Module No. 2271

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.

Applications

The built-in sensors of this watch measure direction, altitude, barometric pressure, and temperature. Measured values are then shown on the display. Such features make this watch useful when hiking, mountain climbing, or when engaging in other such outdoor activities.

Warning!

- The measurement functions built into this watch are not intended for taking measurements that require professional or industrial precision. Values produced by this watch should be considered as reasonable representations only.
- When engaging in mountain climbing or other activities in which losing your way can create a dangerous or life-threatening situation, always be sure to use a second compass to confirm direction readings.
- 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.

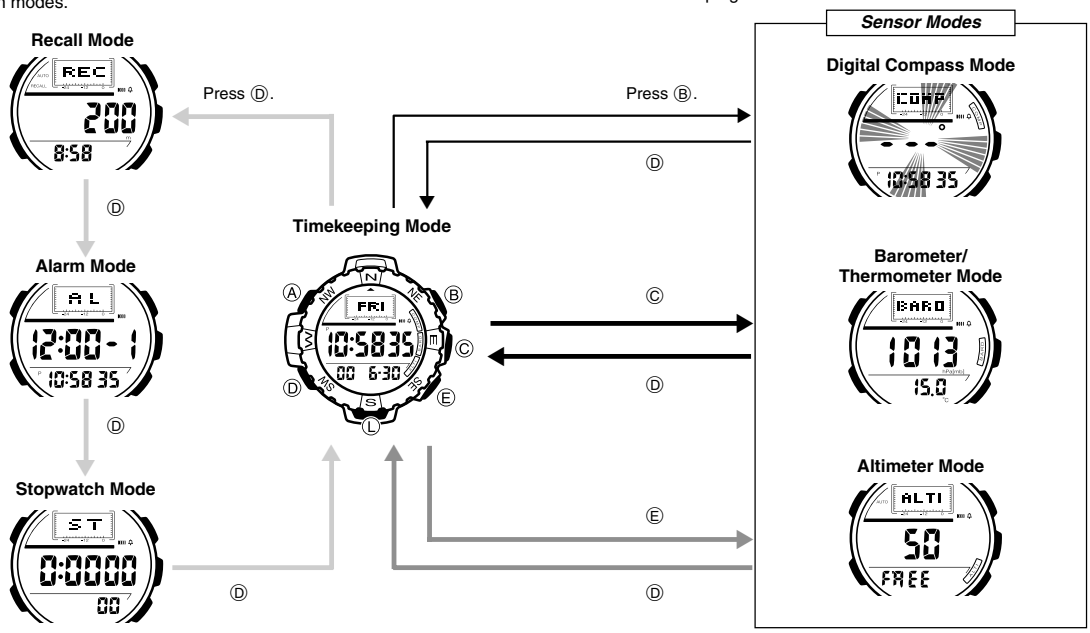
About This Manual

(Light)

- Button operations are indicated using the letters shown in the illustration.
- Each section of this manual provides you with the information you need to perform operations in each mode. Further details and technical information can be found in the “REFERENCE” section.

GENERAL GUIDE

- **If the digital display of your watch is continuously changing, see “Auto Display Function” for information on how to stop it.**
- The illustration below shows which buttons you need to press to navigate between modes.
- In any mode, hold down Ⓓ for about one second to return to the Timekeeping Mode.
- You can use buttons Ⓑ, Ⓒ, and Ⓔ to directly enter a sensor mode from the Timekeeping Mode or from another sensor mode. To get to a sensor mode from the Recall, Alarm, or Stopwatch Mode, you must go to the Timekeeping Mode first.



TIMEKEEPING

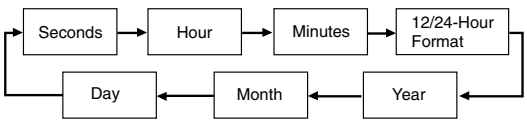
Use the Timekeeping Mode to set and view the current time and date.

To reset the seconds count to zero

1. In the Timekeeping Mode, hold down Ⓐ until the second digits start to flash, which indicates the setting screen.
2. Press Ⓔ to reset the seconds count to 00.
   - Pressing Ⓔ while the seconds count is in the range of 30 to 59 resets the seconds to 00 and adds 1 to the minutes. In the range of 00 to 29, the minutes count is unchanged.
3. Press Ⓐ to exit the setting screen.

To set the time and date

1. In the Timekeeping Mode, hold down Ⓐ until the second digits start to flash, which indicates the setting screen.
2. Press Ⓓ to move the flashing in the sequence shown below to select other settings.



3. While a setting is flashing, use Ⓔ (+) and Ⓑ (–) to change it.
   - When the 12/24-hour setting is selected, press Ⓔ or Ⓑ to toggle between 12-hour (12H) and 24-hour (24H) timekeeping.
4. Press Ⓐ to exit the setting screen.

DIGITAL COMPASS

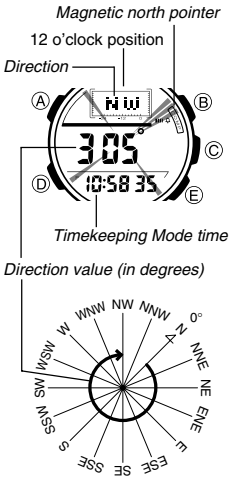
A built-in bearing sensor detects magnetic north and indicates one of 16 directions on the display. Direction readings are performed in the Digital Compass Mode.

- You can calibrate the bearing sensor if you suspect the direction reading is incorrect.

To enter and exit the Digital Compass Mode

1. While in the Timekeeping, Barometer/Thermometer, or Altimeter Mode, press Ⓑ to enter the Digital Compass Mode.
   - At this time, the watch immediately starts a Digital Compass operation. After about two seconds, letters appear on the display to indicate the direction that the 12 o'clock position of the watch is pointing.
2. Press Ⓓ to return to the Timekeeping Mode.

To take a direction reading

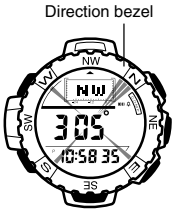


1. Enter the Digital Compass Mode.
2. Place the watch on a flat surface or (if you are wearing the watch), make sure that your wrist is horizontal (in relation to the horizon).
3. Point the 12 o'clock position of the watch in the direction you want to measure.
4. Press Ⓑ to start a Digital Compass measurement operation.
   - After about two seconds, the direction that the 12 o'clock position of the watch is pointing appears on the display.
   - Also, four pointers appear to indicate magnetic north, south, east, and west.
   - After the first reading is obtained, the watch continues to take direction readings automatically each second, for up to 30 seconds.
   - The **COMP** indicator flashes on the display while a measurement is in progress.
   - The direction value that appears on the display represents the clockwise angle formed between magnetic north (which is 0 degrees) and the displayed direction.

Note

- Note that taking a measurement while the watch is not horizontal (in relation to the horizon) can result in large measurement error.
- Pressing Ⓑ while in the Digital Compass Mode starts a new direction measurement operation.
- The following table shows the meanings of each of the direction abbreviations that appear on the display.

Direction	Meaning	Direction	Meaning	Direction	Meaning	Direction	Meaning
N	North	NNE	North-northeast	NE	Northeast	ENE	East-northeast
E	East	ESE	East-southeast	SE	Southeast	SSE	South-southeast
S	South	SSW	South-southwest	SW	Southwest	WSW	West-southwest
W	West	WNW	West-northwest	NW	Northwest	NNW	North-northwest



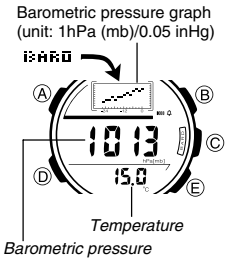
- You can adjust the rotary direction bezel so that the "N" is aligned with the magnetic north pointer. This correctly aligns all of the markings on the bezel.
- The Digital Compass operation is automatically interrupted whenever an alarm (Daily Alarm or Hourly Time Signal) sounds. If this happens, start the Digital Compass operation again from the beginning.
- See "Digital Compass Precautions" for other important information about taking direction readings.

BAROMETER/THERMOMETER

This watch uses a pressure sensor to measure air pressure (barometric pressure) and a temperature sensor to measure a temperature.

- You can calibrate the temperature sensor and the pressure sensor if you suspect that readings are incorrect.

Understanding the Barometer/Thermometer Screen



Press Ⓒ to enter the Barometer/Thermometer Mode.

- Barometric pressure is displayed in units of 1hPa/mb (or 0.05inHg).
- Temperature is displayed in units of 0.1°C (or 0.2°F).
- The displayed barometric pressure value changes to - - - - hPa/mb (or inHg) if a measured barometric pressure falls outside the range of 260 hPa/mb to 1100 hPa/mb (7.65 inHg to 32.45 inHg). The barometric pressure value will be displayed again as soon as the measured barometric pressure is within the allowable range.
- The displayed temperature value changes to - -. - °C (or °F) if a measured temperature falls outside the range of –10.0°C to 60.0°C (14.0°F to 140.0°F). The temperature value will be displayed again as soon as the measured temperature is within the allowable range.
- Some countries refer to the barometric pressure unit hecto-pascal (hPa) as millibars (mb). It really makes no difference, because 1hPa = 1mb. In this manual, we use hPa/mb or hPa (mb).

Barometric Pressure Graph

Barometric pressure indicates changes in the atmosphere. By monitoring these changes you can predict the weather with reasonable accuracy. The barometric pressure graph shows the barometric readings for the past 26 hours. The flashing point on the right of the display is the point for the newest measurement. Note that pressure graph readings are relative to the newest measurement point. One dot above the newest point is plus 1hPa(mb)/0.05inHg, while one dot below is minus 1hPa(mb)/0.05inHg. The following shows how to interpret the data that appears on the barometric pressure graph.

A rising graph generally means improving weather.

A falling graph generally means deteriorating weather.

Note that if there are sudden changes in weather or temperature, the graph line of past measurements may run off the top or bottom of the display. The entire graph will become visible once barometric conditions stabilize.

Not visible on the display.

The following conditions cause the barometric pressure measurement to be skipped, with the corresponding point on the barometric pressure graph being left blank.

- Barometric reading that is out of range (260 hPa/mb to 1100 hPa/mb or 7.65 inHg to 32.45 inHg)
- Sensor malfunction
- Dead batteries

About Barometric and Temperature Measurements

- Barometric pressure and temperature measurement operations are performed as soon as you enter the Barometer/Thermometer Mode. After that, temperature measurements are taken every five seconds for the first three minutes, and then taken every five minutes thereafter.
- The **BARO** indicator flashes on the display while a measurement is in progress.
- The barometer automatically takes measurements every two hours (starting from midnight), regardless of what mode you are in. The results of these measurements are used for the barometric pressure graph.
- You can also perform a barometric pressure and temperature measurement at any time by pressing Ⓒ in the Barometer/Thermometer Mode.

Barometer and Thermometer Precautions

- The pressure sensor built into this watch measures changes in air pressure, which you can then apply to your own weather predictions. It is not intended for use as a precision instrument in official weather prediction or reporting applications.
- Sudden temperature changes can affect pressure sensor readings.
- Temperature measurements are affected by your body temperature (while you are wearing the watch), direct sunlight, and moisture. To achieve a more accurate temperature measurement, remove the watch from your wrist, place it in a well ventilated location out of direct sunlight, and wipe off all moisture from the case. It takes approximately 20 to 30 minutes for the case of the watch to reach the actual surrounding temperature.
- You can change the measured barometric pressure unit between hecto-pascals/millibars (hPa/mb) and inchesHg (inHg). See "Changing the Barometric Pressure and Temperature Units" for details.
- You can change the measured temperature value displayed by this watch between Celsius (°C) and Fahrenheit (°F). See "Changing the Barometric Pressure and Temperature Units".

ALTIMETER

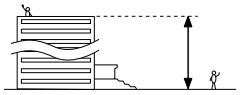
A built-in altimeter uses a pressure sensor to detect the current air pressure, which is then used to estimate the current altitude. The watch is pre-programmed with ISA (International Standard Atmosphere) preset values, which are used to convert air pressure readings to altitude values. If you preset a reference altitude, the watch will also calculate the current relative altitude based on your preset value. Altimeter functions also include data storage memory and an altitude alarm.

Important!
- This watch estimates altitude based on air pressure. This means that altitude readings for the same location may vary if air pressure changes.
- This watch employs a semiconductor pressure sensor, which is affected by temperature changes. When taking altitude measurements, be sure to do so while ensuring that the watch is not exposed to temperature changes.
- Do not rely upon this watch for altitude measurements or perform button operations while engaging in sports where there are sudden altitude changes, while sky diving, hang gliding, or paragliding, or while riding a gyrocopter, glider, or any other aircraft.
- Do not use this watch for measuring altitude in applications that demand professional or industrial level precision.

How the Altimeter Works

With the Preset Values (No Reference Altitude)
- The watch measures the air pressure at your current location and uses the built-in ISA values to convert it to the equivalent altitude.

With a Reference Altitude
- After you set the reference altitude, the watch adjusts its air pressure to altitude conversion calculation accordingly.
- To determine the height of a tall building, set the reference altitude to 0 on the ground floor. Note, however, that you may not be able to get a good reading if the building is pressurized or air-conditioned.

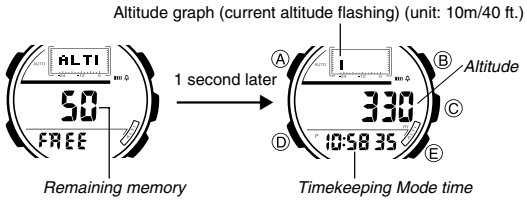


- When mountain climbing, you can set the reference value in accordance with a marker along the way or altitude information from a map. After you do this, the altitude readings produced by the watch will be more accurate than they would without a reference altitude.

- Note that the following conditions will prevent you from obtaining accurate readings:
  When air pressure changes because of changes in the weather
  Extreme temperature changes
  When the watch itself is subjected to strong impact

Understanding the Altimeter Screen

Press Ⓔ to enter the Altimeter Mode.



- Altitude is displayed in units of 5 meters (20 feet).
- The measurement range for altitude is –700 to 10,000 meters (–2,300 to 32,800 feet).
- The measured altitude may be a negative value in cases where there is a reference altitude value set or because of certain atmospheric conditions.
- The displayed altitude value changes to - - - - meters (or feet) if a measured altitude falls outside the measurement range. The altitude value will be displayed again as soon as the measured altitude is within the allowable range.
- You can change the unit of measurement for the displayed altitude values between meters (m) and feet (ft). See “To change the Altitude Units”.

About Altitude Measurements

There are two types of altitude measurements: those for displayed data (Altimeter Mode measurements) and those for memory data (Memory measurements).

Altimeter Mode measurement

This type of measurement is performed only when the watch is in the Altimeter Mode. As soon as you enter the Altimeter Mode, measurements are taken every five seconds for the first three minutes. After that, measurements are taken every two minutes.
- The **ALTI** indicator flashes on the display while a measurement is in progress.

Memory measurements

Memory measurements are taken independently of Altimeter Mode measurements and stored directly into memory (along with the date and time of the measurement) for later recall. There are two types of memory measurements: “Auto measurements” and “Manual measurements”.

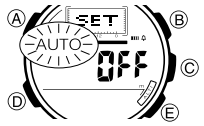
Auto measurements
With Auto measurement, the watch continuously performs measurements whenever the minutes in the Timekeeping Mode reach 00, 15, 30, or 45, until you switch Auto measurements off. The watch continues to take measurements regardless of whether or not you change modes, so you can keep a running log of altitude changes automatically.

Manual measurements
You can use the manual procedure to take a reading anytime you want to store your current altitude data into memory for later recall. Manual memory measurements can be performed only while the watch is in the Altimeter Mode.

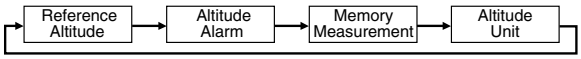
Selecting Auto or Manual Measurement

Use the following procedure to switch between Auto or Manual measurement. Note that you cannot perform this operation while a preset Auto measurement is already in progress.

To select Auto or Manual measurement



1. In the Altimeter Mode, hold down Ⓐ until the display clears. After four or five seconds, either OFF or the current reference altitude value (if set) will start to flash, which indicates the setting screen.
2. Press Ⓓ twice to move the flashing to the memory measurement setting (**AUTO** or **MANUAL**).
   - Press Ⓓ to move the flashing in the sequence shown below.



3. While the memory measurement setting is flashing, press Ⓑ or Ⓔ to select **AUTO** (Auto measurement) or **MANUAL** (Manual measurement).
4. Press Ⓐ to exit the setting screen.
   - An indicator on the display shows the type of measurement (**AUTO** or **MANUAL**) that you currently have selected.

To use Auto measurement

1. Confirm that the **AUTO** indicator is shown on the display.
   - If it is not, use the procedure under “To select Auto or Manual measurement” to select Auto measurement.
2. In the Altimeter Mode, hold down Ⓔ until the watch emits a short beep, indicating the start of the measurement.
3. To stop measurements at any point in the Altimeter Mode, hold down Ⓔ again until the watch emits a short beep.
   - The data that is measured when you first start Auto measurement is also stored into memory.
   - The **AUTO** indicator flashes on the display when you start Auto measurements. The **AUTO** indicator continues to flash (indicating that measurements continue) even if you change modes.
   - Auto measurement cuts off automatically whenever there are 49 records stored in memory. The 50th record measurement when you stop measurement in step 3 above is also stored in memory.
   - A final measurement is taken when you turn off Auto measurement, and that data is also stored into memory. Such data is indicated by FIN during the recall operation.

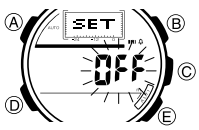
To use Manual measurement

1. Confirm that the **MANUAL** indicator is shown on the display.
   - If it is not, use the procedure under “To select Auto or Manual measurement” to select Manual measurement.
2. In the Altimeter Mode, hold down Ⓔ until the watch emits a short beep, indicating that a measurement is taken.
   - Repeat step 2 whenever you want to take a reading.
   - Button operation becomes impossible during the four or five seconds that it takes to complete a measurement. Normal operation will return once the operation is finished.

Setting a Reference Altitude

After you set a reference altitude, the watch adjusts its air-pressure-to-altitude conversion calculation accordingly. The altitude measurements produced by this watch are subject to error caused by changes in air pressure. Because of this, we recommend that you update the reference altitude whenever one is available during your climb.

To set a reference altitude



1. In the Altimeter Mode, hold down Ⓐ until the display clears. After four or five seconds, either OFF or the current reference altitude value (if set) will start to flash, which indicates the setting screen.
   - OFF indicates no reference altitude.
2. Press Ⓔ to increase the current reference altitude value by 5 meters (or 20 feet) or Ⓑ to decrease it.
   - You can set the reference altitude within the range of –10,000 to 10,000 meters (–32,800 to 32,800 feet).
   - Pressing Ⓔ and Ⓑ at the same returns to OFF, so the watch performs air pressure to altitude conversions based on preset data only.
3. Press Ⓐ to exit the setting screen.

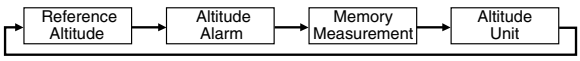
About the Altitude Alarm

The altitude alarm sounds for about five seconds whenever the current altitude matches a preset value. You can press any button to stop the alarm after it starts to sound.

Example
If you set the altitude alarm at 130 meters, it sounds when you pass the 130-meter mark on your way up and on your way back down.

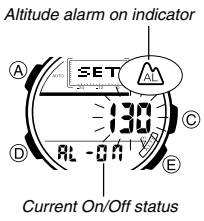
To set the altitude alarm

1. In the Altimeter Mode, hold down Ⓐ until the display clears. After four or five seconds, either OFF or the current reference altitude value (if set) will start to flash, which indicates the setting screen.
2. Press Ⓓ once to move the flashing to the altitude alarm setting.
   - Press Ⓓ to move the flashing in the sequence shown below.



3. While the altitude alarm setting is flashing, press Ⓔ to increase the current altitude alarm value by 5 meters (or 20 feet) or Ⓑ to decrease it.
   - You can set the altitude alarm value within the range of –10,000 to 10,000 meters (–32,800 to 32,800 feet).
   - Pressing Ⓔ and Ⓑ at the same resets the altitude alarm value to 0.
4. Press Ⓐ to exit the setting screen.

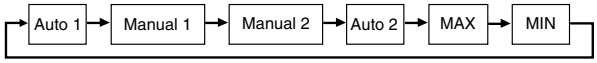
To turn the altitude alarm on and off



1. In the Altimeter Mode, hold down Ⓐ until the display clears. After four or five seconds, either OFF or the current reference altitude value (if set) will start to flash, which indicates the setting screen.
2. Press Ⓓ once to move the flashing to the altitude alarm setting.
3. Press Ⓒ to switch the altitude alarm on (On) and off (OFF).
4. Press Ⓐ to exit the setting screen.
   - If the altitude alarm is on, the altitude alarm on indicator remains on the display when you change to another mode.

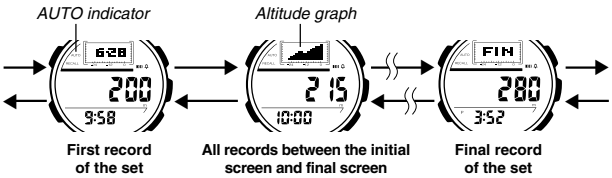
Memory Data Management

Each altitude record includes an altitude reading, plus the month, day, hour, and minutes the measurement was taken. Records are displayed in the order they were saved.
Memory can hold up 50 records. You can store 50 Auto measurement records, 50 Manual measurement records, or any mixed combination of Auto and Manual measurement records. In addition, there are two extra records that show the highest (max) and lowest (min) altitude values, from among the displayed data (Altimeter Mode measurements) and memory data (Memory measurements).
The following example illustrates how data would be arranged in memory after you perform one Auto measurement (Auto 1), two Manual measurements (Manual 1, Manual 2), and then one Auto measurement (Auto 2).



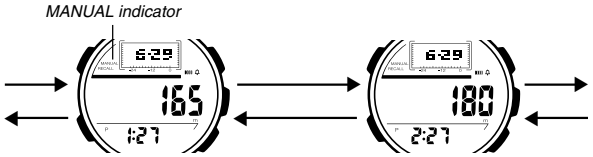
- Note that the highest (MAX) and lowest (MIN) records always are last.

Auto Measurement Records
- Performing an Auto measurement produces a set of records of all the measurements taken during the Auto measurement session. Since Auto measurement produces four altitude readings per hour (at 00, 15, 30, and 45 minutes of each hour) leaving Auto measurement turned on for two hours would result in a set of eight records.
- The following shows how the records that make up an Auto measurement set appear when you recall them.

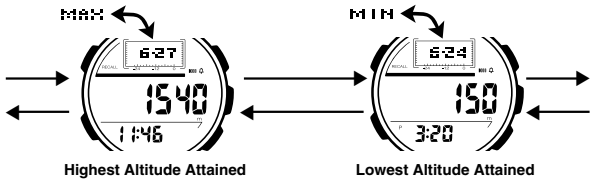


- The altitude graph separates the maximum and minimum altitude readings by nine display dots. Other readings are shown relative to the maximum and minimum.
- Note that Auto measurement records are always treated as a set. This means that deleting one record in a set deletes the entire set.

Manual Measurement Records
- Performing a Manual measurement produces a single record. The illustration below shows how a Manual measurement record appears when you recall it.



MIN and MAX Records
- The MIN record shows the lowest altitude reading from among those contained in memory (both Auto and Manual), and the reading displayed in Altimeter Mode. The MAX record shows the highest altitude reading.



- When you display the MAX screen, the message MAX alternates every second with the date in the upper display. The message MIN alternates on the MIN screen.
- The MIN and MAX records are changed automatically whenever a measurement produces a reading that is greater than the current MAX value or less than the current MIN value.

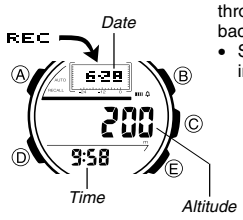
Note
- 50 records are enough to store 12 hours and 15 minutes of Auto measurement data (if you do not take any Manual readings during that time).

Important!
- Further Auto or Manual measurements become impossible whenever memory is full. The message FULL on the display indicates that memory is full. Always check the amount of memory remaining before starting memory measurements, and delete records if necessary.

Recalling Altitude Measurement Records

Use the Recall Mode to recall altitude measurement records. You can enter the Recall Mode by pressing the Ⓓ button.
- Measurement records are stored in memory even if an error occurs during the measurement. For details on errors, see “Warning Indicators”.

To recall altitude measurement records



In the Recall Mode, press Ⓔ to scroll forward through the stored records or Ⓑ to scroll backward.
- See “Memory Data Management” for information about how data is stored.

Deleting an Altitude Measurement Record

Use the Recall Mode to delete altitude measurement records. You can enter the Recall Mode by pressing Ⓓ.

Note

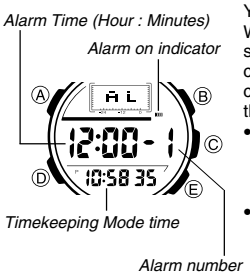
- The procedure you should use to delete a record depends on if the record was produced by Auto measurement or Manual measurement.
- Deleting Auto measurement records deletes the entire set, from the initial record to the final record.
- You cannot delete a record that is part of an ongoing Auto measurement operation (indicated when **AUTO** is flashing on the display). You can, however, delete records from another, already completed measurement operation.

To delete a altitude measurement record

First record of the set

1. In the Recall Mode, display the record you want to delete.
   - If you want to delete a set of Auto measurement records, display the first record of the set.
2. To clear the data, hold down Ⓐ until the watch emits a long beep (and until CLR stops flashing on the display).

ALARM

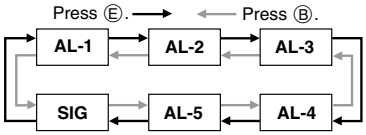


You can set five independent Daily Alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. You can also turn on an Hourly Time Signal that causes the watch to beep twice every hour on the hour.

- The alarm number (1 through 5) indicates an alarm screen. SIG appears in place of AL when the Hourly Time Signal screen is shown.
- All of the operations in this section are performed in the Alarm Mode, which you enter by pressing Ⓓ.

To set an alarm time

1. In the Alarm Mode, use Ⓔ and Ⓑ to select the alarm whose time you want to set.



2. Hold down Ⓐ until the hour digits of the alarm time start to flash, which indicates the setting screen.
   - This automatically turns on the alarm.
3. Press Ⓓ to move the flashing between the hour and minutes.
4. While a setting is flashing, use Ⓔ (+) and Ⓑ (–) to change it.
   - When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (**P** indicator).
5. Press Ⓐ to exit the setting screen.

Alarm Operation

The alarm sounds at the preset time for about 20 seconds (in all modes), or until you stop it by pressing any button.

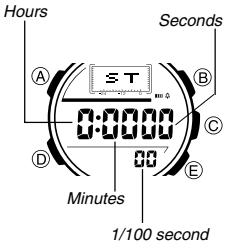
To test the alarm

In the Alarm Mode, hold down Ⓒ to sound the alarm.

To turn an alarm and the Hourly Time Signal on and off

1. In the Alarm Mode, use Ⓔ and Ⓑ to select an alarm or the Hourly Time Signal.
2. When the alarm or the Hourly Time Signal you want to is selected, press Ⓒ to turn it on and off.
   - Indicates alarm is ON.
   - Indicates Hourly Time Signal is ON.
   - The alarm on indicator ( ) and the Hourly Time Signal on indicator ( ) are shown on the display in all modes while these functions are turned on.
   - If any alarm is on, the alarm on indicator is shown on the display in all modes.

STOPWATCH



The stopwatch lets you measure elapsed time, split times, and two finishes.

- The display range of the stopwatch is 23 hours, 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing Ⓓ.

To measure times with the stopwatch

Elapsed Time

Ⓔ → Ⓔ → Ⓔ → Ⓔ → Ⓑ

Start **Stop** **Re-start** **Stop** **Clear**

Split Time

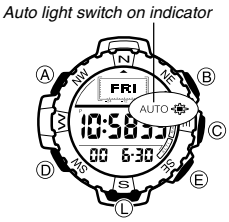
Ⓔ → Ⓑ → Ⓑ → Ⓔ → Ⓑ

Start **Split** **Split release** **Stop** **Clear**

Two Finishes

Ⓔ	→ Ⓑ	→ Ⓔ	→ Ⓑ	→ Ⓑ
Start	**Split** First runner finishes.	**Stop** Second runner finishes. Record time of first runner.	**Split release** Record time of second runner.	**Clear**

BACKLIGHT



The backlight uses an EL (electro-luminescent) panel that causes the entire display to glow for easy reading in the dark. The watch's auto light switch automatically turns on the backlight when you angle the watch towards your face.

- The auto light switch must be turned on (indicated by the auto light switch on indicator) for it to operate.
- See "Backlight Precautions" for other important information about using the backlight.

To turn on the backlight manually

In any mode, press Ⓛ to illuminate the display for about one second.

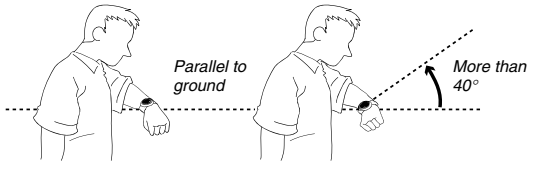
- The above operation turns on the backlight regardless of the current auto light switch setting.

About the Auto Light Switch

Turning on the auto light switch causes the backlight to turn on for about one second, whenever you position your wrist as described below in any mode.

- Be sure to wear the watch on the outside of your left wrist while using the auto light switch.

Moving the watch to a position that is parallel to the ground and then tilting it towards you more than 40 degrees causes the backlight to turn on.



Warning!

- **Always make sure you are in a safe place whenever you are reading the display of the watch using the auto light switch. Be especially careful when running or engaged in any other activity that can result in accident or injury. Also take care that sudden illumination by the auto light switch does not surprise or distract others around you.**
- **When you are wearing the watch, make sure that its auto light switch is turned off before riding on a bicycle or operating a motorcycle or any other motor vehicle. Sudden and unintended operation of the auto light switch can create a distraction, which can result in a traffic accident and serious personal injury.**

To turn the auto light switch on and off

In the Timekeeping, Digital Compass, Barometer/Thermometer, or Altimeter Mode, hold down Ⓒ for about one second to toggle the auto light switch on (AUTO displayed) or off (AUTO not displayed).

- Pressing Ⓒ while in the Timekeeping, Digital Compass, or Altimeter Mode initially switches to the Barometer/Thermometer Mode. Keeping Ⓒ depressed toggles the auto light switch on or off.
- The auto light switch on indicator (AUTO) is on the display in all modes while the auto light switch is turned on.
- In order to protect against running down the batteries, the auto light switch automatically turns off approximately six hours after you turn it on. Repeat the above procedure to turn the auto light switch back on if you want.

QUESTIONS & ANSWERS

Question: What causes incorrect direction readings?
Answer:

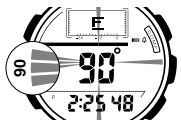
- Incorrect bidirectional calibration. Perform bidirectional calibration. Remember that bidirectional calibration is required whenever batteries are replaced.
- Nearby source of strong magnetism, such as a household appliance, a large steel bridge, a steel beam, overhead wires, etc., or an attempt to perform direction measurement on a train, boat, etc. Move away from large metal objects and try again. Note that digital compass operation cannot be performed inside a train, boat, etc.

Question: What causes different direction readings to produce different results at the same location ?
Answer: Magnetism generated by nearby high-tension wires are interfering with detection of terrestrial magnetism. Move away from the high-tension wires and try again.

Question: What does it mean when - - - appears in place of a direction ?
Answer: This is the abnormal magnetic field indicator. It means that strong magnetism is being generated nearby. Move away from the source of strong magnetism and try again.

Question: Why am I having problems taking direction readings indoors ?
Answer: A TV, personal computer, speakers, or some other object is interfering with terrestrial magnetism readings. Move away from the object causing the interference or take the direction reading outdoors. Indoor taking direction readings are particularly difficult inside ferro-concrete structures. Remember that you will not be able to take direction readings inside of trains, airplanes, etc.

Question: What do the numbers on the watch mean?
Answer: The face of this watch is marked with values that increase in a counterclockwise direction. These values represent degrees. When you take a direction reading, you can use these values to find out how many degrees the 12 o'clock position of this watch (which is the direction indicated in the digital display) differs from magnetic north.



For example, when the Magnetic North Pointer is pointing at "90" on the watch's face, it means that the 12 o'clock position is 90 degrees from magnetic north (which means that the 12 o'clock pointing due east).

Question: How does the altimeter work?
Answer: Generally, air pressure and temperature decrease as altitude increases. This watch bases its altitude measurements on International Standard Atmosphere (ISA) values stipulated by the International Civil Aviation Organization (ICAO). These values define relationships between altitude, air pressure, and temperature.

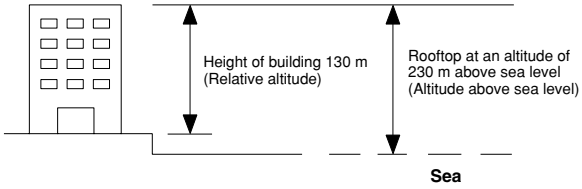
Altitude	Air Pressure		Temperature	
4000 m / 3500 m	616 hPa/mb	About 8 hPa/mb per 100 m	−11°C	About 6.5°C per 1000 m
3000 m / 2500 m	701 hPa/mb	About 9 hPa/mb per 100 m	−4.5°C	
2000 m / 1500 m	795 hPa/mb	About 10 hPa/mb per 100 m	2°C	
1000 m / 500 m	899 hPa/mb	About 11 hPa/mb per 100 m	8.5°C	
0 m	1013 hPa/mb	About 12 hPa/mb per 100 m	15°C	

Source: International Civil Aviation Organization

14000 ft / 12000 ft	19.03 inHg	About 0.15 inHg per 200 ft	16.2°F	About 3.6°F per 1000 ft
10000 ft / 8000 ft	22.23 inHg	About 0.17 inHg per 200 ft	30.5°F	
6000 ft / 4000 ft	25.84 inHg	About 0.192 inHg per 200 ft	44.7°F	
2000 ft / 0 ft	29.92 inHg	About 0.21 inHg per 200 ft	59.0°F	

Source: International Civil Aviation Organization

There are two standard methods of expressing altitude: Absolute altitude and relative altitude. Absolute altitude expresses an absolute height above sea level. Relative altitude expresses the difference between the height of two different places.



Precautions Concerning Simultaneous Measurement of Altitude and Temperature

Though you can perform altitude and temperature measurements at the same time, you should remember that each of these measurements require different conditions for best results. With temperature measurement, it is best to remove the watch from your wrist in order to eliminate the effects of body heat. In the case of altitude measurement, on the other hand, it is better to leave the watch on your wrist, because doing so keeps the watch at a constant temperature, which contributes to more accurate altitude measurements.

The following describes what you should do to give priority to either altitude or temperature.

- To give altitude measurement priority, leave the watch on your wrist or in any other location where the temperature of the watch is kept constant.
- To give temperature measurement priority, remove the watch from your wrist and allow it to hand freely from your bag or in another location where it is not exposed to direct sunlight. Note that removing the watch from your wrist can momentarily affect pressure sensor readings.

Question: How does the barometer work?
Answer: Barometric pressure indicates changes in the atmosphere, and by monitoring these changes you can predict the weather with reasonable accuracy. Rising atmospheric pressure indicates good weather, while falling pressure indicates deterioration weather conditions.

The barometric pressures that you see in the newspaper and on the TV weather report are measurements corrected to values measured at 0 m sea level.

Question: What should I do if I lose track of which mode I am in or lose my way when making settings?
Answer: Hold down Ⓓ for about one second to return to the Timekeeping Mode. Next, try performing the operation you want again.

REFERENCE

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

Auto Display Function

Auto Display function of this watch continually changes the contents of the digital display. Note that you cannot use any of the watch's other functions while the Auto Display function is operating.

To turn the Auto Display off

Hold down Ⓓ for about three seconds until the watch beeps.

To turn the Auto Display on

In the Timekeeping Mode, hold down Ⓓ for about three seconds until the watch beeps three times.

- Note that the Auto Display function cannot be performed while you are making settings.

Warning Indicators

Warning indicators appear whenever any of the conditions described below occur. Appearance of a warning indicator causes any measurement operation that is currently underway to stop. Warning indicators appear in the upper display area, and this causes - - - to replace any directional, temperature, barometer, or altitude values on the display.

Abnormal Magnetic Field Indicator

This indicator appears whenever the watch has a problem obtaining a correct direction reading. This condition could indicate that the watch is within a very high magnetic field, and so you should try moving to another location. Also, see "Digital Compass Precautions" for further information on conditions that cause errors.

Low Battery Indicator

This message indicates that battery power is too low to perform the measurement. It appears whenever battery power drops below a certain level, or when you try to perform a measurement under very cold conditions (below about –10°C/14°F).

If the cause of the low battery indicator is due to use under cold conditions, normal operation should return after the watch is brought back to normal temperature.
If the cause of the low battery indicator is due to low battery power (indicated when LOW appears under normal temperatures), you should have the watch's batteries replaced as soon as possible. Note that replacement of the batteries causes all memory contents to be deleted.

Sensor Malfunction Indicator

This message flashes on the display to indicate malfunction of pressure sensor circuitry.
Note that calibrating the Digital Compass can also cause the ERR message to appear. In this case, the message does not indicate sensor malfunction, and the condition should be corrected when you re-calibrate the Digital Compass.

Important!
- If a sensor malfunctions or if battery power is low when it comes time for a measurement to be taken, the measurement value appears as - - - - on the display. In the case of barometric pressure measurement, the corresponding point on the barometric pressure graph is left blank.
- There may be cases where the ERR (sensor malfunction) or LOW (low battery) message disappears from the display when you change modes. In this case, you can continue using the watch normally unless the warning indicator reappears.

Whenever you have a sensor malfunction, be sure to take the watch to an authorized CASIO distributor or service provider as soon as possible.

Auto Return Features

- After you perform an operation in the Recall, Alarm, and Stopwatch Modes, pressing Ⓓ returns to the Timekeeping Mode.
- If you leave the watch in the Digital Compass, Barometer/Thermometer, or Altimeter Mode for 10 to 11 hours without performing any operation, the watch beeps and automatically returns to the Timekeeping Mode.
- If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch automatically saves anything you have input up to that point and exits the setting screen.

Data and Setting Scrolling

The Ⓔ and Ⓑ buttons are used in various modes and setting screens to scroll through data on the display. In most cases, holding down these buttons during a scroll operation scrolls through the data at high speed.

Timekeeping

- The day of the week is automatically displayed in accordance with the date (year, month, and day) settings.
- The year can be set in the range of 2000 to 2039.
- The watch's built-in full automatic calendar automatically 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 have the watch's batteries replaced.

12-hour/24-hour Timekeeping Formats

The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is also applied in all modes.
- With the 12-hour format, the **P** (PM) indicator appears to the left of the hour digits for times in the range of noon to 11:59 p.m. and no indicator appears to the left of the hour digits for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, with **24** indicator.

Backlight Precautions

- The electro-luminescent panel that provides illumination loses power after very long use.
- The illumination provided by the backlight may be hard to see when viewed under direct sunlight.
- The watch will emit an audible sound whenever the display is illuminated. It does not indicate malfunction of the watch.
- The backlight automatically turns off whenever an alarm sounds.
- The backlight remains lit for about one second from the point you press the button, even if it is already lit when you press the button. If you keep the button depressed for one second or more, the backlight automatically turns off.
- Frequent use of the backlight shortens the battery life.

Auto light switch precautions

- Avoid wearing the watch on the inside of your wrist. Doing so causes the auto light switch to operate when it is not needed, which shortens battery life. If you want to wear the watch on the inside of your wrist, turn off the auto light switch feature.

More than 15 degrees too high

- The backlight may not light if the face of the watch is more than 15 degrees above or below parallel. Make sure that the back of your hand is parallel to the ground.
- The backlight turns off in about one second, even if you keep the watch pointed towards your face.
- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If the backlight does not light, try moving the watch back to the starting position (parallel with the ground) and then tilt it back toward you again. If this does not work, drop your arm all the way down so it hangs at your side, and then bring it back up again.
- Under certain conditions, the backlight may not light until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction of the backlight.

Digital Compass Precautions

This watch features a built-in magnetic bearing sensor that detects terrestrial magnetism. This means that north indicated by this watch is magnetic north, which is somewhat different from true polar north. The magnetic north pole is located in northern Canada, while the magnetic south pole is in southern Australia. Note that the difference between magnetic north and true north as measured with all magnetic compasses tends to be greater as one gets closer to either of the magnetic poles. You should also remember that some maps indicate true north (instead of magnetic north), and so you should make allowances when using such maps with this watch.

Location
- Taking a direction reading when you are near a source of strong magnetism can cause large errors in readings. Because of this, you should avoid taking direction readings while in the vicinity of the following types of objects: permanent magnets (magnetic necklaces, etc.), concentrations of metal (metal doors, lockers, etc.), high tension wires, aerial wires, household appliances (TVs, personal computers, washing machines, freezers, etc.)
- Accurate direction readings are impossible while in a train, boat, air plane, etc.
- Accurate readings are also impossible indoors, especially inside ferro-concrete structures. This is because the metal framework of such structures picks up magnetism from appliances, etc.

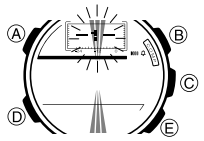
Storage
- The precision of the bearing sensor may deteriorate if the watch becomes magnetized. Because of this, you should be sure to store the watch away from magnets or any other sources of strong magnetism, including: permanent magnets (magnetic necklaces, etc.) and household appliances (TVs, personal computers, washing machines, freezers, etc.)
- Whenever you suspect that the watch may have become magnetized, perform one of the calibration procedures under "Calibrating the Bearing Sensor" below.

Calibrating the Bearing Sensor

Whenever you suspect that direction readings produced by the watch are wrong, you should calibrate it. You can use either one of two calibration procedures: *bidirectional calibration* or *northerly calibration*.
Use bidirectional calibration when you want to take readings within an area exposed to magnetic force. This type of calibration should be used if the watch become magnetized for any reason.
With northerly calibration, you "teach" the watch which way is north (which you have to determine with another compass or some other means). You could use this calibration procedure, for example, to set the watch to indicate true north instead of magnetic north.

Important!
- If you want to perform both bidirectional and northerly calibration, be sure to perform bidirectional calibration first, and then perform northerly calibration. This is necessary because bidirectional calibration cancels any previously set northerly calibration setting.
- The more correctly you perform bidirectional calibration, the better the accuracy of the bearing sensor readouts. You should perform bidirectional calibration whenever you change environments where you use the bearing sensor, and whenever you feel that the bearing sensor is producing incorrect readings.

To perform bidirectional calibration



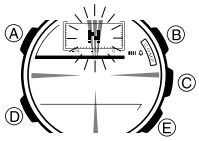
1. Enter the Digital Compass Mode.
2. Hold down Ⓐ until the upper display area changes to show - 1 -, which indicates the setting screen.
   - At this time, the magnetic north pointer flashes at the 12 o'clock position to indicate that the watch is ready to calibrate the first direction.

3. Place the watch on a level surface facing any direction you want, and press Ⓑ to calibrate the first direction.
   - When the calibration procedure is complete, the message OK appears in the upper display area. This soon changes to —2— and the magnetic north pointer flashes at the 6 o'clock position to indicate that the watch is ready for the second direction.
4. Rotate the watch 180 degrees.
5. Press Ⓑ again to calibrate the second direction.
   - When the calibration procedure is complete, the message OK appears in the upper display area. After a short while, the watch automatically returns to the Digital Compass Mode screen.

Precautions about bidirectional calibration

- You can use any two opposing directions for bidirectional calibration. You must, however, make sure that they are 180 degrees opposite each other. Remember that if you perform the procedure incorrectly, you will get wrong bearing sensor readings.
- Do not move the watch during the one or two seconds (from the point you press Ⓑ up to the point that OK appears in the upper display area) that the calibration of each direction is in progress. If you do, the message ERR appears in the upper display area, which means you have to restart the bidirectional calibration procedure from the beginning.
- The appearance of ERR during bidirectional calibration can also be caused by local interference. If you suspect that this is the case, move to another location and try the procedure again.
- You should perform bidirectional calibration in an environment that is the same as that where you plan to be taking direction readings. If you plan to take direction readings in an open field, for example, calibrate in an open field.

To perform northerly calibration

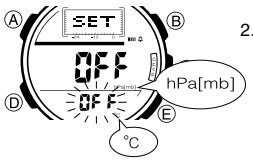


1. While in the Digital Compass Mode, hold down Ⓐ until the upper display area changes to show —1—, which indicates the setting screen.
2. Press Ⓓ to start the northerly calibration procedure.
   - At this time, the indicator (direction N) appears in the upper display area.
3. Place the watch on a level surface, and position it so that its 12 o'clock position points north (as measured with another compass).
4. Press Ⓑ to start the calibration operation.
   - When the calibration procedure is complete, the message OK appears in the upper display area. After a short while, the watch automatically returns to the Digital Compass Mode screen.

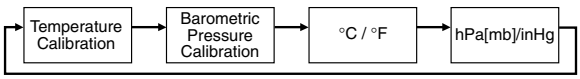
Changing the Barometric Pressure and Temperature Units

Changing the barometric pressure units automatically restarts the barometric pressure graph.

To change the Barometric Pressure and Temperature Units



1. Press Ⓒ to enter the Barometer/ Thermometer Mode.
2. Hold down Ⓐ until the message OFF appears (flashing), which indicates the setting screen.
   - A temperature value appears instead of OFF (factory calibration) if you previously calibrated the temperature sensor.
3. Press Ⓓ to move the flashing in the sequence shown below.



4. Press Ⓓ to move the flashing to the unit setting you want to change (**°C/°F** or **hPa[mb]/inHg**).
5. Press Ⓔ or Ⓑ to select the unit you want.
6. Press Ⓐ to return to the Barometer/Thermometer Mode screen.

Calibrating the Temperature Sensor

The temperature sensor of this watch is calibrated at the factory before shipment and further adjustment is normally not required. If you notice serious errors in the temperature readings produced by the watch, you can calibrate the sensor to correct the errors.

Important!
Incorrectly calibrating the temperature sensor can result in incorrect readings. Carefully read the following before doing anything.

- Compare the readings produced by the watch with those of another reliable and accurate thermometer.
- If adjustment is required, remove the watch from your wrist and wait for 20 or 30 minutes to give the temperature of the watch time to stabilize.

To calibrate the temperature

1. Press Ⓒ to enter the Barometer/ Thermometer Mode.
2. Hold down Ⓐ until the message OFF appears (flashing), which indicates the setting screen.
   - A temperature value appears instead of OFF (factory calibration) if you previously calibrated the temperature sensor.
3. Each press of Ⓔ increases the displayed temperature by 0.1°C (or 0.2°F) while pressing Ⓑ decreases it.
   - Pressing Ⓑ and Ⓔ at the same time returns to the factory calibration (OFF).
   - The indicator **TEMP ADJ** on the display indicates that the temperature value has been calibrated.
4. Press Ⓐ to return to the Barometer/Thermometer Mode screen.

Calibrating the Barometric Pressure Sensor

The pressure sensor of this watch is calibrated at the factory before shipment and further adjustment is normally not required. If you notice serious errors in the barometric pressure readings produced by the watch, you can calibrate the sensor to correct the errors.

Important!
Incorrectly calibrating the barometric pressure sensor can result in incorrect readings. Before performing the calibration procedure, compare the readings produced by the watch with those of another reliable and accurate barometer.

To calibrate the barometric pressure

1. Press Ⓒ to enter the Barometer/ Thermometer Mode.
2. Hold down Ⓐ until the message OFF appears (flashing), which indicates the setting screen.
   - A temperature value appears instead of OFF (factory calibration) if you previously calibrated the temperature sensor.
3. Press Ⓓ to move the flashing to the barometric pressure calibration setting.
   - At this time, OFF or the barometric pressure value should be flashing on the display.
4. Each press of Ⓔ increases the displayed barometric pressure by 1 hPa/ mb (0.05 inHg), while pressing Ⓑ decreases it.
   - Pressing Ⓑ and Ⓔ at the same time returns to the factory calibration (OFF).
5. Press Ⓐ to return to the Barometer/Thermometer Mode screen.

To change the Altitude Units

1. Press Ⓔ to enter the Altimeter Mode.
2. Hold down Ⓐ until the display clears. After four or five seconds, either OFF or the current reference altitude value (if set) will start to flash, which indicates the setting screen.
3. Press Ⓓ three times to move the flashing to the altitude unit setting.
4. Press Ⓔ or Ⓑ to select the unit you want (**m** or **ft**).
5. Press Ⓐ to return to the Altimeter Mode screen.
   - Changing the altitude units automatically turns the altitude alarm off.
   - Changing the altitude units automatically restarts the altitude graph.
   - Performing the above procedure causes altitude values stored in memory also to be converted to the unit you select.