS software, XMap®, allows you to register non-DeLorme maps and transfer them to the Earthmate GPS PN-20.

How can I improve the life of my batteries?

When the backlight is on, it consumes a large part of the battery. Changing the backlight timer to turn off after 15 seconds could double the life of your batteries. For information on changing the backlight timer, see *To Modify the Backlight Timer* on page 69.

Note: Placing the Earthmate GPS PN-20 in a backpack pocket or jacket should not result in problems with GPS position accuracy.

Other ways to increase the life of the batteries include:

- Removing your batteries for long-term storage
- Setting the GPS Settings to Power Saving mode
- Disabling GPS while indoors
- Using batteries with higher milliamp ratings (such as Duracell Ultras, Energizer E2s, etc.)

Why are the new batteries that I put in the device the last time I used it (a month ago) already dead?

Because the Earthmate GPS PN-20 has a real-time clock that requires power even when the device is powered off, your batteries are constantly in use. If you use your Earthmate GPS PN-20 sporadically (more than a month between uses), remove the batteries for long-term storage and then reinsert them when you want to use the device to improve battery life.

Why does it take so long to find satellites?

Acquiring satellite data takes longer if the batteries are low or if the Earthmate GPS PN-20 does not have a clear view of the sky. Be sure that trees, buildings, and other obstacles are not blocking the Earthmate GPS PN-20 when you begin tracking.

Other factors, such as if you haven't used the device for a long time or if you've moved the device a great distance from its last location, can affect the amount of time it takes to find satellites.

Note: The charging circuit in the PN-20 was designed for optimum operation with the RCR-V3 Li-Ion battery sold through DeLorme. Other RCR-V3 Li-Ion batteries may work and charge in the PN-20, but DeLorme can make no guarantees of compatible operation.

How do I reset the Earthmate GPS PN-20 when it will not turn off?

You can reset the Earthmate GPS PN-20 by holding the Power button for seven seconds. If that does not work, remove and replace the batteries to reset the Earthmate GPS PN-20.

Why won't my Lithium-ion battery hold a charge?

The Li-ion battery is designed to last for 300-500 uses, depending on environmental conditions.

Basic Functions

This chapter provides descriptions for some of the basic functions of the Earthmate GPS PN-20.

Panning the Map

There are two ways to pan the map:

- Manually pan the map by placing the cursor along the map edge and hold the arrow keypad in the direction that you want to move the map.
- Automatically pan the map when GPS tracking/navigating. The map automatically pans in the direction of travel when the GPS cursor travels outside of the map area.

Getting Information About a Map Object

There are two ways to get information about a map object.

- Press the arrow keypad to position your cursor over the map objects you want to learn more about. The status bar at the bottom of the Map Page provides name information for the object. Press ENTER to display the Info Page.
- Press Enter at any time to get information about objects that are at your current GPS location. **Note:** If multiple objects are found at the cursor location, the Multiple Objects screen displays a list of the available objects at that location; objects you have created appear at the top of the list. Use the arrow keypad to select an object and then press ENTER to view the Info Page for that object. To save a map object as a waypoint, highlight it and select **Mark**.

Navigating vs. Tracking

There are several instances in this manual where we mention navigating or tracking with the Earthmate GPS PN-20. You may ask, "What's the difference?"

- You are *navigating* with the Earthmate GPS PN-20 when you use it to follow a route.
- You are *tracking* with the Earthmate GPS PN-20 when the GPS is on, but you are not following a route.

Move your cursor to the edge of the screen to pan the map in that direction

Note: Manually panning the map when simulating navigation or playing back a track will change the focus of the map from your GPS location to the manually panned location.

*Note: Once you have marked a map object as a waypoint, you can edit the waypoint details (by highlighting the waypoint information, pressing ENTER and then modifying the information), view it by highlighting **View** and pressing ENTER, or create a route by highlighting **Route** and pressing ENTER.*

Keyboard screen

Tips:
- *Press OUT to highlight the OK button without scrolling through the keyboard.*
- *Press QUIT to cancel your keyboard entries.*
- *If existing text is available, enter a letter to replace the highlighted content. If you want to keep the existing text but move the cursor to the beginning/end of the text, select the ◀ option to move the cursor to the beginning or ▶ to move the cursor to the end of the text.*

Tip: Use multiple SD cards to create a map library for long trips or to have the entire state in your pocket.

Using the Keyboard

The keyboard is accessible when you need to enter text, such as when editing a waypoint label.

Once the keyboard displays, use the arrow keypad to highlight the letter (A–Z), number (0–9), symbol (+, -, /, &), or punctuation (period, comma, apostrophe, exclamation point) you want to use. In addition, the following special functions are provided:

◀ Moves the cursor one space to the left without deleting characters.

▶ Moves the cursor one space to the right without deleting characters.

↑ Changes the letters from lowercase to uppercase letters (the active case is shown in the keyboard). This function toggles to all caps mode by pressing ENTER twice.

← Moves the cursor one space to the left, deleting the character that was there.

Clr Clears the content of the text field being edited.

OK Accepts the changes made to the text field and closes the keyboard.

Spc Moves the cursor one space to the right, leaving a blank space.

↵ Moves the cursor to the next line. This option can be used to type more than one line in a Comment field.

Charging the Earthmate GPS PN-20

If you are using a DeLorme-supplied RCR-V3 Li-Ion battery, you can charge the Earthmate GPS PN-20 battery by connecting the USB end of the cable to your computer and the other end of the cable to the Earthmate GPS PN-20. To charge the device with the USB cable, the device must be powered on while connected. You cannot use the Earthmate GPS PN-20 to charge rechargeable AA batteries.

Storing Data on the Earthmate GPS PN-20

The Earthmate GPS PN-20 stores waypoints, tracks, routes, and the base map data in its internal memory. You can save maps that are transferred to the Earthmate GPS PN-20 in internal memory or on a removable memory (SD) card located under the battery compartment.

Scenarios

You can use your Earthmate GPS PN-20 for a variety of activities, including:

- Geocaching
- Bird watching
- Biking
- Managing GIS data
- And much more!

Below are some scenarios for using the Earthmate GPS PN-20 in these situations.

Seeking a Geocache

Geocaching is a popular hide-and-seek sport for GPS users. Hiders place a cache (prizes and/or log book) at an approved location and seekers use the hiders' clues (coordinate information and clues that are shared via the Internet—for some geocache locations, visit www.geocaching.com) to find the cache. The cache usually contains a variety of prizes for the successful seeker (seekers are encouraged to observe the "take one, leave one" policy on prizes in the cache).

Mike and his family are looking for a fun weekend activity that they can enjoy in the great outdoors. A coworker tells Mike about geocaching and they decide to try the activity with their new Earthmate GPS PN-20.

Before they leave for their adventure, they visit www.geocaching.com to find a cache in their area. Once they find a cache, they use their compatible DeLorme mapping program to see the geocache on the map and then download a map package of the area.

1. Visit www.geocaching.com and select the geocache you want to try to find.
2. Save the geocache's .loc file to your computer.
3. Open your DeLorme program and click the **Draw** tab.
4. Click **File** to open the draw file editing area.
5. Click **Import**. The Import Draw File dialog box displays.
6. From the **Files of type** drop-down list, select LOC file (*.loc).

7. Browse to the location where you saved the .loc file in step 2, select the file, and then click **Open**. The draw objects in the imported file display. A new waypoint layer is automatically created for the imported file.

8. Click **Done** to return to the Draw dialog area.

9. Click the **Handheld Export** tab in your software.

10. With the map centered on the geocache area, click the **Select/Edit** tool and then click the grids on the map that cover the map area you want to export to the Earthmate GPS PN-20.

11. Name and save your map package.

12. Click the **Exchange** button on the Handheld Export tab or in the toolbar.

13. Send the geocache waypoint layer and map package to the device and then click **Done**.

Once the map and waypoint are loaded on the Earthmate GPS PN-20, they use the Waypoints Page to locate the coordinate that was provided in the cache's clue. Once the waypoint is found, they create a route from their current position (home) to the waypoint location.

Symbol/Label
🗔 Far From Home Cache

Coordinates: Lat/Lon
N 43°48.3979'
W070°11.4180'

Elevation   Time/Date
+00070 ft   07:32 PM
                10-Sep-07

Comments
Far From Home Cache by
Wanderer, Traditional

Delete   View   Route

Navigate to the geocache

14. Press MENU and then select **Waypoints**.

15. Highlight the geocache waypoint in the list and then press ENTER.

16. Use the arrow keypad to highlight the **Route** button and then press ENTER.

17. Use the arrow keypad to highlight the **Navigate** button and then press ENTER.

18. Press PAGE until the Compass Page displays.

19. Use the Compass Page to find the direction of travel. The bearing arrow (large green arrow) points in the direction of the next stop in the route. Use the bearing arrow to determine the correct direction of travel towards the waypoint.

Once they arrive at the cache, they take a trinket from the cache and leave a pencil they bought while on a recent trip to Niagara Falls. Then they update the waypoint symbol on the Earthmate GPS PN-20 to the geocache found symbol. When they return from their adventure, they visit the cache's page on www.geocaching.com and enter a log about their experience.

Hiding a Geocache

Mike and his family had so much fun on their first geocache outing, that they decide to create a geocache of their own!

The family decides to hide the cache along a public trail approximately 10 miles from their home. Before they can add the cache to geocaching.com, they must get a very accurate coordinate for the location where they're hiding the cache. To do so, they must mark a waypoint at the geocache location and then use the Averaging function on the Earthmate GPS PN-20. When a waypoint is averaged, a series of GPS readings for the waypoint's location is recorded and averaged to increase the positional accuracy of the waypoint.

1. Ensure you have a 3-D signal at the location of the geocache.
2. Press the **Mark** button. A waypoint is placed at the current GPS location.
3. Highlight the default waypoint symbol and press ENTER. Use the arrow keypad to select the geocache hidden symbol and press ENTER.
4. Highlight the default label and press ENTER. Enter the new label "Our First Geocache" using the keyboard, highlight **OK**, and press ENTER.
5. Highlight the **Comment** field and press ENTER. Enter the comment information ("Hid cache under pile of sticks") using the keyboard, highlight **OK**, and press ENTER.
6. Highlight the **Avg** button and press ENTER. The GPS status, coordinates, elevation, number of readings at the location, and estimated accuracy display. The positional accuracy of the way-point is increased by the number of recordings. A small estimated accuracy number indicates that the waypoint is very close to its actual coordinates.
7. Highlight the **OK** button and press ENTER.
8. Use the arrow keypad to highlight the **Save** button and then press ENTER.

Marking the "Our First Geocache" waypoint

Once the geocache location point is averaged, they visit www.geocaching.com and create a new geocache with the averaged coordinate.

Bird Watching

The Earthmate GPS PN-20 is a perfect companion for bird watching. With aerial imagery loaded on the Earthmate GPS PN-20, bird watchers can see clearings, tree cover, geological features, and more. In addition, they can use the waypoint function to mark waypoints on the map when they see particular types of birds. They can also use the track functionality to create a breadcrumb trail while they're traveling to their bird watching spot and then follow that track back to their vehicle so they do not get lost.

In the scenario below, Tom, a bird watcher, uses the Earthmate GPS PN-20, aerial imagery, and the Earthmate GPS PN-20 Online Map Center to prepare for his expedition.

Before Tom leaves for his trip, he uses the Earthmate GPS PN-20 Online Map Center to download additional map data so he can get satellite and aerial views of the area where he'll be. This is helpful to Tom because he has heard that the bird population is greater near the swamp land. With the aerial and satellite data available from the Online Map Center, Tom can see the geological formations in his bird watching area before he leaves, giving him a greater idea of where he should spend his day.

1. Visit http://data.delorme.com to download the area where you will be bird watching.

Once the map of the location is saved on the Earthmate GPS PN-20, Tom leaves for his bird watching trip. When he arrives at the location, he parks his truck, turns on the Earthmate GPS PN-20, waits until he gets a 2-D or 3-D fix, places a waypoint to represent the parking lot, modifies his tracking settings, and then turns on Track recording.

2. Press and hold the **Power** button to turn on the Earthmate GPS PN-20.

3. Press the **Mark** button on the device to place a waypoint at the parking lot location and press ENTER.

   Note: To choose a different symbol, scroll to the top of the Waypoints screen to highlight the waypoint symbol and press ENTER. Use the arrow keypad to find and highlight the symbol you want.

4. Press MENU, highlight the **Tracks** option, and press ENTER.

5. Press MENU, highlight the **Edit Track Settings** option, and press ENTER.

6. Highlight the **Record Points By** drop-down list and press ENTER.

7. Highlight the **Time** option and press ENTER.

8. Highlight the **Recording Interval** text field and press ENTER. Use the arrow keypad to increase/decrease each digit. Press ENTER after each digit is changed.

9. If the On button is not activated, highlight the button and then press ENTER to activate it.
   OR
   If the On button is already activated, go to step 10.

Track Settings

Record points by:
Time

Recording interval:
02 sec

When track is full:
Start Recording New Track

☑ Prompt To Reset Trip Info

Restore Defaults

Editing the track settings

Tom continues his journey to the bird-watching spot. While he's walking, he notices an eagle in a tree and wants to use his Earthmate GPS PN-20 to mark a waypoint at the bird location.

10. While at the spot of the tree, press the **Mark** button.

11. Scroll to the top of the Waypoints screen to highlight the waypoint symbol and press ENTER. Use the arrow keypad to find and highlight the bird icon and press ENTER.

12. Scroll to the label text field (to the right of the bird icon) and press ENTER. Use the arrow keypad to highlight the letter E and press ENTER. Repeat this step for each letter in the word "Eagle." When you're finished, highlight **OK** and press ENTER.

13. Scroll to highlight the **Save** button and press ENTER.

When he arrives at the desired bird watching spot, he saves his track log, turns off the GPS device, and spends the day bird watching.

14. Press MENU, select **Tracks**, and press ENTER.

15. Scroll to highlight the **Save** button and press ENTER.

16. Press the **Power** button to turn off the Earthmate GPS PN-20. Press ENTER when prompted.

When he's finished for the day, he turns the GPS device back on, waits until he gets a 2-D or 3-D fix, and then follows his track to where he started—ensuring he won't get lost. The process of following his initial track creates a new route that he can use to navigate back to the parking lot.

17. Press and hold the **Power** button to turn on the Earthmate GPS PN-20.

18. Press MENU, select **Tracks**, and press ENTER.

19. Select the track that was saved earlier that day and press ENTER.

20. Scroll to highlight the **Follow** button and press ENTER.

Tom follows the route directions on the map screen and reaches his start location without getting lost.

Mountain Biking

The Earthmate GPS PN-20 is also a perfect companion while mountain biking.

Carla and Jordan are preparing for a ride at Slickrock Bike Trail. Before they go, they download data of the Moab, Utah, region with their compatible DeLorme software program. They create a route that starts and finishes at the trailhead and includes three stops: Shrimp Rock, Upper Shrimp Rock, and Mt. View Cave. Then they export the data of the region, as well as the route they created, to

Marking the "Eagle" waypoint

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their Earthmate GPS PN-20. Once they arrive at the trail, they mount their GPS devices onto their bikes, power them on, and select the route they plan to use for navigation.

1. Press MENU, highlight the **Routes** option, and press ENTER.
2. Highlight the route and press ENTER. The map displays.
3. Highlight the **Navigate** button and press ENTER. The map displays.
4. Press MENU, highlight the **Tracks** option, and press ENTER.
5. Ensure the On button is activated. If it is not, highlight the **On** button and press ENTER to activate it.
6. To view the location in real time, press QUIT to display the Map Page.

The GPS device not only tells them where they are in real time but also keeps a record (track) of everywhere they've been. Once they've finished the trail, they decide to save the track so that they can see where they've ridden.

7. Press MENU, highlight the **Tracks** option, and press ENTER.
8. Highlight the **Save** button and press ENTER.

Since they might want to visit this track again later, they decide to name the track with the trail name and assign it the same color that they assign all of the trails they've ridden. They also use the comments feature in the Tracks screen to note if they thought the trail was easy, moderate, or difficult.

9. Highlight the **Track** text field and press ENTER to name the track "GW Forest" using the keyboard. Then, highlight **OK** and press ENTER.
10. Highlight the **Color** block and press ENTER. Use the arrow keypad to highlight the color blue and press ENTER.
11. Highlight the **Comment** text field, press ENTER, and assign a difficulty comment using the keyboard. Then, highlight **OK** and press ENTER.
12. Highlight the **View** button and press ENTER to see a snapshot of where you went on the trail.

When they arrive home, they download the track and waypoint information into their DeLorme software so they can see a larger view of where they were. They finish by saving the track information in their mountain biking library project.

Navigating a route

Editing track details

Mapping Assets in the Field

Up-to-date maps are often critical to efficiently manage and maintain company assets. You may need several layers of information to locate and update information about these assets in the field, such as road, topographic, and historic maps, as well as high-resolution aerial imagery and GIS layers. The Earthmate GPS PN-20 is ideally suited to handle these needs; you can transfer virtually any type of data from DeLorme software onto the device for use in the field, and then use the Earthmate GPS PN-20 to map new assets and the conditions of existing assets. You can then bring this information back into the office to update the central database.

The division managers of a utility company are responsible for overseeing the bimonthly update of the spatial database for each division. They must collect information regarding new line locations, conditions, and areas requiring repair or replacement to update the database and assist in planning for the next month's maintenance schedule.

The company uses the Earthmate GPS PN-20 with DeLorme's professional XMap® GIS software to perform the updates. Each division is divided into quadrants with crews of two assigned to each quadrant. Each crew has an Earthmate GPS PN-20 and is responsible for uploading the maps and data they need on the device before heading out into the field. This data includes an updated copy of the quadrant's GIS utility line layer, road and topographic maps, waypoints of pole mile markers, high-resolution aerial imagery downloaded from the state GIS department, and digitally scanned paper maps of utility line schematics. These maps are geo-registered to the DeLorme map using XMap.

Preparing data for and transferring data onto the Earthmate GPS PN-20

1. Open XMap, set up a subscription to the central database, and obtain an updated copy of the utility layer for the division.
2. Load the GIS layer into the GIS tab and use the spatial query tool to isolate the line objects within a particular quadrant.
3. From the ImageReg tab, open the digital image of the schematic map for the quadrant. Use the GIS line layer as reference to place points on the digital image that correspond to points on the DeLorme map. Then, process the image to geo-register it to the map.
4. Visit the state GIS website and download any digital aerial imagery in .sid or .tiff format that corresponds to the quadrant. Use the Map Data tab to load the imagery into XMap.

5. From the Handheld Export tab, center the map on the quadrant and customize the handheld grid size to best fit the area. Then, click the **Select/Edit** tool and select the grids on the map that cover the quadrant.

6. Click the **Options** button and select the check box next to each dataset to transfer to the Earthmate GPS PN-20. For high-resolution aerial imagery, select **XMap Raster Data Snapshot**. For topographic, road, and GIS data, select **XMap USA Topographic Data**. For scanned historic maps, select the **ImageReg Data** series. Customize the display ranges of the datasets based on your preferences.

7. Name and save the map package. Then, click the **Exchange** button on the **Handheld Export** tab or in the toolbar. Send the mile marker waypoint layer and saved map package containing the road, topographic, historic, and aerial imagery maps to the device and then click **Done**.

Using the Earthmate GPS PN-20 in the field

With all the data transferred to the Earthmate GPS PN-20, the field crew for each quadrant is ready to head into the field to update and verify the utility data. One field crew is responsible for updating a quadrant with significant additions and changes to the existing infrastructure. They have a list of mile marker ranges where these changes took place.

1. Use the Routes option on the Earthmate GPS PN-20 to create a route from the field office (current GPS location) to the utility waypoint mile marker next to the service road entrance.

2. Once the field crew arrives at the entrance, the worker with the Earthmate GPS PN-20 directs the driver to each mile marker on the list where utility additions and modifications were made. They use the bearing and distance information for each waypoint to navigate along the service road. Once they are parallel to a mile marker, they set out on foot to the pipeline, using the aerial imagery, topographic, and GIS data to give them field reference.

3. Once the line locations are located, the crew collects pertinent waypoints and tracks on the Earthmate GPS PN-20 to record information about the line. They use the various waypoint symbols on the Earthmate GPS PN-20 to represent different features, such as areas in need of service or areas where there are dangerous trees that need to be removed. When they come across an area where the GIS data does not correlate with the location of the utility line in the field, they record a track for that length of segment and drop waypoints at each line vertex.

4. When the field crew is finished, they return to the office and download the waypoints and tracks to XMap. Then they review the data to update any labels that need clarification and put additional notes for the points using the MapNote feature in the Draw tab.

5. Once they are finished with the review, they synchronize their field data to the central database using the synchronize feature in XMap.

6. The next day, the database manager responsible for the division reviews their synchronized data against the corporate GIS layer and updates the corporate layer within XMap.

The Satellites Page

Satellites Page

*Tip: If it is taking a long time for the device to obtain a 2-D or 3-D fix, verify it has a clear view of the sky. Be sure that trees, buildings, and other obstacles are not blocking the Earthmate GPS PN-20. If the device still cannot obtain a 2-D/3-D fix, press PAGE until the Satellites Page displays, press MENU, highlight the **Set Current Location** option, and then press ENTER. The Map Page displays automatically. Pan the map to your current location and press ENTER.*

Viewing the Satellites Page

Once you turn on the Earthmate GPS PN-20, the Satellites Page displays. The Satellites Page informs you of your current GPS status, the number of satellites the Earthmate GPS PN-20 is acquiring data from, the signal strength, and the GPS accuracy (available only when a 2-D or 3-D fix is obtained).

GPS and WAAS Status

GPS status displays in the upper-left corner of the page and displays the following, depending on your satellite acquisition status:

- **GPS Off—**The GPS is disabled.
- **No Fix—**The GPS cannot find sufficient satellite data to determine your current GPS position.
- **2-D—**The GPS connection is successful, but the connection quality is not quite as sufficient as a 3-D fix. This usually indicates insufficient data for an accurate location because only three satellites are being used or signals from the satellites are poor. Move your receiver to another location until you get better reception.
- **3-D—**The GPS receiver is receiving sufficient satellite data to determine your location.

If WAAS displays in the upper-right corner of the page, the Earthmate GPS PN-20 has obtained a WAAS connection. WAAS provides up to five times greater position accuracy than a regular 2-D or 3-D connection. WAAS is available only in North America.

Satellite Constellation and Signal Graph

Both the satellite constellation and the satellite signal graph display visible satellites and their identifying numbers, which are assigned by the Department of Defense.

In the satellite constellation, satellite-shaped icons display each satellite's position in the sky relative to the device's current position.

In the satellite signal graph, each satellite is represented as a bar that is sized according to signal strength. Longer bars have greater strength and shorter bars have less strength.

The icons in the satellite constellation and the lines in the signal graph are color coded based on the quality of the data they are transmitting:

- **Red—**Indicates your GPS receiver is tracking the satellite, but it is not receiving data from it.
- **Green—**Indicates your GPS receiver is tracking the satellite, ephemeris data is available, and the satellite is being used for navigation.
- **Blue—**Indicates your receiver is tracking the satellite, ephemeris data is available, the satellite is being used for navigation, and the satellite has WAAS corrections available.

GPS Accuracy

The GPS accuracy displays in the lower-left corner of the screen in feet or meters, depending on the measurement preferences you assigned in the Device Setup Page (see *To Modify the Units Settings* on page 72 for more information). GPS accuracy is represented on the map by a circle with a radius equal to the GPS accuracy, allowing you to see a representation of your accuracy in relation to your map scale. The accuracy of the Earthmate GPS PN-20 is +/- 10 meters.

Battery Indicator

The battery indicator is a graphic representation of the current available battery power. It displays differently based on the current available power:

- **Four green bars—**Indicates a full charge.
- **Three green bars—**One quarter of the battery power has been used.
- **Two yellow bars—**One half of the battery power has been used.
- **One red bar—**Three quarters of the battery power has been used. Once the battery has reached 5% of its total battery power, a low battery warning displays.

While the Li-Ion battery is charging, the battery indicator graphic is animated and the word "Battery" is replaced with "Charging." Once the battery is fully charged, the battery indicator graphic displays four static green bars and the word "Charging" is replaced with "External" until the charging cable is removed.

Note: WAAS was developed by the Federal Aviation Administration to enhance the accuracy—usually to within three meters of actual position—of GPS receivers by providing a modified GPS signal. After calculating the error factor at ground control stations throughout the U.S., the corrected signal is transmitted to two geostationary satellites that in turn transmit the GPS signal back to Earth.
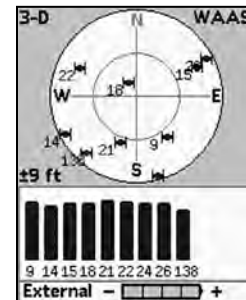
Battery indicator label changes to "external" when charging

Notes:

- *You can also disable the GPS using the Device Setup/ System menu option. Select **Disable GPS** from the **GPS Settings** drop-down list.*

- *When GPS has been disabled, you can enable it by pressing MENU and then selecting **Enable GPS**.*

- *GPS is temporarily disabled when in simulate mode (during track playback, navigation simulation, and so on).*

- *If the Earthmate GPS PN-20 is unable to acquire a fix after approximately ten minutes, you will see the following message, "Would you like to disable the GPS or continuesearching for satellites?" Select **Disable** to disable GPS or **Continue** to allow the Earthmate GPS PN-20 to keep searching for satellites.*

To Disable GPS

There are many features on the Earthmate GPS PN-20 that do not require a GPS fix. You can turn off the GPS connection using the Disable GPS option in the Satellites menu.

1. From the Satellites Page, press MENU.
2. Use the arrow keypad to highlight **Disable GPS**.
3. Press ENTER. GPS OFF displays in the upper-left corner of the screen and all satellites are removed from the constellation display.

The Map Page

Viewing the Map Page

If a 2-D or 3-D fix is obtained, the Map Page displays the map data that is available for your current GPS location. If a GPS fix cannot be obtained, the location of your last GPS fix displays on the map. The color of the GPS arrow depends on your GPS signal.

- A flashing red arrow indicates that the Earthmate GPS PN-20 cannot obtain a GPS signal.
- A blue arrow indicates that the device is in Track Playback mode or Simulate Navigation mode.
- A yellow arrow indicates a 2-D fix.
- A green arrow indicates a 3-D fix.

Below the map are information fields. The information displayed in these fields varies based on the selections you choose (for more information, see *To Change the Information Fields* on page 25). The scale is located above the information fields. A north arrow is also available in the upper-right corner of the screen; this is available only when Heading Up is selected as the map orientation (or Course Up is selected when navigating). **Note**: Raster maps rotate in 90° headings.

To View Map Data

The Earthmate GPS PN-20 comes standard with a base map showing high-level world and U.S. coverage. You cannot remove the base map from memory.

Several data types are compatible with the Earthmate GPS PN-20:

- High-resolution Cities
- Color Aerial Imagery
- Aerial Imagery (DOQQ)
- USGS Quads (3DTQ)
- NOAA Nautical Charts
- Satellite Imagery
- DeLorme Topographic Data
- World base data
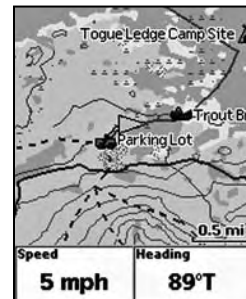
Map Page

Tip: You can also choose to hide the information fields to make the map area larger (for more information, see To Hide the Information Fields on page 24) or change the number of information fields that display (for more information, see To Arrange the Information Fields on page 24).

The list above shows the default layering of the data types (from top to bottom). To change the data layering, see *Layering Your Data* on page 31.

To Show/Hide the Information Fields

You can hide the information fields to enlarge the map area.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Info Fields**.
3. Press ENTER. The Info Fields Setup screen displays.
4. Use the arrow keypad to highlight **Hide Info Fields**. Press ENTER. The information fields are hidden.

   Note: If Show Info Fields displays, the information fields are hidden. Press ENTER to display the information fields.

To Arrange the Information Fields

You can change the information fields to display as one wide field, one wide field and two narrow fields, four narrow fields, two wide fields, or two narrow fields.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Info Fields**.
3. Press ENTER. The Info Fields Setup screen displays.
4. Use the arrow keypad to highlight **Arrange Info Fields**.

   Note: If Show Info Fields displays, the information fields are hidden. Press ENTER to display the information fields and repeat steps 2 and 3.

5. Press ENTER
6. Use the arrow keypad to select the information field style you want to view.
7. Press ENTER.
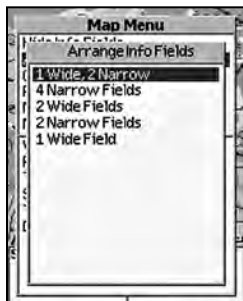
Arrange Info Fields menu option

To Change the Information Fields

You can customize the information fields to display the information that is most important to you. You may want to change the information that displays based on the type of activity you are doing.

Note: The information fields change when navigating.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Info Fields**.
3. Press ENTER. The Info Fields Setup screen displays.
4. Use the arrow keypad to highlight **Change Info Fields**.

   Note: If Show Info Fields displays, the information fields are hidden. Press ENTER to display the information fields and repeat steps 2 and 3.
5. Press ENTER.
6. Use the arrow keypad to highlight the information field you want to change.
7. Press ENTER. The available information field options display.
8. Use the arrow keypad to select the information field.
9. Press ENTER.
10. Press QUIT to exit Change Info mode.

The available information fields include:

Information Field Option	Description
Back on Course	The direction of travel needed to return to the route while continuing in the direction of the destination. Expressed in degrees.
Battery Life	The percentage of battery power that remains for the Earthmate GPS PN-20.

Change Info Fields menu option

Notes:
* *The information fields you select may be abbreviated on the screen. For example, Velocity Made Good displays as VMG.*
* *When information is not available (for example, the Distance to Finish information field is only pertinent when navigating), dashes (- -) display in the applicable field.*

Note: The primary coordinates are shown whenever coordinates are displayed (for example, when panning).

Information Field Option	Description
Bearing	The direction of travel from the current location to the destination (finish or next stop). Expressed in degrees.
	Displays a green arrow pointing in the direction of the next waypoint or route point. The arrow is grayed out when no movement is reported by the device. It is green when the device is moving.
Coordinates: Primary	The coordinates for the current GPS location, cursor position, or map center in the primary format. The default is Lat/Lon. You can change the format in Device Setup>Units>Coordinates: Primary.
Coordinates: Secondary	The coordinates for the current GPS location, cursor position, or map center in the secondary format. The default is UTM/UPS. You can change the format in Device Setup>Units>Coordinates: Secondary.
Course	The direction of travel on a route from the starting location to the destination (finish or next stop). Expressed in degrees.
Device Odometer	The total distance traveled in all trips.
Distance to Finish	The distance from the current location to the route finish.
Distance to Next Stop	The distance from the current location to the next stop in the route.
Distance to Next Turn	The distance from the current location to the next turn in the route.
Elevation	The altitude (height) above or below sea level. Expressed in distance.
Elevation: Maximum	The maximum elevation achieved. Expressed in distance. This field may be reset when you clear Trip Info.
Elevation: Minimum	The minimum elevation achieved. Expressed in distance. This field may be reset when you clear Trip Info.

Information Field Option	Description
ETA at Finish	The Estimated Time of Arrival at the route finish. Expressed as hours:minutes AM/PM. ETA is based on the current device time, not on the local time at the destination.
ETA at Next Turn	The Estimated Time of Arrival at the next turn in the route. Expressed as hours:minutes AM/PM. ETA is based on the current device time, not on the local time at the turn.
ETA at Next Stop	The Estimated Time of Arrival at the next stop in the route Expressed as hours:minutes AM/PM. ETA is based on the current device time, not on the local time at the next stop.
Finish	The Finish label as it appears in the route directions.
GPS Accuracy	The calculated accuracy of the GPS. Expressed in distance.
GPS Status	The current status of your GPS device. No Fix, 2-D, or 3-D.
Heading	The current direction of travel. Expressed in degrees.
Moonrise/Moonset	The time of day at which the moon will rise and set. Expressed as hours:minutes AM/PM. This information is calculated for the specific geographic area where the GPS has acquired a 3-D fix.
Next Stop	The label for the next stop as it appears in the route directions.
Next Turn	The label for the next turn as it appears in the route directions. Also displays an arrow showing the direction of the turn/ route direction information.
Next Turn Arrow	The arrow representing the next turn as it appears in the route directions. No label text displays.
Off Course	The perpendicular distance between the current location and the route. Expressed in distance.
Speed	The current rate of travel for the device. Expressed in distance per unit of time.

Information Field Option	Description
Speed: Average	The average speed of the device including stop time. Expressed in distance per unit of time. This field may be reset when you clear Trip Info.
Speed: Maximum	The maximum speed achieved. Expressed in distance per unit of time. This field may be reset when you clear Trip Info.
Speed: Moving Average	The average speed of the device excluding stop time. Expressed in distance per unit of time. This field may be reset when you clear Trip Info.
Sunrise/Sunset	The time of day at which the sun will rise and set. This information is calculated for the specific geographic area where the GPS has acquired a 3-D fix. Expressed as hours:minutes AM/PM.
Time/Date	The time of day and date based on the current GPS location; accounts for Daylight Saving Time and time zone adjustments. Time is expressed as hours:minutes AM/PM and date is expressed as day-month-year (for example, 01-JAN-08).
Time to Finish	The calculated time to the route finish based on road classifications and default speed settings.
Time to Moonrise/set	The time remaining until the moon rises and sets. This information is calculated for the specific geographic area where the GPS has acquired a 3-D fix.
Time to Next Stop	The calculated time to the next stop in the route based on road classifications and default speed settings.
Time to Next Turn	The calculated time to the next turn in the route based on road classifications and default speed settings.

Information Field Option	Description
Time to Sunrise/set	The time remaining until the sun rises and sets. This information is calculated for the specific geographic area where the GPS has acquired a 3-D fix.
Trip: Odometer	The total distance the GPS device has been moving. This information may be reset when you clear Trip Info.
Trip: Time Moving	The total time the GPS device has been moving. This information may be reset when you clear Trip Info.
Trip: Time Stopped	The total time the GPS has been tracking but not moving. This information may be reset when you clear Trip Info.
Trip: Time Total	The total time the GPS has been tracking, both moving and stopped. This information may be reset when you clear Trip Info.
Velocity Made Good	The component of the current speed that is in the direction of the route destination. Expressed in distance per unit of time.
Vertical Speed	The current rate of vertical travel for the device. Expressed in distance per unit of time.

To Reset the Information Fields

The Map menu offers a Restore Info Defaults option that allows you to change the custom settings you made to the Show Info Fields, Arrange Info Fields, and Change Info Fields drop-down lists back to their default settings.

Option	Default Setting
Show Info Fields	Selected
Arrange Info Fields	2 narrow fields (when tracking)
	4 narrow fields (when navigating)
Change Info Fields	Speed, Heading (when tracking)
	Next Turn, Dist to Finish, Time to Turn, Dist to Turn (when navigating)

Use the steps below to reset the information fields to their default settings.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Info Fields**.
3. Press ENTER. The Info Fields Setup screen displays.
4. Use the arrow keypad to highlight **Restore Info Defaults**.

   Note: If Show Info Fields displays, the information fields are hidden. Press ENTER to display the information fields and repeat steps 2 and 3.

5. Use the arrow keypad to highlight.
6. Press ENTER. The information fields return to their default settings.

Turn Imagery On/Off

You can turn on imagery to display it on the map or turn it off if you do not want to display it on the map.

1. From the Map Page, press MENU.
2. If **Turn Imagery On** is highlighted, imagery is turned off. Press ENTER to turn on imagery.

   OR

   If **Turn Imagery Off** is highlighted, imagery is turned on. Press ENTER to turn off imagery.

To Measure Distance and Area

Your Earthmate GPS PN-20 has a measurement tool that allows you to measure the distance of a line or perimeter and area of a polygon.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Measure Distance** and press ENTER.
3. Use the arrow keypad to move the cursor to the area on the map where you want to place the first point of the line/polygon.
4. Press ENTER to place the first point of the line/polygon on the map.
5. Repeat steps 3 and 4 for each point in the line/polygon you want to measure. The Pan Location Information that displays in the upper-right corner of the screen changes to display the heading from the last measurement node to your current GPS location, the leg distance, as

Measuring distance on the map

Tip: Press QUIT to delete the last measurement point. To delete the entire measurement object, press QUIT until all measurement points are deleted from the map.

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well as the total distance from the last measurement node to the first measurement node. It displays the area once you close a polygon.

Note: Lines must contain at least two points. To make a polygon, you must close the shape by placing the last point on top of the first point. Hovering the cursor over the start location snaps to the point and closes the object when you press ENTER to commit the point.

To Set Up the Map

Use the Map Setup option to customize the map by defining data type layering, showing/hiding map packages, and choosing map orientation, POI detail, how waypoints display on the map, and scale.

Layering Your Data

You can use the Data Layering menu option to prioritize the order in which to display the many different data types available for use on the Earthmate GPS PN-20. Data layers at the top of the list display first when available. For example, if you have DeLorme Topographic Data and Aerial Imagery (DOQQ) coverage for the same area, the data type with the highest priority displays on the map based on the default Data Layering settings. The default order is as follows:

1. Draw Layers
2. Custom Raster (XMap® only)
3. ImageReg (XMap only)
4. High-resolution Cities
5. Color Aerial Imagery
6. Aerial Imagery (DOQQ)
7. USGS Quads (3DTQ)
8. NOAA Nautical Charts
9. Satellite Imagery
10. Custom Vector (XMap only)
11. DeLorme Topographic Data
12 Base Map

Map Setup menu options

Data Layering menu options

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Modify the default layering order with the Data Layering option in the Map Setup screen.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Data Layering** button.
5. Press ENTER. The Data Layering screen displays a list of all of the data types loaded on the Earthmate GPS PN-20. The data type at the top of the list has the highest priority. The data type at the bottom of the list has the lowest priority.
6. Use the arrow keypad to highlight the data type that you want to move up or down in the list.
7. Once the data type you want to move is highlighted, press the arrow keypad and highlight the up or down arrow key to the right of the data types.
8. Press ENTER to move the data type. If you want to move the data type more than one level away from its current state, press ENTER as many times as it takes to move the data type so it is in the order you want it.
9. Press the arrow keypad to the left to return to the layering list.
10. Repeat steps 6-9 for each data type you want to reorder in the list.

Showing/Hiding Maps Exported From a Compatible DeLorme Mapping Program

After you import a map from a compatible DeLorme mapping program, you can view or hide it on the Earthmate GPS PN-20 using the Data Management option. You may want to hide a map to see what is underneath it; for example, raster maps are displayed above vector maps. To change the priority of how maps are displayed, see *Layering Your Data* on page 31.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup** and press ENTER.
3. Highlight **Data Management** and press ENTER. The Data Management screen displays the maps that have been downloaded to the Earthmate GPS PN-20. A map is shown if its check box is selected and is hidden if its check box is cleared.
4. Use the arrow keypad to highlight the map you want to hide or show. Information about the map, including the types of data, displays in the bottom section of the screen. If you want to

☑ Baxter Canoe Trip Imagery
☑ Baxter Canoe Trip Topo Maps
☑ Topo 7 East 1A Regional

Data:
USGS Quads (3DTQ); Aerial Imagery (DOQQ); Satellite Imagery (SAT10)

Data Management menu options

view more information about the map, press MENU, use the arrow keypad to highlight **Data Detail**, and press ENTER. The name, zoom level, scale information, save date, data types, and version information display. Press QUIT to return to the Data Management screen.

5. If the check box next to the map is selected and you want to hide the map from view, press ENTER to clear the check box and hide the map.

   OR

   If the check box next to the map is cleared and you want to show the map on the screen, press ENTER to show the map.

6. Optional: To view the map's center on the screen, press MENU, use the arrow keypad to highlight **View Map**, and press ENTER.

Changing the Map Orientation

You can change the map orientation based on your preference as you move, but note that raster maps rotate in 90° headings. Choose to make the map display:

- **North Up—**North is always represented at the top of the map screen.
- **Heading Up—**The direction in which you are traveling is always represented at the top of the map screen. Displays the North Arrow in the upper-right corner of the map screen.
- **Course Up—**The direction of the finish of your route is always represented at the top of the map screen. Displays the North Arrow in the upper-right corner of the map screen when navigating.

You can modify the map orientation using the Orientation drop-down list in the Map Setup screen.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Orientation** drop-down list and press ENTER.
5. Use the arrow keypad to highlight **North Up, Heading Up**, or **Course Up** and press ENTER.

*Note: If you want to permanently remove the map from the Earthmate GPS PN-20, press MENU, use the arrow keypad to highlight **Data Detail**, and press ENTER. Then, use the arrow keypad to highlight the **Delete** button, and press ENTER.*

Note: You cannot use the Find Page to search hidden maps.

Orientation menu option

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Changing the Map Style

You can change the map style using the Map Style drop-down list in the Map Setup screen. Topo View displays all topographic data as it was saved in the map package; this is the default view. Street View hides the contours and land cover for a clean road map and faster map panning.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Map Style** drop-down list and press ENTER.
5. Use the arrow keypad to highlight **Street View** or **Topo View** and press ENTER.

Hybird map

Showing Hybrid Maps

You can show points, lines, and labels on top of imagery. If you select this option, it changes the draw order for the data layers but does not change the order listed on the Data Layering page. The view is changed only from zoom level 13 through zoom level 19.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight Map Setup.
3. Press ENTER. The Map Setup screen displays.
4. To show hybrid maps, under Map Style, highlight **Show Hybrid Maps** and press ENTER to select the check box. If you do not want to show hybrid maps, clear the check box.

Changing the Level of POI Detail

Several compatible data types contain points of interest (such as trails, mountains, accommodations, restaurants, and more) that display as symbols on the map. With the POI Detail option in the Map Setup screen, you can choose to hide all POIs, show only major POIs, or show all POIs. Changing this level of map detail is helpful when there are multiple point of interest symbols cluttering the map.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **POI Detail** drop-down list and press ENTER.
5. Use the arrow keypad to highlight **Hide POIs, Show Major POIs**, or **Show All POIs** and press ENTER.

POI Detail menu option

Showing/Hiding Waypoint Symbols

The Hide Waypoint Symbols option lets you show or hide waypoint symbols on the map.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Hide Waypoint Symbols** drop-down list and press ENTER.
5. Select the option you want to use and press ENTER.

Using Small Waypoint Symbols

The Small Waypoint Symbols option lets you reduce the waypoint symbol size above a specific scale to reduce map clutter.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Small Waypoint Symbols** drop-down list.
5. Press ENTER.
6. Use the arrow keypad to highlight a symbol option or **Never** (to never use small waypoint symbols) and press ENTER.

Small Waypoint Symbols menu option

Setting the Scale

The scale option lets you set the type of scale you want to use on your maps.

1. From the Map Page, press MENU.
2. Use the arrow keypad to highlight **Map Setup**.
3. Press ENTER. The Map Setup screen displays.
4. Use the arrow keypad to highlight the **Scale** drop-down list.
5. Press ENTER.
6. Use the arrow keypad to highlight **Bar, Zoom**, or **Ratio** and press ENTER.

Scale menu options

Default Settings in the Map Setup Screen

The Map Setup screen default settings are as follows:

Option	Default Setting
Data Layering	Draw Layers
	Custom Raster (XMap only)
	ImageReg (XMap only)
	High-Resolution Cities
	Color Aerial Imagery
	Aerial Imagery (DOQQ)
	USGS Quads (3DTQ)
	NOAA Nautical Charts
	Satellite Imagery
	Custom Vector (XMap only)
	DeLorme Topographic Data
Orientation	Heading Up
POI Detail	Show All POIs
Waypoint Detail	Show Waypoints
Small Waypoint Symbols	Never
Scale	Bar

The Compass Page

Viewing the Compass Page

The Compass Page is a graphic representation of a traditional floating needle compass. It displays differently depending on if you are navigating a route or tracking.

The compass rotates so that the heading is always up. You can choose to direct the bearing arrow when you are navigating so that it points in the direction of the next stop on the route or it points you back on course if you leave the route.

To Direct the Route Arrow

Follow these steps to change the route arrow direction.

1. From the Compass Page, press MENU.
2. Use the arrow keypad to highlight **Direct Route Arrow**.
3. Press ENTER.
4. Use the arrow keypad to select the **Direct to Next Waypoint** or **Back on Course**.
5. Press ENTER.

To Arrange the Information Fields

You can change the information fields to display as one wide and two narrow fields, four narrow fields, or two wide fields.

1. From the Compass Page, press MENU.
2. Use the arrow keypad to highlight **Arrange Info Fields**.
3. Press ENTER.
4. Use the arrow keypad to select the information field style you want to view.
5. Press ENTER.

To Change the Information Fields

You can customize the information fields to display the information that is most important to you. You may want to change the information that displays based on the type of activity you are doing.
Note: The information fields change when navigating.

Compass Page

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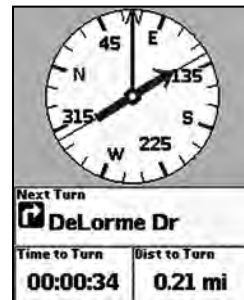
1. From the Compass Page, press MENU.
2. Use the arrow keypad to highlight **Change Info Fields**.
3. Press ENTER.
4. Use the arrow keypad to highlight the information field you want to change.
5. Press ENTER. The available information field options display.
6. Use the arrow keypad to select the information field.
7. Press ENTER.
8. Press QUIT to exit Change Info mode.

To Restore the Information Fields to their Default Settings

Use the steps below to reset the information fields to their default settings.

1. From the Compass Page, press MENU.
2. Use the arrow keypad to highlight **Restore Info Defaults**.
3. Press ENTER.

The Trip Info Page

Viewing the Trip Info Page

The Trip Info Page includes eight information fields that occupy the entire screen (three information fields display if the Earthmate GPS PN-20 is in large text mode). You can customize each field with one of the many available information field options (see page 25 for a table of the information field options).

To Change the Information Fields

You can customize the information fields to display the information that is most important to you. You may want to change the information that displays based on the type of activity you are doing. **Note**: The information fields change when navigating.

1. From the Trip Info Page, press MENU.
2. Use the arrow keypad to highlight **Change Info Fields**.
3. Press ENTER.
4. Use the arrow keypad to highlight the information field you want to change.
5. Press ENTER. The available information field options display.
6. Use the arrow keypad to select the information field or move to another field.
7. Press ENTER.
8. Press QUIT to exit Change Info mode.

To Show Large Text

Use the Show Large Text option to view large information fields. The information fields vary depending on if you are tracking or navigating.

1. From the Trip Info Page, press MENU.
2. Use the arrow keypad to highlight **Show Large Text**.

   Note: The Show Large Text option is a toggle option that changes to **Show Small Text** when the large text option is activated.

3. Press ENTER.

Trip Info Page

4. To change which information fields display in large text:
   a) Press MENU, highlight the **Change Info Fields** option, and press ENTER.
   b) Use the arrow keypad to highlight the information field to change.
   c) Press ENTER. The available information fields display.
   d) Use the arrow keypad to select the information field to add.
   e) Press ENTER.
   f) Repeat steps b–e for each information field you want to change.

To Reset the Trip Information

Use the Reset Info option in the Trip Info menu to start a new trip and reset the odometer, speed information, or elevation information.

1. From the Trip Info Page, press MENU.
2. Use the arrow keypad to highlight **Reset Info**.
3. Press ENTER.
4. To reset the trip odometer, time moving, time stopped, and time total, use the arrow keypad to highlight **Reset Trip Values**. Press ENTER to select the check box. Press ENTER again to clear it.

   OR

   To reset the average speed, maximum speed, and moving average values, use the arrow keypad to highlight **Reset Speeds**. Press ENTER to select the check box. Press ENTER again to clear it.

   OR

   To reset the minimum and maximum elevation information, use the arrow keypad to highlight **Reset Elevations**. Press ENTER to select the check box. Press ENTER again to clear it.

   OR

   To reset the device odometer, use the arrow keypad to highlight **Reset Device Odometer**. Press ENTER to select the check box. Press ENTER again to clear it.

Show Large Text menu option

Reset Trip Values menu option

Note: Resetting Trip Values resets the trip odometer for the current Trip Info reading, while resetting Device Odometer resets the cumulative odometer for all trips on the device.

5. Highlight **Reset Now** and press ENTER.

To Restore the Information Fields to their Default Settings

Use the steps below to reset the information fields to their default settings.

1. From the Trip Info Page, press MENU.

2. Use the arrow keypad to highlight **Restore Info Defaults**.

3. Press ENTER.

Tip: Interested in seeing how far you've traveled for a month, season, or year? If so, restore all of the options except the Device Odometer to keep track of your total mileage

The Find Page

Using the Find Page

You can use the Find button (the one with a magnifying glass) to search for addresses, roads, cities, points of interest, waypoints, coordinates, and more. There are two Find search options: **Find Near Map Center**, which is the default setting, or **Find By Name**.

Use the Find Near Map Center search option to search for categories of information, such as geographic features, waypoints, points of interest, and more, near your current map center. The number of search results returned is based on available search results, not on distance. Find Near Map Center searches stop after 200 search results are found.

Use the Find By Name search option to search for a specific location, such as a specific address or point of interest. To narrow your search results, you can choose either the Name Contains or Name Begins With option to search for results that contain or begin with certain characters.

In the Find menu, the option you are currently using is highlighted. The available options are preceded by "Switch to."

To Find a Waypoint

1. Press the **Find** button. The Find Page displays.

2. For a **Find Near Map Center** search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Waypoints**, and press ENTER.

   OR

   For a **Find By Name** search, use the arrow keypad to highlight the **Name** field and press ENTER. To enter the name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

3. Use the arrow keypad to highlight the **Symbol** field and press ENTER.

4. Use the arrow keypad to highlight the symbol type you want to search for and press ENTER. For a complete list of all of the symbol types, see *Appendix C* on page 82.

5. Use the arrow keypad to highlight the search result that you want to find and press ENTER.

6. To delete the waypoint, use the arrow keypad to highlight the **Delete** button and press ENTER. A confirmation message displays. Use the arrow keypad to highlight the **OK** button and

Waypoint search results

press ENTER to delete the waypoint from the Earthmate GPS PN-20.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find a Point of Interest

1. Press the **Find** button. The Find Page displays.
2. Press MENU.
3. For a **Find Near Map Center** search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Points of Interest**, and press ENTER.

   OR

   For a **Find by Name** search, use the arrow keypad to highlight the **Name** field and press ENTER. To enter the name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

   Narrow this search by completing one or more of the remaining fields. Highlight the field and press ENTER to use the keyboard to enter the search information. Then, highlight **OK** and press ENTER.

4. To further narrow your search, use the arrow keypad to highlight the **Category** field and press ENTER. A list of point of interest categories displays. To select a category, use the arrow keypad to highlight the category and press ENTER.
5. Use the arrow keypad to highlight the search result that you want to find and press ENTER.
6. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

   OR

Searching for points of interest with the Find Page

Note: Not all map data types include natural features.

Searching for natural resources with the Find Page

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Show: Natural Features
Category: All Categories

All Categories
Body of Water
  Bay
  Lake/Pond
  Ocean
  River/Stream
  Wetlands

■ Center Ridge

☐ Lower South Branch Pond

Bearing	Distance
20°T	167.75 mi

Selecting a natural resource category

Show: Natural Features
Category: All Categories

☐ Open Water
☐ Grand Lake Matagamon
🌿 Wetland
■ Louse Island
■ Hub Hall Cove
☐ Big Logan
☐ Mountain Catcher Pond

Bearing	Distance
249°T	0.24 mi

Natural resource search results

To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find Natural Features

1. Press the **Find** button. The Find Page displays.
2. Press MENU.
3. For a Find Near Map Center search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Natural Features**, and press ENTER.

   OR

   For a **Find by Name** search, use the arrow keypad to highlight the **Name** field and press EN-TER. To enter the name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

   Narrow this search by completing one or more of the remaining fields. Highlight the field and press ENTER to use the keyboard to enter the search information. Then, highlight **OK** and press ENTER.

4. To further narrow your search, use the arrow keypad to highlight the **Category** field and press ENTER. A list of natural feature categories displays. To select a category, use the arrow keypad to highlight the category and press ENTER.

5. Use the arrow keypad to highlight the search result that you want to find and press ENTER.

6. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

   OR

   To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find an Address

1. Press the **Find** button. The Find Page displays.
2. Press MENU.
3. For a **Find Near Map Center** search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Addresses**, and press ENTER.

   OR

   For a **Find by Name** search, use the arrow keypad to highlight the **Name** field and press EN-TER. To enter the address name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

   Narrow this search by completing one or more of the remaining fields. Highlight the field and press ENTER to use the keyboard to enter the search information. Then, highlight **OK** and press ENTER.

4. Use the arrow keypad to highlight the search result that you want to find and press ENTER.
5. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

   OR

   To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

   OR

   To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

Searching for an address with the Find Page

To Find a Coordinate

1. Press the **Find** button. The Find Page displays.
2. Use the arrow keypad to highlight **Show** field, press ENTER, and then select **Coordinates**.
3. To find location values, use the arrow keypad to highlight the position field and then press ENTER. Use the arrow keypad to highlight the coordinate letters/numbers you want to change and use the keypad again to move the letter/number up or down.
4. Press ENTER.
5. Use the arrow keypad to highlight the search result and press ENTER.
6. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

   OR

   To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

   OR

   To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find a Street/Trail

1. Press the **Find** button. The Find Page displays.
2. Press MENU.
3. For a Find Near Map Center search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Streets/Trails**, and press ENTER.

   OR

   For a Find by Name search, use the arrow keypad to highlight the **Name** field and press ENTER. To enter the street/trail name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

Narrow this search by completing one or more of the remaining fields. Highlight the field and press ENTER to use the keyboard to enter the search information. Then highlight **OK** and press ENTER.

4. Use the arrow keypad to highlight the search result that you want to find and press ENTER.

5. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find a City

1. Press the **Find** button. The Find Page displays.

2. Press MENU.

3. For a Find Near Map Center search, use the arrow keypad to highlight the **Show** field, press ENTER, select **Cities**, and press ENTER.

OR

For a **Find by Name** search, use the arrow keypad to highlight the **Name** field and press ENTER. To enter the city name, highlight each letter of the name on the keyboard and press ENTER after each consecutive letter. Then, highlight **OK** and press ENTER.

Narrow this search by completing one or more of the remaining fields. Highlight the field and press ENTER to use the keyboard to enter the search information. Then highlight **OK** and press ENTER.

4. Use the arrow keypad to highlight the search result that you want to find and press ENTER.

5. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and

press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

OR

To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

OR

To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find Draw Layers

This option is available if you have a draw layer enabled. For more information, see *To View Map Data* on page 23.

1. Press the **Find** button. The Find Page displays.
2. Use the arrow keypad to highlight the **Show** field, press ENTER, and then select **Draw Layers**.
3. To find location values, use the arrow keypad to highlight the position field and then press ENTER. Use the arrow keypad to highlight the coordinate letters/numbers you want to change and use the keypad again to move the letter/number up or down.
4. Press ENTER.
5. Use the arrow keypad to highlight the search result and press ENTER.
6. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

   OR

   To center the map on the location, use the arrow keypad to highlight the **View** button and press ENTER.

   OR

   To create a route from your current location to the search result, use the arrow keypad to highlight the **Route** button and press ENTER. For more information, see *To Create a Route* on page 55.

To Find Recent Search Results

You can view a history of your past ten search results.

1. Press the **Find** button. The Find Page displays.
2. Press MENU.
3. Use the arrow keypad to highlight the **Show** field, press ENTER, select **Recent Finds**, and press ENTER.
4. Use the arrow keypad to highlight the search result you want to find and press ENTER.
5. To save the location as a waypoint, use the arrow keypad to highlight the **Mark** button and press ENTER. Use the arrow keypad to update the label, coordinates, elevation, and comments. Press ENTER after you edit each group of information.

The Waypoints Page

Using the Mark Button

You can use the Mark button (the button with a push pin) on the Earthmate GPS PN-20 to mark a waypoint at your current GPS location or, if panning, at the cursor position. If you are not panning and your are not using GPS, the current map center is used. After you add a waypoint, you can customize the waypoint name, coordinates, and comments. The default waypoint name is Wpt followed by a 3-digit number (starting with 001) that increases by one for each new waypoint. If you edit the name, numbering begins from 001 for the new name. Your most recent name is used until you change it.

Use the Waypoint Detail Menu to view comment details, delete the waypoint, center the map on the waypoint, move the waypoint to the current GPS location, or create a route to the waypoint. To view the Waypoint Details menu, press MENU from a Waypoint Details page.

To Mark a Waypoint

Press the **Mark** button to place a waypoint. The Waypoint Details Page displays.

- To use a waypoint symbol other than the default red pin, use the arrow keypad to highlight the default waypoint symbol and press ENTER. Then, use the arrow keypad to browse to the symbol you want and press ENTER.

- To change the waypoint label, use the arrow keypad to highlight the default label and press EN-TER. Use the arrow keypad to enter the new label text. Then, highlight **OK** and press ENTER.

- To change the coordinate location of the waypoint, use the arrow keypad to highlight the **Coordinates** field and press ENTER. Then, use the arrow keypad to highlight the number in the coordinate information you want to change. Use the arrow keypad to increase/decrease the number. Press ENTER when finished.

- To change the elevation of the waypoint, use the arrow keypad to highlight the **Elevation** field and press ENTER. Then, use the arrow keypad to highlight the number in the elevation value you want to change. Use the arrow keypad to increase/decrease the number. Press ENTER when finished.

- To change the date and time that you added the waypoint, use the arrow keypad to highlight the **Time/Date** field and press ENTER. Then, use the arrow keypad to highlight the number in

the time/date information you want to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

- <u>To add comments relating to the waypoint</u>, use the arrow keypad to highlight the **Comments** field and press ENTER. Use the keyboard to enter up to 800 characters of comment text. Then, highlight **OK** and press ENTER.
  Note: If the comment length exceeds the comment area, press MENU and highlight View Comment Details to display the entire comment.
- To save the waypoint to the Earthmate GPS PN-20, use the arrow keypad to highlight the **Save** button and press ENTER.

To Average a Waypoint

When a waypoint is averaged, a series of GPS readings for the waypoint's location is recorded and averaged to increase the positional accuracy of the waypoint. You can average a waypoint only at your current GPS location.

Note: You can also use the Waypoint Detail Menu to begin averaging the selected waypoint. If the waypoint has already been averaged, the Readings and Estimated Accuracy continue to update, giving you historical information.

1. Mark a waypoint at your current GPS location but do not save it (for more information, see *To Mark a Waypoint* on page 50).
2. Use the arrow keypad to highlight the **Avg** button and press ENTER. The GPS status, coordinates, elevation, number of readings at the location, and estimated accuracy display. The more readings you record, the greater the positional accuracy of the waypoint. A small estimated accuracy number indicates that the waypoint is very close to its actual coordinates.
3. Highlight the **OK** button and press ENTER.
4. Highlight the **Save** button and press ENTER.

To View a List of Waypoints

1. From the Waypoints Page, use the arrow keypad to highlight the waypoint you want to view on the map. The Bearing information field displays the bearing from your current GPS location or cursor position to the selected waypoint. It includes an arrow that points in the direction of

Averaging a waypoint

Waypoints list

the waypoint, based on the current GPS heading. The Distance information field displays the distance from your current location to the selected waypoint.

2. Press ENTER to view the waypoint details.

3. Highlight the **View** button and press ENTER.

To Edit a Waypoint

Find the waypoint you want to edit using the Waypoints Page, Find search functionality, or by selecting a waypoint on the map. Use the arrow keypad to highlight the waypoint you want to edit and press ENTER.

- <u>To change the symbol of the waypoint</u>, use the arrow keypad to highlight the waypoint symbol and press ENTER. Then, use the arrow keypad to browse to the symbol you want and press ENTER.

- <u>To change the waypoint label</u>, use the arrow keypad to highlight the default label and press ENTER. Use the keyboard to enter the new label text. Then, highlight **OK** and press ENTER.

- <u>To change the coordinate location of the waypoint</u>, use the arrow keypad to highlight the **Co-ordinates** field and press ENTER. Then, use the arrow keypad to highlight the number in the coordinate information you want to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

- <u>To change the elevation of the waypoint</u>, use the arrow keypad to highlight the **Elevation** field and press ENTER. Then, use the arrow keypad to highlight the number in the elevation value you want to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

- <u>To change the date and time when you added the waypoint</u>, use the arrow keypad to highlight the **Time/Date** field and press ENTER. Then, use the arrow keypad to highlight the number in the time/date information you want to change. Use the arrow keypad to move the number up or down. Press ENTER when finished.

- <u>To add or change comments relating to the waypoint</u>, use the arrow keypad to highlight the **Comments** field and then press ENTER. Use the keyboard to enter up to 800 characters of comment text. Then, highlight **OK** and press ENTER.

Your edits are automatically saved. Press QUIT to return to the Waypoints Page.

To Create a Route to a Waypoint

1. Find the waypoint you want to navigate to using the Waypoints Page, Find search functionality, or by selecting a waypoint on the map.
2. Use the arrow keypad to highlight the waypoint that you want to navigate to and press ENTER.
3. To create a route to the waypoint from your current GPS location, use the arrow keypad to highlight the **Route** button and press ENTER. Then, in the Route screen, highlight the **Navigate** button and press ENTER to calculate the route.

To Center a Waypoint on the Map

1. Find the waypoint you want to center the map on using the Waypoints Page or Find search functionality.
2. Use the arrow keypad to highlight the waypoint that you want to view and press ENTER.
3. Use the arrow keypad to highlight the **View** button and press ENTER.

To Move a Waypoint to the Current GPS Location

1. From the Waypoints Page, use the arrow keypad to highlight the waypoint that you want to delete and press ENTER.
2. Use the arrow keypad to highlight **Move to GPS Location** and press ENTER.
3. Use the arrow keypad to highlight the **Yes** button and press ENTER to move the waypoint.

To Delete a Waypoint

1. From the Waypoints Page, use the arrow keypad to highlight the waypoint that you want to delete and press ENTER.
2. Use the arrow keypad to highlight the **Delete** button and press ENTER. A confirmation message displays.
3. Use the arrow keypad to highlight the **Yes** button and press ENTER to delete the waypoint from the Earthmate GPS PN-20.

To Delete Waypoints by Symbol

1. From the Waypoints Page, press MENU.
2. Use the arrow keypad to highlight the **Delete by Symbol** button and press ENTER. A list of waypoint symbols displays.
3. Use the arrow keypad to highlight the symbol you want to delete. Press the enter button to select the check box and press ENTER.
4. Use the arrow keypad to Highlight the **Delete** button and press ENTER. A confirmation message displays.
5. Use the arrow keypad to highlight the **Yes** button and press ENTER to delete the waypoints with that symbol from the Earthmate GPS PN-20.

To Delete All Waypoints

1. From the Waypoints Page, press MENU.
2. Use the arrow keypad to highlight the **Delete all Waypoints** button and press ENTER. A confirmation message displays.
3. Use the arrow keypad to highlight the **Yes** button and press ENTER to delete all waypoints from the Earthmate GPS PN-20.

The Routes Page

Using the Route Page

There are many ways to create routes on the Earthmate GPS PN-20. You can create a route:

- From your current GPS location to a waypoint.
- From your current GPS location to a Find search result.
- Between two waypoints.
- Between two Find search results.
- Between a waypoint and a Find search result.

Once you have created a route, you can view the route and its directions, edit the route, delete the route, and more.

To Create a Route

1. From the Routes Page, use the arrow keypad to highlight the **New** button and press ENTER.

2. <u>To name the route</u> (the default name is New Route; once you add a point, the default name changes to To <destination>), use the arrow keypad to highlight the **Route Name** field and press ENTER. Use the keyboard to name the route. Then, highlight **OK** and press ENTER.

3. <u>To add a route point</u>, use the arrow keypad to highlight **Add Point** and press ENTER.

   To use the Find functions to add a point, highlight **Use Find** and press ENTER (for more information, see *The Find Page* section that starts on page 42). After you find the point, highlight the result, press ENTER, and then highlight **Add** and press ENTER to add the search result as a point in the route.

   OR

   <u>To select a route point that is on the map</u>, highlight **Use Map** and press ENTER to pan to the location on the map that you want to use as a route point. Once you move the cursor to the location you want, press ENTER. Pan to place additional points using the map or press QUIT to return to the Route Creation Page.

   Repeat this step for each point you want to include in your route.

4. Optional: If you do not want to include your current GPS position as a route point, use the

Routes Page

Note: *Active routes display in the Routes Page with red text.*
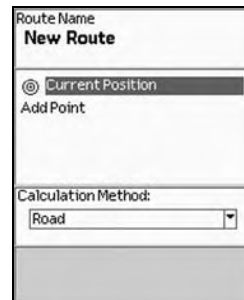
Creating a new route

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arrow keypad to highlight **Current Position** and press ENTER. Use the arrow keypad to highlight **Remove** and then press ENTER.

5. Use the arrow keypad to highlight the **Calculation Method** drop-down list and press ENTER. Then, highlight **Road** or **Direct** and press ENTER.

6. Highlight the **Navigate** button and press ENTER to calculate the route. If the calculation is successful, the route is highlighted on the Map Page.

To View a Route

1. From the Routes Page, use the arrow keypad to highlight the route you want to view.
2. Press ENTER.
3. Use the arrow keypad to highlight **View** and press ENTER. The route displays on the Map Page and the map is in pan mode.
4. To stop displaying the map, press QUIT to return to the Route Details page. The View button has changed to Hide. Highlight **Hide** and press ENTER.
OR
From any default page (except the Satellite Page), press MENU, highlight **Hide Route**, and then press ENTER.

The tip box on the left:

*Tip: To exit Navigation mode, press MENU, use the arrow keypad to highlight **Stop Navigating**, and then press ENTER.*

To Simulate a Route

You can preview a route on the map using the Simulate Navigation feature. The route is highlighted on the map and the device beeps at each applicable turn.

1. From the Routes Page, use the arrow keypad to highlight the route that you want to simulate and press ENTER.
2. Press MENU, highlight the **Simulate Navigation** option, and then press ENTER. The message, "Simulate Navigation will turn off Track Recording mode" displays. Highlight **OK** and press ENTER. The cursor goes into simulate mode and plays the route on the map.
3. To end simulation, press MENU, highlight the **Stop Simulation** option, and press ENTER.

To Get Back on Track When Off Course

1. Ensure you are navigating against a route.
2. Press MENU, highlight the **Back on Track** option, and press ENTER. The route recalculates based on your current position and adds that location to the route itinerary.

Route Name
To Trout Brook

⊚ Current Position
🐟 Trout Brook
Add Point

Calculation Method:
Road

Navigate
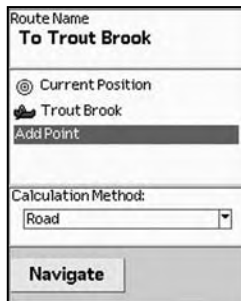
Road route with two points

To Edit a Route

From the Routes Page, use the arrow keypad to highlight the route that you want to edit and press ENTER.

- To rename the route, use the arrow keypad to highlight the **Route Name** field and press ENTER. Use the keyboard to enter the new name text. Then, highlight **OK** and press ENTER.

- To add a route point, use the arrow keypad to highlight **Add Point** and press ENTER.

  To use the Find functions to add the point, highlight **Use Find** and press ENTER (for more information, see *The Find Page* section that starts on page 42). After you find the point, highlight the result, press ENTER, and then highlight **Add** and press ENTER to add the search result as a point in the route.

  OR

  To select a route point that is on the map, highlight **Use Map** and press ENTER to pan to the location on the map that you want to use as a route point. Once you move the cursor to the location you want, press ENTER, and then press QUIT to return to the Routes Page.

- To change the calculation method, use the arrow keypad to highlight the **Calculation Method** drop-down list and press ENTER. Then, highlight **Road** or **Direct** and press ENTER.

- To immediately navigate against the edited route, highlight the **Navigate** button and press ENTER.

  OR

  If you do not want to navigate against the edited route, press QUIT.

To View Route Directions

Route directions are available only when navigating against a route. If you are already navigating, highlight the **Directions** button and press ENTER to view the directions.

1. From the Routes Page, highlight a route that you want to navigate and press ENTER.
2. Highlight the **Navigate** button and press ENTER.
3. Press PAGE until the Route directions information displays.

Route Directions (only available when navigating)

To Reverse a Route

1. From the Routes Page, use the arrow keypad to highlight the route that you want to reverse.
2. Press ENTER.
3. Press MENU.
4. Use the arrow keypad to highlight **Reverse Route** and press ENTER. The route is reversed.

To Delete a Route

1. From the Routes Page, use the arrow keypad to highlight the route that you want to delete.
2. Press ENTER.
3. Press MENU.
4. Use the arrow keypad to highlight **Delete Route** and press ENTER. The route is deleted.

To Delete All Routes

1. From the Routes Page, press MENU.
2. Use the arrow keypad to highlight the **Delete All Routes** option and press ENTER.

To Hide a Route

Once you view a route, you can hide it.

1. From any default page (except the Satellite Page), press MENU.
2. Use the arrow keypad to highlight the **Hide Route** option and press ENTER.

To Edit the Route Settings

1. From the Routes Page, press MENU.
2. Use the arrow keypad to highlight the **Edit Route Settings** option and press ENTER.

   To change the calculation method, use the arrow keypad to highlight the **Calculation Method** drop-down list and press ENTER. Then, use the arrow keypad to select **Direct** or **Road** and press ENTER. Direct calculates the route using the shortest distance between two points. Road uses roads to calculate the route.

   To change your back-on-track status, use the arrow keypad to highlight **Back on Track (Direct)** or **Back on Track (Road)** drop-down list and press ENTER. Then, use the arrow keypad to select **Automatic**, **Prompt**, or **Off** and press ENTER.

For Direct, choose Automatic to continuously recalculate from the current GPS location to the next stop in the route. Choose Prompt to alert you when you are off track; you can then choose to recalculate or ignore. When the route recalculates, the route highlight is cleared from the start to the current GPS location. The original route is not modified; you can select it again to restore it.

For Road, choose Automatic to recalculate from the threshold specified in the Back on Track Threshold option. Choose Prompt to alert you when you are off track; you can then choose to recalculate or ignore. When the route recalculates, the current GPS location is inserted as a stop in the existing route. The route highlight displays from the start to the current GPS location and then to the destination.

To change your back-on-track threshold, use the arrow keypad to highlight the **Back on Track Threshold** drop-down list and then press ENTER. Then, use the arrow keypad to select the threshold distance and press ENTER.

To change the compass navigation arrow setting for direct routes, use the arrow keypad to highlight the **Compass Navigation Arrow** drop-down list and press ENTER. Select **Direct** to **Next Waypoint** or **Back on Course** and press ENTER.

To restore the route edit settings to their factory-set defaults, use the arrow keypad to highlight the **Restore Defaults** button and press ENTER.

Route menu

Tip: Setting the back-on-track threshold to a large value prevents excessive prompts. Setting the back-on-track threshold to a small value provides a quicker notification when you are off course.

Tip: Direct to Next Waypoint points the compass arrow in the direction of the next waypoint; this is the best option when you are trying to get to the next waypoint with the shortest distance. Back on Course points the compass arrow to the highlighted route. This is the best option when you are trying to stay on the route highlight.

The Tracks Page

Using the Tracks Page

Your Earthmate GPS PN-20 is set by default to record GPS tracks. That means the device creates a track, or "breadcrumb trail," of your travels until you turn recording off. The breadcrumb trail displays differently based on your GPS status.

- When you have a 3-D fix, your track displays as a green line.
- When you have a 2-D fix, your track displays as a yellow line.
- When the GPS cannot acquire a fix, no points are placed on the map. Points are again placed once a 2-D or 3-D fix is established. If a GPS connection was established and lost, a red line indicates the last GPS location.

Tracks Page

The Tracks Page lets you save, clear, or follow the current track, or view/follow an existing track.

To Turn GPS Track Recording On/Off

From the Tracks Page:

To turn GPS track recording on, highlight the **On** button and press ENTER. The button appears indented.

OR

To turn GPS track recording off, highlight the Off button and press ENTER.

To Save the Active Track

Once you save the active track, a new track is created.

1. From the Tracks Page, use the arrow keypad to highlight the **Save** button and press ENTER. The Track Details Page displays.

2. To rename the track (the default name is in the date/time format: DD-MON-YY, HHMMSS and ends with "A" for AM or "P" for PM), highlight the **Track** field and press ENTER. Use the keyboard to enter the track name text. Then, highlight **OK** and press ENTER.

3. To change the track display color, highlight the **Color** field and press ENTER. Select a color with the arrow keypad and press ENTER.
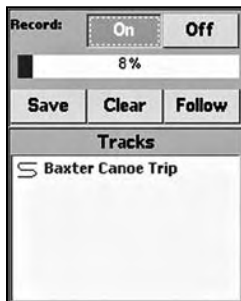
4. To add a comment to your track, highlight the **Comments** field and press ENTER. Use the keyboard to enter the comment text. Then, highlight **OK** and press ENTER.

5. To view the track, highlight the **View** button and press ENTER. **Note**: The View button toggles with the Hide button.

   OR

   To follow and create a direct route along the track, highlight the **Follow** button and press ENTER.

   OR

   To delete the track, highlight the **Delete** button and press ENTER.

To Follow a Track Back to Where It Started

1. From the Tracks Page, use the arrow keypad to highlight the track you want to create a route from and press ENTER.

2. Use the arrow keypad to highlight the **Follow** button and press ENTER. The track is reversed and a route is created so you can follow your footsteps and return to where you started the track.

To Clear the Active Track

1. From the Tracks Page, use the arrow keypad to highlight the **Clear** button and press ENTER. The active track is cleared from the Earthmate GPS PN-20.

2. Press QUIT to return to the previous Page.

To Delete a Saved Track

1. From the Tracks Page, use the arrow keypad to highlight the track to delete and press ENTER.

2. Highlight the **Delete** button and press ENTER. The track is deleted from the Earthmate GPS PN-20.

To View a Saved Track

1. From the Tracks Page, use the arrow keypad to highlight the track to view and press ENTER. The Track Details Page displays. Track logs that display with red text are visible on the map.

2. Highlight the **View** button and press ENTER. The entire track displays on the map.

3. To stop viewing the track, return to the Track Details Page, use the arrow keypad to highlight the active track, and press ENTER. Highlight the Hide button and press ENTER.

Track Details

Tip: Select ⏎ to enter more than one line of text in a comment.

Tip: View a saved track when you want a reference from a previous trip but do not want to create a route.

To Customize the Logging Preferences

Use the following steps to designate if you want the device to log GPS points based on time or distance intervals. Logging based on a short time interval provides the most detailed results but also quickly adds many points. Logging based on distance takes much longer to fill the track, allowing you to record a great distance (10 feet is the shortest distance interval available).

1. From the Tracks Page, press MENU.
2. Highlight **Edit Track Settings** and press ENTER.
3. Highlight the **Record Points by** drop-down list and press ENTER.
4. Highlight **Time** or **Distance**.
5. Press ENTER.
6. Highlight the **Recording Interval** field and press ENTER.
7. Use the arrow keypad to increase/decrease the recording interval value. If you selected Time in step 4, the recording interval is expressed in seconds. If you selected Distance in step 4, the recording interval is expressed in feet.
8. Highlight the **When Track is Full** drop-down list and press ENTER.
9. Highlight **Overwrite Points, Stop Recording**, or **Start Recording New Track**. This option determines how the device reacts when the track reaches its maximum number of points. If you select the Overwrite Points option, the oldest points in the track are replaced with new points. If you select Stop Recording, the device stops recording points when it is full. If you select Start Recording New Track, the device saves the track and starts recording a new track.
10. Press QUIT to return to the Tracks Page.

To Enable the Reset Info Screen

The Reset Info screen allows you to synchronize your Trip Info with a track when you press Save or Clear on the Track Details Page. This feature is enabled by default.

1. From the Tracks Page, press MENU.
2. Highlight **Edit Track Settings** and press ENTER.

3. <u>To enable the Reset Info screen if the check box is cleared</u>, highlight the **Prompt to Reset Trip Info** check box and press ENTER.

4. <u>To disable the Reset Info screen if the check box is selected</u>, highlight the **Prompt to Reset Trip Info** check box and press ENTER.

5. Press QUIT.

To Delete All Saved Track Logs

When the Reset Info screen is enabled, you can reset trip values, speeds, elevations, and the device odometer.

1. When the **Reset Info Page** displays:

   Use the arrow keypad to highlight the item you want to reset. Press ENTER to select the check box. Press ENTER again to clear the check box.

2. Highlight the **Reset Now** button and press ENTER.

To Delete All Saved Track Logs

You can use the Track menu to delete all of the track logs you have saved on your device.

1. From the Tracks Page, press MENU.

2. Highlight **Delete All Tracks** and press ENTER. A confirmation message displays.

3. Highlight **Yes** to delete all the tracks and press ENTER.
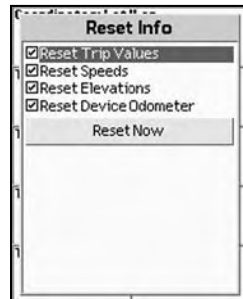
Reset Trip Info

The Sun/Moon Page

Using the Sun/Moon Page

Use the Sun/Moon Page to view the sunrise/sunset and moonrise/moonset information and the moon phase information for your current GPS location. The current date and time displays at the top of the screen.

To Set the Time

Note: Setting the time in the Sun/Moon Page affects only the Sun/Moon Page values, not the device's time information.

1. From the Sun/Moon Page, use the arrow keypad to highlight the **Time** field and press ENTER.
2. Use the arrow keypad to highlight the time field to change. Press the arrow keypad up or down to move the number up or down.
3. Press ENTER.

To Set the Date

Note: Setting the date in the Sun/Moon Page affects only the Sun/Moon values, not the device's date information.

1. From the Sun/Moon Page, use the arrow keypad to highlight the **Date** field and press ENTER.
2. Use the arrow keypad to highlight the date field to change. Press the arrow keypad up or down to move the number up or down.
3. Press ENTER.

To View the Sun/Moon Graphics

The Sun/Moon graphics that display in the center of the Sun/Moon Page reflect the current sun/moon conditions based on the time and date settings.

The graphic on the left shows the current position of the sun/moon in relation to a compass. The graphic on the right shows where the sun/moon is currently as it moves overhead from east to west.

Sun/Moon Page

To View the Sun and Moon Rise/Set Information

The Sun/Moon rise and set information is found underneath the Sun/Moon graphics. The information displays the time that both the sun and moon will rise and set based on the current time and date settings. The Sun information is on the left and the moon information is on the right. The rise information displays on the top and the set information displays on the bottom. If the sun or moon does not rise or set on a specific date, dashes (- -) display in the applicable information fields.

To View the Moon Phase Information

The moon phase information is based on the current time and date settings. It displays the name of the current moon phase as well as a graphic representation of it.

To Reset the Sun/Moon Page's Time/Date

If you have modified the time or date in the Sun/Moon Page, you can reset it to the device's time and date information using the steps below.

1. From the Sun/Moon Page, press MENU.

2. Highlight **Reset Time and Date** and press ENTER. The Time and Date fields update to the device time and date.

Tip: You can pan the map to another geographic location and then view the Sun/Moon Page to see the information for that area.

The Tide Page

Using the Tide Page

Use the Tide Page to view high and low tide information based on a specific time, date, and tide station.

To Get Tide Information for a Particular Time and/or Date

Setting the time or date in the Tide Page affects only the Tide Page's time or date, not the device's time or date.

1. Ensure the Tide Page is open.

2. To get tide information for a particular time, use the arrow keypad to highlight the **Time** field and press ENTER. Use the arrow keypad to highlight the time field to change. Press the arrow keypad up or down to move the number up or down. When finished, press ENTER.

3. To get tide information for a particular date, use the arrow keypad to highlight the **Date** field and press ENTER. Use the arrow keypad to highlight the date field you want to change. Press the arrow keypad up or down to move the number up or down. When finished, press ENTER.

4. Highlight the **Tide Station** drop-down list and press ENTER. The list of available tide stations displays. Highlight the station and press ENTER.

   Once you select a tide station, the High Tide and Low Tide fields display the tide information for the selected date and time. The graph at the bottom of the screen shows the high and low tide information for the entire day (midnight to midnight). The red dot in the tide graph indicates the time as selected in the Tide Page.

To Reset the Tide Page's Time and Date

If you modified the time or date in the Tide Page, you can reset it to the device's time/date information.

1. From the Tide Page, press MENU.

2. Highlight **Reset Time and Date** and press ENTER. The Time and Date fields update to the device time and date.

Tide Page

Tip: You can pan the map to another geographic location and then view the Tide Page to see the information for that area.

The Hunt/Fish Page

Using the Hunt/Fish Page

Use the Hunt/Fish page to view a prediction of the type of day it will be for hunting or fishing, the best times to hunt or fish, and good times to hunt or fish for your current GPS location.

To Set the Date

Note: Setting the date in the Hunt/Fish Page affects only the Hunt/Fish Page's date, not the device's date.

1. From the Hunt/Fish Page, use the arrow keypad to highlight the **Date** field and press ENTER.
2. Use the arrow keypad to highlight the date field to change. Press the arrow keypad up or down to move the number up or down.
3. Press ENTER.

To Reset the Hunt/Fish Page's Date

If you modified the date in the Hunt/Fish Page, you can reset it to the device's date.

1. From the Hunt/Fish Page, press MENU.
2. Highlight **Reset Date** and press ENTER. The Date field updates to the device time and date.

The Hunt/Fish Page

Tip: You can pan the map to another geographic location and then view the Hunt/Fish Page to see the information for that area.

The Device Setup Page

Use the Device Setup Page options to modify the default settings on the Earthmate GPS PN-20, such as the battery type, backlight settings, and more.

Modifying the Device Preferences

To Modify the System Settings

To update GPS settings, WAAS status, battery type, and/or USB power setting, from the Device Setup Page, highlight the **System** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To update the GPS settings, highlight the **GPS Setting** drop-down list and press ENTER. Select **Normal, Power Saving**, or **Disable GPS** and press ENTER.
- To update the WAAS Status, highlight the **WAAS** drop-down list and press ENTER. Select the **Enabled** option to enable WAAS use or select the **Disabled** option to disable WAAS use. Then, press ENTER.

  Note: In most cases, a WAAS signal provides greater accuracy than a non-WAAS signal.
- To update the battery type, highlight the **Battery Type** drop-down list and press ENTER. Select the battery type you are using and then press ENTER.
- To update the USB power setting, highlight the **USB Power** drop-down list and press ENTER. Select the **Enabled** option to enable power from the USB port or select the **Disabled** option to disable USB power.

To Modify the Display Settings

To update the device's color scheme, backlight intensity, and/or backlight timer, from the Device Setup Page, highlight the **Display** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To modify the color scheme, highlight the **Color Scheme** drop-down list and press ENTER. Highlight the color scheme you want and press ENTER.
  - Spring (green)
  - Summer (yellow)
  - Autumn (orange)

- Winter (blue)
- Midnight (high contrast—black/gray/dark blue; helpful for nighttime use)

- To modify the backlight intensity, highlight the **Backlight Intensity** slider and press the arrow keypad to the right to increase the intensity level or to the left to decrease the intensity.
- To modify the backlight timer, highlight the **Backlight Timer** drop-down list and press ENTER. Highlight the time interval you want and press ENTER.

   Note: Decreasing the Backlight Timer helps conserve battery life.

To Modify the Interface Settings

Use the following steps to change the serial port and USB settings on the device. The setting you choose will depend on the type of cable you use to connect the device to your computer, your computer's operating system, and if you are trying to access information on a removable media (SD) card.

1. From the Device Setup Page, highlight the **Interface** option and press ENTER.
2. If you are connecting the device to your computer via a serial cable, highlight **Enable Serial Port** and press ENTER to select the check box. If the Enable Serial Port check box is selected, it indicates that the serial port connection is activated.

   To clear the check box if it is selected, highlight **Enable Serial Port** and press ENTER.

   OR

   If you are connecting the device to your computer via a USB cable, highlight the **USB Setting** drop-down list and press ENTER. Then, highlight **DeLorme** or one of the **Mass Storage** options and press ENTER.

   Notes:

   - Mac and Linux users should always select one of the Mass Storage options for the USB setting (depending on if you are saving data on internal or removable memory).
   - If you want to access the files on your SD card and you do not have an SD card reader, select **Mass Storage: SD/MMC Card** as the USB setting.
- Select **DeLorme** if you are using the device with compatible DeLorme mapping software.
3. Press QUIT to return to the Device Setup Page.

Display menu options

Sound menu options

To Modify the Sound Settings

To modify the device's button press sound, message sound, power sound, turn alert sound, and/or the volume of all sounds, from the Device Setup Page, highlight the **Sound** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To modify the button press sound, highlight the **Button Press** drop-down list and press ENTER. Highlight the sound type you want and press ENTER.

- To modify the message sound, highlight the **Message** drop-down list and press ENTER. Then, highlight the sound type you want and press ENTER.

- To modify the Power sound, highlight the **Power** drop-down list and press ENTER. Then, highlight the sound type you want and press ENTER.

- To modify the turn alert sound, highlight the **Turn Alert** drop-down list and press ENTER. Then, highlight the sound type you want and press ENTER.

- To modify the volume of all sounds, highlight the **Volume** slider control and press the arrow keypad to the right to increase the volume (or to the left to decrease the volume).

- To mute the sound, highlight the **Mute** field and press ENTER. **Note**: This does not mute the warning sound when power is critically low. To enable sound again when the check box is selected, highlight the **Mute** field and press ENTER to clear the check box.

To Modify the Page Order Settings

To change the page order, add a page to the page button sequence, or hide a page, from the Device Setup Page, highlight the **Page Order** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To change the page order, highlight the page you want to move up or down in the list. Use the arrow keypad to highlight the up button to move a page up or the down button to move a page down. Then, press ENTER. Repeat this step for each page you want to reorder.
- To add a page to the Page button sequence, highlight the Menu Option you want to add as a page. Then, press ENTER to select the check box next to the menu option. A selected check box indicates the option displays as a page. Repeat this step for each standard menu option that you want to add as a page.
- To hide a page, highlight the page you do not want to view with the Page button (active pages have a selected check box) and press ENTER to clear the check box. Repeat this step for each page you want to hide.

    Note: The Map Page cannot be hidden from the Page button sequence.

To Modify the Time Settings

To modify the device's time format, time zone, and/or Daylight Saving Time preferences, from the Device Setup Page, highlight the **Time** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To modify the time format, highlight the **Time Format** drop-down list and press ENTER. Then, highlight **Local 12 Hour** or **Local 24 Hour** and press ENTER.
- To modify the time zone, highlight the **Zone** drop-down list and press ENTER. Then, highlight the time zone you want and press ENTER.

    Note: Selecting the Automatic option allows the device to update the time zone based on your current GPS location.

- To enable the Daylight Saving Time option, highlight the **Daylight Saving** field and press ENTER to select the check box.

Page Order menu options

Time menu options

Units menu options

To Modify the Units Settings

From the Device Setup Page, highlight the **Units** option and press ENTER. Press QUIT at any time to return to the Device Setup Page.

- To modify the primary coordinates, highlight the **Coordinates: Primary** drop-down list and press ENTER. Then, highlight the format and press ENTER.
- To modify the secondary coordinates, highlight the **Coordinates: Secondary** drop-down list and press ENTER. Then, highlight the format and press ENTER.
- To modify the primary datum, highlight the **Datum: Primary** drop-down list and press ENTER. Then, highlight the format and press ENTER.
- To modify the secondary datum, highlight the **Datum: Secondary** drop-down list and press ENTER. Then, highlight the format and press ENTER.
- To modify the measures, highlight the **Measures** drop-down list and press ENTER. Then, highlight the format and press ENTER.
- To modify the bearing, highlight the **Bearing** drop-down list and press ENTER. Then, highlight the format and press ENTER.

Owner Information

The Owner Information screen allows you to enter text to identify your device.

1. In the text area, press ENTER to display the keyboard.
2. Use the keyboard to enter up to 255 characters on six lines. Then, highlight **OK** and press ENTER.
3. To display the information when you turn on the device, highlight the **Display at Startup** field and press ENTER.

   OR

   If the check box is selected and you do not want to show the information, highlight the field and press ENTER to clear the check box.
4. Press QUIT to return to the Device Setup Page.

About this Device

The About This Device screen displays the serial, build, and version numbers for your Earthmate GPS PN-20. This screen contains the serial number you need when downloading maps for the device.

1. From the Device Setup Page, highlight the **About This Device** option and press ENTER.
2. Press QUIT to return to the Device Setup Page.

Restore Setup Defaults

If you want to restore all of the Device Setup preferences without going through each Device Setup option and selecting the Restore Setup Defaults option, use the steps below.

To Restore the Device Setup Defaults

1. From the Device Setup Page, highlight the **Restore Setup Defaults** option and press ENTER.
2. Press QUIT to return to the Device Setup Page.

Restore Factory Defaults

The Restore Factory Defaults option in the Device Setup screen restores all of the settings on the Earthmate GPS PN-20 to their "out-of-the-box" status and also deletes all tracks, routes, waypoints, etc.

Appendix A: Page Function Table

This table provides an overview of what you can view/do on each page, as well as each page's menu functions:

With this Page...	You Can...	And Use the Page's MENU to...
Satellite	View the: • GPS Status • WAAS Status • GPS accuracy • Satellite constellation • Satellite signal graph • Battery indicator	• Disable/Enable GPS • Set the current location
Map	View: • Various types of map data • The scale for the current map • The North arrow (only available when Heading Up is selected as the map orientation and the map is not Course or North Up) • Your current GPS status • Your direction of travel	• Turn imagery on or off • Show/hide/arrange/change/restore information fields • Measure the distance/area of a user-drawn line/polygon • Show/hide map packages • Layer map data • Change the map orientation • Change the level of POI detail • Show/hide waypoints • Use small POI symbols on the map • Change the map scale type • Stop navigation (if in Navigation mode)
Compass	View heading/bearing information	• Change the Direct Route Arrow • Hide/arrange/change information fields • Stop navigation (if in Navigation mode)

With this Page...	You Can...	And Use the Page's MENU to...
Trip Info	View user-selected information	• Change/reset information fields • Show large text in the information fields (which displays three large fields) • Reset trip values • Stop navigation (if in navigation mode)
Find Button	• Find a waypoint • Find a POI • Find a natural feature • Find an address • Find a coordinate • Find a street/trail • Find a city • View the search history	• Set your search options to Find By Name or Find Near Map Center • If Find By Name is the chosen method, can narrow the search with Contains or Begins With parameters
Waypoints	• Mark a waypoint on the map • View a list of waypoints • Edit a waypoint • Navigate to a waypoint • Center a waypoint on the map • Delete a waypoint • Average a waypoint	• Delete waypoints on the device
Routing	• Create a route • Rename a route • Edit a route • View route directions	• Reverse a route • Delete a route • Delete all routes on the device • Edit the route settings • Simulate a route • Get back on track when navigating • Stop navigation (if in Navigation mode)

With this Page...	You Can...	And Use the Page's MENU to...
Tracks	• Turn tracking off • Save a track • Return to the track start • Clear the current track • Delete an existing track • View an existing track • Navigate to a track start	• Delete all tracks • Start/stop track playback
Sun/Moon	• See the device time • See the device date • View sun/moon rise/set information • View moon phase information	Reset the Sun/Moon time/date
Hunt/Fish	View optimum predicted times for hunting and fishing	Reset the date
Device Setup	<u>You must use the MENU functions to modify the device settings</u>	• Turn the GPS on/off • Turn WAAS status on/off • Select a battery type • Select a color scheme • Select the color contrast • Select the backlight intensity

With this Page...	You Can...	And Use the Page's MENU to...
		• Select the backlight timer
		• Change the serial port status
		• Change USB settings
		• Selecting sounds ♦ Button Press ♦ Alarm ♦ Power ♦ Turn Alert ♦ All sounds
		• Modify Page Order ♦ Change ♦ Add a Page ♦ Hide a Page
		• Modify Time ♦ Time format ♦ Time zone ♦ Daylight Saving Time
		• Modify Units ♦ Primary Coordinates ♦ Secondary Coordinates ♦ Datum ♦ Measures ♦ Bearing

Appendix B: Specifications

Physical Specifications

Case: IPX-7 waterproof, impact resistant

Size: 5.25″ x 2.43″ x 1.5″

Weight: 0.33 lb

Technical Specifications

General

- NMEA-compliant 12-channel receiver
- WAAS-enabled (SBAS)
- Low-power baseband and RF chip set (RF chip based on the ultra-low-power silicon-germanium BiCMOS process)
- Warm start: < 38 seconds
- Hot start: < 3 seconds
- Power: full power: 165mW; Sleep mode: < 55mW
- Maximum Velocity: 1000 knots
- Advanced high-sensitivity algorithms for superior tracking in urban environments
- Weak signal tracking down to -145dBm
- Proprietary Kalman filter for enhanced position accuracy
- Superior noise rejection for high EMI environments
- Operating temperature range -20 °C to +75 °C
- Storage temperature range -55 °C to +100 °C
- Built-in antenna

FCC Certification

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can

radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that inter-ference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Dispose of used batteries according to the manufacturer's instructions.

Warning

Do not damage the rechargeable Lithium-ion battery. A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage, and so on.

Limited Warranty

DeLorme warrants that your *Earthmate GPS PN-20* will be free from defects in materials and workmanship for 1 year from the date of purchase. If your *Earthmate GPS PN-20* fails in normal use, DeLorme will, at its sole option, either repair or replace the unit. DeLorme reserves the right to

either repair or replace the unit with a new or refurbished unit at its sole discretion.

Such repairs or replacements will be made at no charge for labor or materials; however, the customer will be responsible for any shipping charges incurred to send the device to DeLorme. The repaired or replaced product will be warranted for 90 days from the date of return shipment, or for the balance of the original warranty, whichever is longer. This warranty does not cover failures due to abuse, misuse, accidents, or unauthorized disassembly or modification. Any repairs not performed by DeLorme will void this warranty.

DELORME DISCLAIMS ANY LIABILITY FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF REVENUES OR PROFITS, EVEN IF DELORME HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THIS LIMITED WARRANTY CONTAINED HEREIN IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY AND ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, SHALL LAST FOR 1 YEAR.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of relief such as incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This warranty applies to the original purchaser of the product ONLY.

REMINDER: Be sure to retain the sales receipt proving the date of your original purchase. This will be needed if warranty service is ever required. DeLorme reserves the right to refuse warranty if a receipt is not provided or if the receipt is incomplete/illegible.

Service Plan

Before a product can be returned, you must contact DeLorme Support at 207-846-8900 to determine if a return is necessary and request a Return Material Authorization (RMA) tracking number.

The following information must be provided to obtain warranty service:

- A copy of the sales receipt from the original retailer
- The serial number of the Earthmate GPS PN-20
- The Return Material Authorization (RMA) tracking number that you received when you called DeLorme Support

- Your return shipping address
- Your daytime telephone number

If you have contacted DeLorme Support and have been instructed to send the device in for warranty service, send the unit to:

DeLorme Earthmate GPS PN-20
Service Department
2 DeLorme Drive
Yarmouth, ME 04096 USA

For the latest warranty and repair information, visit www.delorme.com/gpsrepair.

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DeLorme Contact Information

Technical Support

Visit www.delorme.com/support to access the DeLorme Technical Support Knowledge Base, get answers to frequently asked questions, or for additional support information. If you cannot find an answer to your problem on the site, please call 207-846-8900 to speak to a Technical Support representative. Note: DeLorme Technical Support does not provide product training.

Customer Service

For general questions about returns, order status, or problems with shipments, phone 800-511-2459 (Monday thru Friday) or e-mail us at sales@delorme.com.

Direct Sales

To place additional orders, phone 800-561-5105.

Appendix C

Waypoint Symbols

American Flag		Birch Tree		Danger	
Anchor		Bird Tracks		Deciduous Tree	
Animal Tracks		Bird		Deer Tracks	
Arrow, Down-left		Boat Launch		Deer	
Arrow, Down-right		Bridge		Dining	
Arrow, Down		Building		Diver Down	
Arrow, Left		Buoy		Dog Sledding	
Arrow, Right		Camera		Downhill Skiing	
Arrow, Up-left		Camper		Drinking Water	
Arrow, Up-right		Canoeing		Duck	
Arrow, Up		Car		Evergreen Tree	
Ballpark		Cave		Exclamation	
Beach		Cemetery		Exit	
Bear		Church		Fire Hydrant	
Bicycling		Cross-country Skiing		Fire	
Binoculars		Dam		First Aid	

Waypoint Symbols

Fish

Fishing Pole

Flower Garden

Four-wheel ATV

Gas Station

Geocache Found

Geocache

Glider Area

Golf Course

Health Facility

Heliport

Hiking

House

Ice Fishing Trap Set

Ice Fishing Trap Up

Ice Skating

Information

Jeep

Kayaking

Lighthouse

Lodging

Military Airport

Military Base

Mining

Money

Moose

Motor Home

Mountain

Parking

Picnic Table

Police

Post Office

Powerboat

Private Airport

Public Airport

Radio Tower

Railroad Crossing

Restroom

Sailboat

School Bus

School

Shelter

Shipwreck

Shooting

Shower

Snowmobile

Stop

Swimming

Telephone

Tent

Toll Booth

Waypoint Symbols

Tow Truck

Traffic Light

Truck

Tunnel

Waterskiing

Flag
(available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

Push Pin
(available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

Dot
(available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

Small Dot
(available in red, dark red, yellow, dark yellow, green, dark green, blue, dark blue, turquoise, dark turquoise, gray, and dark gray)

Green Star

Red X

Turquoise Circle

Yellow Square

Glossary

Back on Course—The direction of travel needed to return to the course.

Base Map—A low-detail map that comes pre-loaded on the Earthmate GPS PN-20.

Battery Life—The percentage of battery life that is left on the device.

Bearing—The direction of travel from the current location to the destination.

Coordinates—The current GPS location, cursor position, or map center.

Course—The direction of travel from the starting location to the destination.

Device Odometer—The total distance traveled in all trips.

Differential GPS (DGPS)—A technique to improve GPS accuracy that uses pseudo-range errors recorded at a known location to improve the measurements made by other GPS receivers within the same general geographic area. For more information, see *WAAS*.

Distance to Finish—The distance from the current location to the route finish.

Distance to Next Stop—The distance from the current location to the next stop in the route.

Distance to Next Turn—The distance from the current location to the next turn in the route.

Elevation—The height above or below sea level.

Elevation (Maximum)—The maximum elevation achieved.

Elevation (Minimum)—The minimum elevation achieved.

ETA at Finish—The estimated time of arrival at the route finish.

ETA at Next Turn—The estimated time of arrival at the next turn.

ETA at Next Stop—The estimated time of arrival at the next stop.

GPS—See *What is GPS* on page 6.

GPS Accuracy—The calculated accuracy of the GPS.

GPS Status—The current status of your GPS device (No Fix, 2-D, 3-D, etc.).

Heading—The current direction of travel.

Latitude—Position north or south of the equator in degrees; degrees, minutes; or degrees, minutes, seconds.

Longitude—Position east or west of the prime meridian in degrees; degrees, minutes; or degrees, minutes, seconds.

Mark—The action of placing a waypoint on the map.

Orientation—The alignment of a map relative to the points of the compass.

Scale—The relationship between the extent of features in the real world and the size at which they are portrayed on the map. On the Earthmate GPS PN-20, you can choose Bar, Zoom, or Ratio.

Speed—The current rate of travel for the device.

Speed (Average)—The average speed of the device including stop time.

Speed (Maximum)—The maximum speed achieved.

Speed (Moving Average)—The average speed of the device excluding stop time.

Time to Finish—The calculated time to the route finish based on the road classifications and default speed settings.

Time to Moonrise/set—The time remaining until the moon rises and sets.

Time to Next Stop—The estimated time to the next stop in the route based on the road classifications and speed settings.

Time to Next Turn—The estimated time to the next turn in the route based on road classifications and speed settings.

Time to Sunrise/set—The time remaining until the sun rises and sets.

Trip Odometer—The total distance the GPS device has been moving.

Trip Time Moving—The total time the GPS device has been moving.

Trip Time Stopped—The total time the GPS device has been tracking but not moving.

Trip Time Total—The total time the GPS device has been tracking, both moving and stopped.

Velocity Made Good—The component of the current velocity (speed) that is in the direction of the destination.

Vertical Speed—The current rate of vertical travel for the device.

Waypoints—Marked positions with specific coordinates.

Wide Area Augmentation System (WAAS)—A program developed by the Federal Aviation Administration to enhance the accuracy of GPS receivers, usually to within three meters of actual position, by providing a modified GPS signal. After calculating the error factor at ground control stations throughout the U.S., the corrected signal is transmitted to two geostationary satellites that in turn transmit the GPS signal back to earth. For more information, see *Differential GPS (DGPS).*

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Batteries

The Earthmate® GPS PN-20 can be powered by two AA batteries (NiCd, NiMH, alkaline, or lithium), or an Earthmate GPS PN-20 rechargeable lithium-ion battery pack.

Rechargeable Lithium-Ion Battery Pack Caution

Use only an Earthmate GPS PN-20 Battery Type. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Earthmate GPS PN-20 Battery Type

Cell Type: R.CR-V3 Li-Ion
Voltage: 3V
Capacity: 1300 mAh
Manufacturer: Moyoto Industrial Co., Ltd.

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We Bring Technology Down to Earth™

Since its incorporation in 1976, DeLorme has developed an unprecedented reputation as a leader in the mapping industry. From early beginnings as a paper atlas publisher, the company quickly emerged as a pioneering technological innovator. DeLorme not only embraced new technologies, it developed them.

In the mid-1990s, before GPS usage was widespread, DeLorme was pioneering laptop GPS solutions that today include the popular Earthmate GPS LT-20. Subsequent development led to industry-first GPS solutions for Pocket PC and Palm OS devices and more recently for Bluetooth GPS solutions.