## GETTING ACQUAINTED

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to carefully read this manual and keep it on hand for later reference when necessary.

About This Manual

- Each section of this manual provides basic information you need to perform operations in each mode. Further details and technical information can also be found in the "REFERENCE".
- The term "watch" in this manual refers to the CASIO SATELLITE NAVI Watch (Module No. 2240).
- The term "Watch Application" in this manual refers to the CASIO SATELLITE NAVI LINK Software Application.

Upper display area

Lower display area

On-screen indicators

MODE

LIGHT

MENU
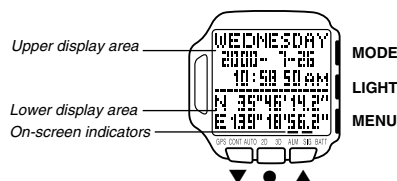
SAFETY PRECAUTIONS

⚠ Warning

Charging the battery

Use only the AC Adaptor and the Interface/Charger Unit that come with your watch to charge its battery. Use of another device for charging creates the risk of battery leakage, overheating, explosion, fire, and personal injury.

AC Adaptor and Interface/Charger Unit

Note the following important precautions whenever using the AC Adaptor or Interface/Charger Unit that comes with your watch.

- Should you notice smoke or strange odor coming from the AC Adaptor and Interface/Charger Unit, immediately unplug the power cord from the wall outlet and request servicing from your original dealer. Continued use under these conditions creates the risk of electric shock.
- Make sure that the AC Adaptor and Interface/Charger Unit are not exposed to water, dirt, or any other foreign matter. Should the AC Adaptor or Interface/Charger Unit ever get wet, immediately unplug the power cord from the wall outlet and request servicing from your original dealer.
- Never use the AC Adaptor or Interface/Charger Unit while it is covered with a blanket or any other object.
- Never touch the AC Adaptor or Interface/Charger Unit when your hands are wet. Doing so creates the risk of electric shock.
- Never try to take the AC Adaptor or Interface/Charger Unit apart or allow the contacts inside the Interface/Charger Unit to become shorted.
- Never expose the AC Adaptor or Interface/Charger Unit to direct heat or dispose of them by incineration.
- Do not drop the AC Adaptor or Interface/Charger Unit or otherwise subject them to strong impact.
- During the thunderstorms, unplug the AC Adaptor and Interface/Charger Unit from the wall outlet.
- Avoid prolonged contact between your skin and the AC Adaptor and Interface/Charger Unit while power is being supplied to them, and between your skin and the watch while its battery is being charged. Prolonged contact creates the risk of low temperature burn injury.
- Keep the AC Adaptor and Interface/Charger Unit out of the reach of small children.
- Use only a power source whose output matches the rating marked on the plate of the AC Adaptor.
- Do not locate the power cord near stoves or other sources of intense heat. Heat can melt power cord insulation and create the risk of fire and electric shock.
- When unplugging the power cord from the wall outlet, grasp the AC Adaptor. Never pull on the cord itself. Doing so can damage the power cord and create the risk of fire and electric shock.

Precautions

- The measurement functions built into this watch are not intended for use in taking measurements that require professional or industrial precision. Values produced by this watch should be considered as reasonably accurate representations only.
- Though a useful navigational tool, a GPS receiver should never be used as a replacement for conventional map and compass techniques. Remember that magnetic compasses can work at temperatures well below zero, have no batteries, and are mechanically simple. They are easy to operate and understand, and will operate almost anywhere. For these reasons, the magnetic compass should still be your main navigation tool.
- CASIO COMPUTER CO., LTD. assumes no responsibility for any loss, or any claims by third parties that may arise through the use of this watch.

- Whenever leaving the AC Adaptor and Interface/Charger Unit unattended for long periods, be sure to unplug the AC Adaptor from the wall outlet.
- Avoid leaving the AC Adaptor and Interface/Charger Unit in areas subjected to high humidity and large amounts of dust. Such conditions create the risk of fire and electric shock.

Rechargeable battery handling

Never try to remove the rechargeable battery from the watch yourself. Leave all battery replacement procedures up to your original dealer or CASIO distributor.

Precautions during use

Never operate the watch while walking, while operating an automobile, motorcycle, or other motor vehicle, or while riding a bicycle, etc. Doing so can interfere with you being alerted to dangerous situations around you and creates the risk of accident.

⚠ Caution

Data backup

- Be sure to back up all important data on your computer hard disk or some other medium.
- Data stored in memory can be unexpectedly lost during malfunction, repair, etc.

GETTING READY

Unpacking

Make sure all the items shown on this page are included when you unpack your watch.

Important!
• Before using the watch for the first time, be sure you charge the battery, set the current time and date, and configure the GPS mode.
• The GPS function of the watch is tested at the factory before shipment, and the measurement results of the test may still be in memory when purchasing the watch. This data will be deleted automatically when you perform a GPS measurement operation.
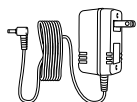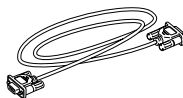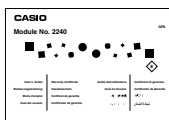
Watch   **Interface/Charger Unit**
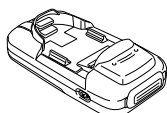
AC Adaptor   **Serial Cable**

CD-ROM   **User's Guide**

Charging the Battery

BATT indicator

• The watch contains a rechargeable lithium ion battery that supplies power for normal operation.
• Low battery power is indicated when the BATT indicator at the bottom of the display turns on. Charge the battery as soon as possible after the BATT indicator turns on.
• Recharging the battery after it goes completely dead causes the date and time setting of the watch to revert to: 2000- 1- 1 0: 00 00. Set the correct date and time after charging is complete.
• You can charge the battery using either AC power or battery power.

Important!
• Use only the Interface/Charger Unit and AC Adaptor that come with this watch to charge its battery.
• Proper charging may be impossible if the contacts inside the Interface/Charger Unit tray or on the watch become dirty. Keep the contacts clean by wiping them periodically with a dry cotton swab.
• Never allow the Interface/Charger Unit or watch contacts to become shorted.
• Best results are obtained when charging is performed under room temperature (around 23°C).
• Do not subject the Interface/Charger Unit to vibration while charging is taking place. Doing so can result in a poor connection and improper charging.

To charge the battery using AC power

Important!
• When charging the battery, make sure you turn on Interface/Charger Unit power and confirm that its indicator lamp is lit green *before* you mount the watch for charging. Mounting the watch onto the Interface/Charger Unit and then turning on power can result in incomplete charging of the watch's battery.

1. Connect the AC Adaptor to the Interface/Charger Unit and plug the power cord into a wall outlet.
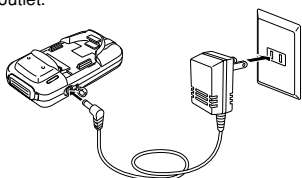
2. Slide the power switch in the direction indicated by the arrow, and make sure the indicator lamp lights green.
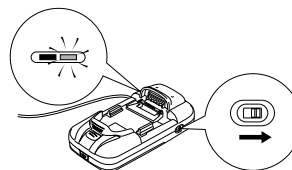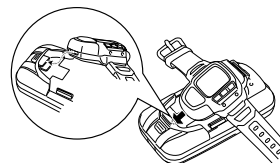
3. Open the terminal cover on the side of the watch.
• The terminal cover may be a bit stiff and tend to want to close when the watch is new. Hold it open when you perform the following steps.

4. Raise the rod on the Interface/Charger Unit that holds down the watch's terminal cover.
• The rod is quite thin, so handle it carefully and take care you do not damage it.

Rod
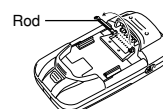
5. Angle the left side (9 o'clock side) of the watch into the Interface/Charger Unit tray so the tab in the tray enters the hole in the side of the watch.
• Never touch the terminals of the watch or the Interface/Charger Unit.
• The terminals of the Interface/Charger Unit are gold and silver. This is normal and does not indicate a defective product.

6. Lay the watch the rest of the way into the tray and lower the rod to secure the cover in place.
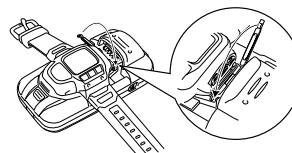
7. Next, slide the tray in the direction indicated by the arrow until it locks into place.
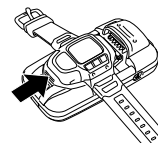
• Make sure that the terminal cover stays open when you perform the above steps. If the cover closes unexpectedly and is not held down by the rod, the cover and Interface/Charger Unit can become damaged when you slide the tray. Always double check to make sure the cover is fully opened and held down by the rod before you slide the tray.
• If the cover is stiff when the watch is still new, carefully bend it open as far as it will go to loosen it up.
• The indicator lamp on the Interface/Charger Unit lights red to indicate that charging has started when the watch is correctly mounted in place. This indicator lamp goes out when charging is complete.
• It takes about 70 minutes to fully charge a completely depleted battery.

8. After charging is complete, remove the watch from the Interface/Charger Unit and then turn off power. See "To remove the watch from the Interface/Charger Unit" for details.

Important!
• Make sure the Interface/Charger Unit is off when you are not using it.
• Enter the Timekeeping Mode and check the date and time setting. If it is not correct, perform the procedure under "Setting the Current Time and Date Manually" to correct it.

To charge the battery using battery power

1. Open the battery compartment cover on the back of the Interface/Charger Unit as shown in the illustrations below.

Slide lock.

Slide cover.

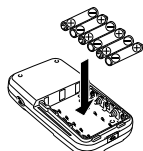2. Load six AAA-size alkaline batteries (available separately) into the battery compartment.
*   Use only alkaline batteries.
*   Make sure the plus (+) and minus (−) ends of the batteries are facing correctly when you load them into the battery compartment.

3. Slide the battery compartment cover back into place and make sure it closes securely. Next, slide the lock back to its original position.

Note
*   When you are charging under battery power, if the green indicator goes out while charging is in progress (which is indicated when the red indicator is lit), you should replace the batteries you are using with a full set of new ones and charge again.

To remove the watch from the Interface/Charger Unit

1. Press the release button to release the tray.
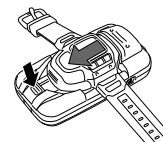
2. Raise the rod that is holding the watch's terminal cover open.
3. Remove the watch.
4. Carefully lower the rod and secure it in place to protect it against damage.
5. Securely close the watch's terminal cover.
6. Unplug the power cord from the wall outlet.

Note
*   The amount of operation you can expect on a full charge depends on conditions when the battery is charged, the conditions of the battery, temperature, and other factors.
*   The watch's rechargeable battery requires periodic replacement. If the amount of operation provided by each full charge becomes noticeably short, it probably means that you need to have the battery replaced.
*   Contact your original dealer or CASIO distributor about having the rechargeable battery replaced. Note that you will be charged for battery replacement.

GENERAL GUIDE

*   Press **MODE** from mode to mode.
*   Press **MENU** in any mode to display a FUNCTION Screen. Press **MENU** while a FUNCTION screen is on the display to change to the MENU Screen.

*   Pressing **MODE** or **MENU** while the MENU Screen is on the display returns to the screen from which you started (Timekeeping or GPS Mode Screen).
*   Holding down **MENU** for about one second returns directly to the Timekeeping Mode.
*   The watch beeps whenever you press a button to change to another mode or screen.

Timekeeping Mode

Press **MODE** or **MENU**.

Press **MENU**.

Press **MODE**.

Press **MODE**.

Position Screen

Altitude Graph Screen

GPS Mode

FUNCTION Screen

MENU Screen

Press **MENU**.

Press **MENU**.

Press **MODE**.

Plot Screen

Graphical Navigation Screen

Press **MODE** or **MENU**.
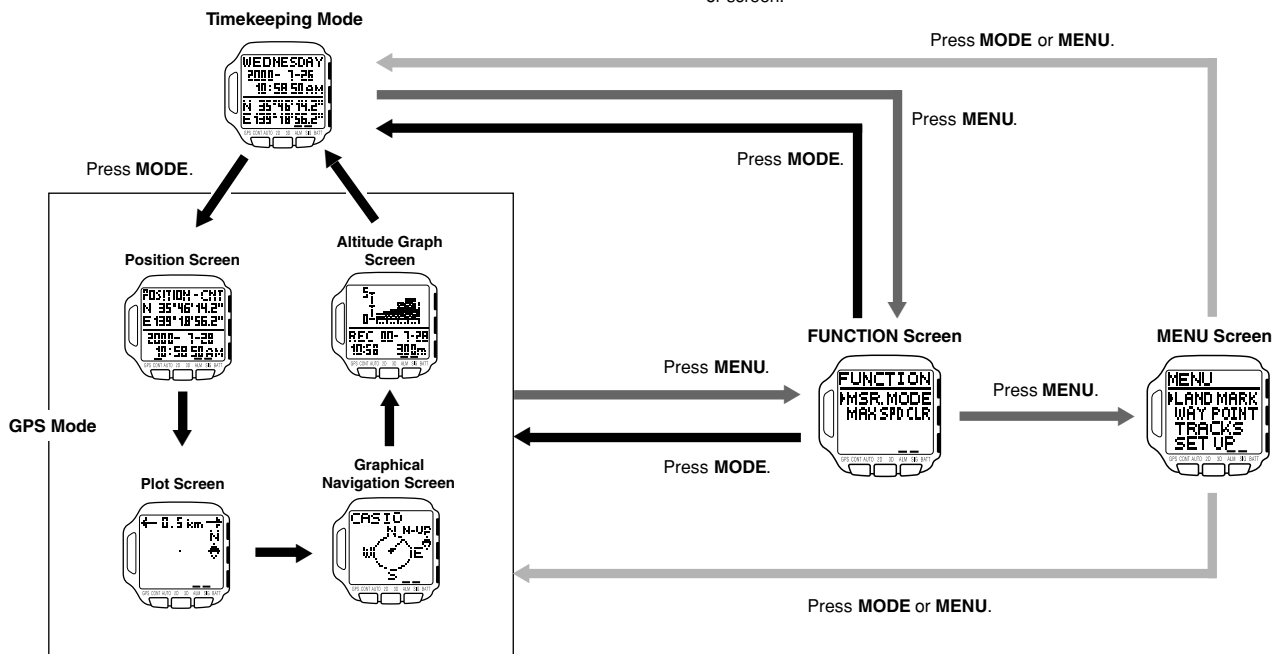
Using the FUNCTION and MENU Screens

Many of the operations of this watch are performed using FUNCTION screens and a MENU screen. The following describes the general procedures for using each type of screen.

Note
• The contents of the FUNCTION Screen depend on whether you press **MENU** in the Timekeeping Mode or GPS Mode. The contents of the MENU Screen are always the same.

To use the FUNCTION and MENU Screens

FUNCTION Screen
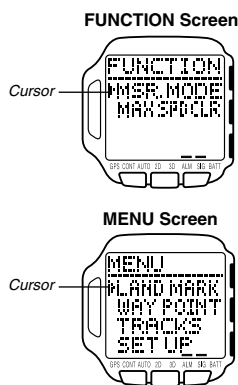
Cursor

• In the Timekeeping or GPS Mode, press **MENU** to display the FUNCTION Screen.
• Press **MENU** while the FUNCTION Screen is on the display to change to the MENU Screen.
• The currently selected screen item is the one where the cursor is located.
• Use ▲ and ▼ to move the cursor. The menu scrolls automatically if all the items do not fit on a single screen.

MENU Screen

Cursor

• To select the screen item where the cursor is currently located, press ●.
• Use **MODE** or **MENU** to back track through menus.
• To return to the Timekeeping Mode, hold down **MENU** for about one second.

Adjusting Display Contrast

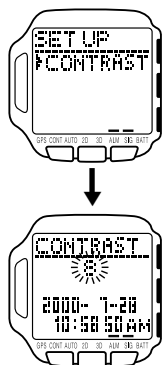Certain electrical characteristics of the watch may cause a rainbow effect on the LCD. If this happens, use the following procedure to adjust contrast for easy reading.

To adjust display contrast

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ● to select it.
3. On the next screen that appears, use ▲ and ▼ to move the cursor to CONTRAST, and then press ● to select it.
4. Press ▲ to increase contrast (making the screen darker) and ▼ to decrease it (making the screen brighter).
• You can set contrast to one of 15 levels.
• The current contrast setting is indicated by the value that flashes on the CONTRAST Screen.
5. After the contrast is the way you want, press ● to return to the SET UP Screen.
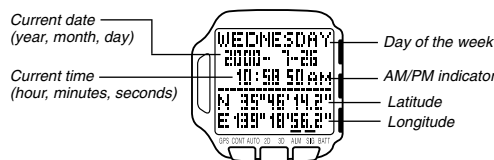6. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

BACKLIGHT
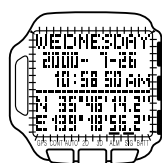
• Press **LIGHT** to illuminate the display for about two seconds.
• The electro-luminescent (EL) panel that illuminates the display loses illuminating power after very long use.
• Illumination may be hard to see when viewed under direct sunlight.
• The watch may emit an audible sound whenever the display is illuminated. This is due to vibration of the EL panel used for illumination, and does not indicate malfunction.

TIMEKEEPING MODE

• Use the Timekeeping Mode to view the current time and date.
• The Timekeeping Mode uses a split screen format with an upper display area for the time and date, and a lower display area for other information.
• You can directly enter the Timekeeping Mode by holding down **MENU** for about one second.

Current date (year, month, day) — *Day of the week*
Current time (hour, minutes, seconds) — *AM/PM indicator*
— *Latitude*
— *Longitude*

Timekeeping Mode Screen Format

The split screen format of the Timekeeping Mode shows the current date and time in the upper display area. You can use the lower display area to display a Position Screen (latitude and longitude) or a Stopwatch Screen. Press ▼ in the Timekeeping Mode to toggle the lower display area between the Position Screen and Stopwatch Screen.

Position Screen   **Stopwatch Screen**

Position data type indicator   Press ▼.
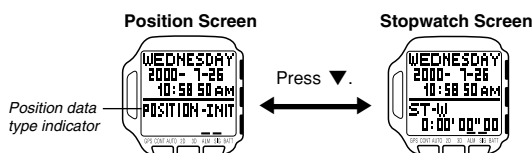
Note
• Following a GPS measurement, the Position Screen shows the latitude and longitude produced by the measurement. After you charge the watch's battery when it goes dead or perform an area select operation, the Position Screen shows the latitude and longitude of the area setting.
• For more information about the Stopwatch Screen, see "Using the Stopwatch Screen".

Setting the Current Time and Date Manually

• Use the MENU Screen to set the current time and date manually, and to reset the second's count to zero.
• This watch also has a feature that sets the current time and date automatically, based on GPS measurement data. See "Using Auto Time and Date Adjustment" for more information.

To set the current time and date manually
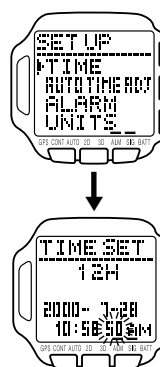
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ●.
3. Use ▲ and ▼ to move the cursor to TIME, and then press ●.
• This displays the current date and time setting, with the seconds digits flashing.

4. Use **MODE** to move the flashing around the settings on the display in the sequence shown below.

Seconds → Hour → Minutes → 12H/24H → Year → Month → Day → (back to Seconds)
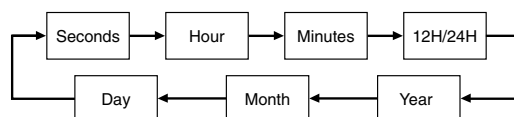
5. While the hour, minutes, year, month, or day setting is selected (flashing), use ▲ (+) and ▼ (−) to change it.
• Holding down either button changes the setting at high speed.
• While the 12H/24H setting is selected, press ▲ or ▼ to toggle it between 24-hour timekeeping (24H) and 12-hour timekeeping (12H). The AM/PM indicator appears on the display when 12-hour timekeeping is selected.
6. After everything is the way you want, press ● to exit the Setting Screen and return to the SET UP Screen.
7. To exit the SET UP Screen, press **MODE** or **MENU**.
• If the message "NOW EXECUTING" appears on the display, wait until the message disappears.
8. To return to the Timekeeping or GPS Mode, press **MODE** or **MENU**.

Important!
- The GPS Mode of this watch uses the time and date setting to determine the current positions of satellites. Make sure that your time and date setting is always accurate.

Note
- The year can be set in the range of 2000 to 2039.
- The day of the week is displayed automatically in accordance with the date (year, month, and day) settings.
- The watch's built-in full automatic calendar makes allowances for different month lengths and leap years. Once you set the date, there should be no reason to change it except after you charge the battery when it goes dead.

To reset the seconds count to zero

1. Perform steps 1 through 3 of the procedure under "To set the current time and date manually".
2. While the seconds digits are selected (flashing), press ▲ to reset them to zero.
- Pressing ▲ while the seconds count is in the range of 30 to 59 resets it to 00 and adds 1 to the minutes. If the seconds count is in the range of 00 to 29, pressing ▲ resets it without changing the minutes.
3. After everything is the way you want, press ● to exit the Setting Screen and return to the SET UP Screen.
4. To exit the SET UP Screen, press **MODE** or **MENU**.
- If the message "NOW EXECUTING" appears on the display, wait until the message disappears.
5. To return to the Timekeeping or GPS Mode, press **MODE** or **MENU**.

Changing the Summer Time Setting

Turning on summer time, which is also known as Daylight Saving Time (DST), automatically advances the current time setting by one hour. Note that summer time is used in certain geographic areas, and may or may not apply in your area.

To change the summer time setting

1. In the Timekeeping Mode, press **MENU** to display the FUNCTION Screen.
2. The cursor should already be located next to D.S.T., so press ●.
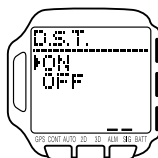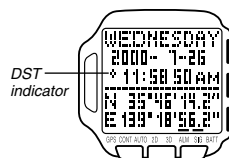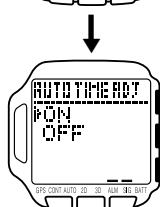3. Use ▲ and ▼ to move the cursor to ON or OFF.
4. Press ● to exit the Setting Screen and return to the Timekeeping Mode Screen.
- The DST indicator is on while summer time is turned on.

DST indicator

Using Auto Time and Date Adjustment

- Data obtained by a GPS measurement includes the current time and date. You can set up the watch so it uses this data to adjust the Timekeeping Mode's current time and date settings automatically whenever you perform a GPS measurement operation.
- Before using the automatic setting procedure described below, be sure to configure the GPS Mode (see "USING THE GPS MODE").

Note
- You can turn automatic time and date adjustment on or off. The initial default setting is "ON".
- Turn off automatic time and date adjustment when you do not want the time and date settings adjusted by GPS measurement data.

To turn auto time and date adjustment on and off

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ●.
3. Use ▲ and ▼ to move the cursor to AUTO TIME ADJ, and then press ●.
4. Use ▲ and ▼ to move the cursor to ON or OFF.
5. After the setting is the way you want, press ● to exit the AUTO TIME ADJ Screen and return to the SET UP Screen.
6. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Note
- Date and time data sent from GPS satellites normally does not include adjustments for leap seconds. GPS satellites do, however, send leap second adjustment data once every 12.5 minutes.
- Using only GPS date and time measurement data (without leap second data) to adjust the current Timekeeping Mode settings can eventually cause the settings to go wrong. The most accurate time settings are obtained by configuring the watch for continuous GPS measurement, and allowing the measurement operation to continue for at least 12.5 minutes. This ensures that at least one set of leap second data will be used for the setting.
- Note that auto time and date adjustment is possible only when there are fewer than 512 weeks between the watch's setting and the actual current date.

What is a leap second?
- The rotation of the Earth is not always as perfect as the operation of the atomic clocks used for measuring standard time. Leap seconds can be added as required to correct for discrepancies between the two.

Using the Stopwatch Screen

- The Stopwatch Screen appears in the lower display area in the Timekeeping Mode.
- The Stopwatch Screen lets you measure elapsed time, split time, and two finishes. The range of the stopwatch is 23 hours, 59 minutes, 59.99 seconds.

To measure times with the stopwatch
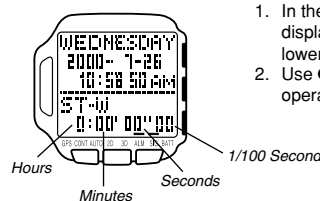
1. In the Timekeeping Mode, press ▼ to display the Stopwatch Screen in the lower display area.
2. Use ● and ▲ to perform stopwatch operations as described below.

Hours   Minutes   Seconds   1/100 Second

Elapsed Time

● ——→ ● ——————→ ● —————————→ ● ——→ ▲
Start   Stop   Re-start   Stop   Clear

Split Time

● ——→ ▲ ——————→ ▲ —————————→ ● ——→ ▲
Start   Split   Split release   Stop   Clear

Two Finishes

● ——→ ▲ ——————→ ● —————————→ ▲ ——→ ▲
Start   Split   Stop   Split release   Clear
First runner finishes.   Second runner finishes. Record time of first runner.   Record time of second runner.
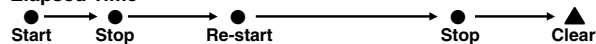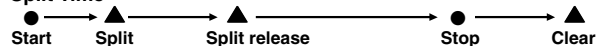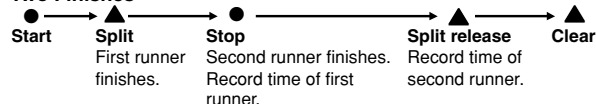
Note
- Once you start a stopwatch measurement operation, it continues until you stop it, even if you change the lower display area to the Position Screen or if you exit the Stopwatch Screen.

Using the Daily Alarm and Hourly Time Signal

- Setting a daily alarm time causes a beeper to sound at that time for about 20 seconds each day, as long as the daily alarm is turned on. Press any button to stop the alarm.
- The watch also has an Hourly Time Signal that beeps for about one second every hour on the hour when turned on.

To set the daily alarm and Hourly Time Signal
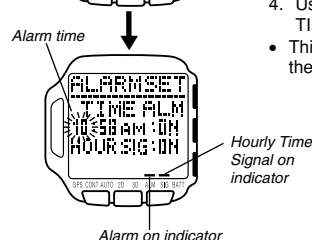
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ●.
3. Use ▲ and ▼ to move the cursor to ALARM, and then press ●.
4. Use ▲ and ▼ to move the cursor to TIME ALM, and then press ●.
- This displays the current alarm time with the hour setting flashing.

Alarm time

Hourly Time Signal on indicator

Alarm on indicator

5. Use **MODE** to move the flashing around the display in the sequence shown below.

```
   ┌─────────────────────────────────────────────────────┐
   │                                                      │
   └──▶│ Hour │──▶│ Minutes │──▶│ Daily alarm │──▶│ HOUR SIG │──┘
                                 │ ON/OFF      │   │ ON/OFF   │
```
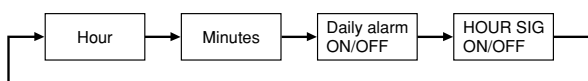
6. While the hour or minutes digits are selected (flashing), use ▲ (+) and ▼ (−) to change the setting.
- Holding down either button changes the setting at high speed.
- While the daily alarm ON/OFF setting or HOUR SIG (Hourly Time Signal) ON/OFF setting is selected (flashing), press ▲ or ▼ to toggle it on and off.
7. After everything is the way you want, press ● to exit the Setting Screen and return to the ALARM SET Screen.
- The alarm on indicator at the bottom of the display is on when the daily alarm is turned on, and the Hourly Time Signal on indicator is on when the Hourly Time Signal is turned on.
8. Confirm that the cursor is next to DONE, and then press ● to return to the SET UP Screen.
9. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

USING THE GPS MODE

This section describes operations you perform in the GPS Mode. Before actually performing GPS measurements, you need to make the settings listed below. Many of these settings need to be made only the first time you use the watch.
- **Area setting**
- **Datum setting**
- **GPS measurement mode selection**
- **Landmark registration**
- **Route plan registration**
- **Destination definition**
- **Time and date setting**

Important!
- The Timekeeping Mode time and date settings (including the DST setting), as well as information about your current location (AREA setting) are used to determine the current positions of satellites. Make sure that these settings are always correct, and accurate.

GPS Measurement Modes

You can select from among three different GPS measurement modes. The mode you should select depends on how quickly you want your position data updated balanced against how important it is for you to conserve remaining battery power.
Remember, however, that no matter which GPS measurement mode you use, it can take a considerable amount of time to achieve the first measurement.

To perform this type of measurement:	Use this GPS measurement mode:
Single measurement	ONE SHOT
Continuous measurements every second	CONTINUOUS
Multiple measurements at a preset intervals	AUTO

Note
- The initial default GPS measurement mode is ONE SHOT.

To select a GPS measurement mode
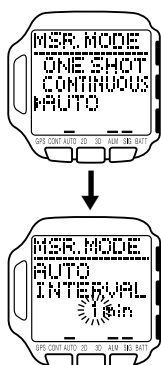
1. In the Timekeeping or GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to MSR. MODE (Measurement Mode), and then press ●.
3. Use ▲ and ▼ to move the cursor to the measurement mode you want to use.
- If you want to select ONE SHOT or CONTINUOUS here jump to step 6.
4. If you selected AUTO in the previous step, press ● to advance to the AUTO INTERVAL Setting Screen.
- Use this screen to specify how often AUTO Mode measurements should be taken.
5. While the interval time setting is flashing, use ▲ (+) and ▼ (−) to change it.
- Holding down either button changes the setting at high speed.
- You can set an interval in the range of 1 minute to 60 minutes, in one-minute steps.

6. After everything is the way you want, press ● to exit the Setting Screen and return to the Mode Screen you started from in step 1.

Taking a GPS Measurement

The following are the basic steps for taking a position measurement in the GPS Mode.

Important!
- GPS measurements may take a long time to complete or may even be impossible due to satellite and other conditions.
- The DOP value setting can influence how long it takes to complete GPS measurements. See "DOP Values" for details about the DOP value, and "Changing the DOP Value" for information about how to change the DOP setting.

To take a GPS measurement

Important!
- Make sure the antenna is pointing up at the sky while a measurement is taking place.

1. While in the Timekeeping Mode with the Position Screen in the lower display area or while a GPS Mode Screen is on the display, press ●.
- This changes to the SEARCH (Satellite Search) Screen.
- The GPS indicator at the bottom of the display turns on to indicate that the watch is searching for overhead satellites.
- To interrupt an ongoing GPS measurement, press ● again.
- See "Displaying GPS Satellite Information" for information about satellite position and battery marks.
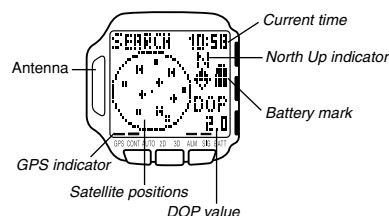
2. When the measurement is successful, the watch emits high-pitch beeps and returns to the Mode Screen you started from in step 1.
- See "Adding a New Landmark to the Landmark List" for information about storing GPS measurement data in landmark memory.
- If the watch is unable to successfully complete the measurement within about two minutes, it emits five beeps and displays TIMEOUT at the top of the display to let you know. If this happens, press **MODE** or ▼ to return to the Mode Screen you started from in step 1, move to a more open area, and try again.
- If you perform the above GPS measurement operation within the area defined by 20° to 46° north latitude and 122° to 149° east longitude, a successful measurement causes a map of Japan to appear on the display for a few seconds after the GPS measurement.

Important!
- When the GPS indicator at the bottom of the display is on, it indicates that the GPS circuit is activated, which consumes valuable battery power. To prolong battery life, be sure to use the operations described below to turn off the GPS circuit when you are not using it.

To turn off the GPS circuit

Press ● to stop position measurement and turn off the GPS circuit.
- The GPS indicator turns off at this time to indicate that the GPS circuit is off. No GPS measurements are taken while the GPS indicator is off.
- You must turn the GPS circuit back on using the procedures described in the previous section in order to take GPS measurements. The GPS circuit is on when the GPS indicator is on.

GPS Mode Screens

Position Screen

Altitude Graph Screen

Plot Screen

Full-screen Format
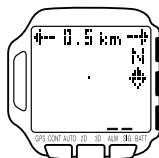
Split-screen Format
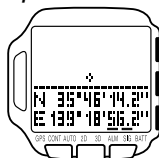
- See page "Plot Screen Lower Display Area (Split-screen Format)" for information about changing the split screen's lower display area contents.

Graphical Navigation Screen

Full-screen Format

Split-screen Format

- See page "Graphical Navigation Screen Lower Display Area (Split-screen Format)" for information about changing the split screen's lower display area contents.

Position Screen

- The Position Screen shows latitude, longitude, bearing, speed, maximum speed, altitude, and other information that is updated each time the watch performs a GPS measurement.
- Latitude is indicated as N (north) or S (south), and longitude as E (east) or W (west).

Position data type indicator
Latitude
Longitude
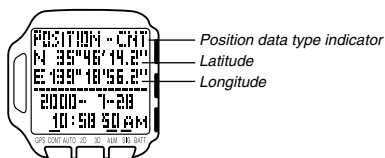
Position Data Type Indicators

The following table describes the meanings of the indicators that appear on the display with position data.

Indicator	Meaning	Description
INIT	Initial	The latitude and longitude readings are based on the initial position values of the currently selected area setting. This indicator appears after you charge the battery, after it was fully depleted, and after you change the area setting.
CNT	Continuous	GPS measurement in Continuous Mode
OLD	Old data	The data shown on the display is old. More than four hours have passed since the last GPS reading.

Note
- One of the above indicators also appears at the bottom of the display when the Position Screen is displayed in the lower display area of the Timekeeping Mode.
- The upper display area of the Position Screen also shows information about GPS measurement timing. In the case of a One-Shot or AUTO measurement, it shows the time of the last successful GPS measurement. In the case of Continuous measurement, it shows when continuous measurement was stopped.

GPS Mode Position Screen Lower Display Area (Split-screen Format)

Each press of ▼ while the GPS Mode Position Screen is on the display cycles the contents of the lower display area in the sequence shown below.

Time/Date

HDG/SPD (Heading/Speed)

MAX SPD (Maximum Speed)

POS DOP (Position)

ALTI DOP (Altitude)
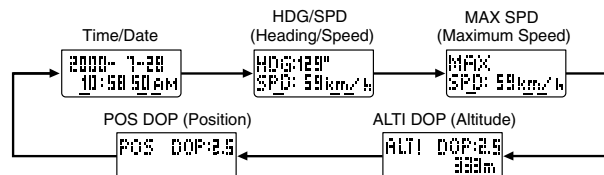
- See "Lower Display Area Items" for details about the contents of each lower display area screen.

Plot Screen

The Plot Screen shows a continuous record of your movements as a series of dots (tracks) plotted on the display. You can set up the watch to show previously defined waypoints on the Plot Screen, and see the relationship between your tracks and the waypoints at a glance. Tracks are stored in watch memory as track log data, which you can recall and trace your progress up to a specific location whenever you want.

Note
- To view track log data on the Plot Screen, you must turn on track data display.

Scale
Current position
North Up indicator
Current position
Track
Waypoint
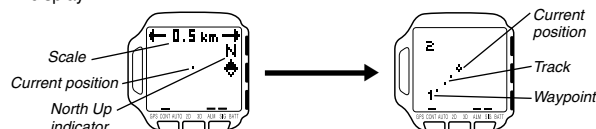
Display Item	Description
Scale	The scale of the screen is shown for about two seconds after you display the Plot Screen.
North Up indicator	Indicates that the top of the Plot Screen is north. This indicator is fixed.
Current position	This shows your current measured position.

Note
- Your current position is always shown in the center of the display screen.
- See "Specifying the Scale of the Plot Screen" for information about changing the scale of the screen and "Specifying the Distance, Speed, and Altitude Units" for information about changing the measurement units.
- You can set up the watch to show previously defined waypoints on the Plot Screen, and see the relationship between your tracks and the waypoints. See page "Creating a Route Plan" for more information.
- Display of landmark symbols can be turned on and off individually. The Plot Screen shows only landmarks whose symbol display is currently turned on, and which are in the vicinity of your current position.

Plot Screen Lower Display Area (Split-screen Format)

Each press of ▼ while the Plot Screen is on the display cycles the contents of the lower display area in the sequence shown below.

Full Screen

Latitude/Longitude

HDG/SPD (Heading/Speed)

MAX SPD (Maximum Speed)

ALTI DOP (Altitude)
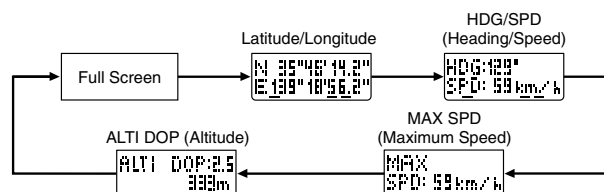
- See "Lower Display Area Items" for details about the contents of each lower display area screen.

Graphical Navigation Screen

- After you set up the watch by defining your destination and landmarks along the way, the Graphical Navigation Screen shows the direction and distance from your current location to your destination. The Graphical Navigation Screen can also be used to display your current speed, altitude, and other information.
- You must define your destination before using the Graphical Navigation Screen. See "Making a Landmark Your Destination" for more information.
- You can use either of the two orientations for bearing measurements. See "Specifying the Bearing Orientation" for more information.
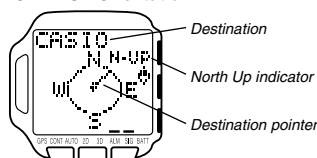
NORTH UP Orientation   **HEADING UP Orientation**

Destination
North Up indicator
Destination pointer

Display Item	Description
Destination	Displays the landmark name of your destination when one is defined.
North Up indicator	Indicates that the watch is currently set up for NORTH UP orientation.
Destination pointer	Points the way to your destination.

Graphical Navigation Screen Lower Display Area (Split-screen Format)

Each press of ▼ while the Graphical Navigation Screen is on the display cycles the contents of the lower display area in the sequence shown below.

Full Screen
Latitude/Longitude
BRG/DIST(Destination Pointer/Distance)
ALTI DOP (Altitude)
MAX SPD (Maximum Speed)
HDG/SPD (Heading/Speed)
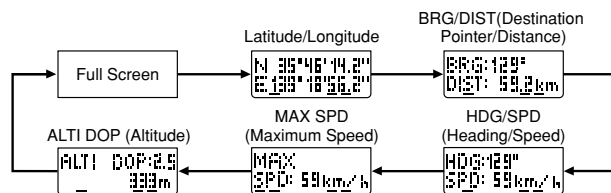
- See "Lower Display Area Items" for details about the contents of each lower display area screen.

Altitude Graph Screen

The Altitude Graph Screen shows a bar graph based on altitude readings, which are stored along with track log data.

Range
Altitude graph
Altitude data record
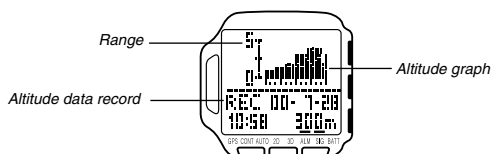
Display Item	Description
Range	This value shows the range of the graph in units of 100.
Altitude graph	Plots track data altitude readings.
Altitude data record	Shows the data record for the currently selected altitude reading. The record shows the time (24-hour) and date of the measurement, and the altitude value. The point that represents the currently displayed record flashes on the graph.

Note
- You can use ▲ (+) and ▼ (–) to scroll through altitude data records.
- A white space in the graph indicates a GPS measurement during which altitude data could not be obtained for some reason.

Specifying Your Current Location (AREA Data)

AREA data lets the watch know where it is currently located. The watch uses this information as a reference point for making GPS measurements. You need to update this setting whenever you move from one geographic area to another.
There are three different methods you can use to specify your current location.
- Selecting a built-in area city and setting the AREA data assigned to it
- Selecting a landmark stored in landmark memory and setting the AREA data assigned to it
- Inputting your current latitude and longitude

Specifying AREA Data by Selecting a Built-in Area City

Use the procedure below to make AREA settings automatically.
- See "AREA LIST" for a full list of area city names and the area data associated with each name.

To specify AREA data by selecting a built-in area city
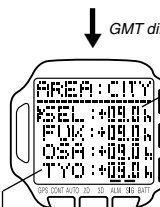
GMT differential
City code

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ● to display the SET UP Screen.
3. The cursor should already be located next to AREA, so press ● to display the AREA Screen.
4. The cursor should already be located next to SELECT CITY, so press ● to display the AREA:CITY Screen.
5. Use ▲ and ▼ to scroll through the area city names on the screen until the one you want is selected.
- Holding down either button moves the cursor at high speed.

6. After selecting the area city name you want to specify, press ● to register it and return to the SET UP Screen.
- Selecting an area city name automatically sets the appropriate latitude, longitude, GMT differential and datum.
7. To exit the SET UP Screen, press **MODE** or **MENU**.
- If the message "NOW EXECUTING" appears on the display, wait until the message disappears.
8. To return to the Timekeeping or GPS Mode, press **MODE** or **MENU**.

Specifying Area Data Using Landmark Memory Data

This procedure lets you specify area data by recalling landmark data you previously stored in landmark memory.

**Note**
- See "Using the Landmark List" for information about landmarks.

To specify area data by selecting a landmark in landmark memory

1. On the AREA Screen, use ▲ and ▼ to move the cursor to SELECT LMK (Select Landmark), and then press ● to display the AREA:LMK Screen.
- The message "NO LMK" appears if there are no landmarks in memory. If this happens, press **MENU** to return to the AREA Screen.

2. Use ▲ and ▼ to scroll through the landmark names on the screen until the one you want is selected.
- Holding down either button moves the cursor at high speed.
3. After selecting the name of the landmark you want to specify, press ● to register it and return to the SET UP Screen.
4. Use ▲ and ▼ to move the cursor to AREA, and then press ● to display the AREA Screen.
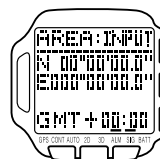
5. Use ▲ and ▼ to move the cursor to INPUT, and then press ● to display the AREA:INPUT Screen.
- The flashing is positioned for latitude input first. Input of a latitude and longitude is not required here, so perform step 6 to move the flashing to the GMT differential setting.

6. Use ● to move the flashing to the GMT differential setting.
7. Use ▲ (+) or ▼ (–) to change the GMT differential setting.
- Holding down either button changes the setting at high speed.
- The GMT differential is the time difference between the area whose data you are setting and Greenwich Mean Time.
- You can input a GMT differential value in the range from –11.0 to +13.0, in units of 0.25 hours.
8. After inputting the GMT differential, press ● to return to the SET UP Screen.
9. To exit the SET UP Screen, press **MODE** or **MENU**.
- If the message "NOW EXECUTING" appears on the display, wait until the message disappears.
10. To return to the Timekeeping or GPS Mode, press **MODE** or **MENU**.
11. Next, you should set the map datum for the area.
- See "Setting a Datum" for more information.

Inputting Your Current Latitude and Longitude

When you know the latitude and longitude of your current location, you can use the following procedure to input them and specify the time difference between your current location and GMT (GMT differential).

To input your current latitude and longitude

1. On the AREA Screen, use ▲ and ▼ to move the cursor to INPUT, and then press ● to display the AREA:INPUT Screen.
2. Input the latitude and longitude of the area.
- See "To input the latitude and longitude".

3. Use ● to move the flashing to the GMT differential setting.
4. Use ▲ (+) or ▼ (−) to change the GMT differential setting.
- Holding down either button changes the setting at high speed.
- The GMT differential is the time difference between the area whose data you are setting and Greenwich Mean Time.
- You can input a GMT differential value in the range from −11.0 to +13.0, in units of 0.25 hours.
5. After inputting the GMT differential, press ● to return to the SET UP Screen.
6. To exit the SET UP Screen, press **MODE** or **MENU**.
- If the message "NOW EXECUTING" appears on the display, wait until the message disappears.
7. To return to the Timekeeping or GPS Mode, press **MODE** or **MENU**.
8. Next, you should set the map datum for the area.
- See "Setting a Datum" for more information.

Setting a Datum

Map datums are used to compensate for the fact that the Earth is neither flat nor a perfect sphere or even ellipsoid. Specification of a map datum for the area you are located is required in order to ensure proper GPS measurements.
You can use either of the following two methods to set a map datum on this watch.
- Selecting a datum from a built-in datum list
- Inputting map datum parameters manually

Important!
- You should specify a map datum after you specify area data by selecting a landmark in landmark memory or after you input your current latitude and longitude manually.

Specifying Datum Parameters by Selecting from a List of Built-in Map Datums

Use the procedure below to specify datum parameters automatically.

To specify datum parameters by selecting from a list of built-in map datums

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to MAP DATUM, and then press ● to display the MAP DATUM Screen.
4. Use ▲ and ▼ to scroll through the datum names on the screen until the one you want is selected.
- Holding down either button moves the cursor at high speed.
- See "DATUM LIST" for a full list of datum names and the applicable area each one covers.

5. After selecting the name of the datum you want to specify, press ● to register it and return to the SET UP Screen.
6. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Manually Inputting Map Datum Parameters

The GPS constellation of satellites generates latitude and longitude positions on the World Geodetic System 1984 (WGS 84) horizontal datum. Though WGS 84 is the latest standard for the entire world, higher precision can be obtained using a datum for a particular local area. Use the following procedure to select the datum that is appropriate for the area where you are taking GPS measurements with this watch.

Note
- See "Datums" for more information about datums and how they affect GPS measurements.

Parameter Type	Parameter Conversion Method
dX	Difference of x-coordinate distance from WGS84 position
dY	Difference of y-coordinate distance from WGS84 position
dZ	Difference of z-coordinate distance from WGS84 position
dA	Difference to the semi-major axes of the WGS84 earth spheroid
dF	Difference of x-coordinate distance from WGS84 earth spheroid

Note
- Parameters you input for dA and dF here are also used as ellipsoid values when converting latitude and longitude to UTM coordinates.

To input map datum parameters
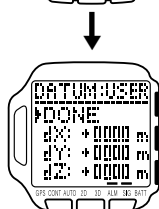
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to MAP DATUM, and then press ● to display the MAP DATUM Screen.
4. Use ▲ and ▼ to move the cursor to USER, and then press ● to display the DATUM:USER Screen.
5. Use ▲ and ▼ to move the cursor to the parameter field you want to change, and then press ●.
6. Input values for each of the parameters (dX, dY, dZ, dA, dF).
- See "To change a numeric setting".

7. After inputting a parameter, press ●. Use ▲ and ▼ to select the other parameters on the DATUM:USER Screen, press ●, and input a value for each one.

Parameter Type	Input Range
dX	−9999 to +9999
dY	−9999 to +9999
dZ	−9999 to +9999
dA	−999 to +999
dF	−0.00000000 to −0.00009999 +0.00000000 to +0.00009999

Note
- For the dF value, you can input five decimal places only.
- When the +/− sign of a value is selected, each press of ▲ or ▼ toggles between + and −.

8. After all the parameters are the way you want, press ●.
9. On the DATUM:USER Screen, use ▲ and ▼ to move the cursor to DONE, and then press ● to apply your settings and return to the SET UP Screen.
10. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Using the Landmark List

- The Landmark List Screen is like a data bank of locations from which you can select start points, waypoints, destinations, and AREA data. You can also display landmark symbols when viewing track log data on the Plot Screen.
- The following procedures explain how to add a new landmark, and how to edit and delete landmarks.

Note
- The Landmark List can contain up to 200 landmarks.
- Editing or deleting a landmark in a Route Plan does not affect the data in the Landmark List.

Preset Data

The watch comes pre-programmed with landmark list data for the latitude, longitude and altitude of the world's major mountains. See "PRE-PROGRAMMED LANDMARK LIST". You can use this data as it is, or you can edit or delete it to suit your own needs.
- Note that once you edit or delete the preset data it cannot be recovered.
- Use the procedures under "To edit a landmark" and "To delete a landmark" to change the preset data.
- Local names for mountains may differ from those pre-programmed in the "PRE-PROGRAMMED LANDMARK LIST".
- As described under "Datums", latitude, longitude and altitude may differ according to the map datum being employed to produce them. Because of this, the latitudes, longitudes, and altitudes pre-programmed in the "PRE-PROGRAMMED LANDMARK LIST" may differ form positions plotted on maps used by you.

To display the Landmark List
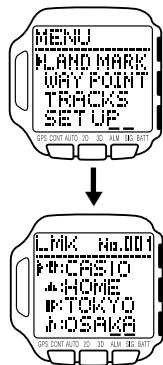
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. The cursor should already be located next to LAND MARK, so press ● to display the Landmark List.
- A screen appears showing how many records are still available for saving new landmarks (FREE), and how many landmarks are in memory (USED). After a few seconds, the actual Landmark List appears.
3. Press **MODE** twice to return to the Timekeeping or GPS Mode.

To view a landmark's record data
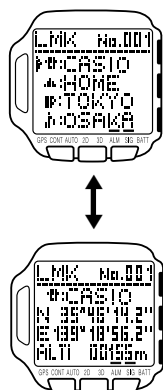
1. On the Landmark List, use ▲ and ▼ to move the cursor to the name of the landmark whose record data you want to view.
- Holding down either button moves the cursor at high speed.
2. Press ● to display the selected landmark's record data screen.
- The record data of a landmark includes latitude, longitude, and altitude.
3. After you are finished, press ● again to return to the Landmark List.

Adding a New Landmark to the Landmark List

There are two methods you can use to add a landmark to the Landmark List. You can register data about your current location with the press of a button, or you can manually input latitude, longitude, and altitude data.

Note
- "____" is indicated for the altitude in the landmark data record if altitude data is not available for some reason.

To add a landmark by registering a current location

While in the Timekeeping Mode with the Position Screen in the lower display area or while a GPS Mode Screen is on the display (except for the Altitude Graph Screen), hold down ▲ for about one second, until the message "SAVING" appears on the display.

- This creates a new landmark in the Landmark List, containing the following information about your current position: latitude, longitude, altitude.
- The initial default landmark name is the date and time you register the new landmark. The initial default symbol for the landmark is ⚡. You can change the initial name and symbol using the procedure under "To edit a landmark".
- "_____" is shown in place of the altitude value when there is no altitude data available for the landmark.
- It takes about two seconds for the new landmark registration operation to finish.

Note
- A landmark added to the Landmark List is assigned a landmark number. With the above procedure, the new landmark is automatically assigned the lowest available (unused) landmark number.
- If there are already 200 landmarks on the Landmark List, the message "MEMORY FULL" appears when you try to save a new one. You will have to delete landmarks you no longer need before you will be able to store more.

To add a landmark by manually inputting its record data

Note
- There are a number of waypoint database Websites on the Internet that contain useful landmark information about the locations of places around the world.

1. On the Landmark List, use ▲ and ▼ to move the cursor to "_:_____".
2. Press **MENU** to display the FUNCTION Screen.
3. The cursor should already be located next to EDIT, so press ● to display the New Landmark Input Screen.
4. Use ▲ and ▼ to select the symbol you want to assign to the landmark, and then press ●.

Press ▼. ⟶   ⟵ Press ▲.
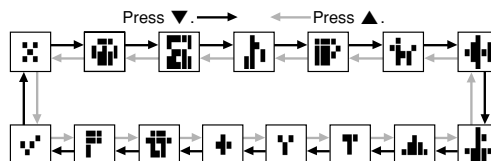
5. To the right of the symbol, input the name you want to give to the landmark.
- See "To input text".
- You must input a name for the landmark. The flashing will not advance to the latitude field if there is no landmark name on the screen.
6. Press ● to move the flashing to the latitude field.
7. Input the latitude and longitude, and then press ●.
- See "To input the latitude and longitude".

Note
- If you have your watch set up for UTM coordinates, you have to input UTM coordinates here instead of latitude and longitude values. See "Specifying the Position Display Format" for more information.
- If you input UTM coordinates, the watch converts them to latitude and longitude values, then reconverts the results back to the UTM coordinates that appear on the display.

8. Input the altitude of the landmark.
- See "To change a numeric setting".
9. After inputting the altitude, press ● to apply the setting.
10. Press ● again to return to the Landmark List.

To edit a landmark

1. On the Landmark List, use ▲ and ▼ to move the cursor to the landmark you want to edit.
- Holding down either button moves the cursor at high speed.
2. Press **MENU** to display the FUNCTION Screen.
3. The cursor should already be located next to EDIT, so press ● to display the Landmark Editing Screen for the selected landmark.

4. Change the content of the landmark as you want.
- Use steps 4 through 8 under "To add a landmark by manually inputting its record data" to edit the content of a landmark.
5. After making the changes you want, press ●.
6. Press ● again to return to the Landmark List.

To delete a landmark

1. On the Landmark List, use ▲ and ▼ to move the cursor to the landmark you want to delete.
- Holding down either button moves the cursor at high speed.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to CLEAR, and then press ●.
4. On the confirmation message screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to delete the landmark and return to the Landmark List.
- The space on the Landmark List where the deleted record was located now shows "_:_____".

- To cancel the delete operation without deleting anything, move the cursor to NO in the above step, and then press ● to return to the Landmark List.

Displaying a Landmark on a Map

The following procedure lets you select a landmark on the Landmark List and display it on an on-screen map.

To display a landmark on a map
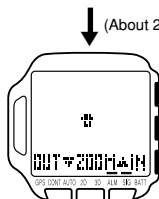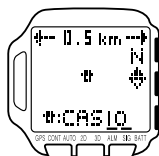
1. On the Landmark List, use ▲ and ▼ to move the cursor to the landmark you want.
- Holding down either button moves the cursor at high speed.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to SHOW MAP, and then press ● to display the Landmark Map Screen.
- You can change the scale of the Landmark Map Screen by pressing ▲ (to decrease the scale value and zoom in) and ▼ (to increase the scale value and zoom out).

(About 2 seconds)

Note
- See "Turning Display of a Landmark Symbol On and Off" for information about displaying other landmarks in the vicinity of the current landmark, and "Turning a Track Point's Display Status On and OFF" for information about displaying waypoints, and track points.

4. After you are finished viewing the Landmark Map Screen, press ● or **MODE** to return to the Landmark List.

Creating a Route Plan

- The Route Plan Screen of the watch lets you select a series of locations from the Landmark List and plan a route from one point (start point) to another point (destination). Each of the locations you pass through while traveling, including your initial start point and final destination is called a "waypoint," and a group of waypoints is called a "route."
- Before you start out on a hike or trip, you can input your planned route on the watch by specifying a start point and up to nine more waypoints. Since you must add waypoints to the Route Plan Screen by selecting them from the Landmark List, the waypoints you want to use must already be registered in the Landmark List. After adding a waypoint from the Landmark List, you can edit its data record if you want.
- The following procedures explain how to put together a route, and how to add, insert, edit, and delete waypoints.

Note
- Editing or deleting a landmark in a Route Plan does not affect the corresponding data in the Landmark List.

To display the Route Plan Screen

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to WAY POINT, and then press ● to display the Route Plan Screen.
3. Press **MODE** twice to return to the Timekeeping or GPS Mode.

Creating a New Route Plan

Use the following procedure when you want to put together a new route. Later you can edit the contents of a route plan by changing the order of the waypoints, inserting new waypoints, etc.

To create a new route plan on a blank Route Plan Screen

1. On the Route Plan Screen, the cursor should already be located next to "S:_____" (start point), so press ● to display the Landmark List.
- If your Landmark List does not have any landmarks, the message "NO DATA" appears for about two seconds, and then the Route Plan Screen reappears.
2. Use ▲ and ▼ to select the landmark you want to define as the start point of your route plan, and then press ●.
- This returns to the Route Plan Screen with the landmark you selected shown for the start point of your route plan.
3. Use ▲ and ▼ to move the cursor to " :_____", and then press ● to display the Landmark List.

4. Use ▲ and ▼ to select the landmark you want to define for your next waypoint, and then press ● to register it and return to the Route Plan Screen.
5. Repeat steps 3 and 4 for the rest of the waypoints you want to specify for your route plan.
- Basically, you should specify waypoints in the sequence you plan to pass them (first waypoint first, second waypoint second, etc.) You will, however, be able to change a route plan using the procedures that follow this one.
- A route plan can have one start point, and up to nine other waypoints.

About the Start Point Name
- The start point name appears as "S:_____" if there is currently no route defined on the Route Plan Screen.
- If the start point name has more than seven characters, it scrolls on the display from right to left.

To view a waypoint's record data
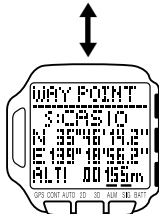
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the start point name or the name of the waypoint whose record data you want to view.
2. Press ● to display the selected waypoint's record data screen.
- The record data of a waypoint includes latitude, longitude, and altitude.
3. After you are finished, press ● again to return to the Route Plan Screen.

Editing Your Route Plan

Use the following procedures when you want to change the order of the waypoints in your route plan, insert new waypoints, delete waypoints, etc.

To change a waypoint to a different one
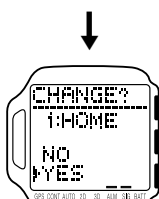
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the waypoint you want to change.
2. Press **MENU** to display the FUNCTION Screen.
3. The cursor should already be located next to CHANGE, so press ● to display the CHANGE W.P Screen.
4. Use ▲ and ▼ to move the cursor to the new waypoint you want to use, and then press ●.
5. On the CHANGE? confirmation screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to change the waypoint you selected in step 1 and return to the Route Plan Screen.
- To cancel the change operation without changing anything, move the cursor to NO in the above step, and then press ● to return to the Route Plan Screen.

To insert a waypoint into an existing route plan

Note
- If your route plan already contains nine waypoints, you will have to delete at least one of the existing waypoints before you can insert a new one.
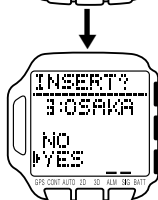
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the waypoint above which you want to insert the new waypoint.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to INSERT, and then press ● to display the INSERT W.P Screen.
4. Use ▲ and ▼ to move the cursor to the landmark you want to insert into the route plan, and then press ●.
5. On the INSERT? confirmation screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to insert the waypoint above the one you selected in step 1 and return to the Route Plan Screen.

- To cancel the insert operation without inserting anything, move the cursor to NO in the above step, and then press ● to return to the Route Plan Screen.

To edit the data record of waypoint

Note
- Editing the data record of waypoint listed on the Route Plan Screen does not affect the data record of the original landmark you selected when creating your route plan.
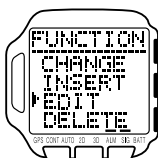
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the waypoint whose data record you want to edit.
2. Next, press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to EDIT, and then press ● to display the EDIT W.P Screen.

4. Use procedures in steps 5 through 8 under "To add a landmark by manually inputting its record data" to edit the contents of the waypoint's data record.
- You can change the waypoint's latitude, longitude, and altitude data.
5. After everything is the way you want, press ● to return to the Route Plan Screen.

To delete a waypoint from your route plan

Note
- Deleting a waypoint from your route plan causes all of the waypoints below it to be shifted upwards on the Route Plan Screen.
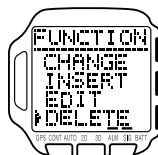
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the waypoint whose data record you want to delete.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to DELETE, and then press ●.
4. On the DELETE? confirmation screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to delete the waypoint you selected in step 1 and return to the Route Plan Screen.
- To cancel the delete operation without deleting anything, move the cursor to NO in the above step, and then press ● to return to the Route Plan Screen.

To reverse the order of waypoints on the Route Plan Screen

Note
- Use the following procedure when you want to return from your destination back to your original start point.
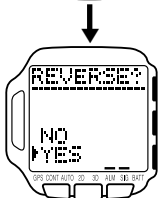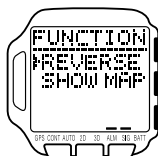
1. On the Route Plan Screen, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to REVERSE, and then press ●.
3. On the REVERSE? confirmation screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to reverse the sequence of waypoints on the Route Plan Screen and return to the Route Plan Screen.
- To cancel the sequence reverse operation without doing anything, move the cursor to NO in the above step, and then press ● to return to the Route Plan Screen.

Displaying a Waypoint on a Map
The following procedure lets you select a waypoint on the Route Plan Screen and display it on an on-screen map.

To display a waypoint on a map
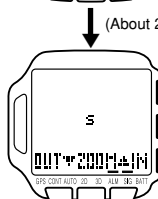
1. On the Route Plan Screen, use ▲ and ▼ to move the cursor to the waypoint you want.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to SHOW MAP, and then press ● to display the Waypoint Map Screen.
- If you selected the start point in step 1, it is indicated on the map as "S". Other waypoints are indicated by their waypoint numbers.
- You can change the scale of the Waypoint Map Screen by pressing ▲ (to decrease the scale value and zoom in) and ▼ (to increase the scale value and zoom out).

(About 2 seconds)

Note
- See "Turning Display of a Landmark Symbol On and Off" for information about displaying other landmarks in the vicinity of the current landmark, and "Turning a Track Point's Display Status On and Off" for information about displaying waypoints, and track points.
4. After you are finished viewing the Waypoint Map screen, press ● or **MODE** to return to the Route Plan Screen.

Track Log Memory

When you perform GPS measurements, track log records are created and stored into track log memory automatically at a fixed recording interval (which you can specify using the procedure under "To change the track point recording interval"). Track log records are used when plotting points on the Plot Screen and for producing the Altitude Graph Screen.

Note
- Track log memory can hold up to 400 records. After 400 records are stored in track log memory, each new GPS measurement deletes the oldest track log record to make room for the new one.

To view track log memory records
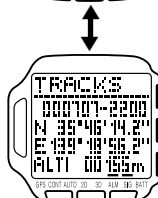
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to TRACKS, and then press ●.
- A screen appears showing how many records are unused (FREE) and how many records are in memory (USED). After about one second, the Track List appears.
- Pressing ▲ , ● or ▼ while the FREE/USED Screen is displayed changes directly to the Track List.
3. Use ▲ and ▼ to move the cursor to the track whose data record you want to view.
4. Press ●.
- Pressing ● toggles between the Track List and the track's data record.
5. Press **MODE** twice to return to the Timekeeping or GPS Mode.

Track Point Recording Interval

The track point recording interval determines how often a track point record is created and stored into the Track Log Memory while you are performing GPS data measurements. The following table lists all of the track point recording interval settings that are available, and describes how the each setting affects track point record storage.

Interval Setting	Description	Maximum Records Stored per Hour
OFF	• Turns off track point record storage.	0
1 min	• Records first successful measurement achieved during each 1-minute period.	60
2 min	• Records first successful measurement achieved during each 2-minute period.	30
5 min	• Records first successful measurement achieved during each 5-minute period.	12
10 min	• Records first successful measurement achieved during each 10-minute period.	6
15 min	• Records first successful measurement achieved during each 15-minute period.	4
20 min	• Records first successful measurement achieved during each 20-minute period.	3
30 min	• Records first successful measurement achieved during each 30-minute period.	2
60 min	• Records first successful measurement achieved during each 60-minute period.	1

- The initial default setting is 10 minutes.
- The start and end of each period are in accordance with the time being kept by the watch's Timekeeping Mode. With the **10 min** default setting, for example, 10-minute periods would be from the top of each hour to 10 minutes after the hour, from 10 minutes after the hour to 20 minutes after the hour, and so on. If you select **60 min**, only the first successful measurement achieved each hour (from :00 to :59) is recorded.
- After a track point record is created and stored for the first successful measurement achieved during a period, no more records are created until the time being kept in the Timekeeping Mode enters the next period of the interval. If you are using the **10 min** default setting and achieve successful measurements at 9:05, 9:06, 9:08, 9:12, and 9:15, for example, Track Log Memory records are created and stored for the 9:05 and 9:12 measurements only.

To change the track point recording interval
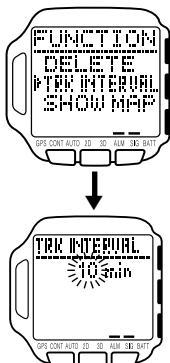
1. On the Track List, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to TRK INTERVAL, and then press ● to display the TRK INTERVAL Screen with the current track point recording interval setting flashing.

3. Use ▲ and ▼ to cycle through the track point recording interval settings in the sequence shown below.

Press ▲. →   ← Press ▼.

10 min → 15 min → 20 min → 30 min → 60 min
5 min ← 2 min ← 1 min ← OFF
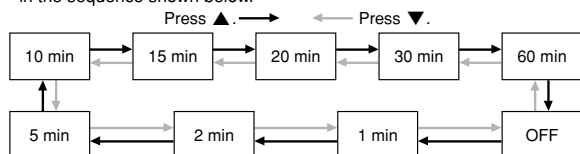
- The initial default setting is 10 minutes.
- Selecting OFF turns off track data recording.
4. After the setting is the way you want, press ● to return to the Track List.

Clearing Track Log Memory Contents

Use the following procedure to delete all of the records currently stored in track log memory.

To clear track log memory contents
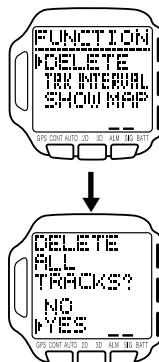
1. On the Track List, press **MENU** to display the FUNCTION Screen.
2. The cursor should already be located next to DELETE, so press ●.
3. On the confirmation screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ●.
- After about 10 seconds, the message "NO DATA" appears, indicating that track log memory is clear.
- To cancel the delete operation without deleting anything, move the cursor to NO in the above step, and then press ● to return to the Track List.

Displaying a Track on a Map

The following procedure lets you select a track point on the Track List and display it on an on-screen map.

To display a track on a map
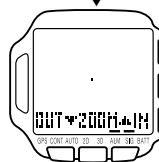
1. On the Track List, use ▲ and ▼ to move the cursor to the track point you want.
2. Press **MENU** to display the FUNCTION Screen.
3. Use ▲ and ▼ to move the cursor to SHOW MAP, and then press ● to display the Track Point Map Screen.
- The track point you select in step 1 is shown in the center of the Track Point Map Screen.
- You can change the scale of the Track Point Map Screen by pressing ▲ (to decrease the scale value and zoom in) and ▼ (to increase the scale value and zoom out).

Note
- See "Turning Display of a Landmark Symbol On and Off" for information about displaying other landmarks in the vicinity of the current landmark, and "Turning a Track Point's Display Status On and Off" for information about displaying waypoints, and track points.
4. After you are finished viewing the Track Point Map Screen, press ● or **MODE** to return to the Track List.

CONFIGURING THE GPS MODE

This section describes procedures you need to perform to configure the GPS Mode before actually performing GPS measurements. Most of these settings need to be made only the first time you use the watch.

Changing the DOP Value

See "How the Watch Uses the DOP Value" for information about how the watch uses the DOP value you specify here.

To change the DOP value setting
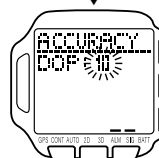
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to select SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to ACCURACY, and then press ● to display the ACCURACY Screen with the DOP value setting flashing.
4. Use ▲ and ▼ to set the DOP value you want.
- Holding down either button changes the setting at high speed.
- The initial DOP value setting is 10.
5. Press ● to apply your DOP value setting and return to the SET UP Screen.
6. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Specifying the Position Display Format

Normally, the watch displays a position obtained by a GPS measurement as latitude and longitude values showing degrees, minutes, and seconds. You can use the procedure below to specify display of latitudes and longitudes in degrees and minutes only, or in degrees only. You can even specify display of latitude and longitude in UTM grid coordinates.

To specify the position display format

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to select SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to POS. FORM.
4. Press ● to display the POS. FORM Screen.

5. Use ▲ and ▼ to select the position display option you want as described in the table below.

When you want to display this:	Select this option:
Latitude and longitude in degrees, minutes, seconds	DEG.MIN.SEC
Latitude and longitude in degrees, minutes	DEG.MIN
Latitude and longitude in degrees	DEG
UTM coordinates	UTM
MGRS coordinates	MGRS

Note
• If you select UTM for the position display format, you must also use UTM coordinates when defining landmarks and AREA data.

6. After you are finished making the setting you want, press ● to return to the SET UP Screen.
7. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Specifying the Distance, Speed, and Altitude Units

Use this procedure to specify the measurement units you want to use for display of the distance, speed, and altitude values produced by GPS measurements.

To specify the distance, speed, and altitude units
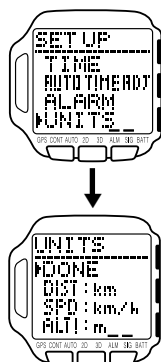
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to select SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to UNITS, and then press ● to display the UNITS Screen.
4. Use ▲ and ▼ to select DIST (distance), SPD (speed), or ALTI (altitude), and then press ●.
5. Use ▲ and ▼ to cycle through the available units in the sequence noted below, until the one you want to use is displayed, and then press ●.

Press ▲. ⟶   ⟵ Press ▼.

Item	Units
DIST	km (kilometers) ⟶ mi (miles) ↘ NM (nautical miles) ↗
SPD	km/h (kilometers per hour) ⟷ mi/h (miles per hour) / knot (knots)
ALTI	m (meters) ⟷ ft (feet)

6. Repeat steps 4 and 5 for other items if you want.
7. On the UNITS Screen, use ▲ and ▼ to move the cursor to DONE, and then press ● to return to the SET UP Screen.
• The measurement unit you specify affects the measurement range of each item. See "Measurement Unit Conversion" for more information.
8. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

Clearing the Maximum Speed Record

The watch keeps a record of the maximum speed you attain when speed measurements are being performed. Use the following procedure to clear the maximum speed record when you want to start a new speed measurement, etc.

To clear the maximum speed record
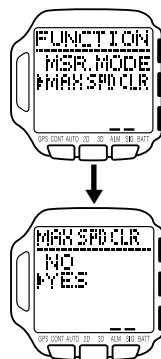
1. While the Position Screen, Plot Screen, or Graphical Navigation Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to MAX SPD CLR, and then press ●.
3. On the MAX SPD CLR Screen that appears, use ▲ and ▼ to move the cursor to YES, and then press ● to clear the maximum speed record and return to the Mode Screen you started from in step 1.
• To cancel the clear operation without clearing anything, move the cursor to NO in the above step, and then press ● to return to the Mode Screen you started from in step 1.

Specifying the Scale of the Plot Screen

Use the following procedure to change the scale of the Plot Screen.

To specify the scale of the Plot Screen
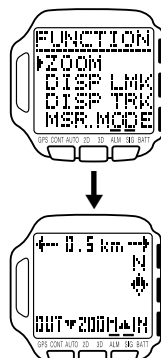
1. While the Plot Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. The cursor should already be located next to ZOOM, so press ● to display the Scale Screen.
3. Use ▲ and ▼ to cycle through the scale values in the sequence shown below until the one you want to set is displayed.
• Pressing ▲ makes the screen larger, while ▼ makes it smaller.

Press ▼. ⟶   ⟵ Press ▲.

Unit	Scale value
km	0.5 ⇄ 1.0 ⇄ 2.0 ⇄ 5.0 ⇄ 10 ⇄ 20 ⇄ 50 ⇄ 100 ⇄ 200 ⇄ 500 ⇄ 1000
mi, NM	0.2 ⇄ 0.5 ⇄ 1.0 ⇄ 2.0 ⇄ 5.0 ⇄ 10 ⇄ 20 ⇄ 50 ⇄ 100 ⇄ 200 ⇄ 500

• See "Specifying the Distance, Speed, and Altitude Units" for information about specifying the measurement unit you want to use.
4. After you are finished, press ● to save your setting and return to the Plot Screen.

Turning Display of a Landmark Symbol On and Off

You can use the following procedure to turn display of specific landmark symbols on (display) and off (not displayed). When a landmark symbol is turned off, any landmark that is assigned that symbol does not appear on the GPS Mode Plot Screen.

Note
• This procedure is impossible when there are no landmarks in the Landmark List.

To turn display of a landmark symbol on and off
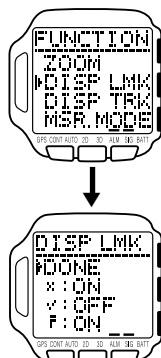
1. While the Plot Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to DISP LMK (Display Landmark), and then press ● to display the DISP LMK Screen.
3. Use ▲ and ▼ to select the landmark symbol you want.
4. Press ● to toggle the display status of the selected landmark symbol on (display) and off (do not display).
• The initial default setting for all landmark symbols is display off.
5. After everything is the way you want, use ▲ and ▼ to move the cursor to DONE, and then press ●.
• This saves your settings and returns to the Plot Screen.

Turning a Track Point's Display Status On and Off

You can use the following procedure to turn display of track points on (display) and off (not displayed). When track point display is turned off, no track points appear on the GPS Mode Plot Screen.

To turn a track point's display status on or off
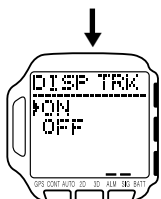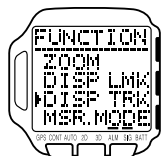
1. While the Plot Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to DISP TRK (Display Track), and then press ● to display the DISP TRK Screen.
3. Use ▲ and ▼ to move the cursor to ON (display) or OFF (do not display).
- The initial default setting for all tracks is display off.
4. After the setting is the way you want, press ●.
- This saves your settings and returns to the Plot Screen.

Making a Landmark Your Destination

You can configure a specific landmark so it becomes a "destination landmark," which means it is treated as your destination by the watch. If a landmark in your route plan is a destination landmark, the Graphical Navigation Screen of the GPS Mode shows the bearing and distance to it. You should always make a route plan landmark a destination landmark whenever you plan to use the Graphical Navigation Screen for navigation.

To create a landmark destination
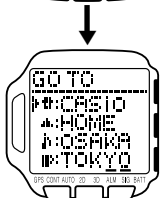
1. While the Graphical Navigation Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. The cursor should already be located next to GO TO, so press ● to display the GO TO Screen.
3. Use ▲ and ▼ to select the landmark you want.
- Holding down either button changes the setting at high speed.
4. Press ●.
- This makes the selected landmark a destination landmark and returns to the Graphical Navigation Screen.

Specifying the Bearing Orientation

This setting specifies the watch orientation that should be used when displaying the bearing on the GPS Mode Graphical Navigation Screen. The setting you make here specifies whether the top (12 o'clock position) of the watch is defined as north, or as your current heading (direction of travel). The watch uses this setting when producing bearing readings on the Graphical Navigation Screen.

To specify the bearing orientation
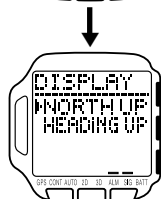
1. While the Graphical Navigation Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to DISPLAY, and then press ● to display the Bearing Screen.
3. Use ▲ and ▼ to select the bearing orientation you want to use, as described in the table, below.

To do this:	Select this orientation:
Define the top of the watch as north for all GPS measurement modes (One-Shot, AUTO, Continuous)	NORTH UP
Define the top of the watch as your current heading for heading measurements in the Continuous Mode only. NORTH UP orientation is used for One-Shot and AUTO measurements	HEADING UP

Note
- The initial default for this setting is NORTH UP.

4. After the setting is the way you want, press ● to save it and return to the Graphical Navigation Screen.

Specifying True or Magnetic North

Use this procedure to specify either true (geographic) north or magnetic north for the northerly indication on the Graphical Navigation Screen. If you select magnetic north, you must also input the magnetic declination (the angle by which magnetic north differs from true north). See "USER MAG Setting" for more information.

To specify true north or magnetic north
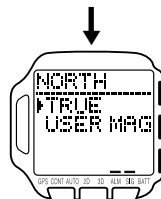
1. While the Graphical Navigation Screen is on the display in the GPS Mode, press **MENU** to display the FUNCTION Screen.
2. Use ▲ and ▼ to move the cursor to NORTH, and then press ● to display the NORTH Screen.
3. Use ▲ and ▼ to move the cursor to TRUE (true north) or USER MAG (magnetic north), and then press ●.
- If you selected TRUE, pressing ● in the above step sets true north and returns to the Graphical Navigation Screen to end the procedure.
- If you selected USER MAG in the above step, perform steps 4 and 5 below.

4. Use **MODE** to move the flashing around the display in the sequence shown below, and specify how many degrees it is east or west from magnetic north to true north in relationship to your current position (magnetic declination).

```
E/W  →  Declination value digits
  ↑_____|
```
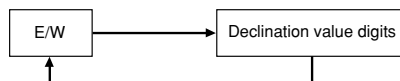
- See "To change a numeric setting".
- When the E/W setting is selected, use ▲ and ▼ to toggle it between E and W.
5. After everything is the way you want, press ● to save your settings and return to the Graphical Navigation Screen.

Setting an Arrival Alarm

You can specify a distance value, so the arrival alarm beeps once when you reach a point that is the specified distance from your destination.
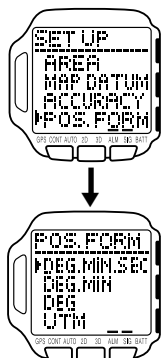
To set the arrival alarm

1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to SET UP, and then press ● to display the SET UP Screen.
3. Use ▲ and ▼ to move the cursor to ALARM, and then press ● to display the Alarm Setting Screen.
4. Use ▲ and ▼ to move the cursor to ARRIVAL ALM, and then press ●.

5. Use **MODE** to move the flashing around the display in the sequence shown below.

```
Distance (integer) → Distance (decimal) → ARRIVAL ALM ON/OFF
  ↑_____|
```
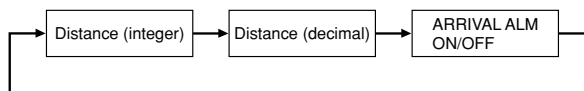
6. While the distance digits are selected (flashing), use ▲ (+) and ▼ (–) to change the setting.
- Holding down either button changes the setting at high speed.
- While the ARRIVAL ALM ON/OFF setting is selected, use ▲ and ▼ to toggle the arrival alarm on and off.
7. After everything is the way you want, press ● to exit the Setting Screen and return to the Alarm Setting Screen.
8. Confirm that the cursor is next to DONE and then press ● to return to the SET UP Screen.
9. Press **MODE** or **MENU** twice to return to the Timekeeping or GPS Mode.

EXCHANGING DATA WITH A COMPUTER

To exchange GPS and watch setup data between the watch and your computer, you must connect the watch's Interface/Charger Unit to the computer and mount the watch on the Interface/Charger Unit.

Important!
- Sending even one landmark, track point, or waypoint (route plan) from your computer to the watch causes all of the landmarks, track points, or waypoints (route plan) in watch memory to be deleted and replaced by the data you send. If you need the data in watch memory, be sure to make a backup copy before sending data from your computer to the watch.
- Never remove the watch from the Interface/Charger Unit while a data communication operation is in progress. Doing so can corrupt the data in watch memory.
- When preparing for data communication, be sure you put the watch into the PC INTERFACE Mode before you mount it onto the Interface/Charger Unit.

Note
- Before you can perform data communication with a personal computer, you must install the Watch Application bundled on the CD-ROM onto your computer. See the documentation file on the CD-ROM for information about how to install the Watch Application.

To connect the Interface/Charger Unit to a computer

Connect the Interface/Charger Unit to your computer using the serial cable that comes with the watch.

COM port
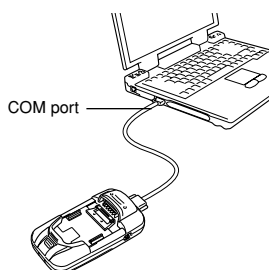
- Plug the serial cable into the proper ports, making sure it is connected securely. Proper operation is not possible if connections are not secure.
- When using the Interface/Charger Unit to connect to a computer, there is no need to connect the AC Adaptor to the Interface/Charger Unit.
- When connecting to a computer, make sure the temperature is as close to room temperature (around 23°C) as possible.

To exchange data with a computer
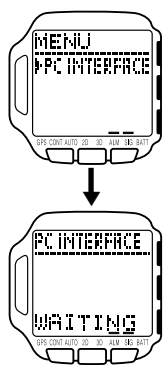
1. In the Timekeeping or GPS Mode, press **MENU** twice to display the MENU Screen.
2. Use ▲ and ▼ to move the cursor to PC INTERFACE.
3. Mount the watch onto the Interface/Charger Unit, and then press ● to display the PC INTERFACE Screen.
- The message "WAITING" should be on the PC INTERFACE Screen.
4. Perform data uploading and downloading from your computer using the Watch Application you installed from the CD-ROM.
- See the contents of the "Manual" folder on the CD-ROM for information about data uploading and downloading.
5. Press **MODE** twice to return to the Timekeeping or GPS Mode.

REFERENCE

This section contains more detailed and technical information about the features, functions, and operation of this watch. It also contains important precautions and notes that apply to watch operation.

Inputting Data

The following are the procedures you should use to input text, numbers, etc.

To input text

1. Press **MODE** to move the flashing to the position where you want to input a character.

2. Use ▲ and ▼ to cycle through the available input characters in the sequence shown below.

Press ▲. ⟶ ⟵ Press ▼.

(space) ⟷ A to Z ⟷ 0 to 9

: ⟷ / ⟷ .
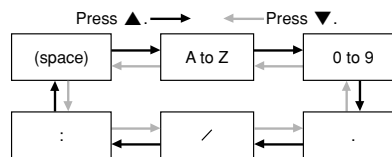
- Holding down ▲ or ▼ cycles through the characters at high speed.
- To delete all the characters currently in the input area on the display, hold down **MODE** for about one second.
- You can input up to 16 characters.
3. Repeat steps 1 and 2 to input all the characters you want.

To input the latitude and longitude
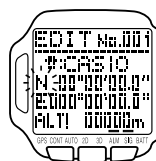
1. Press **MODE** to move the flashing to the position in the latitude or longitude you want to change.
2. Use ▲ and ▼ to cycle through the range of settings at the position where the flashing is located.
- Holding down ▲ or ▼ cycles through the settings at high speed.
3. Repeat steps 1 and 2 to set the latitude you want.

Position	Setting Range
N 00"00' 00.0"	N or S
N **0**0"00' 00.0"	0 to 9
N 0**0**"00' 00.0"	0 to 9
N 00"**0**0' 00.0"	0 to 5
N 00"0**0**' 00.0"	0 to 9
N 00"00' **0**0.0"	0 to 5
N 00"00' 0**0**.0"	0 to 9
N 00"00' 00.**0**"	0 to 9

Position	Setting Range
E 100"00' 00.0"	E or W
E **1**00"00' 00.0"	0 to 1
E 1**0**0"00' 00.0"	0 to 9
E 10**0**"00' 00.0"	0 to 9
E 100"**0**0' 00.0"	0 to 5
E 100"0**0**' 00.0"	0 to 9
E 100"00' **0**0.0"	0 to 5
E 100"00' 0**0**.0"	0 to 9
E 100"00' 00.**0**"	0 to 9

- Any latitude greater than 90°00'00.0" is automatically converted to 90°00'00.0" when you save it.

- Any longitude greater than 180°00'00.0" is automatically converted to 180°00'00.0" when you save it.

To change a numeric setting

1. Press **MODE** to move the flashing to the digit you want to change.
2. Use ▲ and ▼ to cycle through the numbers from 0 to 9.
- Holding down ▲ or ▼ cycles through the numbers at high speed.
- Some numeric settings allow input of negative values. In such a case, the first (leftmost) digit of the value becomes a minus sign.
3. Repeat steps 1 and 2 to make all the settings you want.

Measurement Unit Conversion

The watch uses the values to convert from the metric system to other units. See "To specify the distance, speed, and altitude units" for information about selecting units of measurement.

Distance
- 1 mi = 1.6093 km
- 1 NM = 1.852 km

Speed
- 1 mi/h = 1.6093 km/h
- 1 knot = 1.852 km/h

Altitude
- 1 ft = 0.3048 m

Displaying GPS Satellite Information

You can use the following procedure to display the position and the receive status of GPS satellites that are currently overhead.

Satellite Information Display

The following shows the meaning of the satellite marks that appear on the display.

Celestial Sphere
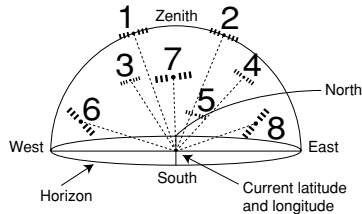
Top-Down View
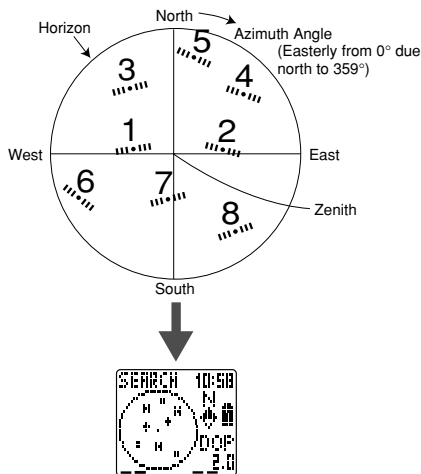
Satellite Marks

Searching
This mark indicates a satellite from which the watch is standing by to receive a signal. The positions of these satellites are determined using almanac data for the current latitude, longitude, and time.
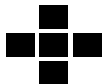
Tracking
This mark indicates a satellite that is currently being tracked by the watch. Signal receipt for these satellites is enabled.
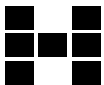
Busy
This mark indicates a satellite from which ephemeris data (information about the position of the host satellite and the satellite clock time) is being received. It indicates the satellites that the watch is using for position measurement.

Battery Marks

⊟: Battery charge is sufficient.

⊟: Battery is getting load. Charge it as soon as possible.

Datums

Since the Earth is neither flat nor a perfect sphere or even an ellipsoid, a wide variety of spheroid models (mostly ellipses) were developed with different major and minor axes. An ellipsoid, in addition to the various control points required to relate how the ellipsoid lies in relation to the Earth, constitutes a map datum.
When various countries mapped their areas, each usually used its own datum to provide accuracy in a specific area. Though some datums share the same ellipsoid, they use different control points, which results in differing datums. The development of air travel between countries created the need for a single global datum, which is identified according to their World Geodetic System (WGS) names. The constellation of GPS satellites uses WGS 84 to describe coordinates. It should be noted that errors of several hundred meters can occur if coordinates of one datum are referred to in another datum without converting them first.

UTM Grid Coordinates

The letters "UTM" stand for "Universal Transverse Mercator," which is a grid system developed in an attempt to set up a universal world wide system for mapping.
The UTM system divides the earth into 60 zones, each of which is 6 degrees of longitude wide. UTM zones, which extend from a latitude of 80° S to 84° N, define the reference point for UTM grid coordinates within the zone.
You can find more about UTM grid coordinates from the many technical subjects that are available on the topic, or on the Internet.

MRGS

The letters "MRGS" stand for "Military Reference Grid System," which further divides UTM grids into 100,000-meter grid squares with double-letter designations.
You can find more about MRGS coordinates from the many technical subjects that are available on the topic, or on the Internet.

DOP Values

The letters "DOP" stand for "Dilution of Precision," and the DOP value indicates the quality of the satellites available to you (geometry between you and the set of satellites being used by the watch for measurement). A high DOP value indicates poor satellite positioning, while a lower value indicates better positioning. Taking a reading while the satellites being used are low on the horizon or while you are under heavy tree cover produces a high DOP value, which indicates poor satellite positioning.

How the Watch Uses the DOP Value

- When you perform a GPS measurement in the One-shot or AUTO Mode, the watch obtains a DOP value for the positioning of the set of satellites used for the measurement and compares it with the watch's current DOP value setting.
- If the obtained DOP value is greater than the preset DOP value (indicating positioning that is poorer than the preset value), the watch beeps three times and then continues to perform measurements until the obtained value is less than the preset value or until 30 seconds elapse.
- If the watch is unable to achieve a measurement with a DOP value that is less than the preset DOP value within 30 seconds, the watch beeps once.

Note
- The above DOP comparison operation is not performed when you are using the Continuous Mode for GPS measurements.
- If you constantly experience problems obtaining successful GPS measurement results, try increasing the watch's DOP value setting.

USER MAG Setting

When you select magnetic north "USER MAG" in the procedure under "To specify true north or magnetic north", you must provide a magnetic declination value that indicates the difference between true north and magnetic north at your current location. You can obtain information about local magnetic declination values from the following sources.
- Most topographic maps include a small diagram with three arrows showing magnetic north, true north and Universal Transverse Mercator grid north, as well as a value of declination.
- You can also find a wealth of magnetic declination information on the Internet.

Important!
- Magnetic declination values change year by year. Make sure you are using current values.

GPS Mode

What is GPS?

The Global Positioning System (GPS) was originally developed and is currently operated by the United States Department of Defense. The space segment of the GPS consists of the NAVSTAR satellites that are orbiting 21,000 kilometers above the Earth over six equally spaced orbital planes. When signals are received from a minimum of three satellites, the principal of triangulation is used to determine the current location of the GPS Watch based on the distance between each satellite and the watch, and the orbital path of each satellite.

Important!
- The signals produced by GPS satellites are controlled by the GPS Master Control Station at Colorado Springs, Colorado. Signals may be subject to reduced precision and even interruption without notice.

Almanac and Ephemeris Data

The data message sent from a GPS satellite consists of an almanac that gives the approximate positions of all the other satellites in the system, and the satellite ephemeris that contains precise information about the position of the host satellite.

How quickly the watch is able to acquire the data it needs to determine your position depends on a number of factors. One of the most important factors is the status of almanac and ephemeris data in watch memory. There are two possible data conditions from which you can start when performing a GPS measurement: hot start, warm start.

Start Type	Description
Hot Start	• GPS receiver circuit shut off for a very short time (few minutes at most). • Watch has not been moved to a different location since last measurement. • Both almanac and ephemeris data from last measurement still in memory.
Warm Start	• GPS receiver circuit shut off for a long time (over night, etc.) • Watch has not been moved to a different location since last measurement. • Almanac data from last measurement still in memory, but no ephemeris data.

Important!
• The above terms and their definitions are based on current standard American English usage. Definitions may differ according to language and geographic area.

Whenever the watch determines that the almanac data it currently has in memory is no longer valid, it receives new almanac data from one of the satellites overhead. The message "RECEIVING SATELLITE DATA" appears when almanac data is being received. It takes about 10 minutes for this procedure to be completed. Be sure to leave the watch with its antenna facing the sky whenever this message is on the display.

Factors that Affect GPS Signal Reception

Signal reception from GPS satellites may be difficult or even impossible under the following conditions.
• Inside buildings or underground
• Among tall buildings
• In densely wooded areas
• Near high voltage lines
• Inside a motor vehicle
• When the antenna is covered by your sleeve, etc.

Navigation Precautions

• **Never perform navigation operations while walking, cycling, or operating a motor vehicle. Doing so can lead to accidents.**
• **Do not use this watch as a main navigation device for a boat or aircraft. Doing so can lead to accidents.**
• **Though a useful navigational tool, a GPS receiver should never be used as a replacement for conventional map and compass techniques. Remember that magnetic compasses can work at temperatures well below zero, have no batteries, and are mechanically simple. They are easy to operate and understand, and will operate almost anywhere. For these reasons, the magnetic compass should still be your main navigation tool.**

Data Reliability

• The global positioning system (GPS) is administered by the United States, which also takes responsibility for all maintenance, management, and precision adjustments. Because of this, there may be unforeseen changes in the system and the signals it generates.

Graphical Navigation Screen

• Though the HEADING UP Screen can be used when traveling at speeds of less than 8 kilometers per hour, measurement accuracy is greatly reduced.
• The message "SEARCH" appears on the screen if buildings or other obstructions interfere with signal receipt while the HEADING UP Screen is on the display during Continuous Mode measurements. The HEADING UP Screen will return as soon as the next successful measurement is achieved.
• The maximum distance that can be displayed on the Graphical Navigation Screen is 9999 kilometers.
• The destination pointer may remain on the HEADING UP Screen even if you come to a full stop.
• The appearance of the destination pointer changes automatically depending on the relative direction of the destination.

Bearing and Direction Values

Bearing and direction are indicated on the screens as values that represent degrees. The following illustration shows the meanings of these values.

315° = Northwest   0° = North   45° = Northeast
270°= West   90° = East
225° = Southwest   180° = South   135° = Southeast
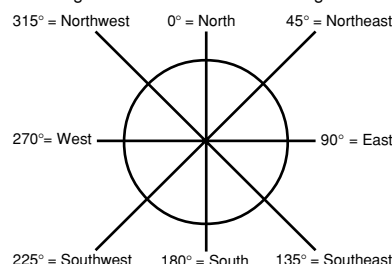
Display Indicators and Messages

The following describes some of the indicators and messages that appear on the display of the watch. These are normal and do not indicate malfunction.

WAIT Message

This message appears on the display when you start charging after the watch's battery goes dead. Do not interrupt charging while this message is on the display.

RECEIVING SATELLITE DATA Message

This message indicates that the watch is receiving satellite data. A data receive operation can take about 10 minutes to complete. Leave the watch with its face facing towards the sky during this period.

On-Screen Indicators

The following describes the indicators along the bottom of the display. The following table explains what it means when there is a marker (bar) above an indicator, which means the indicator is "on."

Indicator	Meaning When On
GPS	• Watch is in the GPS One-Shot or Auto Mode. • This indicator is on when the watch is performing a GPS measurement operation.
CONT	• Watch is in the GPS Continuous Mode.
AUTO	• Watch is in the GPS Auto Mode.
2D	• Watch is performing a 2-dimensional GPS measurement (using three satellites).
3D	• Watch is performing a 3-dimensional GPS measurement (using four or more satellites), which provides better accuracy than 2D.
ALM	• Daily alarm or arrival alarm is turned on.
SIG	• Hourly Time Signal is turned on.
BATT	• Battery power is low and battery needs to be charged.

Lower Display Area Items

The following table describes the types of information that appear in the lower display area.

Display Item	Content	Screen Type
Longitude and latitude	• S/N Latitude: Degrees, Minutes, Seconds • E/W Longitude: Degrees, Minutes, Seconds	Timekeeping, Plot, Graphical Navigation
Stopwatch		Timekeeping
Current time and date	• Current year, month, day, hour, minutes, seconds, AM/PM	Position
Heading and Speed	• Continuous GPS measurement mode only • Heading (HDG): From 0° (due north) to 359°, • Speed (SPD): km/h	Position, Plot, Graphical Navigation
Maximum Speed	• Maximum speed (MAX SPD) achieved	Position, Plot, Graphical Navigation
Altitude	• Altitude (meters) obtained by GPS measurement ALTI DOP value or 3D measurement	Position, Plot, Graphical Navigation
Direction and distance to destination	• Direction (BRG): Direction to destination from 0° (straight) to 359° • Distance (DIST): kilometers to destination	Graphical Navigation
DOP value	• GPS measurement DOP value	Position

Note
• If 3D measurements were not possible for the last GPS measurement, "_____" is shown for both the altitude and the DOP value.
• "_____" is shown for the distance to the destination if the distance is greater than 9999 km.

Antenna

Antenna

Never attach any metallic stickers to the antenna of this watch. Doing so can interfere with proper signal reception.

AREA LIST

City Code	City Name	GMT Differential	S/N	Deg	Min	E/W	Deg	Min	Datum Name
				Latitude			Longitude		
HNL	HONOLULU	− 10.0	N	21	21	W	157	56	OLD HAWAIIAN
ANC	ANCHORAGE	− 9.0	N	61	10	W	149	55	NAD83-1
YVR	VANCOUVER	− 8.0	N	49	11	W	123	10	NAD83-2
SFO	SAN FRANCISCO	− 8.0	N	37	37	W	122	23	NAD83-3
SEA	SEATTLE	− 8.0	N	47	37	W	122	19	NAD83-3
LAX	LOS ANGELES	− 8.0	N	34	03	W	118	15	NAD83-3
LAS	LAS VEGAS	− 8.0	N	36	05	W	115	10	NAD83-3
YEA	EDMONTON	− 7.0	N	53	34	W	113	31	NAD83-2
DEN	DENVER	− 7.0	N	39	45	W	104	52	NAD83-3
MEX	MEXICO CITY	− 6.0	N	19	24	W	99	12	NAD83-4
DFW	DALLAS	− 6.0	N	32	47	W	96	48	NAD83-3
HOU	HOUSTON	− 6.0	N	29	46	W	95	22	NAD83-3
GUA	GUATEMALA CITY	− 6.0	N	14	35	W	90	31	NAD83-4
CHI	CHICAGO	− 6.0	N	41	47	W	87	45	NAD83-3
SJO	SAN JOSE	− 6.0	N	09	56	W	84	05	NAD83-4
ATL	ATLANTA	− 5.0	N	33	39	W	84	25	NAD83-3
DTT	DETROIT	− 5.0	N	42	20	W	83	01	NAD83-3
MIA	MIAMI	− 5.0	N	25	49	W	80	17	NAD83-3
YTO	TORONTO	− 5.0	N	43	40	W	79	38	NAD83-2
PTY	PANAMA CITY	− 5.0	N	08	58	W	79	31	WGS84
LIM	LIMA	− 5.0	S	12	00	W	77	07	S-AMERICAN 69
WAS	WASHINGTON	− 5.0	N	38	51	W	77	02	NAD83-3
BOG	BOGOTA	− 5.0	N	04	42	W	74	08	BOGOTA OBS
NYC	NEW YORK	− 5.0	N	40	46	W	73	54	NAD83-3
YMQ	MONTREAL	− 5.0	N	45	28	W	73	45	NAD83-2
BOS	BOSTON	− 5.0	N	42	22	W	71	02	NAD83-3
SCL	SANTIAGO	− 4.0	S	33	26	W	70	41	S-AMERICAN 69
LPB	LA PAZ	− 4.0	S	16	31	W	68	11	S-AMERICAN 69
CCS	CARACAS	− 4.0	N	10	30	W	66	56	S-AMERICAN 69
BUE	BUENOS AIRES	− 3.0	S	34	35	W	58	29	CAMPO
MVD	MONTEVIDEO	− 3.0	S	34	52	W	56	12	YACARE
SAO	SAO PAULO	− 3.0	S	23	30	W	46	37	CORREGO
RIO	RIO DE JANEIRO	− 3.0	S	22	55	W	43	10	CORREGO
LPA	GRAN CANARIA	0.0	N	28	29	W	15	11	PICO NIEVES
LIS	LISBON	0.0	N	38	47	W	09	08	EUROPEAN 79
CAS	CASABLANCA	0.0	N	33	34	W	07	40	MERCHICH
EDI	EDINBURGH	0.0	N	55	57	W	03	13	G-BRITAIN 36
LON	LONDON	0.0	N	51	09	W	00	11	G-BRITAIN 36
MAD	MADRID	1.0	N	40	25	W	03	41	EUROPEAN 79
BCN	BARCELONA	1.0	N	41	25	E	02	08	EUROPEAN 79
PAR	PARIS	1.0	N	48	58	E	02	27	EUROPEAN 79
BRU	BRUSSELS	1.0	N	50	50	E	04	20	EUROPEAN 79
AMS	AMSTERDAM	1.0	N	52	21	E	04	54	EUROPEAN 79
ZRH	ZURICH	1.0	N	47	23	E	08	34	EUROPEAN 79
FRA	FRANKFURT	1.0	N	50	07	E	08	40	EUROPEAN 79
MIL	MILAN	1.0	N	45	28	E	09	12	EUROPEAN 79
HAM	HAMBURG	1.0	N	53	38	E	10	00	EUROPEAN 79
OSL	OSLO	1.0	N	60	12	E	11	05	EUROPEAN 79
MUC	MUNICH	1.0	N	48	08	E	11	42	EUROPEAN 79
ROM	ROME	1.0	N	41	48	E	12	14	EUROPEAN 79
CPH	COPENHAGEN	1.0	N	55	41	E	12	33	EUROPEAN 79
VIE	VIENNA	1.0	N	48	15	E	16	22	EUROPEAN 79
STO	STOCKHOLM	1.0	N	59	21	E	17	57	EUROPEAN 79
CPT	CAPE TOWN	2.0	S	33	59	E	18	36	CAPE
ATH	ATHENS	2.0	N	37	58	E	23	43	EUROPEAN 79
HEL	HELSINKI	2.0	N	60	19	E	24	58	EUROPEAN 79
IST	ISTANBUL	2.0	N	40	58	E	29	05	WGS84
CAI	CAIRO	2.0	N	30	08	E	31	24	OLD EGYPT 30
JRS	JERUSALEM	2.0	N	31	46	E	35	13	WGS84
NBO	NAIROBI	3.0	S	01	19	E	36	55	ARC60
ADD	ADDIS ABABA	3.0	N	08	59	E	38	48	ADINDAN-1
JED	JEDDAH	3.0	N	21	30	E	39	12	NAHRWAN-3
BGW	BAGHDAD	3.0	N	33	14	E	44	14	WGS84
RUH	RIYADH	3.0	N	24	43	E	46	43	NAHRWAN-3
KWI	KUWAIT	3.0	N	29	20	E	48	01	NAHRWAN-2
BAH	BAHRAIN	3.0	N	26	00	E	50	30	AIN EL ABD 70
DOH	DOHA	3.0	N	25	17	E	51	32	QATAR
THR	TEHRAN	3.5	N	35	41	E	51	21	EUROPEAN 79
DXB	DUBAI	4.0	N	25	18	E	55	18	NAHRWAN-2
MCT	MUSCAT	4.0	N	23	48	E	58	36	OMAN
KBL	KABUL	4.5	N	34	33	E	69	13	HERAT NORTH
KHI	KARACHI	5.0	N	24	54	E	67	08	WGS84
BOM	BOMBAY	5.5	N	18	54	E	72	49	INDIAN-2
DEL	DELHI	5.5	N	28	37	E	77	12	INDIAN-2
MAA	MADRAS	5.5	N	13	00	E	80	11	INDIAN-2
CCU	CALCUTTA	5.5	N	22	32	E	88	20	INDIAN-2
DAC	DHAKA	6.0	N	23	48	E	90	25	INDIAN-2
RGN	YANGON	6.5	N	16	46	E	96	10	WGS84
BKK	BANGKOK	7.0	N	13	44	E	100	34	INDIAN-1
JKT	JAKARTA	7.0	S	06	11	E	106	50	BUKIT RIMPAH
KUL	KUALA LUMPUR	8.0	N	03	07	E	101	33	KERTAU 48
SIN	SINGAPORE	8.0	N	01	22	E	103	55	SOUTH ASIA
HKG	HONG KONG	8.0	N	22	18	E	114	10	HONG KONG 63
PER	PERTH	8.0	S	31	56	E	115	57	AUSTRALIA 84
BJS	BEIJING	8.0	N	39	56	E	116	17	WGS84

City Code	City Name	GMT Differential	S/N	Deg	Min	E/W	Deg	Min	Datum Name
				Latitude			Longitude		
MNL	MANILA	8.0	N	14	31	E	121	00	LUZON-1
SHA	SHANGHAI	8.0	N	31	10	E	121	26	WGS84
TPE	TAIPEI	8.0	N	25	02	E	121	31	HU-TZU-SHAN
SEL	SEOUL	9.0	N	37	30	E	127	00	TOKYO
FUK	FUKUOKA	9.0	N	33	35	E	130	23	TOKYO
OSA	OSAKA	9.0	N	34	41	E	135	31	TOKYO
TYO	TOKYO	9.0	N	35	41	E	139	46	TOKYO
SPK	SAPPORO	9.0	N	43	03	E	141	20	TOKYO
ADL	ADELAIDE	9.5	S	34	56	E	138	31	AUSTRALIA 84
GUM	GUAM	10.0	N	13	33	E	144	50	GUAM 63
MEL	MELBOURNE	10.0	S	37	49	E	144	58	AUSTRALIA 84
SYD	SYDNEY	10.0	S	33	57	E	151	11	AUSTRALIA 84
NOU	NOUMEA	11.0	S	22	16	E	166	27	WGS84
WLG	WELLINGTON	12.0	S	41	17	E	174	46	GEO-DATUM 49
AKL	AUCKLAND	12.0	S	37	01	E	174	48	GEO-DATUM 49

DATUM LIST

Datum Name	Display	Applicable Area	△X	△Y	△Z	△A	△F
ASTRONOMIC STATION 1952	A–STATION 52	Marcus Island	−124	234	25	251.000	0.000014192702
ADINDAN	ADINDAN–1	Ethiopia, Sudan	166	15	−204	112.145	0.000054750714
	ADINDAN–2	Mali	123	20	−220	112.145	0.000054750714
	ADINDAN–3	Senegal	128	18	−224	112.145	0.000054750714
AFG	AFG	Somalia	43	163	−45	108.000	−0.000000480795
AIN EL ABD 1970	AIN EL ABD 70	Bahrain Island	150	251	2	251.000	0.000014192702
ANNA 1 ASTRO 1965	ANNA 1 AST 65	Cocos Islands	491	22	−435	23.000	0.000000081204
ARC 1950	ARC 50	Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia, Zimbabwe	143	90	294	112.145	0.000054750714
ARC 1960	ARC 60	Kenya, Tanzania	160	8	300	112.145	0.000054750714
ASCENSION ISLAND 1958	ASCENSION 58	Ascension Island	207	−107	−52	251.000	0.000014192702
ASTRO B4 SOR. ATOLL	ASTRO B4 SOR	Tern Island	−114	116	333	251.000	0.000014192702
ASTRO BEACON "E"	ASTRO EACON	Iwo Jima Island	−145	−75	272	251.000	0.000014192702
ASTRO POS 71/4	ASTRO POS 714	St. Helena Island	320	−550	494	251.000	0.000014192702
AUSTRALIAN GEODETIC 1966	AUSTRALIA 66	Australia, Tasmania Island	133	48	−148	23.000	0.000000081204
AUSTRALIAN GEODETIC 1984	AUSTRALIA 84	Australia and Tasmania Island	134	48	−149	23.000	0.000000081204
BELLEVUE(IGN)	BELLEVUE	Efate, Erromango Islands	127	769	−472	251.000	0.000014192702
BERMUDA 1957	BERMUDA 57	Bermuda Islands	73	−213	−296	69.400	0.000037264639
BOGOTA OBSERVATORY	BOGOTA OBS	Colombia	−307	−304	318	251.000	0.000014192702
BUKIT RIMPAH	BUKIT RIMPAH	Bangka and Belitung Islands (Indonesia)	384	−664	48	−739.845	−0.0000010037483
CAMP AREA ASTRO	CAMP AREA AST	Camp McMurdo Area, Antarctica	104	129	−239	251.000	0.000014192702
CAMPO INCHAUSPE	CAMPO	Argentina	148	−136	−90	251.000	0.000014192702
CANTON ISLAND 1966	CANTON IS 66	Phoenix Islands	−298	304	375	251.000	0.000014192702
CAPE	CAPE	South Africa	136	108	292	112.145	0.000054750714
CAPE CANAVERAL	CAPE CANAV	Florida and Bahama Islands	2	−150	−181	69.400	0.000037264639
CARTHAGE	CARTHAGE	Tunisia	263	−6	−431	112.145	0.000054750714
CHATHAM 1971	CHATHAM 71	Chatham Island (New Zealand)	−175	38	−113	251.000	0.000014192702
CHUA ASTRO	CHUA ASTRO	Paraguay	134	−229	29	251.000	0.000014192702
CORREGO ALEGRE	CORREGO	Brazil	206	−172	6	251.000	0.000014192702
DJAKARTA(BATAVIA)	DJAKARTA	Sumatra Island (Indonesia)	377	−681	50	−739.845	−0.0000010037483
DOS 1968	DOS 68	Gizo Island (New Georgia Islands)	−230	199	752	251.000	0.000014192702
EASTER ISLANDS 1967	EASTER IS 67	Easter Island	−221	−147	−111	251.000	0.000014192702
EUROPEAN 1950	EUROPEAN 50	Europe (Mean Value)	87	98	121	251.000	0.000014192702
EUROPEAN 1979	EUROPEAN 79	Europe (Mean Value)	86	98	119	251.000	0.000014192702
ORDNANCE SURVEY OF GREAT BRITAIN 1936	G–BRITAIN 36	England, Isle of Man, Wales, Scotland, Shetland Islands	−375	111	−431	−573.604	−0.0000011960023
G.SEGARA	G.SEGARA	Kalimantan Island (Indonesia)	403	−684	−41	−739.845	−0.0000010037483
GANDAJIKA BASE	GANDAJIKA	Republic of Maldives	133	321	−50	251.000	0.000014192702
GEODETIC DATUM 1949	GEO–DATUM 49	New Zealand	−84	22	−209	251.000	0.000014192702
GUAM 1963	GUAM 63	Guam Island	100	248	−259	69.400	0.000037264639
GUX 1 ASTRO	GUX 1 ASTRO	Guadalcanal Island	−252	209	751	251.000	0.000014192702
HERAT NORTH	HERAT NORTH	Afghanistan	333	222	−114	251.000	0.000014192702
HJORSEY 1955	HJORSEY 55	Iceland	73	−46	86	251.000	0.000014192702
HONG KONG 1963	HONG KONG 63	Hong Kong	156	271	189	251.000	0.000014192702
HU-TZU-SHAN	HU–TZU–SHAN	Taiwan	634	549	201	251.000	0.000014192702
INDIAN	INDIAN–1	Thailand and Vietnam	−214	−836	−303	−860.655	−0.000028361368
	INDIAN–2	Bangladesh, India, and Nepal	−289	−734	−257	−860.655	−0.000028361368
IRELAND 1965	IRELAND 65	Ireland	−506	122	−611	−796.811	−0.0000011960023
ISTS 073 ASTRO 1969	ISTS 073 AST	Diego Garcia	−208	435	229	251.000	0.000014192702
JOHNSTON ISLAND 1961	JOHNSTON 61	Johnston Island	−191	77	204	251.000	0.000014192702
KANDAWALA	KANDAWALA	Sri Lanka	97	−787	−86	−860.655	−0.000028361368
KERGUELEN ISLAND	KERGUELEN	Kerguelen Island	−145	187	−103	251.000	0.000014192702
KERTAU 1948	KERTAU 48	West Malaysia and Singapore	11	−851	−5	−832.937	−0.000028361368
L.C.5 ASTRO	L.C.5 ASTRO	Cayman Brac Island	−42	−124	−147	69.400	0.000037264639
LA REUNION	LA REUNION	Mascarene Island	−94	948	1262	251.000	0.000014192702
LIBERIA 1964	LIBERIA 64	Liberia	90	−40	−88	112.145	0.000054750714
LUZON	LUZON–1	Philippines (Excluding Mindanao Island)	133	77	51	69.400	0.000037264639
	LUZON–2	Mindanao Island	133	79	72	69.400	0.000037264639
MAHE 1971	MAHE 71	Mahe Island	−41	220	134	112.145	0.000054750714
MARCO ASTRO	MARCO ASTRO	Salvage Island	289	124	−60	251.000	0.000014192702
MASSAWA	MASSAWA	Eritrea (Ethiopia)	−639	−405	−60	−739.845	−0.0000010037483
MERCHICH	MERCHICH	Morocco	−31	−146	47	112.145	0.000054750714
MIDWAY ASTRO 1961	MIDWAY AST 61	Midway Island	−912	58	−1227	251.000	0.000014192702
MINNA	MINNA	Nigeria	92	93	−122	112.145	0.000054750714
NORTH AMERICAN 1927	NAD27–1	North America, CONUS (Mean Value)	8	−160	−176	69.400	0.000037264639
	NAD27–2	Alaska	−5	−135	−172	69.400	0.000037264639
	NAD27–3	Canada (Including Newfoundland Island)	10	−158	−187	69.400	0.000037264639
	NAD27–4	Central America	0	−125	−194	69.400	0.000037264639
	NAD27–5	Canal Zone	0	−125	−201	69.400	0.000037264639
	NAD27–6	Caribbean	7	−152	−178	69.400	0.000037264639
	NAD27–7	Cuba	9	−152	−178	69.400	0.000037264639
	NAD27–8	Greenland	−11	−114	−195	69.400	0.000037264639
	NAD27–9	Mexico	12	−130	−190	69.400	0.000037264639

Datum Name	Display	Applicable Area	Datum Parameter				
			△X	△Y	△Z	△A	△F
NORTH AMERICAN 1983	NAD83–1	Alaska	0	0	0	0.000	0.000000000016
	NAD83–2	Canada	0	0	0	0.000	0.000000000016
	NAD83–3	CONUS	0	0	0	0.000	0.000000000016
	NAD83–4	Mexico, Central America	0	0	0	0.000	0.000000000016
NAHRWAN	NAHRWAN–1	Masirah Island (Oman)	247	148	–369	112.145	0.000054750714
	NAHRWAN–2	United Arab Emirates	249	156	–381	112.145	0.000054750714
	NAHRWAN–3	Saudi Arabia	231	196	–482	112.145	0.000054750714
NAMIBIA	NAMIBIA	Namibia	–616	–97	251	–653.135	–0.000010037483
NAPARIMA, BWI	NAPARIMA	Trinidad and Tobago	2	–374	–172	251.000	0.000014192702
OBSERVATORIO 1966	OBSERV 66	Corvo and Flores Islands (Azores)	425	169	–81	251.000	0.000014192702
OLD EGYPTIAN 1930	OLD EGYPT 30	Egypt	130	–110	13	63.000	–0.000000480795
OLD HAWAIIAN	OLD HAWAIIAN	Hawaii, Kauai, Maui, Oafu	–61	285	181	69.400	0.000037264639
OMAN	OMAN	Oman	346	1	–224	112.145	0.000054750714
PICO DE LAS NIVIES	PICO NIEVES	Canary Islands	307	92	–127	251.000	0.000014192702
PITCAIRN ASTRO 1967	PITCAIRN 67	Pitcairn Island	–185	–165	–42	251.000	0.000014192702
PUERTO RICO	PUERTO RICO	Puerto Rico and Virgin Islands	–11	–72	101	69.400	0.000037264639
QATAR NATIONAL	QATAR	Qatar	128	283	–22	251.000	0.000014192702
QORNOQ	QORNOQ	South Greenland	–164	–138	189	251.000	0.000014192702
ROME 1940	ROME 40	Sardinia Island	225	65	–9	251.000	0.000014192702
RT90	RT90	Sweden	–498.1	35.8	–567.6	–739.845	–0.000010037483
PROVISIONAL SOUTH AMERICAN 1956	S–AMERICAN 56	Bolivia, North Chile (near19°S), South Chile (near 43°S), Colombia, Ecuador, Guyana, Peru, Venezuela	288	–175	376	251.000	0.000014192702
SOUTH AMERICAN 1969	S–AMERICAN 69	South America (Mean Value)	57	–1	41	23.000	0.000000081204
PROVISIONAL SOUTH CHILEAN 1963	S–CHILEAN 63	South Chile (near 53°S)	–16	–196	–93	251.000	0.000014192702
SOUTH–EAST BASE	S–E BASE	Porto Santo and Madeira Islands	499	249	–314	251.000	0.000014192702
SOUTH–WEST BASE	S–W BASE	Faial, Graciosa, Pico, Sao Jorge, and Terceira Islands (Azores)	104	–167	38	251.000	0.000014192702
SANTA BRAZ	SANTA BRAZ	Sao Miguel, Santa Maria Islands (Azores)	203	–141	–53	251.000	0.000014192702
SANTO(DOS)	SANTO	Espirito Santo Island	–170	–42	–84	251.000	0.000014192702
SAPPER HILL 1943	SAPPER HILL 43	East Falkland Island	355	–16	–74	251.000	0.000014192702
SOUTH ASIA	SOUTH ASIA	Singapore	–7	10	26	18.000	–0.000000480795
TANANARIVE OBSERVATORY 1925	TANANARIV 25	Madagascar	189	242	91	251.000	0.000014192702
TIMBALAI 1948	TIMBALAI 48	Brunei and East Malaysia (Sarawak and Sabah)	689	–691	46	–860.655	–0.000028361368
TOKYO	TOKYO	Japan, Korea, and Okinawa	128	–481	–664	–739.845	–0.000010037483
TRISTAN ASTRO 1968	TRISTAN 68	Tristan da Cunha	632	–438	609	251.000	0.000014192702
VITI LEVU 1916	VITI LEVU 16	Viti Levu Island (Fiji Islands)	–51	–391	36	112.145	0.000054750714
WAKE–ENIWETOK 1960	WAKE–ENI 60	Marshall Islands	–101	–52	39	133.000	0.000014192702
WGS–72	WGS72	World Geodetic System	0	0	0	–2.000	–0.000000031211
WGS–84	WGS84	World Geodetic System	0	0	0	0.000	0.000000000000
YACARE	YACARE	Uruguay	155	–171	–37	251.000	0.000014192702
ZANDERIJ	ZANDERIJ	Suriname	265	–120	358	251.000	0.000014192702
USER	USER	User input datum parameters					

PRE-PROGRAMMED LANDMARK LIST

The Landmark List comes pre-programmed with the names and locations of the major mountains of the world. You can use these as they are or you can change them to other landmarks using the procedure under "To edit a landmark" and "To delete a landmark".

- The readings of names shown in this list may differ from those used locally.
- Depending on the map you use, the latitude and longitude values in this list may be a number seconds off.

	No.	Mountain Name	Display	Preset Data								
				Latitude				Longitude				Elevation
				S/N	Deg	Min	Sec	E/W	Deg	Min	Sec	m
Africa	001	Mt. Kilimanjaro	KILIMANJARO	S	03	03	20.9	E	037	21	52.9	5895
	002	Mount Kenya (Kirinyaga)	KENYA MOUNT	S	00	08	39.6	E	037	18	32.1	5199
	003	Margherita Peak	MARGHERITA	N	00	22	55.7	E	029	51	50.1	5109
	004	Ras Dashan	RAS DASHAN	N	13	12	46.7	E	038	20	59.9	4620
	005	Volcan Karisimbi	KARISIMBI	S	01	30	28.7	E	029	26	50.6	4507
	006	Jebel Toubkal	TOUBKAL	N	31	03	55.2	W	007	54	58.9	4165
	007	Champagne Castle	CHAMPAGNE	S	29	04	59.2	E	029	21	02.0	3446
	008	Emi Koussi	EMI KOUSSI	N	19	49	59.6	E	018	30	01.0	3415
	009	Kinyeti	KINYETI	N	03	56	57.6	E	032	54	00.7	3187
	010	Pico de Basile	PICO DE BASILE	N	03	35	26.0	E	008	45	40.2	3007
	011	Tahat	TAHAT	N	23	16	55.8	E	005	31	13.0	3003
	012	Sapitwa (Mt. Mulanje)	SAPITWA	S	15	58	08.8	E	035	42	49.0	3002
	013	Soira	SOIRA	N	14	44	59.3	E	039	31	57.6	2989
	014	Maromokotra	MAROMOKOTRA	S	14	00	02.3	E	049	12	01.2	2876
	015	Pico de Cano	PICO DE CANO	N	14	56	56.9	W	024	23	02.4	2829
	016	Mt. Karonje	KARONJE	S	04	10	58.8	E	029	40	57.9	2685
	017	Gebel Katherina (Mount Sinai)	KATHERINA	N	28	30	35.6	E	033	57	23.3	2637
	018	Serro Moco	SERRO MOCO	S	12	19	10.1	E	015	00	16.9	2619
	019	Brandberg	BRANDBERG	S	21	09	30.1	E	014	34	35.1	2606
	020	Mount Inyangani	INYANGANI	S	18	18	01.8	E	032	51	00.4	2592
	021	Monte Binga	MONTE BINGA	S	11	52	02.0	E	035	01	57.9	2436
	022	Mount Shimbiris	SHIMBIRIS	N	10	43	29.6	E	047	14	46.9	2416
	023	Mt. Kartala	KARTALA	S	11	45	01.3	E	043	21	59.0	2361
	024	Pic Bette	BETTE	N	22	01	57.5	E	019	12	37.3	2286
	025	Mount Vogel	VOGEL	N	08	24	06.3	E	011	47	14.0	2024
	026	Bagzane	BAGZANE	N	18	40	03.1	E	008	39	59.6	2022
	027	Moussa Ali	MOUSSA ALI	N	12	27	10.1	E	042	24	35.7	2020
	028	Mt. Nimba	NIMBA	N	07	37	00.6	W	008	24	40.1	1752
Asia	029	Everest	EVEREST	N	27	58	50.4	E	086	55	17.4	8850
	030	K2	K2	N	35	53	20.2	E	076	30	26.9	8611
	031	Kanchenjunga	KANCHENJUNGA	N	27	45	13.9	E	088	10	45.6	8598
	032	Kommunizm Peak	KOMMUNIZM	N	38	56	41.1	E	072	01	21.4	7495
	033	Nowshak	NOWSHAK	N	36	24	35.7	E	071	49	16.1	7485
	034	Pik Pobedy	POBEDY	N	42	03	00.1	E	080	11	02.4	7439
	035	Pik Chan-Tengri	CHAN TENGRI	N	42	11	59.5	E	080	15	03.1	6995
	036	Hkakabo Razi	HKAKABO RAZI	N	28	20	02.2	E	097	32	01.7	5881
	037	Kula Kangri	KULA KANGRI	N	28	04	22.0	E	090	22	36.7	5881
	038	Mount Damavand	DAMAVAND	N	35	57	37.5	E	052	05	56.8	5670
	039	Mt. Ararat	ARARAT	N	39	41	57.9	E	044	18	40.1	5165
	040	Gora Shkhara	SHKHARA	N	43	00	04.6	E	043	05	39.6	5068
	041	Puncak Jaya	PUNCAK JAYA	S	04	02	34.1	E	137	03	17.9	5030
	042	Bazar-Dyuzi	BAZAR DYUZI	N	41	12	51.3	E	047	51	42.5	4480
	043	Tavan-Bogdo-Uli	TSAST BOGD	N	46	31	57.8	E	093	32	56.5	4373
	044	Mount Kinabalu	KINABALU	N	06	04	33.2	E	116	36	09.8	4094
	045	Aragats	ARAGATS	N	40	32	01.7	E	044	11	57.4	4090
	046	Yu Shan	YU SHAN	N	23	29	23.1	E	121	02	32.4	3957
	047	Fuji	FUJI	N	35	21	27.0	E	138	43	50.0	3776
	048	Fan Si Pan	FAN SI PAN	N	22	18	42.0	E	103	46	17.2	3143
	049	Jebel Abha	JABEL ABHA	N	27	16	02.0	E	040	00	58.7	3133
	050	Jabal ash-Sham	JABAL ASH SHAM	N	23	09	55.2	E	057	25	39.4	3035
	051	Mount Apo	APO	N	07	00	58.1	E	125	16	31.0	2954
	052	Phou Bia	PHOU BIA	N	19	30	06.9	E	103	04	07.1	2819
	053	Mt. Hermon (Jabal ash-Shaykh)	HERMON	N	33	24	42.6	E	035	51	27.8	2814
	054	Mount Paek-tu	PAEK TU	N	41	59	42.2	E	128	05	13.2	2744
	055	Doi Inthanon	DOI INTHANON	N	18	35	01.2	E	098	29	02.0	2595
	056	Pidurutalagala	PIDURUTALAGALA	N	06	59	58.7	E	080	46	44.2	2524
Europe	057	Mont Blanc	MONT BLANC	N	45	50	03.8	E	006	51	27.7	4807
	058	Monte Rosa (Dufourspitze)	MONTE ROSA	N	45	56	39.8	E	007	51	38.8	4634
	059	Grossglockner	GROSSGLOCKNER	N	47	04	52.3	E	012	41	26.0	3797
	060	Mulhacen	MULHACEN	N	37	03	06.7	W	003	18	17.2	3715
	061	Zugspitze	ZUGSPITZE	N	47	24	59.8	E	010	59	17.6	2962
	062	Musala	MUSALA	N	42	04	58.9	E	023	23	57.3	2925
	063	Mount Olympus	OLYMPUS	N	40	05	33.2	E	022	21	35.7	2917
	064	Korab	KORAB	N	41	46	55.1	E	020	32	40.3	2764
	065	Djaravica	DJARAVICA	N	42	32	21.9	E	020	07	46.3	2656
	066	Gerlachovsky	GERLACHOVSKY	N	49	09	34.7	E	020	08	22.0	2655
	067	Grauspitz	GRAUSPITZ	N	47	03	48.0	E	009	35	00.5	2599
	068	Negoiu	NEGOIU	N	45	36	02.6	E	024	34	33.6	2548
	069	Rysy	RYSY	N	49	11	58.2	E	020	04	04.7	2499
	070	Galdhopiggen	GALDHOPIGGEN	N	61	37	54.1	E	008	15	40.9	2469
	071	Maglic	MAGLIC	N	43	18	03.4	E	018	45	11.3	2387
	072	Kebnekaise	KEBNEKAISE	N	67	53	00.7	E	018	10	05.9	2111
	073	Mt. Goverla	GOVERLA	N	48	10	01.8	E	024	34	01.8	2061
	074	Troglav	TROGLAV	N	43	56	44.4	E	016	35	47.1	1913
	075	Ben Nevis	BEN NEVIS	N	56	47	59.5	W	005	00	30.1	1343

	No.	Mountain Name	Display	Preset Data								
				Latitude				Longitude				Elevation
				S/N	Deg	Min	Sec	E/W	Deg	Min	Sec	m
North America	076	Mt. McKinley	MCKINLEY	N	63	05	34.5	W	151	00	44.7	6194
	077	Mt. Logan	LOGAN	N	32	18	33.8	W	064	45	38.4	5950
	078	Pico de Orizaba	ORIZABA	N	19	00	35.3	W	097	15	54.5	5610
	079	Volcan Tajumulco	TAJUMULCO	N	15	02	13.6	W	091	55	17.4	4220
	080	Gunnbjorn Fjeld	GUNNBJORN	N	68	55	02.1	W	029	47	00.4	3702
	081	Volcan Baru	BARU	N	08	48	46.0	W	082	33	20.3	3475
	082	Pico Duarte	DUARTE	N	19	01	29.7	W	071	01	01.5	3175
	083	La Selle	LA SELLE	N	18	21	59.3	W	071	59	01.6	2680
	084	Santa Ana	SANTA ANA	N	13	50	58.0	W	089	38	00.9	2381
	085	Blue Mountain Peak	BLUE MOUNTAIN	N	18	11	01.1	W	077	08	02.3	2256
	086	Mogoton	MOGOTON	N	13	45	21.4	W	086	23	22.5	2107
Oceania	087	Vinson Massif	VINSON MASSIF	S	77	40	00.4	W	087	00	04.6	5140
	088	Mount Cook	COOK	S	43	40	49.3	E	170	02	25.2	3743
	089	Mount Makarakomburu	MAKARAKOMBURU	S	09	43	31.9	E	160	01	36.4	2477
	090	Mont Orohena	OROHENA	S	17	37	12.2	W	149	28	49.2	2241
	091	Mt.Kosciusko	KOSCIUSKO	S	36	27	23.9	E	148	15	40.0	2228
South America	092	Aconcagua	ACONCAGUA	S	32	39	10.9	W	070	01	13.7	6960
	093	Ojos de Salado	OJOS DE SALADO	S	27	05	23.6	W	068	32	14.4	6880
	094	Mount Huascaran	HUASCARAN	S	09	07	29.3	W	077	36	38.9	6768
	095	Sajama	SAJAMA	S	18	01	27.1	W	069	04	05.2	6542
	096	Chimborazo	CHIMBORAZO	S	01	27	55.3	W	078	48	57.5	6310
	097	Pico Cristobal Colon	CRISTOBAL COLO	N	10	50	00.6	W	073	40	59.9	5800
	098	Pico Bolivar	BOLIVAR	N	08	33	00.8	W	071	03	01.3	5007
	099	Pico da Neblina	NEBLINA	N	00	47	30.4	W	066	06	46.8	3014
	100	Mount Roraima	RORAIMA	N	05	13	54.7	W	060	44	01.4	2875

* Based on data as of December 1999.